

Context Matters: Work, Health, and Quality of Life of Regulated Home-Based Childcare Workers in Quebec & Ontario

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LIST OF ACRONYMS

HBC: Home-based childcare

MOS SF-36: Medical Outcomes Study Short Form-36

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THESIS SUMMARY

Home Based Childcare (HBC) workers have demanding work conditions, enjoy no or few social benefits, are paid less than the national average wage, and many of them intend to leave this occupation (Doherty, Lero, Goelman, Tougas, Lagrange, 2000). The available studies on early childcare workers in Canada have often excluded HBC workers from their analyses or grouped them with other types of early childcare workers in their analyses, which make it difficult to tackle the particularities of this specific subgroup of workers. In light of the limited studies on regulated HBC workers in the Canadian context, this thesis aimed to provide insight on these workers' health and broader social determinants of health in two Canadian provinces where they are the most concentrated.

The overall purpose of this thesis is to document the perceived health and chronic conditions of HBC workers, highlighting the broader social determinants of their health (e.g. work, lifestyle). This thesis had four objectives:

1. Assess regulated HBC workers' health-related quality of life and investigate the relationships with socio-demographic characteristics.
2. Examine chronic health conditions affecting regulated HBC workers and identify the social determinants of health factors associated with chronic conditions.
3. Draw an overview on broader social determinants of health factors among regulated HBC workers using the Dahlgren and Whitehead model.
4. Undertake a job analysis of regulated HBC workers

In the first Manuscript, the perceived health-related quality of life of home-based childcare workers in two Canadian provinces, Quebec and Ontario, was assessed using survey methods. Results show that HBC workers in Quebec positively perceive their overall physical health and negatively perceive their overall mental health. Those working in Ontario report both good overall physical and mental health-related quality of life and also report better mental and physical health-related quality of life compared to those in Quebec. That is, they have less problems with work or other daily activities due to their health, feel less physical pain, less fatigue, less nervousness, and are less depressed than workers in Quebec. HBC workers experience more pain, more fatigue, more interference of health problems with social activities, and more psychosocial distress compared to Canadian women in general. Finally, our study supports that being over 40 years old, being married or in a common-law union, and working in Ontario were factors relating positively to the perceived health-related quality of life among HBC workers when controlling for the level of education and the annual gross income.

In the second manuscript, chronic health conditions affecting regulated HBC workers in Quebec and in Ontario and the broader social determinants of health factors associated with these were examined using survey methods. The study revealed that one out of two HBC workers had a chronic condition. Chronic back pain, asthma, hypertension, skin diseases, and arthritis are the main five chronic conditions among HBC workers. Also, five out of ten HBC workers with a chronic condition report chronic back pain as their main health condition. Finally, workers over 40 years of age, those who were somewhat physically active or inactive, having poor relationships with their supervisors or parents of children, and working for five years or more reported more chronic conditions as diagnosed by a health professional.

In the third manuscript, the broader social determinants of health among regulated HBC workers in Quebec and in Ontario were examined using a mixed methods approach. Results showed significant differences in social determinants of health between HBC workers in Quebec and in Ontario in terms of age and factors related to individual lifestyles, social and community networks, structural factors, and general socio-economic conditions.

In the fourth manuscript, HBC workers' job content, context, and requirements were described and factors that affect their health and well-being were identified using qualitative methods and emphasizing the workers' perspectives. Results showed that HBC workers' job differs from centre-based childcare workers. They perform business administration tasks and more housekeeping and domestic work than workers in the centre-based childcare, which affect their health and well-being. They are paid on a per child basis but their level of education, experience or input into care is not taken into consideration. In addition, HBC workers reported factors related to the context and the content of their job such as the high physical and mental efforts, the absence of contact with other adults during working hours, the lack of external help during working hours, the difficulty of filling available spots, the exposure to noise and bad odours, the interference of work with personal and family life, the low and precarious remuneration and the lack of benefits as potential factors that may affect their health.

The thesis conclusion provides an overview of HBC workers' health and determinants of their health identifying remaining gaps in our knowledge of HBC workers' health and determinants of health where future research is required. Future studies are encouraged to consider using multiple approaches (e.g. online surveys, paper survey, etc.) and multiple languages (e.g. Chinese) to reach a larger number of participants. Stakeholders and decision makers are encouraged to consider provincial differences in social determinants of health to implement interventions to reduce disparities and health inequities among HBC workers.

INTRODUCTION

INTRODUCTION

It is well established that care providers' jobs are usually dominated by women and are not always recognized at fair value (Armstrong, Armstrong & Scott-Dixon, 2008; Bourgeault & Khokher, 2006; Côté, 2008). Home Based Childcare (HBC) workers are no exception. In Canada, they have demanding work conditions, enjoy no or few social benefits, are paid less than the national average wage, and many of them intend to leave this occupation (Doherty, Lero, Goelman, Tougas & Lagrange, 2000). Given this situation, regulated HBC workers in Quebec were the first and only province to unionize in 2011 to improve working conditions and increase their income level. Since working conditions and income levels are determinants of the health of individuals (Dahlgren & Whitehead, 1991) influenced by provincial regulations in place, it is curious how regulated HBC workers' health in Quebec might differ from other HBC workers in another province like Ontario. This research aims to study the health of HBC workers in Quebec and Ontario, explain differences in their health status, and understand the broader social determinants of health of these differences.

There are few studies on regulated HBC workers' in the Canadian context (Halfon, 2014). We know that early childcare workers based in centres have a less positive perception of their health status than the general female population (Tessier, Blais & Dion, 1995) and have demanding working conditions that increase their physical and emotional stress, which in turn have strong effects on overall health and well-being including effects on mental health (e.g. depression, anxiety) and physical health (e.g. muscular pain, fatigue) (Maslach & Pines, 1977; Tessier, Blais & Dion, 1995; Tessier, Dion & Mercier, 1989). Given this, and that HBC workers perform more tasks daily than their counterparts in the centres, we suspect that these workers might report a poor health.

This study is one of the first studies to empirically investigate HBC health in Canada. The mixed methods approach undertaken had two phases: The first quantitative phase set out to assess the perceived health-related quality of life of HBC workers in Quebec and Ontario and their diagnosed chronic conditions in general in addition to documenting the determinants of health using an online questionnaire (Manuscripts 1, 2 & 3). The second qualitative phase focuses on job content and context of these workers and how it might affect their health through more in-depth experiential analyses through semi-structured individual interviews (Manuscript 4).

The results of four original papers prepared for publication will support the existing documentation on HBC workers and current limited data on their health. I also identify and describe the key role that provincial regulations governing the profession play in the health of these workers. Knowledge about the population level factors related to childcare regulations that significantly affect the health of HBC workers (e.g. number of children, minimal daily working hours, etc.), policy makers, provincial governments, and civil society organizations will be better equipped to make informed decisions in favour of the health of HBC workers, make adjustments, and implement interventions to reduce disparities and health inequities.

1. THE BACKGROUND CONTEXT TO THE RESEARCH

In this section, I present a brief overview of the types of childcare services in Canada, who are childcare workers in Canada, and their work and health characteristics.

1.1 Typology of early childcare services in Canada

In recent years, the demand for educational childcare services for children (0-5 years) has been increasing across Canada. The entry of women into the labour market is perhaps the most important driver contributing to the establishment of more formal child care in Canada along with

the wave of feminism in the 1960s advocating for social equality between women and men (Mahon, 2002). Indeed, the increase of mothers in the labour market increased from 31% in 1976 to 74% in 2009 (Martin, Falardeau & Poulin, 2009). The rising participation of women could not have taken place without the establishment of services that allow them to work full time and have equivalent economic autonomy than their male counterparts (Mahon, 2002). Until the late 60's, preschool children were largely entrusted to relatives or to family members, friends, or neighbours. A new wave of feminist lobbied for the establishment of formal childcare services to keep children in more favourable conditions for their personal development. In addition to the work of women who boosted the demand for educational childcare services, the increase in the number of single-parent families within the population was another contributing factor. More single fathers share custody of their children following a divorce or a separation and feel the same care need as single mothers (Martin Falardeau & Poulin, 2009). Besides these facts, parents are aware that their children need to be stimulated by professionals and perceive regulated childcare services as the most appropriate place to support them in their physical, emotional, social, and intellectual developments. In this context, various provincial departments across the country responded to these demands by licensing childcare services and subsidizing those in poor neighbourhoods before extending the subsidies to other socioeconomic groups. The subsidies helped improve the quality of many existing services and enabled women to have a peace of mind when they entrust their children. Thus, two childcare systems for children under five years coexist: regulated and unregulated childcare services (Doherty, Lero, Goelman, Tougas & Lagrange, 2000) (figure 1). The regulated childcare and early-education services can be categorized into three groups for children under age of 5 (OECD, 2010). First, home-based childcare services are provided in a home setting by a qualified HBC worker and children of all ages are grouped together. Second, centre-based childcare services are provided outside the home in licensed centres where children of similar age group are grouped together.

These could be fully subsidised, partially or not. The pre-school early education services include mainly school-based programmes and more educational content than other regulated childcare services (e.g. HBC, centre-based services). Any other type of childcare services not pertaining to the three previous categories is part of the unregulated childcare sector.

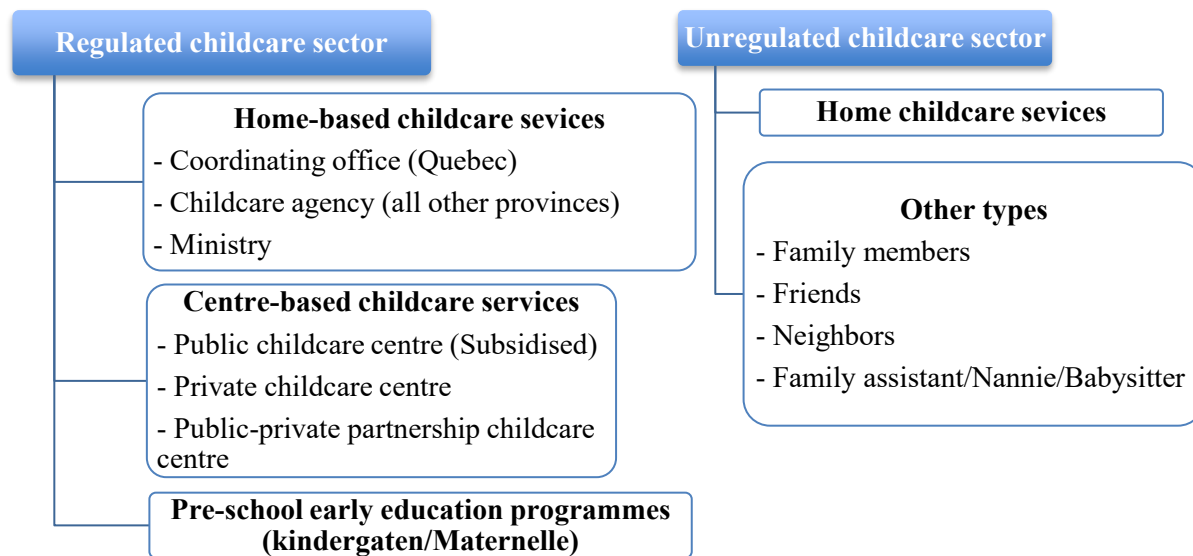


Figure 1 : Typology of childcare services for children under 5 years old in Canada

Canadian parents with children under five years of age most commonly use centre-based childcare services (33%), home-based childcare services (31%) and unregulated arrangements (28%) (Sinha, 2014). Parents in Quebec and in Ontario rely on the regulated centre-and home childcare services while those in eastern and western Canada including Atlantic provinces, Prairie provinces, and British Columbia rely mainly on the unregulated childcare arrangement (Sinha, 2014). The household income, family structure, and work/study patterns of parents are influencing factors in the choice of childcare arrangements (Bushnik, 2006). Parents with an income below \$40,000 are more likely to use a centre-based childcare service; those earning between \$40,000 and

\$100,000 tend to use a home-based childcare service, and those with an income above \$100,000 are more prone to use private arrangement or centre-based childcare service (Sinha, 2014).

In Canada, the fees of childcare services vary depending on provinces and eligibility of parents for government subsidies (Sinha, 2014). Quebec parents pay the lowest full-time childcare costs across the country due to the subsidized universal child daycare program and Ontario parents pay the highest costs in the country (Table 1) (Macdonald & Klinger, 2015).

TABLE 1: Annual Change in Combined Toddler/Preschooler Medians

City Name	Province	2014 Median Fee (Monthly)	2015 Median Fee (Monthly)	% Change	\$ Change per month
Gatineau	Quebec	\$ 152	\$ 174	14%	\$ 22
Laval	Quebec	\$ 152	\$ 174	14%	\$ 22
Montreal	Quebec	\$ 152	\$ 174	14%	\$ 22
Longueuil	Quebec	\$ 152	\$ 174	14%	\$ 22
Québec City	Quebec	\$ 152	\$ 174	14%	\$ 22
Toronto	Ontario	\$ 1,073	\$ 1,128	5%	\$ 56
London	Ontario	\$ 933	\$ 977	5%	\$ 43
St. John's	Newfoundland and Labrador	\$ 868	\$ 900	4%	\$ 32
Mississauga	Ontario	\$ 977	\$ 1,010	3%	\$ 33
Saskatoon	Saskatchewan	\$ 665	\$ 680	2%	\$ 15
Hamilton	Ontario	\$ 868	\$ 879	1%	\$ 11
Halifax	Nova Scotia	\$ 783	\$ 785	0%	\$ 2
Calgary	Alberta	\$ 924	\$ 925	0%	\$ 1
Winnipeg	Manitoba	\$ 451	\$ 451	0%	\$ -
Edmonton	Alberta	\$ 796	\$ 790	-1%	-\$ 6
Brampton	Ontario	\$ 977	\$ 966	-1%	-\$ 11
Kitchener	Ontario	\$ 846	\$ 825	-3%	-\$ 22
Windsor	Ontario	\$ 825	\$ 803	-3%	-\$ 22

Source: Macdonald & Klinger (2015)

1.2 Early childcare workers' personal characteristics in Canada

In their daily work, early childcare workers work with a group of young children under the age of five with little to no autonomy and deal with a number of situations that may affect their health and well-being (Tessier, Dion & Mercier, 1989). The regulated early childcare workforce includes a variety of workers such as early childhood educators and assistants and kindergarten

teachers while the unregulated sector includes babysitters, nannies and parents' helpers, or relatives (Beach, Bertrand, Forer, Michal & Tougas, 2004).

The regulated childcare sector includes nearly 136,800 early childhood educators and assistants including the home-based childcare (HBC¹) workers (n = 34,695) and the centre-based childcare educators (n = 93,480) (Beach, Bertrand, Forer, Michal & Tougas, 2004). In 2001, 38% of HBC workers and 51% of those working in the centres were under the age of 35. HBC had a considerably higher proportion of workers over the age of 35 than other early childhood centres where educators and assistants work. About 38% of HBC workers and 62% of those working in centres hold a postsecondary certificate or diploma. In addition, about 76% of HBC workers and 65% of those in the centres work full time. Early childhood educators and assistants receive lower pay than the national average wage for women (e.g. \$25,000) (Doherty, Lero, Goelman, Tougas & Lagrange, 2000). Those working at home earn an annual income of \$15,000 while those working outside the home in a centre-based childcare service earn nearly \$22,000 (Beach, Bertrand, Forer, Michal & Tougas, 2004). Kindergarten teachers, of which there are 236,600 workers in Canada, earn an average annual income of \$40,512. About 30% of them are under 35 years old and 44% are over 44 years. Nearly 85% of them hold a university degree and 14% a certificate or a diploma.

The unregulated childcare sector includes approximately 92,730 babysitters, nannies and parents' helpers in Canada (Beach, Bertrand, Forer, Michal & Tougas, 2004). Most work outside the home (59%). About 53% of these workers are under 35 years old and 29% are over 44 years. Only 8% of them hold a university degree and 22% a certificate or a diploma. Their average annual income is about \$9,481 in the unregulated sector.

¹ There are different existing terms referring to care provided to young children in the worker's home: family child care, home child care, private home day care, and day home. In this paper, we use the term home-based childcare.

Two-thirds of the country's early childcare workers of both regulated and unregulated sectors are in the provinces of Quebec and Ontario (Beach, 2013). Women hold over 96% of the jobs in the childcare sector and most of them work full time (Beach, Bertrand, Forer, Michal & Tougas, 2004). The majority of these workers are mothers living with at least one young child (Doherty, Lero, Tougas, LaGrange & Goelman, 2000). In a decade, the percentage of educators over 45 years old has tripled (9% in 1991 to 30% in 2012), while the percentage of those under 30 has decreased (58% in 1991 to 25% in 2012) (Flanagan, Beach & Varmuza, 2013). Nearly 20% of early childhood workers in Canada are immigrants (Beach, Bertrand, Forer, Michal & Tougas, 2004). Many immigrant women are struggling to find work in their fields of training and are forced to move towards more easily accessible jobs, such as those in the childcare sector and especially home-based childcare. Immigrants are known to be highly educated, proficient in French or in English, and hold university degrees in a larger proportion compared to Canadian born childcare educators (Cousineau & Boudarbat, 2009).

1.3 Early childcare workers' work context and characteristics in Canada

The regulated childcare sector serves children under 5 years of age and includes the centre and home-based services and kindergarten (Tessier, Dion & Mercier, 1989). Early childcare workers in the centres or in school kindergarten work with specific age group children (Bee & Boyd, 2008). Parents more frequently use childcare centres for children over three years of age. At this age, they are more autonomous and require less assistance from adults. Workers in the center-based and kindergarten services tasks are (HRSDC & Statistics Canada, 2011):

- Develop and implement daily activities that support and promote the development of children

- Lead children in activities by telling or reading stories, teaching songs, demonstrating the use of simple musical instruments, preparing craft materials and demonstrating their use, providing opportunities for creative expression through the media of art, dramatic play, music and physical fitness, and taking the children to local points of interest
- Guide and assist children in the development of proper eating, dressing, and toilet habits
- Observe children for signs of learning disabilities or emotional problems and take appropriate action
- Assess the skills, abilities, interests, and needs of children
- Discuss progress or problems of children with parents and other staff members
- Establish and maintain collaborative relationships with other community service providers working with children
- Attend meetings and workshops to develop and discuss new teaching methods
- Plan and organize activities for school-age children in child-care programs before and after regular school hours
- Supervise and co-ordinate the activities of other early childhood educators and early childhood educator assistants.

HBC workers work in their own home with a multi-age group of children under the age of five (Bee & Boyd, 2008). Parents more frequently use home-based childcare than childcare centres for children under three years of age. At this age, they are dependent and require continuous assistance from adults. HBC workers can provide care for up to ten children under 12 years old depending on the province where they work, choose their clients and working hours, and receive regular payments from their agency depending on the number of children under their care and the number of working days (Beach & al., 2009; Government of Canada, 2013; MFA, 2014). Although

the provinces regulate the maximum number of children per home allowed to care for (e.g. 6 in Quebec vs. 6 in Ontario), many HBC workers work with fewer children as they have to exclude the number of their own children.

Regulated HBC workers must undergo a screening process prior to opening their childcare service (Beach & al., 2009; LHCCNO, 2014; MFA, 2011; MFA, 2014). Indeed, in all provinces they have to meet the requirements in terms of 1) Mandatory professional training of 20 to 60 hours, 2) First Aid and CPR training, 3) Work experience in childcare or household management, 4) Health assessment (HBC worker + home residents in some cases), 5) Police record check (HBC worker + home residents), 6) Permission to operate a HBC from the homeowner and neighborhoods in some cases, 7) Vaccinate all pets, and 8) References from a non-relative. In their daily work, HBC workers perform the following tasks (HRSDC & Statistics Canada, 2011):

- Supervise and care for children in employer's or own residence
- Bathe, dress, and feed children
- Prepare formulas and change diapers for infants
- Plan, prepare, and serve meals for children and may perform other housekeeping duties
- Oversee children's activities, such as meals and rest periods, as instructed by employer
- Maintain a safe and healthy environment in the home
- Teach children personal hygiene
- Contribute to the emotional well-being of children and support their social development
- Discipline children according to the methods requested by the parents
- Organize and participate in activities such as games, crafts, reading, and outings
- Take children to and from school and appointments

- May be required to keep records of daily activities and health information regarding each child.

Because they are deemed independent contractors or individually licenced, they are accountable for the quality of their services (Belleau, 2002) and must comply with regulations set by the provincial *Day Nurseries Act* for the ratios of workers to children, health, and safety which are subject to inspection by a home visitor (LHCCNO, 2014; MFA, 2014). Thus, they are subject to unannounced inspections by home visitors of their childcare agency/coordinating office with which they are affiliated or by Ministry of Education inspectors if they are individually licensed. Depending on the province of work, the visits could be done on a monthly basis (e.g. Ontario) or on a quarterly basis in others (e.g. Quebec). During each visit, homes must pass safety inspections, healthy environmental standards for health care, and appropriate educational programs. Repeated instances of non-compliance may lead to the loss of the license or the agency affiliation.

Considering their employment status as independent contractors, HBC workers in Canada have no access to a provincial standard employment-related protections and benefits (e.g. minimum wage, pay for supplementary overtime hours, etc.), except in the province of Quebec. Indeed, the collective agreement with the *Ministère de la famille* in Quebec protects the rights of HBC workers and grants them various benefits such as union representation, access to life insurance, health insurance (excluding dental, optometric, psychology services), maternity leave, sick leave, 17 days of annual vacation partially paid, 8 partially paid holidays, and free access to six hours of training per year.

Finally, as provinces regulate the childcare sector, the work context may differ from one province to another. For example, Table 2 presents the differences in terms of work context between

HBC workers in Quebec and in Ontario. These provinces count for 62% of regulated HBC workers in Canada (Beach & Costgliola, 2005).

TABLE 2: Differences between regulated HBC in Quebec and Ontario

	Quebec	Ontario
Model	Agency model	Agency model
Screening process	Yes	Yes
Minimal education	45h of professional training + 6h/year of professional development	None
First Aid and CPR training	Yes (to be renewed each 3 years)	Yes (to be renewed each 3 years)
Work experience in childcare or household management	Depends on the childcare agency (being a mother may count as an experience)	Depends on the childcare agency (being a mother may count as an experience)
Health assessment	HBC worker HBC's assistant	HBC worker Home residents in some cases
Police record check	HBC worker Home residents over age 14	HBC worker Home residents
Permission from homeowner and neighborhoods	All childcare agencies	Some childcare agencies
Pets vaccination proof	All childcare agencies	Some childcare agencies
References from a non-relative	All childcare agencies	All childcare agencies
Ratio HBC worker to children	- 1:6 or 2:9 - Ratio includes HBC workers' own children under the age of 9) - Max of 2 children under 18 months if care is provided to 6 children of 4 children under 18 months if care is provided to 9 children	- 1:6 - Ratio includes HBC workers' own children under the age of 6) - Max of 1 children under 1 year old, 2 children under 2 years old, 3 children under 3 years old.
Unannounced visits	3 times/year	Monthly
Provincial unionization	Yes	No
Access to benefits	Yes	No

1.4 Early childcare workers' health

In terms of early childcare workers' health status, a Quebec study conducted by Tessier, Blais & Dion (1995) on those working in centres showed that most of them had a less positive perception of their health status than the general population of women, although in terms of their health lifestyles, their use of cigarettes and alcohol is not very common. They consume more over the counter drugs than women in the general population in part because they are more affected by certain conditions such as allergies, skin diseases, flu, sinusitis, rheumatism, heart disease, asthma, and bronchitis. In addition, these workers experience significant stress and relate their stress to their work rather to their family situation. Their working conditions and work environment include often a poor job security, low wages, lack of benefits, little opportunity for advancement, lack of physical space, and increased mental or physical demands to control a group of young children, work with children having behaviour disorders, poor relationships with colleagues, and repetitive tasks.

High demand tasks requiring repetitive movements and overexertion among workers often result in occupational injuries mainly concerning the back and the lower or upper limbs (Parent & Lefebvre, 2008). A back injury, on average, causes 51 days of work absence and costs about \$2,800 in Canada (CSST, 2011). In addition to their demanding working conditions and work environment, their financial difficulties, lack of sleep, lack of recreation, and feeling old too fast have been also identified as a concern and a source of stress (Tessier, Blais & Dion, 1995). Because of these factors, early childcare workers experience a certain level of stress that can result in negative attitudes towards children (Maslach & Pines, 1977) and an increased risk for physical illness, depression, or burnout (Tessier, Blais & Dion, 1995; Tessier, Dion & Mercier, 1989). For their part, Schulz and Beach (1999) highlighted that caregivers tend to have higher levels of depression and anxiety, low perceived health, and are subject to an increased risk of mortality compared to non-caregivers due to the physical and psychological strain. Social and financial support that comes from a family

member, such as a spouse, reduces the level of stress experienced and acts as a protective factor for physical and mental health (Tessier, Blais & Dion, 1995).

Moreover, early childcare workers are exposed in their workplace to a high level of noise produced by cries, toy sounds, escaped objects, doors slamming, etc. (Camard, Lefranc, Gremy, & Ferry, 2004). One study measured the sound levels in childcare centres in Quebec and found that it varies between 66 and 94 decibels (Picard, 1999 & 2004). Exposure to more than 75 decibels for 8 hours or more has been associated with adverse health effects including physiological and psychological effects (Camard, Lefranc, Gremy, & Ferry, 2004). In terms of physiological effects, loud sounds contribute to hearing damage and to the development of hypertension, cardiovascular infarction, ischemic heart disease, the secretion of stress hormones, and impaired sleep quality at night. In terms of psychological effects, there is a decrease in cognitive performance, in level of concentration, and an emergence of certain mental disorders.

In brief, the tasks and duties of regulated early childcare workers depend on where they work (e.g. home-based childcare, childcare centre, or school kindergarten). Compared to educators working in the centres or in the kindergarten, those working at home seem to have more tasks, less education, and earn a lower annual income. The content and the context of their work may increase their health risks, level of stress and exposure to illness, but this is something little research has been dedicated to examine.

1.5 Research problem: HBC workers' determinants & experiences of health

In this thesis, I examine HBC workers' health and the broader social determinants of health including their daily work in the Canadian regulated home childcare sector where they are the most concentrated. In Canada, the main sources of information on childcare workforce come from independent university-based researchers, childcare organizations (e.g. Child Care Human

Resources Sector Council, Childcare Resource and Research Unit), the National Census, and the Provincial Ministries (Halfon, 2014). There are no routinely collected national data on members of the childcare workforce (Beach, Bertrand, Forer, Michal & Tougas, 2004; Beach Bertrand & Cleveland, 1998; Halfon, 2014). Because there is a lack of data on childcare workforce and existing studies cover a limited number of topics, important questions remain without an answer (Beach Bertrand & Cleveland, 1998; Beach & Costgliola, 2005; Halfon, 2014). The available studies on early childcare workers in Canada have mainly examined workers' personal characteristics, working conditions (e.g. level of education, qualification, and training, wages), level of stress, and health. On one hand, the vast majority of these have excluded HBC workers from their analyses especially when collecting their own data or when using the 2001 or 2006 Census data on early childcare workers. Before 2011, the definition of the occupational group of early childhood educators in the Canadian Census included only the personal employed in the childcare centres, kindergartens, nursery schools, and centres for exceptional children (Statistics Canada, 2011a). Those working as regulated or unregulated HBC workers were excluded from this definition. The 2011 Census has included a new category of regulated and unregulated HBC workers grouped together and has reported data on their average hourly wages at the Canadian level (e.g. 14.35\$/h) (Human Resources and Social Development Canada, 2011). On the other hand, many of these studies have reported data on various types of early childcare workers all grouped together which make it difficult to tackle the particularities of a specific subgroup and have an objective overview of their characteristics (e.g. grouping regulated and unregulated HBC workers, grouping those working in the home with those in the centre childcare services and those working in kindergarten, etc.).

The few existing Canadian studies on the regulated HBC workers occupational group have mainly focused on the regulations applicable to these workers, on the quality of services offered to children, and rarely are working conditions examined (Beach & Flanagan, 2010; Cox, 2005;

Doherty, Lero, Goelman, Tougas, & LaGrange, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2000; Ferns & Friendly, 2015; Goss Gilroy, 1998; Stacey, 2011; Taylor, Dunster & Pollard, 1999; Tessier, Blais & Dion, 1995). In Canada, each province or territory regulates its childcare sector (Cox, 2005). There are no minimal postsecondary credentials required to become a HBC worker but workers do have to complete a professional training of 20 to 60 hours on safety, preventative health education, child nutrition, child's psychological development, and educational programming depending on the province where they intend to work (Table 1) (Flanagan, Beach, Michal & Cormier; 2009). HBC workers perform the similar tasks to those working in the centres or in kindergarten but alone, without colleagues, without breaks and for a longer number of hours on daily basis (7h vs. 10h and +); they also undertake addition tasks of housekeeping, cooking, and business administration (managing accounts, bill payments, collection of fees, etc.). They care for up to 10 children, including their own children, depending on the province of work (Table 2) (Government of Canada, 2013; OISE, 2014). Their income depends on the number of children under care, the age of the children, and the number of working days. Because of their employment status as an independent childcare agency contractor or as individually licensed workers (Table 3), HBC workers may not have access to employment-related protections and benefits, such as minimum wage, pay for supplementary overtime hours, paid vacation time and compensation for statutory holidays, reasonable notice in case of termination of employment, employment insurance benefits (sickness, maternity, and parental benefits), income replacement, and other benefits in the event of a work-related accident or illness, protection under occupational health and safety legislation (e.g. withdrawal of a pregnant worker), and employer contributions to the Canada Pension Plan/Quebec Pension Plan (CPP/QPP) (Cox, 2005). Although the fact that only individuals who are considered to be employees may organize in a union in Canada, HBC workers in Quebec have become an exception to this rule after they became unionized in April 2011 (CSQ, 2011). HBC workers in

Canada are subject to unannounced inspections by home visitors of their childcare agency with which they are affiliated or by Ministry of Education inspectors if they are individually licensed. During each visit, homes must pass safety inspections, healthy environmental standards for health care, and appropriate educational programs. If non-compliance is found with legislated requirements but with no immediate danger to the health or well-being, inspectors require an adjustment otherwise, HBC workers can lose their license or agency affiliation.

Table 3: Regulated home-based childcare ratios, training and employment model in Canada

	Ratio HBC provider to children	Minimum training	Agency model or individually licensed²
Newfoundland/Labrador	1:6	30h / 3 years	Agency model Individual licence
Prince Edward Island	1:7	30h	Individual licence
Nova Scotia	1:7	Level 1/Canadian Child Care Federation family day care training	Agency model
New Brunswick	1:7	None	Individual licence
Quebec	1:6 and 2:9 ³	45h, 6h each year	Agency model
Ontario	1:6	None	Agency model
Manitoba	1:5	40h	Individual licence
Saskatchewan	1:8	40h	Individual licence
Alberta	1:10	45h	Agency model
British Columbia	1:7	20h	Individual licence
Yukon	1:4	None	Individual licence
Northwest Territories	1:6	None	Individual licence
Nunavut	1:6	60h	Individual licence

Sources: Friendly, Grady, Macdonald & Forer (2014); Government of Canada, (2013), OISE (2014)

² Agency model: HBC workers are affiliated with a childcare agency who provides support and training.

Individual licence model: HBC workers are affiliated with the ministry in charge of HBC services in their province.

³ HBC workers in Quebec may work with an assistant if they have 9 children but in our qualitative study, our sample was composed of HBC workers working with no more than 6 children.

Studies of the conditions of HBC work in the Canadian context show that these workers have long working hours exceeding 60 hours per week (Tessier, Dion & Mercier, 1989; Blais & Dion, 1995). Working hours over 40 per week and 8 hours per day are strongly correlated with higher risks of injuries and illnesses (Dembe, Erickson, Delbos, Banks, 2005). Individuals working over 60 hours per week or 12 hours a day in their work environment are more likely to be tired and stressed than those spending less time working (Dembe, Erickson, Delbos, Banks, 2005; Park, Kim, Chung, & Hasanaga, 2001). According to Maruyama, Kohno, and Morimoto (1995), increasing the number of working hours encourages unhealthy behaviours such as smoking (often to maintain alertness and curb appetites), sedentary lifestyle, poor nutritional habits, and decreased health examination. Moreover, HBC workers are known to manage a number of situations at once. Indeed, they carry children and equipment, perform many tasks without contact with other adults and without breaks, sit on child-sized furniture, and are in constant contact with ill children especially in the winter (Belleau, 2002; Tessier, Blais et Dion, 1995). Their work environment is noisy and exposes them to bad smells associated with toileting. All these factors associated with their job content and context, increase their stress levels and lead to a quantitative work overload, which in its turn can have a strong effect on their overall health including effects on mental health (e.g. depression, anxiety) and physical health (e.g. muscular pain, fatigue) and result in burnouts (Maslach & Pines, 1977; Tessier, Blais & Dion, 1995).

In brief, given the lack of Canadian studies of the intersection of work and health experiences of regulated HBC workers there is a need for this study. The goal of this thesis is to explicitly shed light on HBC workers' health and determinants of health including their daily work in the regulated home childcare sector where they are the most concentrated.

2. CONCEPTUAL FRAMEWORK

In this section, we define the concepts of health, disease and illness, and the broader determinants of health of the Dahlgren and Whitehead model that are applied to this study. We also present a brief overview of health status measures. This culminates with the presentation of the specific conceptual framework employed in this thesis.

2.1 Defining health

From an etymological point of view, the word “health” refers to being whole, complete, or well (Huber, 2010). Health is the individual ability to maintain a healthy lifestyle by adopting healthful habits (e.g. eating fruits and vegetables) and avoiding destructive habits (e.g. smoking) (McEwen, 2003). It varies over time from an individual to another depending on several determinants of health. Parsons (1951) considered health as the individual ability to maintain his normal roles. According to the World Health Organization (1948, p.1), “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. Health is “a state characterized by anatomical, physiological, and psychological integrity, ability to perform personally valued family, work and community roles; ability to deal with physical, biological, psychological, and social stress; a feeling of well-being; and freedom from the risk of disease and untimely death” (Stedman, 1997, para.1). Health can also be described as a state of equilibrium between individuals and their physical, biologic, and social environments (Last, 1997). For Schulkin (2004), it involves a healthy organism physiologically able to cope with any changes to its homeostasis by deploying protective responses in order to reduce potential harm and restore equilibrium.

Others tease apart the different dimensions of health. Jerrold, Greenberg, George, Dintiman, and Barbee Myers Oakes (2004) define health as a total of physical, mental, social, emotional,

spiritual and environmental health. Physical health is the muscular strength and endurance, the weight of body fat, the percentage of body fat, the lean body mass and the body composition. Mental health is the individual ability to cope with stressful situations and the demands of daily life by having an open mind to changes, a desire to learn new concepts, improve skills and seek new challenges. Social health is the individual ability to interact with people (e.g. family, friends, neighbours) and have a satisfying quality of relationships. Emotional health is individual ability to acknowledge and express appropriately his positives and negatives emotions in a productive manner. Spiritual health is the ability of the individual to get connected with the world, have a sense of peace, have faith and establish harmony in his life. Finally, environmental health refers to individual and community capacities to recognize actions to be undertaken to protect air, water, nature, and living territory from pollution and make environmental changes. I will largely be drawing upon the distinction between physical and mental health in this thesis.

2.2 Defining disease and illness

Disease and illness are two different terms, yet most people use them interchangeably. Disease has been defined as an internal state of impaired health (e.g. reduction of functional ability) (Boorse, 1975 & 1977). Disease is considered as a "form of pathology or medical problem, defect, or impairment, while illness is a manifestation of such an impairment, defect/pathology, or disability." (Amzat & Razum 2014, p.28). It is also a biological discontinuity indicating a pathology in the body or an inactivity of the body caused by an injury (e.g. worm infection, birth defects like autism) (Fabrega, 1973). A disease is identified when deviation from a biological norm is found. An illness is "a reasonably serious disease with incapacitating effects that make it undesirable." (Boorse 1975, p.56), that is, it adds a social dimension of incapacity. An individual must be in pain, have anxiety or be disabled to be considered ill (Nordenfeldt, 1993). An illness is incapacitating the

individual, undesirable to the bearer and subject to treatment (Boorse, 1975). Sometimes illness exists where no disease can be found. A disease or an illness is said to be chronic if it has persisted more than three months taking in account the impacts and the acuteness on the individual (Perrin, Newacheck, Pless, Drotar, Gortmaker, Leventhal, Perrin, Stein, Walker & Weitzman, 1993). Both concepts of disease and illness are examined here.

2.3 Assessing health status

Assessing health status has been the subject of much research. Health status has been defined as "the degree to which a person is able to function physically, emotionally, and socially with or without aid from the health care system" (Porta, Greenland, Hernán, Dos Santos Silva & Last, 2014 p.132). It is affected by different aspects including living circumstances, work conditions, environmental factors (e.g. bad air quality), level of education, and access to socio-cultural and political involvement opportunities (WHO, 1999). Until the beginning of the 1960s, mortality rates were the main measures of health status. In the 1970s, new indicators were added to mortality such as the incidence and prevalence of diseases, life expectancy, and functional disabilities. Later, health status was more likely to be measured using one or a combination of the medical, the functional, or the subjective models (Blaxter 1989). The dominant medical model defines poor health as a gap with medical standards and where the presence of a condition is an indicator of a poor health status. It uses clinical examination, physiologic or psychiatric screening for abnormality, medical diagnosis of physical or psychiatric disease and self-report of an existing medically defined disease. A more functional model considers poor health as the individual's disability to keep on performing its usual tasks and roles. It uses a test of physical or psychological disability, the ascertainment of functional status associated with illness, and the assessment of the inability to perform normal tasks because of diseases, impairments or illness. Finally, a subjective model takes into account

individual self-perception on his health, health-related quality of life, the stress he lives, the symptoms and health problems experienced, and risk factors of which he is conscious. Measuring health status using the personal perceptions differs from one individual to another and is influenced by age, sex/gender, education level, income and psychosocial characteristics. Despite this, it can help identify experiences of physical symptoms of illness or of psychological malaise.

2.4 Defining the determinants of health

According to Neudorf, Clement, Desmeules, Greenwood, Handcock, Harvey, Sadana, & Taillon (2015), there are 36 major models of social determinants of health in the literature (Appendix 1). The primary areas of focus of these are policy development and decision-making, practice approach (population health, health reporting, and community development), issue focus (ecosystems and environment, living and working conditions), population focus (gender, aboriginal peoples, children, rural), and broad focus. For the present study, we opted for broad social determinants of health approach drawing on the Dahlgren and Whitehead (1991) model. The latter is the most known and used of the 36 existing models. It presents the influence of personal, individual lifestyle, social and community networks, structural, and finally, the general socio-economic, cultural, and environmental factors on the individual health and well-being (Figure 2).

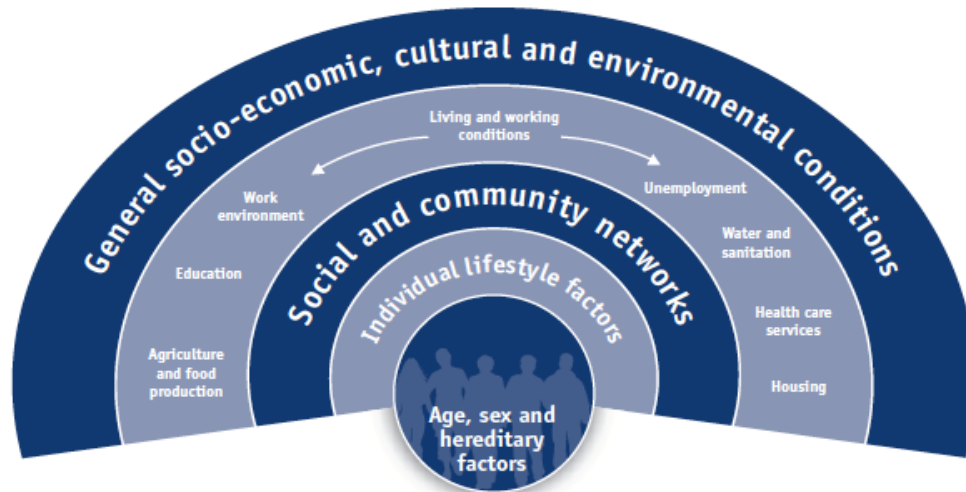


Figure 2 : The Dahlgren and Whitehead (1991) Social Determinants of Health Model

2.4.1 Personal factors

Personal factors, such as age, sex, and genetics are considered fixed variables and may impact one person more than another to develop chronic health conditions (Choi, Bonita & McQueen, 2001; Dahlgren and Whitehead, 1991). Firstly, it is stated that although the natural process of aging increases the risks of developing chronic physical or mental disease such as multiple sclerosis, diabetes, circulatory diseases, renal failure, cancer, chronic depression, and other diseases (Slingerland, van Lenthe, Jukema, Kamphuis, Looman, Giskes, Huisman, Narayan, Mackenback, & Brug, 2007; Ward, Schiller & Goodman, 2014), chronic conditions may appear at any age including childhood, adulthood, or in middle age (Ward, Schiller & Goodman, 2014). Secondly, chronic conditions affect women and men differently. For example, the incidence of arthritis, high blood pressure, mood disorders, and anxiety is higher among Canadian women than Canadian men (Statistics Canada, 2011b). Sex and the broader influence of gender (discussed more fully below) play a key role in health changes over time especially for women who tend to live longer compared with men, experience more decline in functions, and do not recover easily from disabilities (Morrissey, 1998). Finally, despite the increased prevalence of some health conditions

among some groups, genetic predispositions may have a limited effect on the occurrence of chronic diseases (Kato, Tillotson, Nichaman; Rhoads & Hamilton, 1973; Kato, Robertson, Tillotson, Nichaman; Rhoads & Hamilton, 1977). The prevalence of chronic conditions is mainly influenced by lifestyle, living and socioeconomic environments among individuals of the same ethnic origin.

From the literature on the health of childcare and HBC workers in particular in Canada, we know that a higher proportion of HBC workers are over the age of 35 than those in the centre-based childcare services (62% vs. 49%) and their sex is predominantly female (Beach, Bertrand, Forer, Michal & Tougas, 2004). We didn't find any previous study that has examined HBC workers and associations of age and sex/gender with health. We also know that the work of HBC is gendered; it suffers in recognition like all forms of 'carework' in that it is predominantly provided by women and considered part of women's 'intuitive' knowledge (Armstrong & Armstrong, 2010; Armstrong, Armstrong & Scott-Dixon, 2008). The skilled dimensions of the work, which are teased apart in this thesis, have been neglected. There is need to investigate these intersecting dimensions.

2.4.2. Individual lifestyle factors

Lifestyle factors include individual behaviours that can promote personal health and prevent diseases (Dahlgren and Whitehead, 1991). Increasing physical activities, consuming enough fruits and vegetables, sleeping enough hours (e.g. 7-8h), and avoiding smoking are behaviours that are likely to reduce or delay the occurrence of chronic disease, but we know that these choices can be constrained by the broader determinants of health discussed below.

Physical activity is known to be a primary prevention for many chronic diseases including cardiovascular disease, certain types of cancer, osteoporosis, diabetes, obesity, high blood pressure, depression, stress, and anxiety (Kurk, 2007; Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010; Warburton, Katzmarzyk, Rhodes & Shephard, 2007). Being physically active can reduce the

risk of many conditions by 50% (Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010). The Canadian Society for Exercise Physiology (2011) recommend at least 150 minutes of moderate-to-vigorous physical activity per week for adults aged 18 and over to achieve health benefits.

Adequate consumption of fruits and vegetables in terms of variety and quantity (e. 400 g), which is also affected by the adequacy of resources, reduces risks for cardiovascular diseases, stomach cancer, and colorectal cancer, diabetes and obesity (WHO, 2016b). The adoption of a healthy lifestyle combining good nutrition, physical activity, and a healthy weight can prevent up to 80% of coronary heart diseases, 90% of type 2 diabetes, and near 34% of all cancers (Hu, Manson, Stampfer, Colditz, Liu, Solomon & Willett, 2001; Key, 2002; Stampfer, Hu, Manson, Rimm & Willet 2000).

Research has shown that adults should sleep enough, ideally seven to eight hours a day, to reduce health risks including cardiovascular diseases, diabetes, high blood pressure, hypertension, abdominal obesity, and elevated fasting glucose (Ayas, white & Manson, 2003; Cappuccio, Stranges & Kandala, 2007; Horne, 2004; Hall, Muldoon, Jennings, Buysse, Flory & Manuck, 2008; Spiegel, Leproult & Van Cauter, 1999 and Van Dongen, Maislin, Mullington & Dinges, 2003). Sleep durations less than six hours or more than nine hours are associated with increased morbidity and mortality (Kripke, Garfinkel, Wingard, Klauber & Marler, 2002; Wingard & Berkman, 1983). Moreover, consumption of healthy types of fats, replacement of refined grains with whole grains, weight control (e.g. BMI), and limited alcohol, sugar, and sodium consumption; and excessive caloric intake are other factors reducing health risks (Fox, 1999; IARC, 2002; Hall, Muldoon, Jennings, Buysse, Flory & Manuck, 2008; WHO and FAO, 2003; Bacon, Mittleman, Kawachi, Giovannucci, Glasser & Rimm, 2003).

Smoking behaviour and exposure to tobacco smoke are major causes of many chronic diseases (e.g. cardiovascular disease, pulmonary diseases, cancer, etc.) and preventive deaths across

the world (Samet, 2013; WHO, 2008). Smoking burden disproportionately affects the low-income populations and its prevalence increases more rapidly among women than men (WHO, 2006).

Research has shown that it is difficult to change individual unhealthy behaviours, particularly when the context of people's lives, thus, the goal of health promotion is to encourage behaviour change recognizing these contextual constraints (Bouton, 2014). The success of health promotion interventions in changing behaviours depends mainly on the responsiveness of individuals to improve their own health and reduce risks.

No study examining the lifestyles of HBC workers or associated health factors have been found in the literature. Thus, we do not know how they can be described (e.g. if they exercise on a regular basis beyond the physical efforts needed for their work, if they sleep enough hours, what is the proportion using Tobacco, etc.) nor associations of determinants with their health. Thus, there is need to examine these aspects.

2.4.3 Social and community networks factors

Factors related to social and community networks including help received and relationships with family members, friends, and the individual's circle who are able to provide support when needed (Dahlgren and Whitehead, 1991). According to McPherson & Smith-Lovin (2006) and Putnam (2000), modern industrial societies have diminished social relationships, illustrated by lower intergenerational living, advanced social mobility, delayed marriage, both parents employed, and more disabilities related to aging. Social relationships can be analyzed through three main aspects: 1) the level of social integration in social networks 2) the type of exchanges providing social support and 3) the beliefs/perceptions of the available support held by the individual) (Cohen, Gottlieb & Underwood, 2000).

Quantity and quality of social relationships shape a range of health outcomes including mental health, health behaviour, physical health, and mortality risk (Umberson & Karas-Montez, 2010). On one hand, social support and positive relationships increase the individual's feeling of control, promotes health and well-being (Ganster, 1995), encourages better healthy habits, psychological processes (e.g. depression) (Rozanski Blumenthal & Kaplan, 1999), and enhances self-esteem and purpose of life (Cohen 2004; Thoits 1983) as well as the immune functions (Lutgendorf, Sood, Anderson, McGinn & Maiseri 2005; Miyazaki, Ishikawa, Nakata, Sakurai & Miki, 2005; Moynihan, Larson, Treanor, Duberstein & Power 2004; Cohen, Doyle, Skoner, Rabin & Gwaltney 1997). The quality of relationships with others depends on personal emotions, feelings, and perceptions (Fisher & Shapiro, 2006). On the other hand, there is a causal association supposing that poor social relationships and community networks are associated with the development and advancement of cardiovascular diseases as well as an increased risk of poor mental health and mortality (Brummett, Barefoot, Siegler, Clapp-Channing, Lytle, Bosworth, Williams & Mark 2001; House, Landis & Umberson, 1988; Knox, Adelman, Ellison, Arnett, Siegmund, Weidner, Province 2000; Kop, Berman, Gransar, Wong, Miranda-Peats, White, Shin, Bruce, Krantz, Rozanski 2005; Wang, Mittleman, Leineweber & Orth-Gomer 2006; Wang, Mittleman & Orth-Gomer 2005; Angerer, Siebert, Kothny, Muhlbauer, Mudra & von Schacky 2000).

The social and community networks of childcare and HBC workers can be remarkably different from other childcare workers because of the nature of their different work contexts. Specifically, as noted before, HBC workers work alone and have no co-workers or supervisors around them as those working in the centres. They meet with their supervisors (Home visitors) mainly during unannounced inspections which could be more readily a source of stress rather than support. No study examining the social and community network factors of HBC workers or associations with health has been found in the literature.

2.4.4 Living and working conditions

The structural factors known as the living and the working conditions, are considered key contextual influences on health, include the work environment, employment, education, agriculture, access to clean water, and access to health services and housing (Dahlgren & Whitehead, 1991). The most relevant factors to the health of HBC workers – education, employment, work environment, housing, and access to health services are highlighted here.

- **Education**

It is well known that a higher level of education is usually positively associated with health as it enhances social behaviours and healthier lifestyle (Baker, Leon, Smith Greenaway, Collins & Movit, 2011; Cutler & Lleras-Muney, 2007). Indeed, people with higher education generally hold jobs that enable them to pursue a healthy lifestyle and earn more money, which allows them to buy better houses, nutritional food, and private health care services leading them to be healthier than others (Roberge, Berthelot, & Wolfson, 1995). So education clearly intersects with employment and economic resources.

From the literature on childcare and HBC workers in particular, we know that there are no minimal postsecondary credentials required to access the occupation of HBC workers but they have to complete a professional training of 20 to 60 hours depending on the province where they intend to work, if they do not hold a degree in education (Flanagan, Beach, Michal & Cormier; 2009). We do, however, know that other childcare workers, of whom many have postsecondary education, still have lower wages than many other jobs and this has been linked with the gender make up of the profession (Bourgeault & Khokher, 2006). As noted above, four HBC workers among ten hold a postsecondary certificate or a diploma in fields related and not related to education. No study

examining the association of the level of education among HBC workers and their health has been found in the literature. Thus, there is need to study this aspect.

- **Employment**

Employment is the engagement in an economic activity, which is compensated at minimum wage or often depending on education, higher. It has an important impact on health, and influences the social status and relationships, the financial security, the personal development and the self-esteem of the individual (Marmot & Wilkinson, 2006). Having paid employment may allow the individual to have access to healthy food, decent housing, and health care services, thus intersecting with other social determinants of health. In the Canadian labour market, many women are engaged in unpaid work (e.g. housework, child or elder relatives care) and those paid are paid less than men and have access to fewer work benefits (Williams, 2010). Individuals working in precarious environments often experience job insecurity, poor social relationships, and lack of control over their working conditions and tend to have poor health (Lewchuk, de Wolff, King, and Polyani, 2003). For example, temporary workers have greater mortality risks than workers with a permanent job (Kivimäki, Vahtera, Virtanen, Elovainio, Pentti & Ferrie, 2003) and also tend to have poorer mental health (Artazcoz, Benach, Borrell & Cortes, 2005; Kim, Muntaner, Khang, Paek & Cho, 2006). The chances of developing coronary heart diseases are increased by 50% for those working in precarious environments (Marmot, 2004). Finally, high levels of unemployment and economic instability in a society cause adverse effects on the physical health of unemployed individuals, their families, and their communities (PHAC, 2015).

As already noted above, the employment for HBC workers is particularly precarious as HBC work is a female occupation and workers are paid about \$15,000 per year (Beach, Bertrand, Forer,

Michal & Tougas, 2004)⁴, a salary which is less than the national average wage for women of \$29,000 in 2004 and \$32,000 in 2011 (Statistics Canada, 2013). Their income depends on the number of children under care, their ages, and the number of working days. As stated previously, they may not have access to employment-related protections and benefits because of their employment status as an independent childcare agency contractor or an individually licensed worker. For example, HBC workers in the province of Quebec have access to several benefits such as union representation, access to life insurance, health insurance (excluding dental, optometric, psychology services), maternity leave, sick leave, 17 days of annual vacation partially paid, 8 partially paid holidays, and free access to six hours of training per year, contrary to those in Ontario. No study examining the HBC workforce's association of employment characteristics and health has been found in the literature. Thus, there is need to study this aspect.

- **Work environment**

The work environment is the combination of the physical, virtual and social environment (Rantanen, 2013). It includes the physical conditions in which an employee operates (e.g. office temperature, noise, ventilation, etc.), the work characteristics and procedures (e.g. hours of work, benefits, etc.), and the social conditions and interactions at the workplace (e.g. with co-workers, supervisors). A healthy work environment ensures the absence of problems associated with a hostile workplace (e.g. harassment, intimidation) and sick building syndrome (e.g. poor ventilation, accumulation of moulds, excessive noise, etc.). The work environment is a key factor linked to the individual's health status (Karasek & Theorell, 1990), in part because of the amount of time spent at work and the resources it provides (or not).

⁴ The study of Beach, Bertrand, Forer, Michal & Tougas (2004) is the most recent study reporting the HBC workers' wages.

Different components of the work environment (e.g. hazardous work, working fast, inflexible schedules, poor employee support, low social recognition, etc.) define not only the job's psychological demands but also the job decision latitude, which are factors shaping four different levels of job strain. First, when psychological job demands are increased and the freedom to make work decisions is restricted, workers may experience high job strain and more risks for psychological and physical illness. Second, if both of the psychological demands and decision latitude are high, the stress experienced by the worker can be positive which stimulate his innovation and motivate him/her to learn new skills (e.g., an active job). Although excessive job demands (both physical and psychosocial) can have an impact on stress, higher levels of control moderate the impact of these demands on the strain. The job strain is more influential among blue-collar worker than white-collar workers. Third, if low psychological demands are combined with high decision latitude, the job strain on the worker is low. Fourth, if both job psychological demands and decision latitude are low, workers may feel dissatisfaction, demotivation, and low stimulation at their workplace. The cumulative experience of working in each of the previous situations modifies the individual's psychological well-being and coping styles over time. On one hand, working in a stimulating work environment (high job demands) helps the individual to learn to cope with work overload if he has high decision latitude. On the other hand, such working environment combined with low decision latitude could impair individual confidence and self-esteem and increase the risk of several health conditions such as hypertension, depression, anxiety, and musculo-skeletal problems.

From the literature on childcare and HBC workers in particular, we know that HBC workers have demanding work conditions (Doherty, Lero, Goelman, Tougas & Lagrange, 2000; Maslach & Pines, 1977) as most of them work full time for five days a week for at least 50 hours, have no breaks, are required to be continuously alert and in constant contact with up to ten children under

age of 5 (Beach, Bertrand, Forer, Michal & Tougas, 2004). During their working activities that include care, educational and housekeeping tasks, many of them care for their own children at the same time; this is what some have labelled ‘double duty caregiving’ (Gjerdingen, Mcgovern, Bekker & Willemsen, 2001). No study has previously examined the characteristics of their work environment in depth (e.g. noise in HBC, social interactions, etc.) and associations with their health.

- **Housing**

Living in an adequate housing increases the individual feelings of control, identity, self-esteem, and security (Evans, Wells & Moch, 2003). The characteristics of housing contribute to many preventable diseases including cancer, pulmonary, cardiovascular diseases, and anxiety (WHO, 2016). Indeed, buildings including houses, schools, and workplaces where issues like ‘sick building syndrome’ Milica (2009) are highly present increase the risks of developing chronic health conditions. In Nordic countries including Canada, individuals spend a longer portion of their time inside buildings because of the climate. In such countries, sick building syndrome is associated with various health issues such as erythema, general fatigue, headache, nausea, dizziness, coughing, hoarseness, wheezing, itching, unspecific hypersensitivity, respiratory infections, feeling of dry mucous membranes and skin as well as eye, nose and throat irritation (Spurgeon, Compertz & Harrington 1997; Burge, Hedge, Wilson, Bass & Robertson 1987). In addition, these symptoms may be seasonal suggesting accentuated health issues in winter, which indicates an association with lack of sunlight (Burge, 2004). Also, it seems to be more predominant among females (Stenberg & Wall, 1995), people with allergies/asthma (Bjornsson, Janson, Norback & Boman, 1998; Muzi, Dell’Omo, Abbritti, Accattoli, Fiore & Gabrielli 1998) and individuals that are unsatisfied with their job (Hedge, Burge, Wilson and Harris-Bass 1989; Sundell, Lindwall and Stenberg 1994).

For HBC workers, their home and work environments are one in the same. What we know from this nascent literature is that prior to opening a HBC, potential candidates undergo a screening process with the childcare agencies in which they generally have to provide the proof of acceptance of their neighbours and the homeowner prior to opening a HBC, if they live in an apartment or are tenants, in addition to undergoing an assessment of safety and healthy of their work environment (LHCCNO, 2014; MFA, 2014). Once licensed, their homes must pass safety inspections, healthy environmental standards for health care, and appropriate educational programs during each visit. As we do not know the type of houses HBC workers occupy and their characteristics, there is need to study this aspect of their work/home environment and associations with their health.

- **Access to health care services**

Access to health care services promotes health and reflects the strong social value of equality (Browne, 2014). Different groups in a population (e.g. low-income individuals, elders, immigrants, and refugees, etc.) may need different care services and thus have a different expectation from available health care services (Healy & McKee, 2004). Moreover, despite easy access from a technical perspective to health care services (e.g. geographical access, availability time during the day), some groups of individuals may still not use the services for various reasons such as the lack of trust in health care professionals, and poor quality of healthcare services delivered (Mooney 1983, Goddard & Smith 2001).

The structure of work of HBC workers makes their ability to access health care services challenging, especially during typical office hours. They enjoy no or few social benefits that include private health insurance for services not provided publicly (Doherty, Lero, Goelman, Tougas & Lagrange, 2000). This is a major barrier to healthcare services access for this occupational group.

We know very little about the health care experiences of HBC workers has been conducted and no data on their main health conditions is available in Canada.

2.5 The influence of gender cuts across the social determinants of health model

Although the Dahlgren and Whitehead model includes ‘sex’ as one of the determinants of health, the influence of gender, which can be seen as cutting across the various levels of social determinants of health, is notably invisible in the model. It is important to define what we mean by ‘gender’ and how it differs from ‘sex’. The Canadian Institutes of Health Research (2010, para. 2) define gender as “socially constructed roles, relationships, behaviors, relative power and other features that are socially attributed to men and women. It influences how people perceive themselves and each other, how they act and interact, and the distribution of power and resources in society”. As stated previously, we chose the Dahlgren and Whitehead model of broader social determinants of health because it is the most highly recognized and utilized model in the literature (Neudorf, Clement, Desmeules, Greenwood, Handcock, Harvey, Sadana, & Taillon, 2015), but we have also chosen to augment it, particularly with respect to the cross-cutting influence of gender as described below.

- **Gender and individual lifestyle**

Gender influences the individual's lifestyle (Von Bothmer & Fridlund, 2005). Indeed, women tend to have healthier habits pertaining to eating, drinking, and exercising, have fewer sexual partners, and use birth control more often than men (Henson, Carey, Carey & Maisto, 2006; Von Bothmer and Fridlund, 2005). Moreover, they are less likely to use cigarettes and alcohol than men (Flynn, Slovic, & Mertz, 1994). For their part, men tend to be less concerned about health and

nutrition than women (Von Bothmer and Fridlund, 2005) and to believe that they are at lower risk for illness, injury, and health problems (Boehm, Selves & Raleigh, 1993).

- **Gender, social and community networks**

Both popular culture and empirical studies tend to share the belief that women tend to have larger and more varied networks as well as better social relations than men (Antonucci, 1994). Indeed, women have more often a non-family related confidante contrary to men who tend to have a limited number of intimate relationships. Because they spend more time involved in responding to requests and support from others, they provide and receive more support than men (Kessler, McLeod, a Wethington, 1985). Moreover, they mobilize social support as much as needed (Belle, 1989). This, however, interacts significantly with their work and economic conditions.

- **Gender, work and socio-economic status**

The influence of gender is particularly relevant when studying the impact of work and socio-economic status on health. The patriarchal family was idealized historically such that women were kept out of the higher status jobs so that men could work and provide for their families (Blau, Ferber, & Winkler, 2002). The caregiving work provided by women informally at home was considered ‘natural’ and not as a skilled occupation, even when it was provided in the formal sector. Over the years, more women have integrated into the job market for different reasons leading to the occupation of various social roles (e.g. motherhood, working-parent, spouse, caregiver, etc.), in part spurred on by the caregiving provided by (largely female) childcare workers. This has not been equal across all occupations and sectors.

Men and women work in different industry sectors (Armstrong & Armstrong, 1994), a phenomenon due in part to their different socialization (Frenette & Coulombe, 2007). That is,

although women tend to complete more education than men in Canada, they tend to do so in health or education sectors, whereas men are more oriented towards engineering and technologies fields (Frenette & Coulombe, 2007). Canadian women represent 47.9% of the national workforce (Statistics Canada, 2011c). Their unemployment rate is higher than men (7% vs. 9.4%) (Statistics Canada, 2011c). In the industry sectors where women workers tend to be more present, such as in the care work sector (e.g. early child care services and health care services), Women are less likely to hold senior/managerial positions than men (EFILWC, 1996). They tend to be more present in jobs with high demands and low control over work requiring elements of caring, nurturing, support and personal services. Moreover, they are less likely to be exposed to traditional risk factors such as those experienced by blue-collar jobs, which are mainly dominated by men (e.g. chemical, noise, etc.) (EFILWC, 1996). In general, women's working hours tend to be more responsive to their family situation contrary to men's working hours, which tend to be more rigid (EFILWC, 1996). Indeed, 72.9% of mothers are part of the employed workforce in Canada (Statistics Canada, 2011c).

Women are often not recognized at fair value, and face gender discrimination and pay inequity more often than men (Armstrong and Armstrong 1994; Armstrong, Armstrong & Scott-Dixon, 2008; Bourgeault & Khokher, 2006; Côté, 2008; Date-Bah, 1997). This has economic and in turn health implications. Women in female-dominated jobs such as care work generally report poorer health status than in male-dominated workplaces due to the poorer wages and working conditions (Caroli & Weber-Baghdigian, 2016). Indeed, caregiving jobs often attract individuals from vulnerable and marginalized populations (e.g. women, ethnic minorities) (England & Folbre, 2002) and are seen as exploitation jobs as they are poorly paid, require high responsibility and emotional duties, and can be sometimes boring or unpleasant (e.g. crying children, same routine, etc). Cultural biases contribute to deprecate women by devaluing their work and skills, which encourages salary gender inequality in jobs (Cancian & Olikier 2000, England & Folbre 1999,

England & Folbre, 2002). Indeed, care work is culturally perceived as a female task (e.g. child care work, teaching, etc.) requiring a low level of education. Compared to men, a larger number of women devote twice as much time to care work (Sayer, Bianchi & Robinson, 2004) and do more paid and unpaid care work (England, 2005).

In Canada, the 20 lowest-paid jobs are occupied mainly by women aged between 25 and 54 years old (Armstrong & Armstrong, 2010). The salary gap in care work can be due to the emotional attachment between the care provider and recipient. This affective bond makes it hard for the care workers to stop offering their services or to ask for a higher salary and better working conditions, contrary to men (England & Folbre 2003, Himmelweit 1999). Thus, emotional bonds discourage female care workers to fight for better salaries or working conditions. Lamb (1987) suggest that the emotional side of the caregiving jobs is the most important gendered component of care work because men interact in a more direct way (e.g. hands-on) than with an emotional side, while women respond to both emotional and physical needs of individuals under their care. To reduce the salary gaps with men, women can raise the title of certification of skills of their profession, create a union, ask for pay parity or seek public funding (Bourgeault & Khokher, 2006). For example, HBC workers in Quebec unionized in 2011 to increase their pay and reduce pay inequities with centre-based childcare workers (CSQ, 2011).

Beyond this issue of the segregation and the general devaluing of women's work, women are at higher risk of anxiety and mood disorders, burnouts and illnesses than men due to their multiple tasks at home and at work (i.e., double-duty caregiving); this can be especially challenging when they deal with job overload such as is the case in care work (Gjerdingen, Mcgovern, Bekker & Willemsen, 2001).

In brief, it is important to appreciate the gendered context of HBC workers lives as (predominantly) women for whom the literature suggests benefit more in health terms from social

support and individual lifestyle than men, while they experience more challenges in term of work and socio-economic conditions than men.

2.6 Conceptual framework

The present study focuses on HBC workers' health status and social determinants of health drawing upon and model adapted from the Dahlgren and Whitehead (1991) model as depicted in Figure 3 below. Figure 3 presents the general scheme where the key outcome variables under investigation include perceived health and chronic conditions among HBC workers who are in turn influenced by modifiable and non-modifiable determinants of health. Health status will be assessed as the degree to which a person is able to function and it includes their perceived health and health conditions. Perceived health is "how people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help" (Anderson, 1995 p. 5). A health condition refers to an illness, injury, impairment, or physical or mental health problem.

The determinants of health are factors within and outside the individual's control that may affect health status. In this modified model, these will include age and sex as fixed factors while personal lifestyle, physical and social environment, and wider socio-economic, cultural and environment conditions are modifiable factors expressed as a series of layers of influencing health. For this thesis, I focus in particular on education, employment, and work conditions as well as housing to a lesser extent, as it is also HBC workers' place of work; accessibility and utilization of health care services will also be assessed. Finally, gender is depicted as a cross-cutting factor influencing various determinants in an intersecting way.

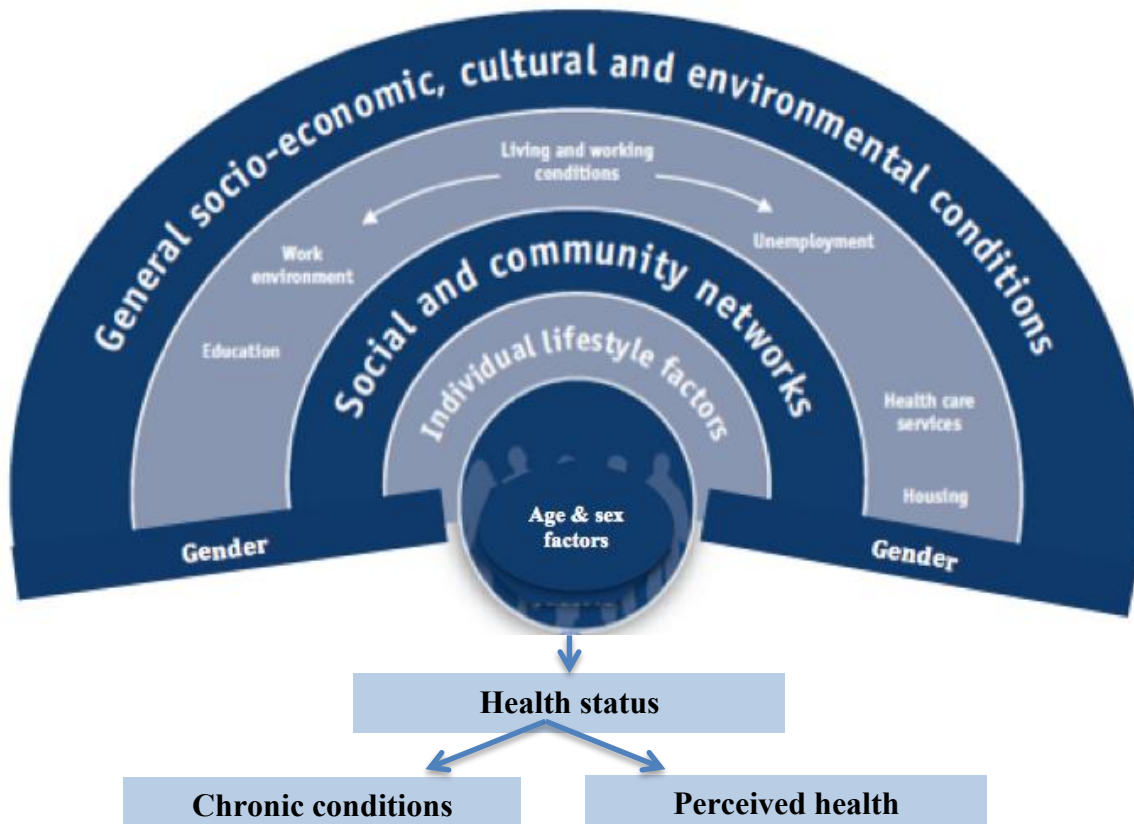


Figure 3 : Adapted Dahlgren and Whitehead Model

3. THESIS OBJECTIVES

The literature on HBC workers is in its infancy. In light of the novelty and limited studies on regulated HBC workers in the Canadian context, this study aims to provide insight on these workers' health and work environment by drawing on data from two Canadian provinces, Quebec and Ontario, where 62% of the national HBC workforce is located (Beach & Costgliola, 2005). The overall goal of this thesis was to document their work, their health (perceived health and chronic conditions), and the broader social determinants of their health. This thesis has the following specific objectives addressed in the subsequent manuscripts:

- **Objective 1 (Manuscript 1):** Assess the health-related quality of life of regulated HBC workers and investigate the associations of the latter with their socio-demographic characteristics.
- **Objective 2 (Manuscript 2):** Examine chronic health conditions affecting regulated HBC workers and identify the social determinants of health factors associated with these.
- **Objective 3 (Manuscript 3):** Draw an overview on broader social determinants of health factors among regulated HBC workers using the adapted Dahlgren and Whitehead model.
- **Objective 4 (Manuscript 4):** Undertake a qualitative analysis of the work of regulated HBC workers

4. THESIS FORMAT

The thesis consists of four original papers prepared for publication in scholarly journals. Mariam Stitou was the first author who conducted the literature review, developed the online survey and the semi-structured interview guide, collected data, performed data analysis, and drafted each study. Ivy-Lynn Bourgeault, and Dafna Kohen were co-authors. Both provided overall guidance, comments, and feedback that were integrated by Mariam Stitou. The ethics certificate, the recruitment letters, the letters of information, the consent forms, the online survey questionnaires, and the interview guides are in Appendix 2.

Manuscript 1: Assessment of Perceived Health-Related Quality of life of Home-Based Childcare Workers Using the SF-36v2 Questionnaire: Association with Socioeconomics Characteristics.

Authors: Mariam Stitou, Dafna Kohen, Ivy-Lynn Bourgeault,

This study assesses the perceived health-related quality of life of home-based childcare workers in two Canadian provinces, Quebec and Ontario. It also examines the associations of health-related

quality of life domains with factors such as age, education, income, marital status, status in Canada, and the province of work. A sample of 695 home-based childcare workers in Quebec and in Ontario completed the Medical Outcomes Study Short Form-36 (MOS SF-36v2). Results show that HBC workers in Quebec positively perceive their overall physical health and negatively perceive their overall mental health due to their emotional problems. Those working in Ontario report positive overall physical and mental health-related quality of life perceptions and also report better mental and physical health-related quality of life compared to those in Quebec. That is, they have less problems with work or other daily activities due to their health, feel less physical pain, less fatigue, less nervousness, and are less depressed than workers in Quebec. HBC workers experience more pain, more fatigue, more interference of health problems with social activities, and more psychosocial distress compared to a national sample of Canadian women. Finally, our study supports that being over 40 years old, completing postsecondary education, and working in Ontario were factors relating positively to the perceived health-related quality of life among HBC workers when controlling for the marital status, status in Canada and the annual gross income.

Manuscript 2: Chronic health conditions among home-based childcare workers and associations with determinants of health.

Authors: Mariam Stitou, Dafna Kohen, Ivy-Lynn Bourgeault

This study examines chronic health conditions affecting regulated HBC workers in Quebec and in Ontario and associations with broader social determinants of health factors including personal factors, individual lifestyle factors, social and community networks, living and working conditions, and general socioeconomic factors. A sample of 695 home-based childcare workers in Quebec and in Ontario completed an online survey on chronic health conditions and determinants of health. The study revealed that one out of two HBC workers had at least one chronic condition. Chronic back pain, asthma, hypertension, skin diseases, and arthritis are the main five chronic conditions among

HBC workers. Also, five out of ten HBC workers with a chronic condition report chronic back pain as their main health condition. Finally, workers over 40 years of age, those who were somewhat physically active or inactive, having poor relationships with their supervisors or parents of children, and working for five years or more reported more chronic conditions as diagnosed by a health professional.

Manuscript 3: *Overview of the Broader Social Determinants of Health of Regulated Home-Based Child Care workers.*

Authors: Mariam Stitou, Ivy-Lynn Bourgeault, Dafna Kohen

This study gives an overview on broader social determinants of health factors among regulated HBC workers in two Canadian provinces, Quebec and Ontario. It is based on the five categories of focus from the adapted Dahlgren and Whitehead (1991) model including the personal, the individual lifestyle, the social and community networks, the structural and finally, the general socio-economic factors. A sample of 695 home-based childcare workers in Quebec and in Ontario completed an online survey on broader social determinants of health. Results showed significant differences in social determinants of health between HBC workers in Quebec and in Ontario in terms of age, and factors related to individual lifestyles, social and community networks, structural, and general socio-economic conditions.

Manuscript 4: *The Job Requirements, Content, and Context on Regulated Home-Based Childcare Workers.*

Authors: Mariam Stitou, Ivy-Lynn Bourgeault, Dafna Kohen

This study examines HBC workers' job content, context, and requirements, emphasizing the workers' perspective and identifying how these affect health and well-being. It is based on the qualitative analysis of 11 individual semi-structured interviews conducted with HBC workers from the cities of Gatineau in Quebec and Ottawa in Ontario. Results showed that HBC workers' job

differs from centre-based childcare workers. They perform business administration tasks and more housekeeping and domestic work than workers in the centre-based childcare, which affect their health and well-being. They are paid on a per child basis but their level of education, experience or input into care is not taken into consideration. In addition, HBC workers reported factors related to the context and the content of their job such as the high physical and mental efforts, the absence of contact with other adults during working hours, the lack of external help during working hours, the difficulty of filling available spots, the exposure to noise and bad odours, the interference of work with personal and family life, the low and precarious remuneration and the lack of benefits as potential factors that may affect their health.

Conclusion

The final chapter concludes the thesis by presenting the lessons learned, the strengths, the practical implications, the limitations of this thesis, and the recommendations for stakeholder, decision makers, and future studies are addressed.

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3. ISSUE FOCUS

Ecosystems and Environment




	<i>Public Health Framework for use in Health Impact Assessment and Health Profiling</i> (Schulz & Northridge, 2004)
	<i>Prism Framework of Health and Sustainability</i> (Parkes, Panelli & Weinstein, 2003)
	<i>Relationship between Key Determinants of Health and Sustainable Development</i> (Hancock, 2001)
	<i>The Mandala of Health</i> (Hancock & Perkins, 1985)

Living and Working Conditions




	<i>Socio-Economic Determinants of Health</i> (Munro, 2008)
	<i>Social Determinants of Health and the Pathways to Health and Illness</i> (Brunner & Marmot, 2006)

4. POPULATION FOCUS

Gender

	<i>Gendering the Health Determinants Framework: Why Girls' and Women's Health Matters</i> (Benoit & Shumka, 2009)
	<i>POWER Study Gender and Equity Health Indicator Framework</i> (Clark & Bierman, 2009)
	<i>The Gender Migration and Health Conceptual Framework</i> (Bierman, 2007)


Aboriginal Peoples

	<i>First Nations Holistic Policy and Planning Model</i> (AFN, 2013)
	<i>Integrated Life Course and Social Determinants Model of Aboriginal Health</i> (Loppie Reading & Wien, 2009)
	<i>Social Determinants of Inuit Health: A discussion paper</i> (Inuit Tapiriit Kanatami, 2007)








Children

	<i>The Total Environment Assessment Model of Early Child Development</i> (Siddiqi, Irwin & Hertzman, 2007)
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Rural

	<i>Community Health Action Model: A Model for Community Development and Action</i> (Annis, 2005)
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5. BROAD FOCUS

	<i>Toward Health Equity: A Framework for Action</i> (Daghofer & Edwards, 2009)
	<i>Social Determinants of Health</i> (Raphael, 2009)
	<i>Ecosocial Framework</i> (Krieger, 2008)
	<i>Alberta Social Determinants of Health Framework</i> (O'Hara, 2005)
	<i>Public Health Agency of Canada – Determinants of Health</i> (PHAC, 1994)
	<i>The Wider Determinants of Health Model</i> (Dahlgren & Whitehead, 1991)
	<i>The Health Gradient, WHO Joint Working Group on Intersectoral Action</i> (Taket, 1990)

Source: Neudorf, Clement, Desmeules, Greenwood, Handcock, Harvey, Sadana, & Taillon (2015)

Appendix 2: Ethics certificate, recruitment letters, consent forms, and data collection tools

ENGLISH DOCUMENTS

- **Ethics certificate**

Numéro de dossier: H 11-13-16

Date (mm/jj/aaaa): 01/16/2014



Université d'Ottawa **University of Ottawa**
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Certificat d'approbation éthique

CÉR Sciences et science de la santé

Chercheur principal / Superviseur / Co-chercheur(s) / Étudiant(s)

<u>Prénom</u>	<u>Nom de famille</u>	<u>Affiliation</u>	<u>Rôle</u>
Ivy	Bourgeault	Sciences de la santé / Autres	Superviseur
Dafna	Kohen	Médecine / Institut de santé des populations	Co-Superviseur
Mariam	Stitou	Institut de santé des populations	Étudiant-chercheur

Numéro du dossier: H 11-13-16

Type du projet: Thèse de doctorat

Titre: Étude comparative de l'état de santé des responsables de services de garde du Québec et de l'Ontario

Date d'approbation (mm/jj/aaaa)	Date d'expiration (mm/jj/aaaa)	Approbation
01/16/2014	01/15/2015	Ia

(Ia: Approbation complète, Ib: Autorisation préliminaire de libération de fonds de recherche)

Conditions Spéciales / Commentaires:

Le présent certificat d'approbation éthique est valide pour la phase 1 (prétest) du projet. L'approbation complète sera accordée une fois que les chercheurs auront soumis au CÉR les documents (textes de recrutement, formulaires de consentement, questionnaires, guides d'entrevue, etc.) de la phase 2 du projet et que le CÉR les aura approuvés.



Université d'Ottawa **University of Ottawa**
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Certificat d'approbation éthique
CÉR Sciences et science de la santé

Chercheur principal / Superviseur / Co-chercheur(s) / Étudiant(s)

<u>Prénom</u>	<u>Nom de famille</u>	<u>Affiliation</u>	<u>Rôle</u>
Ivy	Bourgeault	Sciences de la santé / Autres	Superviseur
Dafna	Kohen	Médecine / Institut de santé des populations	Co-Superviseur
Mariam	Sitou	Institut de santé des populations	Étudiant-chercheur

Numéro du dossier: H 11-13-16

Type du projet: Thèse de doctorat

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01/16/2014	01/15/2015	Ia

(Ia: Approbation complète, Ib: Autorisation préliminaire de libération de fonds de recherche)

Conditions Spéciales / Commentaires:

- **Recruitment letter**

Phase 1: Email to licensed Home-based child care agencies/Networks

Subject: Comparative study of licensed home-based child care providers’ health in Quebec and Ontario

Dear Madam/ Dear Sir,

I am conducting a research study at the University of Ottawa under the supervision of professors Dr. Ivy-Lynn Bourgeault and Dr. Dafna Kohen. I am studying the health status and social determinants of health of licensed home-based child care providers in your province and I would like to invite you to participate in it. This study has been reviewed and received ethics clearance through Ottawa University’s Research Ethics Board.

I would appreciate it a lot if you accept to forward an invitation to all your home-based child care providers asking them to answer our anonymous online survey, as well as a reminder of participation two weeks later.

The data collected from the survey will help me building knowledge about the child care providers’ health. Moreover, they will help inform decision makers at the various levels of governance about the working conditions and their effects on health.

In recognition of your contribution to this study, we will provide you, upon request, with a summary of research findings.

Please confirm your interest to help with the recruitment of participants by responding to this email. If you accept to do so, I will send you the invitation to be sent out to the home-based child care providers associated with your agency.

I will be happy to answer any questions you have about the study.

Thank you for your consideration and collaboration.

Sincerely yours,

<p>Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 mstit060@uottawa.ca</p>	<p>Dr. Ivy Lynn Bourgeault Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca</p>	<p>Dr. Dafna Kohen Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca</p>
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Positive answer to our email

Dear Madam/ Dear Sir,

Thank you for agreeing to assist us in recruiting participants in this study. I would appreciate a lot if you write a letter of support and send it to me by email no later than _____. Once I will receive it, I will send you the invitation email including the online survey to be forwarded to the home-based child care providers.

Thank you for your collaboration.

Sincerely yours,

Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 mstit060@uottawa.ca	Dr. Ivy Lynn Bourgeault Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dr. Dafna Kohen Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca
---	---	---

Negative answer to our email

Dear Madam/ Dear Sir,

Thank you for your reply.

Sincerely yours,

Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 Mstit060@uottawa.ca	Dr. Ivy Lynn Bourgeault Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dr. Dafna Kohen Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca
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- **Sample of information document (Ontario version)**

*In the information document for Quebec, the word Ontario that has been changed to Quebec



LICENSED HOME-BASED CHILD CARE PROVIDERS' WORKING CONDITIONS AND HEALTH INVITATION TO PARTICIPATE IN AN ANONYMOUS ONLINE SURVEY

Dear child care provider,

I am conducting a research study with professors Dr. Ivy-Lynn Bourgeault and Dr. Dafna Kohen regarding the working conditions that may affect the licensed home-based child care providers' health. This study has received ethics clearance through Ottawa University's Research Ethics Board.

Invitation for participation

I would like to invite you to complete an anonymous online survey pertaining to your working conditions and how they may affect your health status as a child care provider. It will take you approximately 20 minutes to complete the survey. To participate in the survey, please click on one of the following links:

English Survey: <https://www.snapsurveys.com/wh/s.asp?k=140353591922>

French Survey: <https://www.snapsurveys.com/wh/s.asp?k=140353595825>

Participation Requirements

- Being a woman or a man speaking English or French ;
- Working as a home-based child care provider associated with a licensed child care agency in the province of Ontario.

Benefits

Your participation is voluntary and important. This is an opportunity for you to share anonymously the details about your working conditions and other factors that may affect your health as a child care providers. The data from the survey will help us building knowledge about the child care providers' health in the Canadian context. Moreover, they will help inform decision makers at the various levels of governance in order to improve the providers' working conditions (ex. Increase salary wages) as well as the child care services.

Risks, Confidentiality, Anonymity

There are no psychological or emotional risks to your contribution to this research project in our knowledge. You can withdraw from the study at any time without suffering any negative consequences or having to justify your decision. After submitting the anonymous survey, we won't be able to identify your answers as the survey is anonymous and delete them.

Should you have any questions about the study, please feel free contact me at mstit060@uottawa.ca

Thank you in advance for your interest and cooperation.

Mariam Stitou

Principal researcher
Institute of Population Health
University of Ottawa
mstit060@uottawa.ca

- Consent forms



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**Consent Form
Pretest survey
Phase 1 : (Home-based child care providers)**

This consent form is a part of the method of informed decision-making. It is intended to give you a general idea of the nature and the main objectives of the research and what your participation can contribute to it. We invite you to take your time to read and understand all the parts of this form, and sign it. For this purpose, you can consult the principal investigator, your family, friends or any other person. Please feel free to ask us questions at any time.

Project Title: Comparative study of licensed home-based child care providers' health in Quebec and Ontario.

This research is conducted by:

<p>Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 Mstitt060@uottawa.ca</p>	<p>Ivy Lynn Bourgeault, PhD Thesis supervisor Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca</p>	<p>Dafna Kohen, PhD Thesis co-supervisor Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca</p>
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Purpose of the study: This research aims to study the licensed home-based child care providers' health status and social determinants of health and answer the following questions:

1. What are the physical and mental health statuses of licensed home-based child care providers in Quebec and Ontario? Are there differences between the two groups?
2. What are the social determinants of health of licensed home-based child care providers in Quebec and Ontario? Are there differences between the two groups?
3. Which social determinants of health are associated with physical and mental health of licensed home-based child care providers in Quebec and Ontario? Are there differences between the two groups?

Participation Requirements

- Being a woman or a man speaking English or French ;
- Working as a home-based child care provider associated with a licensed child care coordinatong office in Outaouais (QC) or with a child care agency in Champlain (ON).

Participation: My participation in this study is voluntary and will consist of answering the pretest survey in order to validate it and which will take about 20 minutes. I expect the data collected will be used to meet the objectives of this research. I can withdraw from it at any time and/or refuse to answer certain questions without suffering any negative consequences or having to justify my decision. If I choose to withdraw from the study, all data gathered until the time of withdrawal will be deleted.

Benefits: My participation in this research will allow me to :

- Share anonymously the details about my working conditions as a child care provider and other factors that may affect my health;
- Contribute in building knowledge about child care providers' health in Canada ;
- Help the research team inform decision makers at the various levels of governance in improving the working conditions as well as the child care services.



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 Institute of Population Health

Risk : There are a negligible psychological or emotional risks to my contribution to this research. In case that I would experience a psychological or emotional discomfort during or after my participation, I can use the following free resources:

Crisis Line – Ontario 1-877-377-7775	Tel-Aide Quebec 1-800-567-9699
--	--

Confidentiality and anonymity: I have received assurance from the researchers that the information I will share will remain strictly confidential and my identity anonymous. I expect the following measures will be implemented:

- The full name of the child care coordinating office or child care agency, the full names of the child care providers, the full names of supervisors, their phone numbers and emails will not appear in any report or publication;
- The various research documents will be coded and fictive names will be used to replace the actual names of the participants. Only the research team will have access to the list of names and codes;
- A personal contribution will never be disclosed individually;
- research materials, including data and records will be kept under lock and key by the principal researcher and her thesis supervisor until December 29th, 2025, after which they will be destroyed.

Conservation of Data: The electronic data gathered will be protected by password on a USB stick and kept until December 29th, 2025. The USB stick and printed data will be locked at the principal researcher's house. A copy of the above will also be kept under lock at the office of the thesis supervisor at the University of Ottawa. The co-supervisor will have access to electronic and printed data on demand.

For any questions about the study, I may contact the researcher or her thesis supervisors. For questions pertaining to the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: (613) 562-5387, Email: ethics@uottawa.ca

There are three copies of this consent form, one of them is mine to keep.

Participant's signature: _____ Date: _____

Phone : _____ Email : _____

Researchers signature :

Signature :	Signature :	Signature :
Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 Mstitt060@uottawa.ca	Ivy Lynn Bourgeault, PhD Thesis supervisor Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen, PhD Thesis co-supervisor Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca

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Consent Form Pretest interview Phase 2 : (Home-based child care providers)

This consent form is a part of the method of informed decision-making. It is intended to give you a general idea of the nature and the main objectives of the research and what your participation can contribute to it. We invite you to take your time to read and understand all the parts of this form, and sign it. For this purpose, you can consult the principal investigator, your family, friends or any other person. Please feel free to ask us questions at any time

Project Title: Comparative study of licensed home-based child care providers' health in Quebec and Ontario

This research is conducted by:

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---	---	--

Purpose of the study: This research aims to study the licensed home-based child care providers' working conditions that may affect their health and career path in Quebec and Ontario, and to answer the following questions:

- What are the perceptions of licensed home-based child care providers in Quebec and Ontario about the working conditions affecting their physical and mental health? Are there differences between the two groups?
- Which working conditions may influence the career paths of licensed home-based child care providers in Quebec and Ontario? Are there differences between the two groups?

Participation Requirements

- Being a woman or a man speaking and French or English ;
- Working as a licensed home-based child care provider in Outaouais (QC) or Champlain (ON) regions ;
- Having participated in the first phase of this research OR agreeing to answer the survey of phase 1.

Participation My participation will consist essentially of an individual interview of about 60 minutes which will help validate the questionnaire. This interview will be carried out on site or by phone depending on my preference as a participant. I agree that the interview will be recorded and I expect that the data collected will be used to meet the objectives of this research. I can withdraw from it at any time and/or refuse to answer certain questions without suffering any negative consequences or having to justify my decision. If I choose to withdraw from the study, all the data gathered until the time of withdrawal will be deleted.

Benefits: My participation in this research will allow me to :

- Share anonymously the details about my working conditions as a child care provider and other factors that may affect my health and career path;

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 Institute of Population Health

- Contribute in building knowledge about child care providers' health in Canada ;
- Help the research team inform decision makers at the various levels of governance in improving the working conditions as well as the child care services.

Risk : There are a negligible psychological or emotional risks to my contribution to this research. In case that I would experience a psychological or emotional discomfort during or after my participation, I can use the following free resources:

Crisis Line – Ontario 1-877-377-7775	Tel-Aide Quebec 1-800-567-9699
---	---

Confidentiality and anonymity: I have received assurance from the researchers that the information I will share will remain strictly confidential and my identity anonymous. I expect the following measures will be implemented:

- The full name of the child care coordinating office or child care agency, the full names of the child care providers, the full names of supervisors, their phone numbers and emails will not appear in any report or publication;
- The various research documents will be coded and fictive names will be used to replace the actual names of the participants. Only the research team will have access to the list of names and codes;
- A personal contribution will never be disclosed individually;
- research materials, including data and records will be kept under lock and key by the principal researcher and her thesis supervisor until December 29th, 2025, after which they will be destroyed.

Conservation of Data: The electronic data gathered will be protected by password on a USB stick and kept until December 29th, 2025. The USB stick and printed data will be locked at the principal researcher's house. A copy of the above will also be kept under lock at the office of the thesis supervisor at the University of Ottawa. The co-supervisor will have access to electronic and printed data on demand.

Compensation: a certificate of participation in this research will be provided to participants as recognition for their contribution to this research. The participants will be rewarded \$20.

For any questions about the study, I may contact the researcher or her thesis supervisors. For questions pertaining to the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: (613) 562-5387, Email: ethics@uottawa.ca

There are three copies of this consent form, one of them is mine to keep.

Participant's signature: _____ Date: _____
 Phone : _____ Email : _____

Researchers signature :

Signature :	Signature :	Signature :
Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 Mstitt060@uottawa.ca	Ivy Lynn Bourgeault, PhD Thesis supervisor Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen, PhD Thesis co-supervisor Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca

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Consent Form Phase 2 : (Home-based child care providers)

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Purpose of the study: This research aims to study the licensed home-based child care providers' working conditions that may affect their health and career path in Quebec and Ontario, and to answer the following questions:

- What are the perceptions of licensed home-based child care providers in Quebec and Ontario about the working conditions affecting their physical and mental health? Are there differences between the two groups?
- Which working conditions may influence the career paths of licensed home-based child care providers in Quebec and Ontario? Are there differences between the two groups?

Participation Requirements

- Being a woman or a man speaking and French or English ;
- Working as a licensed home-based child care provider in Outaouais (QC) or Champlain (ON) regions ;
- Having participated in the first phase of this research OR agreeing to answer the anonymous online survey of phase 1.

Participation My participation will consist essentially of an individual interview of about 60 minutes. This interview will be carried out on site or by phone depending on my preference as a participant. I agree that the interview will be recorded and I expect that the data collected will be used to meet the objectives of this research. I can withdraw from it at any time and/or refuse to answer certain questions without suffering any negative consequences or having to justify my decision. If I choose to withdraw from the study, all the data gathered until the time of withdrawal will be deleted.

Benefits: My participation in this research will allow me to :

- Share anonymously the details about my working conditions as a child care provider and other factors that may affect my health and career path;
- Contribute in building knowledge about child care providers' health in Canada ;

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 des populations
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 Institute of Population Health

- Help the research team inform decision makers at the various levels of governance in improving the working conditions as well as the child care services.

Risk : There are a negligible psychological or emotional risks to my contribution to this research. In case that I would experience a psychological or emotional discomfort during or after my participation, I can use the following free resources:

Crisis Line – Ontario 1-877-377-7775	Tel-Aide – Quebec 1-800-567-9699
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Confidentiality and anonymity: I have received assurance from the researchers that the information I will share will remain strictly confidential and my identity anonymous. I expect the following measures will be implemented:

- The full name of the child care coordinating office or child care agency, the full names of the child care providers, the full names of supervisors, their phone numbers and emails will not appear in any report or publication;
- The various research documents will be coded and fictive names will be used to replace the actual names of the participants. Only the research team will have access to the list of names and codes;
- A personal contribution will never be disclosed individually;
- research materials, including data and records will be kept under lock and key by the principal researcher and her thesis supervisor until December 29th, 2025, after which they will be destroyed.

Conservation of Data: The electronic data gathered will be protected by password on a USB stick and kept until December 29th, 2025. The USB stick and printed data will be locked at the principal researcher's house. A copy of the above will also be kept under lock at the office of the thesis supervisor at the University of Ottawa. The co-supervisor will have access to electronic and printed data on demand.

Compensation: a certificate of participation in this research will be provided to participants as recognition for their contribution to this research. The participants will be rewarded \$20.

For any questions about the study, I may contact the researcher or her thesis supervisors. For questions pertaining to the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: (613) 562-5387, Email: ethics@uottawa.ca

There are three copies of this consent form, one of them is mine to keep.

Participant's signature: _____ Date: _____

Phone : _____ Email : _____

Researchers signature :

Signature :

Signature :

Signature :

Mariam Stitou, PhD (c) Principal researcher Institute of Population Health University of Ottawa 1 Stewart Street, Ottawa, Ontario K1N 6N5 Mstit060@uottawa.ca	Ivy Lynn Bourgeault, PhD Thesis supervisor Full Professor Faculty of Health Sciences University of Ottawa 1 Stewart Street, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen, PhD Thesis co-supervisor Assistant Professor Faculty of Medicine University of Ottawa 1 Stewart Street, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca
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- Online survey questionnaire



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Comparative study of licensed home-based child care providers' working condition and health

Consent Form : Anonymous survey

Purpose of the study: This research aims to study the licensed home-based child care providers' working conditions that may affect their health status as well as their social determinants of health

Participation Requirements

- Being a woman or a man speaking English or French ;
- Working as a home-based child care provider associated with a licensed child care coordinatong office in the province of Quebec.

Participation: My participation in this study is voluntary and will consist of answering an anonymous online survey which will take about 20 minutes. I expect the data collected will be used to meet the objectives of this research. I can withdraw from it at any time and/or refuse to answer certain questions without suffering any negative consequences or having to justify my decision. If I choose to withdraw from the study, all data gathered until the time of withdrawal will be used as it won't be possible to identify my personal answers and delete them. If I accept to contribute to the second phase of this research, I will provide my name, my phone number and my email to be contacted later.

Benefits: My participation in this research will allow me to :

- Share anonymously the details about my working conditions as a child care provider and other factors that may affect my health;
- Contribute in building knowledge about child care providers' health in Canada ;
- Help the research team inform decision makers at the various levels of governance in improving the working conditions as well as the child care services.

Risks : There are a negligible psychological or emotional risks to my contribution to this research. In case that I would experience a psychological or emotional discomfort during or after my participation, I can call at 1-877-377-7775 or 1-800-567-9699 and use the following free resources.

Confidentiality and anonymity: I have received assurance from the researchers that the information I will share will remain strictly confidential and my identity anonymous. I expect the following measures will be implemented:

- The full names of the child care providers, the full names of supervisors, their phone numbers and emails will not appear in any report or publication;
- The various research documents will be coded and fictive names will be used;
- A personal contribution will never be disclosed individually;
- research materials, including data and records will be kept under lock and key by the principal researcher and her thesis supervisor until December 29th, 2025, after which they will be destroyed.

Conservation of Data: The electronic data gathered will be protected by password on a USB stick and kept until December 29th, 2025. The USB stick and printed data will be locked at the principal

researcher's house. A copy of the above will also be kept under lock at the office of the thesis supervisor at the University of Ottawa. The co-supervisor will have access to electronic and printed data on demand.

For any questions about the study, I may contact the researcher at mstit060@uottawa.ca or her thesis supervisors. For questions pertaining to the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: (613) 562-5387, Email: ethics@uottawa.ca.

The participant should print a copy of this form.

Mariam Stitou
Principal researcher
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1 Stewart Street,
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Dr. Ivy Lynn Bourgeault
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A I agree to participate in this research and I recognize that filling out the questionnaire and submitting it means I consent to participate.

- I accept
 I decline

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1. Please scroll the list and specify your region.

2. Please precise the name of the coordinating office you are associated with : (eg. BC des amis)

3. Gender

- Male
- Female

4. Status in Canada

- Canadian Born
- Immigrant for 5 years or less
- Immigrant for 6 to 10 years
- Immigrant for 11 years or more

5. Please scroll the list and choose your age group

6. Marital status

- Married
- Living Common Law
- Widowed
- Separated
- Divorced
- Single

7. Composition of the household (excluding yourself)

	0	1	2	3	4 and up
Number of people in the household aged 18 years and over	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of people in the household under 18 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of pets in household	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pets type (dog, cat...)	<input type="text"/>				

8. Language used at home

French and



Language used at home
If other, please specify :

French English English Other

9. The highest level of education completed regardless of the field of study. Please scroll the list and choose the one that apply to you.

If other, please specify :

10. The highest educational level completed in early childhood education.

- No training in early childhood education
 - Training offered by a coordinating office
 - College
 - University
 - Other
- If other, please specify :

11. Net annual income of the respondent regardless of the source of income. Please scroll the list and choose the one that apply to you.

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SECTION B : Working conditions of home based child care provider

12. For how many years have you been working as a home based child care provider affiliated with :

	Less than 1 year	1-2 years	2-3 years	4-5 years	5 years and +
All coordinating offices your have worked with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your current coordinating office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Are you unionized ?

Yes No

If yes, please specify the name of the union (CSQ, CSN)

14. How have you become interested in being a home-based caregiver? Please choose the main reason

- I was looking for a way of earning income while caring for my own child(ren)
- I love children and wanted to work with them
- A friend/relative/neighbour was seeking care
- I was unable to find child care for my own children
- I wanted companions for my child(ren)
- Other employment options were not available
- I responded to an advertisement by a child care coordinating office
- I had worked in a child care centre and wanted to operate my own program
- Other

Other, please specify :

15. How many children are currently in your child care for each category (including yours).

	0	1	2	3	4	5	6	7	8	9
Less than 18 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aged between 18 and 36 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aged between 37 to 60 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child with a physical or intellectual disability diagnosed by health professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Girls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boys	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Is any adult assisting you on a regular basis during your working hours?

- Nobody
- Caregiver assistant
- Family adults (e.g. husband)
- Other

If other, please specify :

17. Which official language are you using during working hours ?

- French
- English
- French and English
- Other

If other, please specify :

18. In a normal working week, how many hours are needed on the average for each of the following tasks (Please indicate 0 when it doesn't apply).

- The planning and the preparation of educational activities
- The preparation of children's meals
- The administrative and financial management of your child daycare (eg. child registration , contracts, take attendance...)
- Housekeeping (eg disinfecting toys, cleaning...)
- Interaction with children
- Interaction with parents
- Interaction with your child daycare coordinating office
- Other related tasks

19. Number of months worked last year (jan - dec 2013)

20. Over the past 12 months, for how many days was your daycare closed due to : (PN. Please indicate 0 when it doesn't apply)

- Paid vacation and Paid holidays taken
- Unpaid vacation and/or Unpaid holidays taken
- Epidemy in child daycare (eg lice, gastro ...)
- Health condition of caregiver due to chronic disease (eg diabetes, heart ...)
- Health condition of caregiver due to non-chronic disease (e.g. Flu...)
- Family or personal reasons (eg sick son ..)

21. What type of accommodation is your home daycare ?

22. For this accommodation, are you :

- Tenant
- Owner
- Other

If other, please specify :

23. On which floor do you spend most of the time during your working day?

- Basement
- Ground floor
- First floor
- Basement and Ground floor
- Other

If other, please specify :

24. During your working hours, how many times per week do you usually go outside with children in your care (e.g. playing at the park, taking a walk...)

- Never
- Once or twice a week
- Three to four times a week
- Everyday
- Other

If other, please specify :

25. What is your gross annual Net income from your work as a licensed home based child care provider (excluding expenses for running your daycare)?

--Click Here--

26. With the income from work as home based child care provider, do you find it difficult to meet your financial needs?

- Yes
- No

27. If you hold a second job to meet your financial needs, what is the average number of hours worked per week ?

- I do not hold any other job
- Less than 5 hours a week
- 5-10 hours a week
- 11-15 hours a week
- 16 hours or more a week

28. If you work a second job to meet your financial needs, what time of year do you hold this second job? Please choose all that apply to you.

- I do not hold any other job
- Throughout the year
- From September to December
- From January to April

From May to August

29. How do you feel about your job for each of the following questions:

	<i>Strongly agree</i>	<i>agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>
My job requires that I learn new things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job involves a lot of repetitive work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires me to be creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires a high level of skill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get to do a variety of things on my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have an opportunity to develop my own special abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job allows me to make a lot of decisions on my own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On my job, I am given a lot of freedom to decide how I do my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a lot to say about what happens on my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires working very fast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires working very hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires lots of physical effort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My working environment is often noisy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not asked to do an excessive amount of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have enough time to get the job done	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am free from conflicting demands others make	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My coordinating office is concerned about my well-being and the welfare of those under him	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My coordinating office pays attention to what I am saying and requesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My coordinating office is helpful in getting the job done	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My coordinating office is successful in getting people to work together and encourage exchanges between child care providers, supervisors, and parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My coordinating office encourages positive and constructive working environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- My coordinating office communicates clearly its expectations to RSG
- My coordinating office recognizes the importance of the work I accomplished
- My coordinating office involves me in decisions about myself
- In my job, I know what my coordinating office expects me
- Parents of children under my care show interest in me
- My job is a source of pleasure
- I intend to continue working as a home-based child care provider in the next two coming years

30. During the past 4 weeks, did you encounter conflicts or disagreements with parents of children in your care? What are the sources of conflicts and disagreements ? Please check all that apply.

- No conflict or disagreement
- Child care provider's educational practices
- Physical environment of childcare
- Child care provider's personal or cultural values
- Parents' personal or cultural values
- Late payments
- Time of arrival and/or departure of children
- Children badly dressed
- Lack of cooperation of the parents
- Other

If other, please specify :

31. During the past 4 weeks, did you encounter conflicts or disagreements with the supervisor of your coordinating office? What are the sources of conflicts and disagreements? (check all that apply)

- No conflict or disagreement
- Child care provider educational practices
- Child care provider personal or cultural values
- Supervisor personal or cultural values
- Physical environment of child daycare
- Quality of services offered
- Other

If other, please specify :

32. As a child care provider, who do you go to for support? Please choose the main source of support.

- Nobody
- Family
- Friends

- Neighbors
- Supervisors from the coordinating office
- Other

If other, please specify :

33. How do you feel about :

	Very satisfied	Somewhat satisfied	Neither satisfied nor dissatisfied	somewhat dissatisfied	very dissatisfied
Your work activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your financial situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your physical appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your relationship with your family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your relationship with your friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your neighborhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. What is the main source of your stress?

- I don't feel stressed
- Your health
- Your financial situation
- The lack of time
- Your family
- Your work
- Other

If other, please specify :

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SECTION C : Impacts on health

35. In general, would you say your health is

<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. Compared to one year ago, how would you rate your health in general now?

<i>Much better now than one year ago</i>	<i>Somewhat better now than one year ago</i>	<i>About the same as one year ago</i>	<i>Somewhat worse now than one year ago</i>	<i>Much worse now than one year ago</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	<i>Yes, limited a lot</i>	<i>Yes, limited a little</i>	<i>No, not limited at all</i>
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lifting or carrying groceries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climbing several flights of stairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climbing one flight of stairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bending, kneeling, or stooping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking more than a kilometre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking several hundred metres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking one hundred metres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bathing or dressing yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	<i>All of the time</i>	<i>Most of the time</i>	<i>Some of the time</i>	<i>A little of the time</i>	<i>Non of the time</i>
Cut down on the amount of time you spent on work or other activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Accomplished less than you would like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were limited in the kind of work or other activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had difficulty performing the work or other activities (for example, it took extra effort)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	<i>All of the time</i>	<i>Most of the time</i>	<i>Some of the time</i>	<i>A little of the time</i>	<i>None of the time</i>
Cut down on the amount of time you spent on work or other activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accomplished less than you would like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did work or other activities less carefully than usual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups?

	<i>Not at all</i>	<i>Slightly</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. How much bodily pain have you had during the past 4 weeks?

	<i>None</i>	<i>Very mild</i>	<i>Mild</i>	<i>Moderate</i>	<i>Severe</i>	<i>Very severe</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

	<i>Not at all</i>	<i>A little bit</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	<i>All of the time</i>	<i>Most of the time</i>	<i>Some of the time</i>	<i>A little of the time</i>	<i>None of the time</i>
Did you feel full of life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you been very nervous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you felt so down in the dumps that nothing could cheer you up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you felt calm and peaceful?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did you have a lot of energy?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you felt downhearted and depressed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did you feel worn out?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Have you been happy?

Did you feel tired?

44. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

All of the time *Most of the time* *Some of the time* *A little of the time* *None of the time*

45. How TRUE or FALSE is each of the following statements for you?

	<i>Definitely true</i>	<i>Mostly true</i>	<i>Don't know</i>	<i>Mostly false</i>	<i>Definitely false</i>
I seem to get sick a little easier than other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am as healthy as anybody I know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect my health to get worse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My health is excellent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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- 46.** Over the past 12 months during practice, have you suffered serious physical injuries that have limited your normal work activities?
- Yes
- No

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47. What was the nature of your last injury?

- Fracture
- Burn
- Wound
- Sprain/Contusion

48. At what level was your last injury?

- Back and neck
- Lower Limbs
- Upper Extremities
- Other

If other, please specify :

49. What was the cause of your last injury?

- Repetitive movements
- Children
- Floor
- Furniture and supply
- Other

If other, please specify :

50. When did your last injury occur?

- Morning
- Lunch time
- Afternoon
- Evening
- Other

If other, please specify :

51. Please scroll the list and choose in what month of last year did your last injury occur?

--Click Here-- ▾

52. Who was present at your last injury? Please check all that apply to you.

- Nobody
- Children in your care
- Your family members
- Parents of children

Supervisors

Other

If other, please specify

53. Do you have a chronic illness? Please check all that apply to you.

None

Asthma

Arthritis

Back pain

Hypertension

Diabetes

Heart Disease

Intestinal disorders

Mood disorders

Anxiety disorders

Ear diseases

Disease of the stomach

Skin disease

Cancer

Stroke

Other

If other, please specify :

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SECTION D: Actions taken to stay healthy

54. Regarding your practice of physical activities, you consider yourself :

- Very physically active*
- Moderately physically active*
- A bit physically active*
- Not at all physically active*

55. Regarding your consumption of fruits and vegetables, you eat :

- Less than 5 servings per day*
- 5 to 10 servings a day*
- More than 10 servings per day*

56. What kind of smoker are you?

- Never smoked*
- Former smoker*
- Casual*
- Daily*

57. How many hours of sleep do you have on the average per night?

- Less than 5 hours*
- 6 hours to 7 hours*
- 7 hours to 8 hours*
- 8 hours to 9 hours*
- 9 hours to 10 hours*
- 10 hours to 11 hours*
- 11 hours to less than 12 hours*
- 12 hours or more*

58. 1. Over the past 12 months, how often did you use the services of health care?

	Never	1 time	2 times	3 times	4 times and +
Visited the doctor's office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited the dentist's, the dental hygienist's or the orthodontist's office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited the optometrist's office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited the chiropractor's office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Visited the nurse's office
- Visited the physiotherapist's office
- Visited the psychologist's office
- Visited another health professional
- Tried to get information about health

59. During the last 4 weeks, did you do anything to improve your health?

- Yes
- No

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60. What did you do to improve your health? Please check all that apply.

- Increased exercise, sports / physical activities
- Changed diet / improved eating habits
- Quit smoking / reduced amount smoked
- Drank less alcohol
- Reduced stress level
- Received medical treatments
- Took vitamins
- Other

If other, please specify :

61. What prevents you from improving your health? Please check all that apply

- Lack of self-discipline
- Family responsibilities
- Work schedule
- Health problems
- Financial constraints
- Transportation problems
- Weather conditions
- Other

If other, please specify :

62. In your work, how often do you do the following :

	All time	Often	Sometimes	Rarely	Never
I wash my hands before meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wash my hands after each diaper change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wash my hands after each contact with a sick child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask the children in my care of to wash their hands before eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask the children in my care of to wash their hands after grooming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleaning and disinfecting toys used by healthy children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleaning and disinfecting toys used by sick children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exclusion of sick children at risk of infecting others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Parent Outreach about children illness (key notes, press, etc)



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SECTION E: OTHER COMMENTS

63. Do you have any other comments ?

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- **Interview guide**

Introduction of politeness:

Thank you for your interest in participating in this research project and for the time you have taken to answer our questions. Your contribution is very valuable to us and greatly appreciated.

- We are a team of researchers from the University of Ottawa
- I would like to review with you the purpose of our study,
- Given that:
 - 1) there are differences between formal child day-care in families of Quebec and Ontario provincial regulations arising in place,
 - 2) these differences affect working conditions and wage levels of home-based child day-care caregivers in each province,
 - 3) working conditions and wage levels are determinants of health,
 - and 4) the determinants of health affect the workers' physical and mental health,our research goal is to measure the health status of caregivers, to see if there are differences between the health statuses of the caregivers in Quebec and Ontario, among other things.

Before starting our interview, I would like to give you the consent form that outlines your rights as a research participant, and our duty as researchers.

- Now comes the consent form that we are going to read together and that you will sign at the end, if you agree to participate in this study.
- I will read this form for you and feel free to ask questions if you have any?
(Now please read the consent form and allow yourself the necessary time for reflection before signing it).

The interview guide

Identification : _____

Code : Family Name :

Date of interview :

Start:..... End : Duration: minutes

City :

Observation notes:

- 1 - Participants are frequently - asked for clarification on the issues
- 2 - Participants are frequently - asked for clarification on certain words
- 3 - Participants expressed es fatigue during maintenance
- 4 - Participants are asked , interrupting the interview for reasons / personal needs
- 5 - Participants are asked - stop maintenance

Impressions after the interview

=====

1. HBC worker profil :

- Age
- Status in Canada
- Marital status
- Family composition
- Level of education
- Number of children under care
- Floor work
- Number of hours of work per week
- annue net income

2. Why did you choose this profession?

3. Describe a typical day in your job?

- 3.1 What are your responsibilities/duties?
- 3.2 When do you need a hand, who helps you?

4. What do you like most about your job? What are the benefits of being a home-based child day-care caregiver?

- 4.1 If the participant is in the province of Quebec: What has the provincial unionization brought to a home-based child day-care caregiver?

5. What do you like least about your job? What are the disadvantages of being a home-based child day-care caregiver?

5.1 If the participant is from the province of Québec What has the provincial unionization brought to a home -based child day-care caregivers?

6. Describe your relationship with the parents using your day-care services?

6.1 Are there any conflicts / disagreements?

6.2 If yes, what are the sources of conflicts / disagreements?

7. Describe your relationship with the home-based child day-care agency?

7.1 Are there any conflicts / disagreements?

7.2 If yes, what are the sources of conflicts / disagreements?

8. In your workplace:

8.1 In your daily work as a caregiver at home, what positively influences your health?

8.1.1 What do you do to reduce the risk of injury at work or develop a disease?

8.1.2 What does your agency do to reduce the risk of injury at work or develop a disease?

8.1.3 How are your relationships with your supervisors and parents?

8.2 In your daily work as a caregiver at home, what negatively affects your health?

8.2.1 What increases the risk of injury or develop a disease in your work?

8.2.2 What does your agency do to reduce the risk of injury or develop a disease at work?

9. Concernant a recent situation where you got sick because of your job or you were injured at work

9.1 Describe what happened.

9.2 How did you experience that?

9.3 What did your BC / Agency say or do to remedy your situation?

9.4 How did you leave it?

9.5 How has this incident changed your perception of the profession of home-based child caregiver?

9.6 How has this incident changed your practice?

10. In your work, what do you do to stay healthy?

11. Do you intend to continue working as a caregiver in home-base child day-care? Why?

If not, explain why? What other job would you be tempted to get?

12. According to you, what would look like an ideal place to work in childcare?

13. What recommendations may you address to your agency to promote the health of home-based caregivers of children?

FRENCH DOCUMENTS

- **Lettre de recrutement**

Courriel envoyé aux agences et aux bureaux de services de garde

Bonjour, Monsieur, Madame,

Je suis étudiante au programme de doctorat en santé des populations à l'Université d'Ottawa. Sous la supervision des professeures Ivy-Lynn Bourgeault et Dafna Kohen, je mène une recherche sur l'état de santé et les déterminants sociaux de la santé des responsables de services de garde formels dans votre province. Je voudrais solliciter votre aide pour recruter les participants de cette recherche. Cette étude a reçu l'autorisation du Comité d'éthique et de la recherche de l'Université d'Ottawa.

Je vous serais reconnaissante si vous acceptez de transmettre une première invitation à l'ensemble de vos membres leur demandant de répondre à notre sondage en ligne anonyme, ainsi qu'un rappel de participation, deux semaines plus tard.

Les données recueillies à partir de l'enquête aideront à renforcer les connaissances sur ces travailleurs. De plus, ils permettront d'outiller les décideurs aux différents niveaux de gouvernance sur les conditions de travail et leurs effets sur la santé.

En reconnaissance de votre contribution à cette étude, nous allons vous fournir, sur demande, un résumé des résultats de la recherche.

S'il vous plaît confirmer votre intérêt à nous aider avec le recrutement de participants en répondant à ce courriel. Si vous acceptez de le faire, je vous enverrai l'invitation à transmettre à vos membres.

Je vous remercie d'avance pour votre intérêt et collaboration.

Sincèrement,

Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Faculté des études supérieures et postdoctorales 1, rue Stewart, Ottawa Ontario K1N 6N5 Mstit060@uottawa.ca	Ivy-Lynn Bourgeault Directrice de thèse Professeure titulaire École interdisciplinaire de santé Faculté des sciences de la santé 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen Co-directrice de thèse Professeure adjointe Faculté de médecine 100, Tuney's Pasture, Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca
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Réponse positive au courriel envoyé aux agences et aux bureaux de services de garde

Bonjour, Monsieur, Madame,

Je vous remercie d'avoir accepté de collaborer au recrutement des participants de cette recherche. À présent, je voudrais vous inviter à compléter le formulaire de consentement de collaboration et à m'acheminer une copie numérisée d'ici le _____.

Sincèrement,

Mariam Stitou

Institut de santé des populations
Université d'Ottawa
1, rue Stewart, Ottawa Ontario K1N 6N5
Téléphone: (819) 682-8455
Courriel : **mstit060@uottawa.ca**

Réponse négative au courriel envoyé aux agences et aux bureaux de services de garde

Bonjour, Monsieur, Madame,

Je vous remercie pour votre réponse et espère bénéficier de votre collaboration dans future.

Sincèrement,

Mariam Stitou

Institut de santé des populations
Université d'Ottawa
1, rue Stewart, Ottawa Ontario K1N 6N5
Téléphone: (819) 682-8455
Courriel : **mstit060@uottawa.ca**

- **Exemple d'une lettre d'information**

* In the information document for Quebec, the word Ontario that has been changed to Quebec



**LES CONDITIONS DE TRAVAIL ET LA SANTÉ DES RSG
INVITATION DE PARTICIPATION À UN SONDAGE ANONYME**

Chère/Cher RSG,

Je mène actuellement une recherche scientifique avec les professeures Dr. Ivy-Lynn Bourgeault et Dr. Dafna Kohn de l'Université d'Ottawa sur les conditions de travail susceptibles d'affecter la santé des responsables de services de garde (RSG) en milieu familial reconnus par une agence de services de garde en Ontario. Cette recherche a reçu l'approbation du bureau d'éthique et d'intégrité de la recherche de l'Université d'Ottawa.

Invitation à participer

J'aimerais vous inviter à répondre à un **sondage anonyme** en ligne (aucun nom et aucune coordonnée à fournir), d'environ 20 minutes, sur vos conditions de travail susceptibles d'affecter votre santé, aussitôt que possible. Afin de participer à ce sondage, veuillez suivre l'un des liens suivants:

Sondage en français : <https://www.snapsurveys.com/wh/s.asp?k=140353595825>

Sondage en anglais : <https://www.snapsurveys.com/wh/s.asp?k=140353591922>

Admissibilité

- Être une femme ou un homme francophone ou anglophone;
- Exercer la profession de responsable d'un service de garde (RSG) formel reconnu par une agence de service de garde en Ontario.

Avantages et bienfaits

Votre participation à cette étude est volontaire, et se veut une occasion de partager d'une manière anonyme les détails concernant vos conditions de travail et les facteurs susceptibles d'affecter la santé des RSG. Les données collectées permettront d'enrichir les connaissances, actuellement rares, sur la santé des RSG des services de garde formels au Canada. De plus, ils aideront notre équipe à formuler des recommandations qui seront utiles à la prise de décisions dans le secteur des services de garde à l'enfance.

Risques, confidentialité et anonymat :

Il n'y a pas de risques ou de désagréments psychologiques ou émotionnels connus liés à votre contribution à ce projet de recherche. En tout temps, vous pouvez mettre fin à votre participation, sans en subir de préjudice et sans avoir à justifier votre décision. Si vous choisissez de vous retirer de l'étude, après avoir soumis le questionnaire en ligne, il ne sera pas possible de vous identifier pour supprimer les données, comme le sondage est anonyme.

Pour tout renseignement sur cette recherche, prière d'écrire à mstit060@uottawa.ca

Je vous remercie d'avance pour votre collaboration.

Mariam Stitou

Chercheuse principale
Institut de santé des populations
Université d'Ottawa
Mstit060@uottawa.ca

• Formulaire de consentement



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Institute of Population Health

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Formulaire de consentement – Sondage – Prétest - Phase 1 (RSG)

Le formulaire de consentement qui vous a été remis n'est qu'un élément de la méthode de prise de décision éclairée qui a pour but de vous donner une idée générale de la nature de la recherche et de ce qu'entraîne votre participation. Nous vous invitons donc à bien lire et à comprendre, sans exception, toutes les parties du présent formulaire et d'y apposer votre signature. Prenez tout le temps nécessaire pour prendre votre décision. Vous pouvez consulter la chercheuse principale, vos proches, vos amis ou toute autre personne avant de prendre votre décision. N'hésitez pas à poser en tout temps vos questions.

Note : L'utilisation du masculin vise uniquement à faciliter la lecture et désigne autant les hommes que les femmes.

Titre du projet : Étude comparative de la santé des responsables de services de garde formels en milieu familial du Québec et de l'Ontario

Cette recherche est menée par :

Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N 6N5 mstit060@uottawa.ca	Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca
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But de l'étude: Cette recherche a pour objectif général d'étudier l'état de santé ainsi que les déterminants sociaux de la santé des responsables des services de garde (RSG) formels en milieu familial du Québec et de l'Ontario et de répondre aux questions suivantes :

1. Quels sont les états de santé physique et mentale des RSG du secteur formel du Québec et de l'Ontario? Existe-t-il des différences entre les deux groupes ?
2. Quels sont les déterminants sociaux de la santé des RSG du secteur formel du Québec et de l'Ontario? Existe-t-il des différences entre les deux groupes ?
3. Quels déterminants sociaux de la santé sont associés à l'état de santé physique et mentale des RSG du Québec et de l'Ontario ? Existe-t-il des différences entre les deux groupes?

Les critères de participation des RSG sont :

- Être une femme ou un homme francophone ou anglophone;
- Exercer la profession de responsable d'un service de garde (RSG) formel reconnu par un bureau coordonnateur en Outaouais (QC) ou par une agence de services de garde à Champlain (ON).

Participation: Je suis invité à participer volontairement à l'étape de prétest de cette recherche pour valider les questions du sondage. Ma contribution à la recherche consiste à répondre à un sondage d'environ 20 minutes. Je m'attends à ce que les données recueillies soient utilisées afin de répondre aux objectifs de cette recherche. En tout temps, je pourrai mettre fin à ma participation ou refuser de répondre à certaines questions, sans en subir de préjudice et sans avoir à justifier ma décision. Si je choisis de me retirer de l'étude, les données recueillies seront détruites.



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Bienfaits : Je reconnais que ma participation à cette recherche aura pour effet de :

- Me permettre de partager d'une manière confidentielle les détails concernant mes conditions de travail et les facteurs susceptibles d'affecter ma santé;
- Me donner l'occasion de contribuer à enrichir les connaissances, actuellement rares, sur la santé des RSG des services de garde formels au Canada;
- Aider l'équipe de cette recherche à informer les décideurs du secteur des services à l'enfance, aux différents niveaux de gouvernance, sur les conditions de travail à risque sur la santé des RSG.

Risques : je reconnais qu'il y a peu de risques ou de désagréments psychologiques ou émotionnels liés à ma contribution à ce projet de recherche. Advenant le cas où j'éprouverais un malaise psychologique ou émotionnel durant ou suite à ma participation, je pourrai utiliser les ressources gratuites suivantes :

Ligne de crise – Province de l'Ontario
1-877-377-7775

Tel-Aide – Province du Québec
1-800-567-9699

Confidentialité et anonymat : J'ai l'assurance de la chercheuse que l'information que je partagerai restera strictement confidentielle et mon identité anonyme. Je m'attends à ce que les mesures suivantes soient appliquées:

- Le nom et le prénom de la/du RSG, le nom du bureau coordonnateur ou de l'agence de service de garde, le nom et le prénom du superviseur, les numéros de téléphone, les courriels ainsi que toute information personnelle ne paraîtront dans aucun rapport;
- Les divers documents de la recherche seront codifiés et des pseudonymes (noms fictifs) seront utilisés pour remplacer les noms réels des participants. Uniquement l'équipe de recherche aura accès à la liste des noms et des codes;
- Une contribution personnelle ne sera jamais communiquée individuellement;
- Les outils de la recherche, incluant les données et les enregistrements, seront conservés sous clé par la chercheuse et par la directrice de thèse, jusqu'au 29 décembre 2025, après quoi ils seront détruits.

Conservation des données: Les données électroniques seront conservées jusqu'au 29 décembre 2025 et protégées par un mot de passe dans une clé USB. La clé USB et les données imprimées seront conservées sous clé à la résidence de la chercheuse principale. Une copie de ce qui précède sera également conservée sous clé au bureau de la directrice de thèse à l'Université d'Ottawa. La codirectrice aura accès aux données électroniques et imprimées sur demande.

Pour tout renseignement sur cette recherche, je peux contacter la chercheuse ou l'une des directrices de thèse. Pour les questions concernant les aspects éthiques de cette recherche, je peux m'adresser au responsable de l'éthique en recherche de l'Université d'Ottawa, au Pavillon Tabaret, 550, rue Cumberland, salle 154, Ottawa, ON K1N 6N5, Tél. : (613) 562-5387, Courriel : ethics@uottawa.ca

Une copie de ce formulaire de consentement devrait être gardée par le/la participant(e).

Adhésion de la chercheuse au projet et du participant et signatures :

J'accepte de participer à cette recherche conduite par Mariam Stitou.

1. Signature du participant : _____ Date : _____

No de téléphone : _____ Courriel : _____

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2. Signature des chercheuses :

Signature :

Signature :

Signature :

<p>Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N 6N5 mstit060@uottawa.ca</p>	<p>Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca</p>	<p>Dafna Kohen, PhD Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca</p>
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Formulaire de consentement Entrevue - Prétest Phase 2 (RSG)

Le formulaire de consentement qui vous a été remis n'est qu'un élément de la méthode de prise de décision éclairée qui a pour but de vous donner une idée générale de la nature de la recherche et de ce qu'entraîne votre participation. Nous vous invitons donc à bien lire et à comprendre, sans exception, toutes les parties du présent formulaire et d'y apposer votre signature. Prenez tout le temps nécessaire pour prendre votre décision. Vous pouvez consulter la chercheuse principale, vos proches, vos amis ou toute autre personne avant de prendre votre décision. N'hésitez pas à poser en tout temps vos questions.

Note : L'utilisation du masculin vise uniquement à faciliter la lecture et désigne autant les hommes que les femmes.

Titre du projet : **Étude comparative de la santé des responsables de services de garde formels en milieu familial du Québec et de l'Ontario.**

Cette recherche est menée par :

<p>Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N 6N5 mstit060@uottawa.ca</p>	<p>Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca</p>	<p>Dafna Kohen, PhD Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca</p>
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But de l'étude: Cette recherche a pour objectif d'étudier l'influence des conditions de travail sur la santé et le cheminement professionnel des responsables des services de garde (RSG) formels en milieu familial du Québec et de l'Ontario. Elle vise à répondre aux questions suivantes :

1. Quelles sont les perceptions des RSG des aspects du travail qui affectent leur état de santé physique et mentale? Existe-t-il des différences entre les deux groupes?
2. Quelles conditions de travail pourraient influencer sur le cheminement professionnel des RSG du Québec et de l'Ontario? Existe-t-il des différences entre les deux groupes?

Les critères de participation des RSG sont :

- Être une femme ou un homme francophone ou anglophone;
- Exercer la profession de responsable d'un service de garde (RSG) formel dans la région de l'Outaouais (QC) ou dans la région de Champlain (ON);
- Avoir répondu au sondage de la première phase de cette recherche ou accepter d'y répondre.

Participation : Je suis invité à participer volontairement à l'étape de prétest de cette recherche pour valider les questions d'entrevue. Ma contribution à la recherche consiste à participer à une entrevue individuelle d'environ 60 minutes. Cette entrevue aura lieu sur place ou par téléphone selon ma préférence en tant que participant. J'accepte que l'entretien soit enregistré sur **bande audio** et je m'attends à ce que les données recueillies soient utilisées afin de répondre aux objectifs de cette recherche. En tout temps, je pourrai mettre fin à ma participation ou refuser de répondre à

613-562-5660
613-562-5423

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certaines questions, sans en subir de préjudice et sans avoir à justifier ma décision. Si je choisis de me retirer de l'étude, les données recueillies seront détruites.

Bienfaits : Je reconnais que ma participation à cette recherche aura pour effet de:

- Me permettre de partager mes expériences, opinions et recommandations d'une manière confidentielle sur mes conditions de travail et sur les facteurs susceptibles d'affecter ma santé;
- Me donner l'occasion de contribuer à enrichir les connaissances, actuellement rares, sur la santé des RSG ces des services de garde formels au Canada;
- Aider l'équipe de cette recherche à informer les décideurs du secteur des services à l'enfance, aux différents niveaux de gouvernance, sur les conditions de travail à risque sur la santé des RSG.

Risque : je reconnais qu'il y a peu de risques ou de désagréments psychologiques ou émotionnels liés à ma contribution à ce projet de recherche. Advenant le cas où j'éprouverais un malaise psychologique ou émotionnel durant ou suite à ma participation, je pourrai utiliser les ressources gratuites suivantes :

Ligne de crise – Province de l'Ontario
1-877-377-7775

Tel-Aide – Province du Québec
1-800-567-9699

Confidentialité et anonymat : J'ai l'assurance que l'information que je partagerai restera strictement confidentielle et mon identité anonyme. Je m'attends à ce que les mesures suivantes soient appliquées:

- Le nom et le prénom de la/du RSG, le nom du bureau coordonnateur ou de l'agence de service de garde, le nom et le prénom du superviseur, les numéros de téléphone, les courriels ainsi que toute information personnelle ne paraîtront dans aucun rapport;
- Les divers documents de la recherche seront codifiés et des pseudonymes (noms fictifs) seront utilisés pour remplacer les noms réels des participants. Uniquement l'équipe de recherche aura accès à la liste des noms et des codes;
- Une contribution personnelle ne sera jamais communiquée individuellement;
- Les outils de la recherche, incluant les données et les enregistrements, seront conservés sous clé par la chercheuse et par la directrice de thèse, jusqu'au 29 décembre 2025, après quoi ils seront détruits.

Conservation des données: Les participants à cette recherche seront invités à une entrevue individuelle enregistrée. Les enregistrements ainsi que les transcriptions seront conservés jusqu'au 29 décembre 2025 et protégés par un mot de passe dans une clé USB. La clé USB et les données imprimées seront conservées sous clé à la résidence de la chercheuse principale. Une copie de ce qui précède sera également conservée sous clé au bureau de la directrice de thèse à l'Université d'Ottawa. La codirectrice aura accès aux données électroniques et imprimées sur demande.

Compensation: une attestation de participation à cette recherche sera remise aux participants en guise de remerciement ainsi qu'une compensation monétaire de 20\$.

Pour tout renseignement sur cette recherche, je peux contacter la chercheuse ou l'une des directrices de thèse. Pour les questions concernant les aspects éthiques de cette recherche, je peux m'adresser au **responsable de l'éthique en recherche de l'Université d'Ottawa**, au Pavillon Tabaret, 550, rue Cumberland, salle 154, Ottawa, ON K1N 6N5, Tél. : (613) 562-5387, Courriel : ethics@uottawa.ca

Une copie de ce formulaire de consentement devrait être gardée par le/la participant(e).

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Adhésion de la chercheuse au projet et du participant et signatures :

J'accepte de participer à cette recherche conduite par Mariam Stitou.

1. Signature du participant : _____ Date : _____

No de téléphone : _____ Courriel : _____

2. Signature des chercheuses :

Signature :	Signature :	Signature :
Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N6N5 Mstit060@uottawa.ca	Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen, PhD Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca

Formulaire de consentement Entrevue Phase 2 (RSG)

Le formulaire de consentement qui vous a été remis n'est qu'un élément de la méthode de prise de décision éclairée qui a pour but de vous donner une idée générale de la nature de la recherche et de ce qu'entraîne votre participation. Nous vous invitons donc à bien lire et à comprendre, sans exception, toutes les parties du présent formulaire et d'y apposer votre signature. Prenez tout le temps nécessaire pour prendre votre décision. Vous pouvez consulter la chercheuse principale, vos proches, vos amis ou toute autre personne avant de prendre votre décision. N'hésitez pas à poser en tout temps vos questions.

Note : L'utilisation du masculin vise uniquement à faciliter la lecture et désigne autant les hommes que les femmes.

Titre du projet : **Étude comparative de la santé des responsables de services de garde formels en milieu familial du Québec et de l'Ontario.**

Cette recherche est menée par :

<p>Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N 6N5 mstit060@uottawa.ca</p>	<p>Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca</p>	<p>Dafna Kohen, PhD Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca</p>
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But de l'étude: Cette recherche a pour objectif d'étudier l'influence des conditions de travail sur la santé et le cheminement professionnel des responsables des services de garde (RSG) formels en milieu familial du Québec et de l'Ontario. Elle vise à répondre aux questions suivantes :

1. Quelles sont les perceptions des RSG des aspects du travail qui affectent leur état de santé physique et mentale? Existe-t-il des différences entre les deux groupes?
2. Quelles conditions de travail pourraient influencer sur le cheminement professionnel des RSG du Québec et de l'Ontario? Existe-t-il des différences entre les deux groupes?

Les critères de participation des RSG sont :

- Être une femme ou un homme francophone ou anglophone;
- Exercer la profession de responsable d'un service de garde (RSG) formel dans la région de l'Outaouais (QC) ou dans la région de Champlain (ON);
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répondre à certaines questions, sans en subir de préjudice et sans avoir à justifier ma décision. Si je choisis de me retirer de l'étude, les données recueillies seront détruites.

Bienfaits : Je reconnais que ma participation à cette recherche aura pour effet de :

- Me permettre de partager mes expériences, opinions et recommandations d'une manière confidentielle sur mes conditions de travail et sur les facteurs susceptibles d'affecter ma santé;
- Me donner l'occasion de contribuer à enrichir les connaissances, actuellement rares, sur la santé des RSG ces des services de garde formels au Canada;
- Aider l'équipe de cette recherche à informer les décideurs du secteur des services à l'enfance, aux différents niveaux de gouvernance, sur les conditions de travail à risque sur la santé des RSG.

Risque : je reconnais qu'il y a peu de risques ou de désagréments psychologiques ou émotionnels liés à ma contribution à ce projet de recherche. Advenant le cas où j'éprouverais un malaise psychologique ou émotionnel durant ou suite à ma participation, je pourrai utiliser les ressources gratuites suivantes :

Ligne de crise – Province de l'Ontario 1-877-377-7775	Tel-Aide – Province du Québec 1-800-567-9699
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Compensation: une attestation de participation à cette recherche sera remise aux participants en guise de remerciement ainsi qu'une compensation monétaire de 20\$.

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Une copie de ce formulaire de consentement devrait être gardée par le/la participant(e).



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Adhésion de la chercheuse au projet et du participant et signatures :

J'accepte de participer à cette recherche conduite par Mariam Stitou.

1. Signature du participant : _____ Date : _____

No de téléphone : _____ Courriel : _____

2. Signature des chercheuses :

Signature :	Signature :	Signature :
Mariam Stitou, PhD(c) Chercheuse principale Institut de santé des populations Université d'Ottawa 1, rue Stewart, Ottawa Ontario K1N6N5 Mstit060@uottawa.ca	Ivy-Lynn Bourgeault, PhD Directrice de thèse Professeure titulaire Faculté des sciences de la santé Université d'Ottawa 1, rue Stewart, 227 Ottawa Ontario K1N 6N5 ivy.bourgeault@uottawa.ca	Dafna Kohen, PhD Codirectrice de thèse Professeure adjointe Faculté de médecine Université d'Ottawa 1, rue Stewart, 227 Ottawa, ON K1N 6N5 dafna.kohen@uottawa.ca

- Questionnaire en ligne



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Étude comparative des conditions de travail et de la santé des responsables de services de garde formels en milieu familial

Consentement de participation au sondage anonyme

But de l'étude: Cette recherche a pour objectif général d'étudier les conditions de travail qui affectent l'état de santé ainsi que les déterminants sociaux de la santé des responsables des services de garde (RSG) formels en milieu familial.

Les critères de participation sont :

- Être une femme ou un homme francophone ou anglophone;
- Exercer la profession de responsable d'un service de garde (RSG) formel reconnu par un bureau coordonnateur au Québec.

Participation: Je suis invité à participer volontairement à cette étude. Ma contribution à la recherche consiste à répondre à un sondage anonyme en ligne d'environ 20 minutes. Je m'attends à ce que les données recueillies soient utilisées afin de répondre aux objectifs de cette recherche. En tout temps, je pourrai mettre fin à ma participation ou refuser de répondre à certaines questions, sans en subir de préjudice et sans avoir à justifier ma décision. Si je choisis de me retirer de l'étude, les données recueillies seront conservées. Étant donné que le sondage est anonyme, il ne sera pas possible de m'identifier pour supprimer mes réponses après avoir soumis le questionnaire en ligne.

Bienfaits : Je reconnais que ma participation à cette recherche aura pour effet de :

- 1) Me permettre de partager d'une manière anonyme les détails concernant mes conditions de travail et les facteurs susceptibles d'affecter ma santé;
- 2) Me donner l'occasion de contribuer à enrichir les connaissances, actuellement rares, sur les conditions de travail et sur la santé des RSG des services de garde formels au Canada;
- 3) Aider l'équipe de cette recherche à informer les décideurs du secteur des services à l'enfance, aux différents niveaux de gouvernance, sur les conditions de travail à risque sur la santé des RSG.

Risques : Je reconnais qu'il y a peu de risques ou de désagréments psychologiques ou émotionnels liés à ma contribution à ce projet de recherche. Advenant le cas où j'éprouverais un malaise psychologique ou émotionnel durant ou suite à ma participation, je pourrais appeler le 1-877-377-7775 ou au 1-800-567-9699

Confidentialité et anonymat : J'ai l'assurance de la chercheuse que l'information que je partagerais restera strictement confidentielle et mon identité anonyme. Je m'attends à ce que les mesures suivantes soient appliquées:

- 1) Le nom et le prénom de la/du RSG, le nom et le prénom du superviseur, les numéros de téléphone, les courriels ainsi que toute information personnelle ne paraîtront dans aucun rapport;
- 2) Les divers documents de la recherche seront codifiés et des pseudonymes (noms fictifs) seront utilisés;
- 3) Une contribution personnelle ne sera jamais communiquée individuellement;

4) Les outils de la recherche, incluant les données et les enregistrements, seront conservés sous clé par la chercheuse et par la directrice de thèse, jusqu'au 29 décembre 2025, après quoi ils seront détruits.

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Pour tout renseignement sur cette recherche, je peux contacter la chercheuse principale à mstit060@uottawa.ca. Pour les questions concernant les aspects éthiques de cette recherche, je peux m'adresser au responsable de l'éthique en recherche de l'Université d'Ottawa, au Pavillon Tabaret, 550, rue Cumberland, salle 154, Ottawa, ON K1N 6N5, Tél. : (613) 562-5387, Courriel : ethics@uottawa.ca

Une copie de ce formulaire de consentement pourrait être imprimée par le participant, s'il le désire.

Mariam Stitou
Chercheuse principale
Institut de santé des populations
Université d'Ottawa
1, rue Stewart, 227
Ottawa Ontario K1N 6N5
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Ivy-Lynn Bourgeault
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Dafna Kohen
Professeure adjointe
Faculté de médecine
Université d'Ottawa
1, rue Stewart, 227
Ottawa, ON K1N 6N5
dafna.kohen@uottawa.ca

A J'accepte de participer à cette recherche et je reconnais que remplir le questionnaire et le soumettre signifie consentir à participer.

- J'accepte
 Je refuse

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1. Dans quelle région travaillez-vous au Québec ?

--Sélectionnez--

2. Veuillez préciser le nom du bureau coordonnateur avec lequel vous êtes affilié(e) (ex. BC des amis)

3. Quel est votre sexe ?

- Homme
 Femme

4. Quel est votre statut au Canada?

- Canadien de naissance
 Immigrant depuis 5 ans et moins
 Immigrant depuis 6 à 10 ans
 Immigrant depuis plus de 11 ans

5. Quel est votre tranche d'âge?

--Sélectionnez--

6. Quel est votre état matrimonial?

- Marié
 Union libre
 Veuf
 Séparé
 Divorcé
 Célibataire

7. Quelle est la composition de votre ménage, en excluant vous-même?

	Aucun	1	2	3	4 et plus
Veuillez préciser le nombre de personnes du ménage âgées de 18 ans et plus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veuillez préciser le nombre de personnes du ménage âgées de moins 18 ans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veuillez préciser le nombre d'animaux domestiques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De quels animaux domestiques s'agit-il?	<input type="text"/>				

8. Quelle langue utilisez-vous à la maison?

Langue parlée à la maison

Si autre, précisez svp :

Français Anglais Français et anglais Autre

9. Quel est votre niveau d'éducation le plus élevé peu importe le domaine d'études?

--Sélectionnez--

Si autre, précisez svp :

10. Quel est votre niveau de scolarité le plus élevé en éducation de la petite enfance ?

Aucune formation en petite enfance

Formation de base offerte par un bureau coordonnateur ou une agence de services de garde

Collégial

Universitaire

Autre

Si autre, précisez svp :

11. Quel est votre revenu annuel net peu importe la source du revenu?

--Sélectionnez--

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SECTION B : Conditions de travail des RSG

12. Depuis combien d'années travaillez-vous à titre de responsable de service de garde en milieu familial (RSG)?

	Moins d'un an	1-2 ans	2-3 ans	4-5 ans	5 ans et plus
avec l'ensemble des bureaux coordonnateurs avec lesquels vous avez travaillé	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
avec votre <u>bureau</u> <u>coordonnateur actuel</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Êtes-vous représenté par un syndicat?

	Oui	Non
Représentation par un syndicat	<input type="radio"/>	<input type="radio"/>

Si oui, précisez le nom du syndicat
qui défend les intérêts de votre
groupe professionnel (ex. CSQ, CSN) :

14. Quelle est la principale raison qui vous a incité à devenir un/une responsable de service de garde en milieu familial?

- Je cherchais un moyen de gagner un revenu tout en m'occupant de mon propre enfant
- J'adore les enfants et je voulais travailler avec eux
- Un ami / parent / voisin cherchait quelqu'un pour s'occuper de ses enfants
- Je n'ai pas réussi à trouver une garderie pour mes propres enfants
- Je voulais des compagnons pour mon enfant
- Autres possibilités d'emploi ne sont pas disponibles
- J'ai répondu à une annonce de recrutement faite par un bureau coordonnateur
- J'avais travaillé dans un centre de la petite enfance et je voulais avoir mon propre service de garde
- Autre

Si autre, précisez svp :

15. Veuillez préciser le nombre d'enfants qui fréquentent votre service de garde pour chaque énoncé (incluant vos propres enfants s'il y a lieu) :

	Aucun	1	2	3	4	5	6	7	8	9
Âgés de moins de 18 mois	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Âgés de 18 mois à 36 mois	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Âgés de 37 mois à 60 mois	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ayant un handicap diagnostiqué par un	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

professionnel de la santé	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Filles gardées	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Garçons gardés	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Quel adulte vous aide régulièrement dans vos tâches quotidiennes de travail auprès des enfants?

- Aucune personne adulte ne m'aide
 Aide-éducatrice
 Adultes de ma famille (ex. conjoint)
 Autre

Si autre, précisez svp :

17. Quelle langue utilisez-vous dans votre travail ?

	Français	Anglais	Français et anglais	Autres langues
Langue utilisée au travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Si autres langues, précisez svp :

18. Dans une semaine normale de travail, combien d'heures sont nécessaires en moyenne pour chacune des activités suivantes (Svp indiquer 0 lorsque la situation ne s'applique pas)

La planification et préparation des activités pédagogiques	<input type="text"/>
La préparation des repas des enfants	<input type="text"/>
La gestion administrative et financière du service de garde (ex. inscription, contrats, prise de présence...)	<input type="text"/>
L'entretien ménager (ex. désinfecter les jouets, déneiger...)	<input type="text"/>
L'interaction avec les enfants	<input type="text"/>
L'interaction avec les parents	<input type="text"/>
L'interaction avec les superviseurs du bureau coordonnateur	<input type="text"/>
D'autres tâches reliées au travail	<input type="text"/>

19. De janvier 2013 à décembre 2013, combien de mois avez-vous travaillés?

20. Au cours des 12 derniers mois, combien de jours votre service de garde a été fermé pour les raisons suivantes? (Svp indiquer 0 lorsque la situation ne s'applique pas)

Vacances payées <u>et</u> jours fériés payés	<input type="text"/>
Vacances non payées <u>et/ou</u> jours fériés non payés	<input type="text"/>
Épidémie dans le service de garde (ex. poux, gastro...)	<input type="text"/>
Problème de santé de la RSG dû à	<input type="text"/>

une maladie chronique (ex. diabète, cœur, estomac, asthme...)

Problème de santé de la RSG dû à une maladie non chronique (ex. grippe, rhume...)

Raisons familiales ou personnelles (ex. fils malade...)

21. Quel type de logement abrite votre service de garde ?

--Sélectionnez-- ▾

22. Pour ce logement, vous êtes:

- Locataire
- Propriétaire
- Autre

Si autre, précisez svp :

23. À quel niveau d'étage travaillez-vous?

- Sous-sol
- Rez-de-chaussée
- Premier étage
- Sous-sol et rez-de-chaussée
- Autre

Si autre, précisez svp :

24. Combien de fois par semaine organisez-vous habituellement des activités extérieures avec les enfants ? (ex. jouer dans la cour, prendre une marche dans le quartier, aller au parc, etc.)

- Jamais
- Une fois ou deux par semaine
- Trois fois ou quatre par semaine
- Quotidiennement
- Autre

Si autre, précisez svp :

25. Quel est votre revenu annuel net provenant uniquement du travail de RSG ? (excluant les dépenses de fonctionnement de votre service de garde telles le coût de la nourriture, l'électricité, etc)?

--Sélectionnez-- ▾

26. Le revenu provenant du travail de RSG est-il suffisant pour subvenir à vos besoins financiers?

- Oui
- Non

27. Si vous occupez un second emploi pour répondre à vos besoins financiers, quel est le nombre moyen d'heures travaillées par semaine ?

- N'occupe pas un second emploi
- Moins de 5h par semaine
- 5 à 10 heures par semaine

- 11 à 15 heures par semaine
- 16 heures et plus par semaine

28. Si vous occupez un second emploi pour répondre à vos besoins financiers, à quel moment de l'année occupez-vous ce second emploi? (svp cochez tout ce qui s'applique)

- N'occupe pas un second emploi
- Durant toute l'année (janvier à décembre)
- De septembre à décembre
- De janvier à avril
- De mai à août

29. Jusqu'à quel point vous êtes d'accord ou en désaccord avec chacun des énoncés suivants ?

	<i>Totalement en accord</i>	<i>D'accord</i>	<i>En désaccord</i>	<i>Totalement en désaccord</i>
Mon travail nécessite que j'apprenne des choses nouvelles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail consiste à refaire toujours les mêmes choses (tâches répétitives)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dans mon travail, je dois être créative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail nécessite un niveau élevé de qualifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Au travail, mes tâches sont variées	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Au travail, j'ai la possibilité de développer mes habiletés personnelles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail me permet de prendre des décisions de façon autonome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai la liberté de décider comment je fais mon travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai beaucoup d'influence sur la façon dont les choses se passent à mon travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail exige de travailler très vite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail exige de travailler très fort mentalement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail exige de travailler très fort physiquement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon environnement de travail est souvent bruyant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On ne me demande pas de faire une quantité excessive de tâches à faire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai suffisamment de temps pour faire mon travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je ne reçois pas de demandes contradictoires de la part de mon bureau coordonnateur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur se soucie de mon bien-être et de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

celui des autres RSG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur se montre à mon écoute et prête attention à ce que je dis et à ce que je demande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur facilite la réalisation de mon travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur réussit à faire travailler les gens ensemble et encourage les échanges (RSG-parents, RSG-RSG, RSG-BC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur régner un environnement de travail positif et constructif	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur communique clairement ses attentes aux RSG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur reconnaît l'importance du travail que j'accomplis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon bureau coordonnateur m'implique dans la prise de décisions qui me concernent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dans mon travail, je suis sûr que mon bureau coordonnateur attend de moi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les parents des enfants qui fréquentent mon service de garde démontrent un intérêt personnel envers moi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon travail est une source de plaisir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai l'intention de continuer à exercer la profession de RSG dans les deux prochaines années	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. Dans les 4 dernières semaines, avez-vous eu des conflits ou des mésententes avec les parents des enfants qui fréquentent votre service de garde? Cochez les sujets de ces conflits ou mésententes, s'il y a lieu.

- Aucun conflit ni aucune mésentente*
- Les pratiques éducatives de la RSG*
- L'organisation de l'environnement du service de garde (aménagement, disposition du lieu, etc)*
- Les valeurs personnelles ou culturelles de la RSG*
- Les valeurs personnelles ou culturelles des parents*
- Les paiements en retard*
- L'heure d'arrivée et/ou de départ des enfants*
- Les enfants mal vêtus*
- La faible collaboration des parents (oubli ou ignorance des demandes de la RSG)*
- Autre*

Si autre, précisez svp :

31. Dans les 4 dernières semaines, avez-vous eu des **conflits ou des mésententes avec les superviseurs** du bureau coordonnateur avec lequel vous êtes affilié(e)? Veuillez cocher les sujets de ces conflits ou mésententes, s'il y a lieu.

- Aucun conflit ni mésentente*
- Les pratiques éducatives de la RSG*
- Les valeurs personnelles ou culturelles de la RSG*
- Les valeurs personnelles ou culturelles des superviseurs*
- L'environnement physique du service de garde*
- La qualité des services offerts aux enfants (ex. menu offert, l'hygiène...)*
- Autre*

Si autre, précisez svp :

32. En tant que responsable d'un service de garde formel en milieu familial, de quel soutien social principal disposez-vous?

- Aucun*
- Famille*
- Amis*
- Voisins*
- Superviseurs du bureau coordonnateur de service de garde*
- Autre*

Si autre, précisez svp :

33. Quel sentiment éprouvez-vous à l'égard de :

	<i>Très satisfait</i>	<i>Satisfait</i>	<i>Ni satisfait ni insatisfait</i>	<i>Insatisfait</i>	<i>Très insatisfait</i>
Activités de travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Situation financière	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vous-même	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apparence corporelle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relations avec votre famille	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relations avec vos amis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Logement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quartier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. Quelle est la source principale de votre stress?

- Aucun stress n'est ressenti*
- Votre état de santé*
- Votre situation financière*
- Le manque de temps*
- Votre famille*
- Votre travail*
- Autre*



SECTION C : Impact du travail sur la santé des RSG

35. En général, diriez-vous que votre santé est:

	<i>Excellente</i>	<i>Très bonne</i>	<i>Bonne</i>	<i>Moyenne</i>	<i>Mauvaise</i>
Santé générale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. Par comparaison à l'an dernier, comment évaluez-vous, maintenant, votre santé générale?

<i>Bien meilleure maintenant que l'an dernier</i>	<i>Un peu meilleure maintenant que l'an dernier</i>	<i>À peu près la même que l'an dernier</i>	<i>Un peu moins bonne maintenant que l'an dernier</i>	<i>Bien moins bonne maintenant que l'an dernier</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. Les questions suivantes portent sur les activités que vous pourriez avoir à faire au cours d'une journée normale. Votre état de santé actuel vous limite-t-il dans ces activités? Si oui, dans quelle mesure?

	<i>Mon état de santé me limite beaucoup</i>	<i>Mon état de santé me limite un peu</i>	<i>Mon état de santé ne me limite pas du tout</i>
Dans les activités exigeant un effort physique important comme courir, soulever des objets lourds, pratiquer des sports violents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dans les activités modérées comme déplacer une table, passer l'aspirateur, jouer aux quilles ou au golf	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour soulever ou transporter des sacs d'épicerie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour monter à plusieurs étages à pied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour monter à un seul étage à pied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour me pencher, me mettre à genoux ou m'accroupir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour faire plus d'un kilomètre à pied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour faire plus de deux cents mètres à pied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour faire cent mètres à pied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pour prendre un bain ou	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

m'habiller

38. Au cours des **quatre dernières semaines**, combien de fois avez-vous eu l'une ou l'autre des difficultés suivantes au travail ou dans vos autres activités quotidiennes à cause de votre état de santé physique?

	<i>Tout le temps</i>	<i>La plupart du temps</i>	<i>Parfois</i>	<i>Rarement</i>	<i>Jamais</i>
Avez-vous dû consacrer moins de temps à votre travail ou à d'autres activités?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avez-vous accompli moins de choses que vous l'auriez voulu?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avez-vous été limité(e) dans la nature de vos tâches ou de vos autres activités?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avez-vous eu de la difficulté à accomplir votre travail ou vos autres activités (par exemple vous a-t-il fallu fournir un effort supplémentaire)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. Au cours des **quatre dernières semaines**, combien de fois avez-vous eu l'une ou l'autre des difficultés suivantes au travail ou dans vos autres activités quotidiennes à cause de l'état de votre moral (comme le fait de vous sentir déprimé(e) ou anxieux(se))?

	<i>Tout le temps</i>	<i>La plupart du temps</i>	<i>Parfois</i>	<i>Rarement</i>	<i>Jamais</i>
Avez-vous dû consacrer moins de temps à votre travail ou à d'autres activités?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avez-vous accompli moins de choses que vous l'auriez voulu?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avez-vous fait votre travail ou vos autres activités avec moins de soin qu'à l'habitude?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. Au cours des **quatre dernières semaines**, dans quelle mesure votre état physique ou moral a-t-il nui à vos activités sociales habituelles (famille, amis, voisins ou autres groupes)?

	<i>Pas du tout</i>	<i>Un peu</i>	<i>Moyennement</i>	<i>Beaucoup</i>	<i>Énormément</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. Au cours des **quatre dernières semaines**, avez-vous éprouvé des douleurs physiques?

	<i>Aucune douleur</i>	<i>Douleurs très légères</i>	<i>Douleur légère</i>	<i>Douleurs moyennes</i>	<i>Douleurs intenses</i>	<i>Douleurs très intenses</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. Au cours des **quatre dernières semaines**, dans quelle mesure la douleur a-t-elle nui à vos activités habituelles (au travail comme à la maison)?

	<i>Pas du tout</i>	<i>Un peu</i>	<i>Moyennement</i>	<i>Beaucoup</i>	<i>Énormément</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. Ces questions portent sur les **quatre dernières semaines**. Pour chacune des questions suivantes, donnez la réponse qui s'approche le plus de la façon dont vous vous êtes senti(e).

Au cours des quatre dernières semaines, combien de fois...

	<i>Tout le temps</i>	<i>La plupart du temps</i>	<i>Parfois</i>	<i>Rarement</i>	<i>Jamais</i>
vous êtes-vous senti(e) plein(e) d'entrain?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
avez-vous été très nerveux(se)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) si déprimé(e) que rien ne pouvait vous remonter le moral?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) calme et serein(e)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
avez-vous eu beaucoup d'énergie?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) triste et démoralisé(e)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) épuisé(e) et vidé(e)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) heureux(se)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vous êtes-vous senti(e) fatigué(e)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

44. Au cours des quatre dernières semaines, combien de fois votre état physique ou moral a-t-il nui à vos activités sociales (comme visiter des amis, des parents, etc.)?

	<i>Tout le temps</i>	<i>La plupart du temps</i>	<i>Parfois</i>	<i>Rarement</i>	<i>Jamais</i>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45. Dans quelle mesure chacun des énoncés suivants est-il VRAI ou FAUX dans votre cas?

	<i>Tout à fait vrai</i>	<i>Plutôt vrai</i>	<i>Ne sais pas</i>	<i>Plutôt faux</i>	<i>Tout à fait faux</i>
Il me semble que je tombe malade un peu plus facilement que les autres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis en aussi bonne santé que les gens que je connais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je m'attends à ce que ma santé se détériore	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ma santé est excellente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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- 46.** Au cours des 12 derniers mois, pendant l'exercice de votre travail, avez-vous souffert de blessures physiques suffisamment graves pour limiter vos activités normales?
- Oui
- Non

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47. Quelle était la nature de votre dernière blessure ?

- Fracture*
- Brûlure*
- Entorse*
- Contusion / Plaie*

48. À quel niveau se situait votre dernière blessure ?

- Dos et cou*
- Membres inférieurs*
- Membres supérieurs*
- Autre*

Si autre, précisez svp :

49. Quel était l'agent causal de votre dernière blessure ?

- Mouvements répétitifs*
- Enfants*
- Sol*
- Mobilier et fourniture*
- Autre*

Si autre, précisez svp :

50. À quel moment de la journée s'est produite votre dernière blessure ?

- Matinée*
- Heure du dîner*
- Après-midi*
- Soirée*
- Autre*

Si autre, précisez svp :

51. À quel mois de l'année s'est produite votre dernière blessure ?

--Sélectionnez--

52. Qui était présent lors de votre dernière blessure ?

- Aucune personne*
- Enfants gardés*
- Membres de la famille de la RSG*
- Parents des enfants*

- Superviseurs du BC*
 Autre

Si autre, précisez svp :

53. Souffrez-vous d'une de ces maladies chroniques? Cochez celles qui s'appliquent :

- Aucune maladie chronique*
 Asthme
 Arthrite
 Mots de dos
 Hypertension
 Diabète
 Maladies cardiaques
 Troubles intestinaux
 Troubles d'humeur
 Troubles d'anxiété
 Maladies d'oreilles
 Maladies d'estomac
 Maladies de la peau
 Cancer
 Accident cardiovasculaire cérébral (AVC)
 Autre

Si autre, précisez svp :

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SECTION D : Actions prises pour demeurer en santé

- 54.** En pensant à votre pratique d'une activité physique, vous vous considérez :
- Très actif physiquement
 - Modérément actif physiquement
 - Quelque peu actif physiquement
 - Pas du tout actif physiquement
- 55.** En pensant à votre consommation de fruits et légumes, consommez-vous :
- Moins de 5 portions par jour
 - 5 à 10 portions par jour
 - Plus de 10 portions par jour
- 56.** Quel type de fumeur êtes-vous ?
- N'a jamais fumé
 - Ancien fumeur
 - Occasionnel
 - Quotidien
- 57.** Combien d'heures de sommeil dormez-vous en moyenne par nuit ?
- Moins de 5 heures
 - De 6 heures à moins de 7 heures
 - De 7 heures à moins de 8 heures
 - De 8 heures à moins de 9 heures
 - De 9 heures à moins de 10 heures
 - De 10 heures à moins de 11 heures
 - De 11 heures à moins de 12 heures
 - 12 heures ou plus
- 58.** Au cours des 12 derniers mois, quelle a été votre utilisation des services de soins de santé?
- | | Aucune | 1 fois | 2 fois | 3 fois | 4 fois et plus |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Visite d'un médecin | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'un dentiste, hygiéniste dentaire ou un orthodontiste | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'un optométriste | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'un chiropraticien | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'une infirmière | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

-
- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Visite d'un physiothérapeute | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'un psychologue | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visite d'un autre professionnel de santé | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tentative de demande d'information sur la santé | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

59. Au cours des 4 dernières semaines, avez-vous fait quelque chose pour améliorer votre santé?

- Oui*
 Non

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60. Quels sont le ou les changement(s) les plus importants que vous avez faits pour améliorer votre santé? Cochez tout ce qui s'applique.

- Fait plus d'exercices, de sport / d'activités physiques*
- Changé l'alimentation / amélioré les habitudes alimentaires*
- Cessé de fumer / réduit la consommation de tabac*
- Consommé moins d'alcool*
- Réduit le niveau de stress*
- Reçu des traitements médicaux*
- Pris des vitamines*
- Autre*

Si autre, précisez svp :

61. Qu'est-ce qui vous empêche d'améliorer votre santé ? Cochez ce qui s'applique.

- Aucun empêchement*
- Manque de volonté / d'autodiscipline*
- Responsabilités familiales*
- Horaire de travail*
- Problème de santé*
- Contraintes financières*
- Problèmes de transport*
- Conditions météorologiques*
- Autre*

Si autre, précisez svp :

62. Dans votre travail de RSG, à quelle fréquence posez-vous les actions suivantes ?

	<i>En permanence</i>	<i>Une bonne partie du temps</i>	<i>De temps en temps</i>	<i>Rarement</i>	<i>Jamais</i>
Lavage des mains de la RSG avant chaque repas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lavage des mains de la RSG après chaque changement de couches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lavage des mains de la RSG après chaque contact avec un enfant malade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lavage des mains des enfants avant chaque repas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lavage des mains des enfants après le toilettage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fréquence de nettoyage et					

désinfections des jouets et
objets touchés par les enfants
en bonne santé

Fréquence de nettoyage et
désinfections des jouets et
objets touchés par les enfants
malades

Exclusion des enfants malades
à risque de contaminer les
autres

Sensibilisation des parents sur
les maladies à l'aide de note
d'informations, de communiqué
ou autre.

Progress 

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uOttawa

SECTION E : vos commentaires

63. Avez-vous des commentaires ?

Progress 

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[← Back](#) [Reset](#) [Submit →](#)

Si autre, précisez svp :

Progress

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• Guide d'entrevue

Introduction de politesse:

Pour débiter cet entretien, j'aimerais vous remercier du temps que vous avez décidé de prendre pour répondre à nos questions et de votre intérêt à participer à ce projet de recherche. Votre participation est très précieuse pour nous et très appréciée.

- Nous sommes une équipe de chercheuses provenant de l'Université d'Ottawa
- Je voudrais maintenant revoir avec vous le but de notre étude,
- Sachant que 1) il existe des différences entre les services de garde formels en milieu familial du Québec et de l'Ontario qui découlent des réglementations provinciales en place, que 2) ces différences affectent les conditions de travail et les niveaux de salaire des RSG de chacune des provinces, que 3) les conditions de travail et les niveaux de salaire sont des déterminants de santé et que 4) les déterminants de la santé affectent l'état de santé physique et mentale des travailleurs, notre but de recherche est de mesurer l'état de santé des RSG pour voir s'il y a des écarts entre l'état de santé des RSG du QC et de l'ON.

J'aimerais, avant de débiter notre entretien sur la santé, prendre connaissance avec vous du formulaire de consentement qui décrit vos droits, comme participant à la recherche, et nos devoirs comme chercheuses.

- Voici maintenant le formulaire de consentement que nous devons lire ensemble et sur lequel vous devez apposer votre signature à la toute fin, si vous êtes toujours d'accord à participer à cette étude.
- Je vais lire à haute voix ce formulaire. Pendant la lecture, sentez-vous libres de demander qu'on s'arrête pour poser les questions qui vous préoccupent.
(Passez à la lecture du consentement et laissez le temps nécessaire pour la réflexion avant la signature).

Le guide d'entrevue – RSG Identification de l'entretien

Entretien code:..... Nom de la famille :.....

Date:.....Début:.....Fin:..... Durée:.....minutes

Ville :Entretien mené par :

Type d'entrevue :.....

Participant intéressé à être contactée pour participer à la vérification de l'interprétation

- 1- Oui # téléphone :Courriel:.....
- 2- Non

Notes d'observation:

- 1- Participants-es ont fréquemment demandé des précisions sur les questions
- 2- Participants-es ont fréquemment demandé des précisions sur certains mots
- 3- Participants-es ont exprimé de la fatigue pendant l'entrevue
- 4- Participants-es ont demandé d'interrompre l'entrevue pour des raisons / besoins personnels
- 5- Participants-es ont demandé de cesser l'entrevue

Impressions après l'entrevue

.....
.....
.....
.....

=====

1. Profil de la RSG ?

- Âge
- Statut au Canada (immigrante, citoyenne...)
- État matrimonial
- Composition de sa famille
- Niveau d'éducation le plus élevé
- Nombre d'enfants
- Étage de travail
- Nombre hebdomadaire d'heures travaillées
- Revenu annuel

2. Pourquoi avez-vous choisi d'exercer cette profession?

3. Décrivez-moi une journée typique de votre travail?

3.1 Quelles sont vos tâches?

3.2 Lorsque vous avez besoin d'aide dans votre travail, qui vous donne un coup de main?
Comment?

4. Qu'aimez-vous le plus dans votre travail? Quels sont les avantages d'être RSG?

4.1 Si participante du QC : quels avantages a apporté la syndicalisation provinciale des RSG?

5. Qu'aimez-vous le moins dans votre travail? Quels sont les inconvénients d'être RSG?
 - 5.1 Si participante du QC : quels inconvénients a apporté la syndicalisation provinciale des RSG?
6. Décrivez vos relations avec les parents utilisateurs de votre service de garde?
 - 6.1 Quels sont les sujets de conflits/mésententes?
7. Décrivez vos relations avec le BC ou l'agence de service de garde?
 - 7.1 Quels sont les sujets de conflits/mésententes?
8. Dans votre milieu de travail :
 - 8.1 Qu'est-ce qui influence positivement votre santé?
 - 8.1.1 Que faites-vous pour réduire les risques de se blesser au travail ou de développer une maladie?
 - 8.1.2 Que fait votre agence pour réduire les risques de se blesser au travail ou de développer une maladie?
 - 8.1.3 Comment sont vos relations avec vos superviseurs et avec les parents?
 - 8.2 Qu'est-ce qui influence négativement votre santé?
 - 8.2.1 Qu'est ce qui augmente les risques de se blesser au travail ou de développer une maladie dans votre travail?
 - 8.2.2 Que fait votre agence pour réduire les risques de se blesser au travail ou de développer une maladie?
9. Parlons d'une situation récente où vous êtes tombé malade à cause de votre travail ou vous vous êtes blessé au travail
 - 9.1 Décrivez ce qui s'est passé.
 - 9.2 Comment avez-vous vécu cette expérience?
 - 9.3 Qu'est-ce que votre BC/Agence a dit ou fait pour remédier à votre situation?
 - 9.4 Comment vous vous en êtes sortie?
 - 9.5 Comment cet incident a changé votre perception de la profession de RSG?
 - 9.6 Comment cet incident a changé vos pratiques?
10. Dans votre travail, que faites-vous pour demeurer en santé?
11. Avez-vous l'intention de continuer à travailler comme RSG ? Pourquoi? Si non, expliquez les raisons? Par quel autre emploi seriez-vous tentée?
12. Décrivez-moi à quoi devrait ressembler un milieu de travail idéal en services de garde?
13. Quelles recommandations adresseriez-vous à votre BC agence pour favoriser la santé des RSG?

Manuscript 1
**Assessment of Perceived Health-Related Quality of
Life of Home-Based Childcare Workers Using the SF-
36v2 Questionnaire**

Manuscript 1: Assessment of Perceived Health-Related Quality of Life of Home-Based Childcare Workers Using the SF-36v2 Questionnaire

INTRODUCTION

The self-perceived health-related quality of life is a great sign of population health status (Shields & Shooshtari, 2001). It captures the perceptions of the individual of his or her own health and the stress experienced (Blaxter, 1989). In Canada, no study has examined the self-perceived health-related quality of life of home-based childcare (HBC) workers or their health in general. Indeed, there is a lack of data on childcare workforce and particularly the HBC workers in the Canadian context (Halfon, 2014). In Canada, there are 34,695 (HBC) workers mainly concentrated in the provinces of Quebec and Ontario where 62% of the national workforce of these is located (Beach, Bertrand, Forer, Michal & Tougas, 2004). Caregivers, in general, tend to have poor perceived health, to report higher levels of depression and anxiety, and are subject to an increased risk of mortality compared to non-caregivers due to the physical and psychological strain (Schulz & Beach, 1999). The existing studies on HBC workers in Canada mainly examined regulations related to their working conditions (e.g. level of education, qualification and training, wages) and underlined that each Canadian province and territory is responsible for monitoring and licensing regulated childcare services according to their provincial legislation and regulations (Beach & Flanagan, 2010; Cox, 2005; Doherty, Lero, Goelman, Tougas, & LaGrange, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2000; Ferns & Friendly, 2015; Goss Gilroy, 1998; Stacey, 2011; Taylor, Dunster & Pollard, 1999; Tessier, Blais & Dion, 1995).

The objective of this paper is to assess the perceived health-related quality of life of HBC workers in the Canadian context by considering gender, age, level of education, income, marital status, Citizenship and the province of work as potential factors associated with self-perceptions

of health-related quality of life (Kaleta, Polanska, Dzionkowska-Zaborszczyk, Hanke & Drygas, 2009). The previous factors can interact to help people feel healthy or put them at risk to feel unhealthy. Indeed, while women generally experience poorer health than men, they have higher levels of morbidity and life expectancy but lower mortality rates, compared to men (Morrissey, 1998). In addition, they often report lower levels of self-rated health, functional health, and higher levels of distress compared to men (Denton, Prus & Walter, 2014). The natural processes of aging increase the risk for most health conditions such as multiple sclerosis, diabetes, circulatory diseases, renal failure, cancer, chronic depression, and other diseases (Slingerland, Van Lenthe, Jukema, Kamphuis, Looman, Giskes, Huisman, Narayan, Mackenback, & Brug, 2007; Ward, Schiller & Goodman, 2014). As the prevalence of chronic health conditions and functional limitations increases with age, the percentage of adults reporting having very good or excellent decline with age (Statistics Canada, 2010). Moreover, a higher level of education is usually positively associated with self-rated health (Piko, 2000; Thorlindsson, Vilhjalmsson, Valgeirsson, 1990) as it enhances social behaviours and healthier lifestyle (Baker, Leon, Smith Greenaway, Collins & Movit, 2011; Cutler & Lleras-Muney, 2007). The analysis of the relationship between income and health shows that an increased level of income is associated with an increased level of good self-health assessment (Erginoz, Alikasifoglu, Ercan, Uysal, Ercan, Albayrak-Kaymak & al, 2004) regardless of the lifestyle (Warren, 1994; Côté, 2008). In terms of marital status and status in country, it is known that single, divorced, separated or widowed individuals, and immigrants are more likely to be exposed to more health-threatening conditions, to suffer from health conditions and have less resources to buffer health threats than married individuals and natives (Adler, Boyce, Chesney, Folkman & Syme, 1993; Goldman & Smith, 2002; Marmot, Ryff, Bumpass, Shipley & Marks, 1997). Finally, the province of living or work is another factor that influences the Canadians' perceived health (Statistics Canada, 2010). A significantly higher

percentage of individuals living in the provinces of New-Labrador and Alberta report very good or excellent perceived health than Canadians. On the other hand, a significantly lower percentage of individuals living in the provinces of Manitoba, Saskatchewan, British-Columbia, Northwest-Territories, and Nunavut report very good or excellent perceived health than Canadians. The percentage of individuals living in the provinces of Quebec, Ontario, Prince Edward Island, Nova Scotia, and Yukon who reported very good or excellent perceived health was close to the percentage of Canadians perceiving the same thing.

According to Ware and Sherbourne (1992), a good assessment of health-related quality of life should comprise (a) limitations in physical activities due to health problems, (b) limitations in role activities due to physical health problems, (c) bodily pain, (d) general health perceptions (e) vitality, (f) limitations in social activities due to physical or emotional problems, (g) general mental health, and (h) limitations in role activities because of emotional problems. The 36-item short-form health questionnaire (SF-36) is one of the best and most commonly generic measuring self-reported instruments used for both healthy and ill individuals (Joshi & Nau, 2001; Shapiro & Richmond 1996). It assesses the previous eight domains in addition to providing a summary physical and mental health measures in terms of the individual's feelings of satisfaction or dissatisfaction (Ware & Kosinski, 2001; Ware & Sherbourne, 1992) as follows:

- **Physical functioning (PF):** this domain examines the degree to which the individual is able to perform *vigorous* and *moderate activities* such as lifting groceries, climbing stairs, bending, kneeling or stooping, walking, bathing and dressing oneself.
- **Physical roles limitation (RP):** this domain sees if the individual's performance of his daily roles is impeded by his physical health. Specifically, it appreciates the degree to which one reduces the time spent on work or other activities, limits the kind and the amount

of roles to be accomplished, and experiences difficulty performing one's usual work or activities.

- **Bodily pain (BP):** this domain aims to find out assesses the intensity of physical pain and the extent to which the individual finds one's normal daily work or activities hindered.
- **General health (GH):** this domain evaluates the individual's perceptions of one's personal health, risk to get sick, likelihood to stay healthy compared to others, and beliefs that one's health gets worse.
- **Vitality (VI):** this domain examines the degree to which the individual feels full of pep, worn and tired.
- **Social functioning (SF):** this domain appraises the extent and the frequency to which the individual's health problems interfere with one's normal social activities and interaction.
- **Emotional roles limitation (RE):** this domain assesses if the individual's performance of daily roles is influenced by one's emotions. Particularly, it examines the degree to which one reduces the time spent on work or other activities, limits the amount of roles to be accomplished, and performs one's work and activities less carefully than usual.
- **Mental health (ME):** this domain evaluates the individuals' degree to which one's feels nervous and depressed.
- **Physical component Summary (PCS):** this domain reflects the extent to which the individual's perceptions of one's health-related quality of life is influenced by one's physical health including physical functioning limitation, physical roles limitations (e.g. disabilities), bodily pain and general health SF-36 domains.
- **Mental component summary (MCS):** this domain reflects the extent to which the individual's perceptions of one's health-related quality of life is influenced by one's mental

health including the vitality, social functioning, emotional roles limitation, and mental health SF-36 domains.

This study has four main objectives. First, we examine how regulated HBC workers in Quebec and in Ontario perceive their health-related quality of life using the SF-36v2. Second, we compare regulated HBC workers' health-related quality of life SF-36v2 scores in Quebec and in Ontario to identify if there are any provincial differences. Third, we compare regulated HBC workers and Canadian women's health-related quality of life SF-36v2 scores to identify if there are any differences. Finally, we examine the association of regulated HBC workers' self-perceived health-related quality of life with factors including age, level of education, income, marital status, status in Canada and the province of work.

METHODOLOGY

The University of Ottawa Research Committee granted ethical approval for the research protocol for this quantitative study (H-11-13-16).

- **Sample and recruitment**

In 2014, we conducted a study on regulated HBC workers' health and work in two Canadian provinces (Quebec and Ontario) where 62% of the national workforce of these work. The target population comprised approximately 21,000 HBC workers (Quebec = 15,000; Ontario = 6,000) (Ministère de la famille du Québec, 2014; Ministry of Education in Ontario, 2014). The inclusion criteria used were: 1) being an Anglophone or Francophone man or women and 2) working as a regulated HBC worker affiliated with a childcare agency in Ontario or a coordinating office in Quebec. An email invitation and one reminder were sent to all regional home-based

childcare networks in Quebec (n=17) and to the regional childcare agencies in Ontario (n=123) asking them to assist us with the recruitment of participants to this study. Those who agreed (Quebec = 13; Ontario = 4) received a letter of information including the links to the anonymous online survey in French and in English to be emailed to their regulated HBC members. They were also asked to send one reminder to their HBC workers two weeks after the initial invitation to ensure survey completion. A total of 695 HBC workers (Quebec = 621; Ontario = 74) completed the survey between April and November 2014.

- **Survey questionnaire and measures**

The anonymous online survey was composed of five sections for a total of 62 multiple-choice response questions, 86 multiple-choice response sub-questions and 1 open question : Section A - Profile of regulated HBC worker (11 questions and 2 sub-questions), Section B - Working conditions of regulated HBC worker (23 questions and 43 sub-questions including the Karasek job content (KJC) questionnaire), Section C - Impacts on health (19 questions and 25 sub-questions including the SF-36 questions), Section D - Actions taken to stay healthy (9 questions and 16 sub-questions), and Section E - HBC worker's comments (1 open question). All questions were formulated by the team of research, except the questions on the SF-36 and Karasek JCQ. Licences for the use of these measure instruments were requested from QualityMetric Health and Dr. Robert Karasek. The survey was available in French and in English and took about 20 to 30 minutes to be completed. Prior to sending the invitations to HBC workers, we asked for suggestions and feedbacks from three HBC workers in Quebec and three HBC in Ontario. After modifications to the content, the final version of the survey was set up online on Fluid Survey. The respondents were invited to read a consent form including information on the purpose of the study,

the participation criteria, the benefits, the risks, the confidentiality and anonymity statements, and the retention of data.

For this study, we used data on the SF-36v2 health-related quality of life scores in addition to the information collected on age groups (20-29 y, 30-39 y, 40-49 y, 50 y and +), level of education (secondary school or less, college, university, other), level of annual gross income (\$25 000 and less, \$25 001 to \$40 000, \$40 001 and +), marital status (married, common-law union, single, and divorced, separated, widowed), status in Canada (Canadian, Immigrant), and the province of work (Quebec, Ontario). Indeed, the online anonymous survey included the latest version of the Medical Outcomes Short Form-36 Health (MOS SF-36v2). It is not restricted to any single disease and it consists of 36 closed-ended questions that measure the eight health-related quality of life domains: 1) Physical functioning (PF, 10 items), 2) Role-Physical (RP, 4 items), 3) Bodily Pain (BP, 2 items), 4) General Health (GH, 5 items), 5) Vitality (VI, 4 items), 6) Social Functioning (SF, 3 items), 7) Role-Emotional (RE, 3 items), and 8) Mental Health (ME, 5 items) and two summary physical and mental health measures (Ware & Kosinski, 2001; Ware, Kosinski & Dewey, 2000). The QualityMetric Health-related quality of life outcomes Scoring Software 4.5 computed the SF-36v2 regular scores ranging from 0 to 100 as well as the norm-based scores for each participant. The norm-based approach adjusts the raw scores (0-100) to have a mean of 50 and a standard deviation of 10.

The SF-36 User Manual recommends using the norm-based scores in Western countries as much as possible instead of the standard 0-100 scale, when possible (Ware, Kosinski & Dewey, 2000). Thus, the norm-based scoring facilitates quick interpretation between health domains where any norm-based score below 50 indicates a poor health-related quality of life perception below the general population average for the domain of interest while scores above 50 reflect a better health-related quality of life perception than the general population average for the domain of interest.

According to Ware (1993), a difference of 5 points or greater with the population SF-36 norms is considered to be clinically and socially meaningful. The specific details of interpretation for each SF-36v2 domain scores below or over the norm of 50 are presented in Table 1.

The SF-36 has been validated in 22 countries, including Canada (Atkinson & Zibin, 1996; Leplege & al., 1995; Ware, Kosinski, Turner-Bowker, & Gandek, 2002) and only requires ten minutes to be completed (Bronowicki, Dures, Deuffic-Burban, Dhumeaux, Izopet, Leplège, Loubière, Pol, Rémy, Roudot, Salmi, Trinchet & Yazdanpanah, 2003; Edelman, Williams, Rothman & Samsa, 1999). The use of SF-36 tool allows researchers to make statistical generalizations applicable to broader groups, expect possible health-related quality of life outcomes and provide potential solutions to improve health-related quality of life in each of the eight health dimensions (Henslin, 2003). An added advantage of using the SF-36v2 in this study is that Hopman, Towheed, Anastassiades, Tenenhouse, Poliquin & Berger (2000) developed Canadian norms for SF-36 in 1997. Their research involved 2896 men and 6527 women randomly selected from the general population aged 25 years or more. According to them, their data is useful for assessing the perceived health of the general population and patient populations. In particular, because this data is accessible by gender, comparisons of SF-36v2 scores of regulated HBC workers and Canadian women were possible.

- **Data analysis**

Statistical analyses were conducted using SPSS version 23. Since all participants replied to all questions, no data was missing from the online survey questionnaire. Descriptive statistics for categorical data such as percentages were calculated to describe the HBC workers' characteristics including their age groups, level of education, level of annual gross income, marital status, status in Canada, and the province of work.

To answer the first objective of this study, which aims to examine how HBC workers in Quebec and in Ontario perceive their health-related quality of life, we entered the responses data related to the SF-36v2 questionnaire on the QualityMetric Scoring Software 4.5. The latter allowed us to get the 0-100 scale scores and the norm-based scores related to each one of the ten domains for each of the 695 participants. Then, for each one of the ten SF-36v2 health-related quality of life domains⁵, we computed the mean and the standard deviation of the SF-36v2 norm-based scores by province. A total of twenty t-tests were used to assess if there were any significant differences between the SF-36v2 means of HBC workers of each province for a specific domain and the norm of 50.

To answer the second objective of this study intending to compare the health-related quality of life SF-36v2 scores of HBC workers in Quebec with those in Ontario and identify if there were any provincial differences, a total of ten t-tests were used to compare the provincial mean norm-based scores for each of the ten SF-36v2 health-related quality of life domains. Because age group, level of education and marital status are important predictors of perceived health, we ensured having an equal age group, level of education and marital status distributions of HBC workers in Quebec and in Ontario matched in 1:1 ratio, prior to using t-tests. Because we have a categorical measure of age, the 1:1 matching remains a good option that allows having comparable groups where age distribution of HBC workers in Quebec and in Ontario is equal. Although the 1:1 matching discards a large number of observations and thus would apparently lead to reduced power, the reduction in power is often minimal. The 1:1 matching has two advantages. First, it reduces bias as the power increases when the groups are more similar (Snedecor and Cochran,

⁵ 1) Physical functioning, 2) Role-Physical, 3) Bodily Pain, 4) General Health, 5) Vitality, 6) Social Functioning, 7) Role-Emotional, 8) Mental Health, 9) Mental component summary and 10) Physical component summary.

1980). Second, it has lower standard deviations than estimates from a linear regression (Smith, 1997).

To answer the third objective aiming to compare the health-related quality of life SF-36 scores of HBC workers with Canadian women and identify differences, a total of six t-tests were used to compare the 0-100 scales SF-36 health-related quality of life means (physical functioning, bodily pain, general health, vitality, social functioning, and mental health). The 0-100 scales SF-36 health-related quality of life norm-based scores for women were used since the norm-based scores were not accessible to our team. No comparison of the domains of role-physical and role emotional has been made because we used the most recent version of the SF-36 while the available normative data for Canadian women used the first version of the SF-36. The questions related to the domains of role-physical and role emotional in the first version of the SF-36 were adapted to reflect the degree of the individual's agreement instead of the presence or the absence of a health limitation, in the most recent version of the SF-36v2. For example, the choices for the question '*Had difficulty performing the work or other activities*', were changed from yes/no to All of the time, Most of the time, Some of the time, A little of the time, and None of the time. Moreover, because the domains of role-physical and role emotional are used in the calculation of the two summary physical and mental health scores, we also avoided comparing these with Canadian normative data for women.

For all independent samples t-tests described previously, five assumptions were respected. Firstly, the provincial samples were randomly drawn from the population of regulated HBC workers in Quebec and in Ontario who were Anglophone or Francophone and had access to the Internet. Secondly, observations within each provincial sample of regulated HBC providers were independent. Thirdly, the normality of sampling distribution of the means was assumed as we had large sample sizes over 30 (Quebec = 621 and Ontario = 74). Fourthly, the assumption of

homogeneity of variance was tested using Levene's Test for Equality of Variances, which is produced in SPSS when running the independent samples t-test. When results for Levene's Test were significant, we used the unequal variances t-test data. Fifth, the dependent variables were continuous. The significance levels of 0.001, 0.01, and 0.05 were used when appropriate to assess the significance of differences.

To answer the last objective of this research aiming to examine the association of regulated HBC workers' self-perceived health-related quality of life with age group, level of education, level of annual income, marital status, status in Canada and the province of work, we used multiple linear regression models. For each of the ten health-related quality of life domains, a multiple linear regression model was constructed by using SPSS considering and the *Enter method* where all independent variables are entered into the equation at the same time. This method is appropriate when the number of independent variables is small and we don't know which independent variables will produce the best prediction equation. For each model, five assumptions were respected. Firstly, the normality of sampling distribution of the mean was assumed with large sample sizes over 30 ($n = 695$). Secondly, the dependent variables were continuous (e.g. SF-36v2 scores). Thirdly, observations were independent from each other. The Durbin-Watson statistics for the ten models showed that the 'd' values are between the two critical values of $1.5 < d < 2.5$ and therefore there is no linear autocorrelation in our multiple linear regression models. Fourthly, linearity relationship between each dependent continuous variable (the ten SF-36v2) and each independent dummy variable was assumed by definition after coding the categorical variables with K-levels to dummy variables (e.g. Point-Biserial Correlation rule). Indeed, each model included six categorical independent variables which were age group, level of education, level of annual income, marital status, status in Canada and the province of work. We transformed all independent

variables composed of K-levels to dummy variables so they can be used in the multiple linear regression models. Finally, the data was weighted to ensure homoscedasticity.

RESULTS

Characteristics of HBC workers

Socioeconomic characteristics of regulated HBC providers are presented in Table 3. The study population included 695 HBC providers. All were female mainly Canadian-born (89.4%), married (49.6%) aged between 30 and 49 years old (74%), having completed at least a college level of education (62.2%), and earning a revenue of \$40 000 or less (81.7%).

Comparison analyses of HBC workers' SF-36v2 scores

➤ Quebec HBC workers' SF-36v2 scores with the norm of 50

The mean norm-based scores of SF-36v2 for eight health-related quality of life domains and two summary measures for HBC workers in Quebec as well as the international SF-36 norm of 50 for all SF-36v2 domains are presented in figure 1. Scores below the norm of 50 indicate a poor health-related quality of life perception.

HBC workers in Quebec scored significantly over the SF-36v2 norm of 50 in physical component summary (Mean = 53.5; $t = 7.1$; $p < .05$). Indeed, they reported significant better physical functioning (Mean = 54; $t = 8.7$; $p < .05$) and general health (Mean = 55.2; $t = 9.7$; $p < .05$) compared to the norm of 50 meaning that they are able to perform most types of physical activities without or with few limitation, disabilities or decrements in well-being and rate their health as excellent.

HBC workers scored significantly below the SF-36v2 norm of 50 in mental component summary (Mean = 48.4; $t = 2.9$; $p < .05$). Indeed, they reported significant poor role emotional

(Mean = 48; $t = 3.7$; $p < .05$) compared to the norm of 50 suggesting that they were dealing with problems with work or other daily activities as a result of emotional problems. Despite they reported poor overall mental health, they reported a significant better vitality (Mean = 51.4; $t = 2.7$; $p < .05$) compared to the norm of 50 meaning that they feel full of pep and energy most of the time.

Finally, the difference of HBC workers' SF-36v2 scores with the norm of 50 was the largest for general health (+5.2 points) followed by physical functioning (+3.5 points), role emotional (-2 points), social functioning (-1 point), vitality (+1.5 points), mental health (+0.4 point), role physical (+0.2 points) and bodily pain (+0.2 points).

➤ **Ontario HBC workers' SF-36v2 scores with the norm of 50**

The mean norm-based scores of SF-36v2 for eight health-related quality of life domains and two summary measures for HBC workers in Ontario and the international SF-36 norm of 50 for all SF-36v2 domains are presented in figure 1. Scores below the latter norm indicate a poor health-related quality of life perception.

HBC workers in Ontario scored significantly over the norm of 50 for both summary measures and all SF36-v2 health-related quality of life domains including physical component summary (Mean = 55.3; $t = 4.1$; $p < .05$), mental component summary (Mean = 54; $t = 2.8$; $p < .05$), physical functioning (Mean = 54.8; $t = 3.7$; $p < .05$), role physical (Mean = 54.5; $t = 3.5$; $p < .05$), bodily pain (Mean = 54.9; $t = 3.4$; $p < .05$), general health (Mean = 57.5; $t = 5.4$; $p < .05$), vitality (Mean = 55.3; $t = 3.4$; $p < .05$), social functioning (Mean = 53.2; $t = 2.2$; $p < .05$), role emotional (Mean = 53.2; $t = 2.3$; $p < .05$) and mental health (Mean = 55.7; $t = 4.1$; $p < .05$). This suggests they tend to perceive positively their health-related quality of life.

Finally, the difference of HBC workers' SF-36v2 scores with the norm of 50 was the largest for general health (+7.5 points) followed by mental health (+5.7 point), vitality (+5.3 points), bodily pain (+4.9 points), physical functioning (+4.8 points), role physical (+4.5 points), social functioning (+3.2 points), and role emotional (+3.2 points).

➤ **Quebec and Ontario HBC workers' SF-36v2 scores**

Results from the Chi-square test for association between the province of work and sociodemographic characteristics are presented in Table 3. Provincial significant differences were detected in age ($\chi^2=8.0$; $p<.05$), level of education ($\chi^2=17.9$; $p<.001$), and marital status ($\chi^2=274.1$; $p<.001$). In Quebec, a higher proportion of HBC workers were younger than those working in Ontario. Indeed, 79.7% of those working in Quebec were under age of 40 compared to 31.1% in Ontario. Workers in Quebec tended to complete less postsecondary education (59.9%) than those in Ontario (81%). HBC workers in Quebec were mostly married (54.6%) while those in Ontario were mainly single (78.4%).

Comparison of both samples with equal age group, level of education and marital status mean norm-based SF-36v2 scores for eight health-related quality of life domains and two summary measures are presented in Table 4. Considering the equal age distribution data, no significant difference was found in terms of HBC workers' overall physical health (Ontario mean score = 55.3; Quebec mean score = 54.5; $t = 0.8795$; $p = 0.3806$) although those in Ontario reported significant better scores in role physical (Ontario mean score = 54.5; Quebec mean score = 51.1; $t = 3.3$; $p<.05$) and bodily pain (Ontario mean score = 55.3; Quebec mean score = 51.4; $t = 2.1$; $p<.05$) than workers in Quebec.

HBC workers in Ontario reported significant better scores than their counterparts in Quebec in mental component summary measures (Ontario mean score = 54 ; Quebec mean score = 49.6 ;

t = 3.4 ; p<.05) due to the differences in vitality (Ontario mean score = 55.3 ; Quebec mean score = 52 ; t = 2.4 ; p<.05), social functioning (Ontario mean score = 53.2 ; Quebec mean score = 50.3 ; t = 2.2 ; p<.05), role emotional (Ontario mean score = 53.2 ; Quebec mean score = 47.9 ; t = 4.4 ; p<.05), and mental health (Ontario mean score = 55.7 ; Quebec mean score = 53 ; t = 2.4 ; p<.05). Consequently, HBC workers in Ontario rated their overall mental health as excellent, felt less fatigue and nervousness, experienced fewer problems with work or other daily activities as a result of emotional problems, and were less depressed than workers in Quebec.

The provincial difference was the largest for role emotional (+5.3 points for HBC workers in Ontario) followed by role physical (+3.4 points for HBC workers in Ontario), vitality (+3.3 points for HBC workers in Ontario), bodily pain (+3 points for HBC workers in Ontario), social functioning (+2.9 points for HBC workers in Ontario), mental health (+2.7 points for HBC workers in Ontario), physical functioning (+0.4points for HBC workers in Ontario), and general health (+0.3 points for HBC workers in Ontario).

Finally, the provincial differences in SF-36v2 health-related quality of life domains for both equal level of education and equal marital status distributions were in the same direction of results for equal age distribution data.

➤ **Comparison analyses of HBC workers' SF-36v2 scores with those of Canadian women**

The mean standard SF-36v2 scores (0-100 scale) for eight health-related quality of life domains and two summary measures for HBC workers and Canadian women are presented in Table 5. As explained previously, we compared six SF-36v2 domains of HBC workers with Canadian normative data for women using the t-test (physical functioning, bodily pain, general health, vitality, social functioning, and mental health). HBC workers' standard SF36-v2 scores (0-100 scale) were significantly higher compared to Canadian normative data for women in physical

functioning ($t = 47.7, p < 0.001$) and general health ($t = 2.0, p < 0.001$). This suggests that they experienced fewer physical limitations and had better health compared with Canadian women. The HBC workers' standard SF-36v2 scores were significantly lower than Canadian normative data for bodily pain ($t = 6.8, p < 0.05$), vitality ($t = 54.7, p < 0.001$), social functioning ($t = 21.5, p < 0.001$) and mental health ($t = 5.6, p < 0.001$). Consequently, HBC workers were experiencing more pain, more fatigue, more interference of health problems with social activities, and more psychosocial distress compared to Canadian women.

The difference between HBC workers and Canadian women was the largest for the vitality domain (-9 points for HBC workers) followed by physical functioning (+7.4 points for HBC workers), social functioning (-4 points for HBC workers), bodily pain (-1.3 points for HBC workers), mental health (-0.9 points for HBC workers), and general health (-0.3 points for HBC workers).

Multiple linear regression analyses

A total of ten weighted multiple linear regression models were constructed to examine the relationship between the independent variables (age group, level of education, level of annual gross income, marital status, status in Canada and the province of work) and the dependent variable (HBC workers self-perceived health-related quality of life) (Table 6). All model fitted well the data (F tests $p < 0.05$). A positive correlation was found between the six factors and each of the ten models ($0.141 < r < 0.298$). The weighted linear regression models explained between 2% and 8.9% of the variance in the data. According to Wooldridge (2009, p. 44), "in the social sciences, low R -squared in regression equations are not uncommon for cross-sectional data...low R -squared does not necessarily mean that an OLS regression equation is useless. It is still possible that (2.39) is a good estimate of the ceteris paribus relationship." Considering the ten models simultaneously,

analyses revealed that age, level of education and the province of work or living are the only significant factors associated with the SF-36v2 health-related quality of life scores.

- **Model 1: Physical functioning**

Age is a significant factor associated with physical functioning scores when controlling for the level of education, level of annual gross income, marital status, status in Canada, and the province of work. HBC workers under age of 40 were less likely to report higher scores in the physical functioning domain ($B = -0.928$; $p < 0.05$) than those over 40 years of age. Thus, the younger group of HBC workers performed a limited number of physical activities and was less likely to accomplish the most vigorous ones. The R^2 value for this model indicates that the variables used account for 2% of the variance.

- **Model 2: Role physical**

The province of work is a significant factor associated with role physical scores when controlling for age group, level of education, level of annual gross income, marital status, and status in Canada. Indeed, HBC workers working in the province of Ontario ($B = 4.744$; $p < 0.05$) were more likely to report higher scores than their counterparts in Quebec meaning that they experienced fewer problems with work or other daily activities as a result of physical health. The R^2 value for this model indicates that the variables used account for 6.4% of the variance.

- **Model 3: Bodily pain**

The province of work is a significant factor associated with bodily pain when controlling for the age group, level of education, level of annual gross income, marital status, and status in Canada. HBC workers in Ontario ($B = 5.943$; $p < 0.05$) were more susceptible to report higher

scores than those working in Quebec. Higher scores in bodily pain domain suggest less physical limiting pain. The R^2 value for this model indicates that the variables used account for almost 4.7% of the variance.

- **Model 4 : General health**

The province of work is a significant factor associated with general health scores when controlling for age group, level of education, level of annual gross income, marital status, and status in Canada. Indeed, HBC workers in Ontario ($B = 3.628$; $p < 0.05$) were more likely to report higher scores than their counterparts in Quebec meaning that they experienced fewer problems with work or other daily activities as a result of physical health. The R^2 value for this model indicates that the variables used account for 2.2% of the variance.

- **Model 5 : Vitality**

Age and the province of work are significant factors associated with vitality scores of HBC workers when controlling for the level of education, level of annual gross income, marital status, and status in Canada. HBC workers over age of 40 ($B = -1.323$; $p < 0.05$) were more likely to report higher scores than those aged less than 40 years. Those working in Ontario ($B = 3.167$; $p < 0.05$) were more likely to report higher scores than those working in Quebec. Higher scores in vitality domain suggest less fatigue and feelings of full of pep and energy most of the time. The standardized regression scores (Beta) indicate that the province of work (Beta = 0.122) is the variable showing the strongest predictive strength followed by age (Beta = -0.080). The R^2 value for this model indicates that the variables used account for almost 3.2% of the variance.

- **Model 6 : Social functioning**

The province of work is a significant factor associated with social functioning scores when controlling for age group, level of education, level of annual gross income, marital status, and status in Canada. Indeed, HBC workers in Ontario ($B = 5.191$; $p < 0.05$) were more likely to report higher scores than their counterparts in Quebec meaning that they experienced fewer problems with work or other daily activities as a result of physical health. The R^2 value for this model indicates that the variables used account for 5% of the variance.

- **Model 7 : Role emotional**

The level of education and the province of work are significant factors associated with role emotional scores when controlling for age group, level of annual gross income, marital status, and status in Canada. Indeed, HBC workers who completed a postsecondary level of education ($B = 1.623$; $p < 0.05$) were more likely to report higher scores than their counterparts without this level of education. Those working in Ontario ($B = 4.703$; $p < 0.05$) were more likely to report higher scores than those working in Quebec. Higher scores in role emotional domain mean that they experienced fewer problems with work or other daily activities as a result of emotional health. The standardized regression scores (Beta) indicate that the province of work (Beta = 0.243) is the variable showing the strongest predictive strength followed by age (Beta = 0.088). The R^2 value for this model indicates that the variables used account for 8.4% of the variance.

- **Model 8 : Mental health**

The province of work is a significant factor associated with mental health scores when controlling for age group, level of education, level of annual gross income, marital status, and status in Canada. HBC workers in Ontario ($B = 4.364$; $p < 0.05$) were more likely than their

counterparts in Quebec to report higher scores. This means that they experienced fewer problems with work or other daily activities as a result of physical health. The R^2 value for this model indicates that the variable used accounts for 4.4% of the variance.

- **Model 9 : Physical component summary**

The province of work is a significant factor associated with the physical health component summary scores of HBC workers when controlling for age group, level of education, level of annual gross income, marital status, and status in Canada. HBC workers in Ontario were more likely to report higher scores in the physical health summary domain ($B = 2.191$; $p < 0.05$) than those working in Quebec. This means that they experienced less physical limitations, disabilities, decrements in well-being or fatigue, and rate their health as excellent. The R^2 value for this model indicates that the variables used account for 2.3% of the variance.

- **Model 10 : Mental component summary**

Age group and the province of work are significant factors associated with Mental component summary scores when controlling for the level of education, level of annual gross income, marital status, and status in Canada. Indeed, HBC workers aged over 40 years ($B = -1.634$; $p < 0.05$) were more likely to report higher scores than those less than 40 years old. Those working in Ontario ($B = 4.746$; $p < 0.05$) were more likely to report higher scores than those working in Quebec. Higher scores in mental component summary suggest less fatigue, less interference of emotional problems with normal daily social activities, fewer problems with work or other daily activities, less physical pain, less fatigue, less nervousness and depression than workers in Quebec. The standardized regression scores (Beta) indicate that the province of work (Beta = 0.226) is the

variable showing the strongest predictive strength followed by age (Beta = -0.088). The R^2 value for this model indicates that the variables used account for 8.9% of the variance.

DISCUSSION

Key contributions to the literature

The main objectives of this study were to 1) examine how regulated HBC workers in Quebec and in Ontario perceived their health-related quality of life using the SF-36v2, 2) compare regulated HBC workers health-related quality of life SF-36v2 scores in Quebec and Ontario, 3) compare regulated HBC workers and Canadian women health-related quality of life SF-36v2 scores, and 4) examine the association of regulated HBC workers' self-perceived health-related quality of life with sociodemographic factors including age, level of education, income, marital status, status in Canada and the province of work. This work contributes to the literature on regulated early childhood workers' health.

Firstly, HBC workers in Ontario perceived positively their overall mental and physical health-related quality of life while their counterparts in Quebec perceived positively their overall physical health and poorly their overall mental health-related quality of life. Indeed, HBC workers in Quebec were dealing with problems with their work or other daily activities as a result of emotional problems (Mean score below 50 for role emotional domain). Our study did not examine what factors could explain emotional problems of HBC workers in Quebec but it is documented that mental health is influenced by individual attributes, social circumstances in which people find themselves and the environment in which they live (WHO, 2012). The workers' risks for mental health are in general increased when they have long working hours, and demanding working conditions, are socially isolated, have poor social relationships, and an inadequate social support (Ganster, 1995; Holt-Lunstad & Smith, 2015; Umberson & Karas-Montez, 2010). In line with the

previous factors associated with mental health, a study on HBC workers in Quebec underlined that these workers work in an isolated environment from other adults at their homes, for an average of 64 hours per week with a group of children under age of 5 (Stitou, Bourgeault & Kohen, 2016). The same study showed that a non-negligible proportion of HBC workers, especially in Quebec, had poor relationships with their supervisors (12%) and children parents (35%). Misunderstandings and conflicts with home visitors were mainly about the physical workplace and personal values while those with parents of children were related to non-compliance with HBC rules such as late payments, non-respect of opening or closing hours, and the lack of providing appropriate clothing and hygiene items for their children. These may explain in part why HBC workers' assessed poorly their mental health-related quality of life.

Secondly, this study also shows that the main provincial difference in perceived health-related quality of life of HBC workers in Quebec and Ontario is related to mental health. Indeed, HBC workers in Quebec were dealing with more fatigue, more problems with work or other daily activities, more nervousness and more feelings of depression than workers in Ontario. Although our study did not examine what explain the previous perceptions, we showed that age and province of work were key factors associated with perceived overall mental health-related quality of life.

Thirdly, when comparing HBC workers to Canadian women, we found that these workers were experiencing more pain, more fatigue, more interference of health problems with their social activities, and more psychosocial distress than Canadian women. Although Canadian women tend to be more present in the education and healthcare sectors (Frenette & Coulombe, 2007), our results support that HBC workers as caregivers had poorer physical health outcomes. It is well documented that care work attracts individuals from vulnerable and marginalized populations (e.g. women, ethnic minorities), requires often a low level of education, is poorly paid, involves high responsibility and emotional duties, and implies high demands (physical and mental) and low

control over work (EFILWC, 1996; England & Folbre, 2002 & 2003). The previous facts increase the risks for physical and mental health. Moreover, the differences in health outcomes between HBC workers and Canadian women could be explained by their double-duty caregiving. Indeed, nearly seven out of ten HBC workers are mothers of minor children (Stitou, Bourgeault, Kohen, 2016) and three out of ten Canadian households include children under age of 24 years (Statistics Canada, 2015). Thus, because of the higher proportion of HBC workers who are mothers and the nature of their work (childcare services), we believe that they might have more personal and family related responsibilities than Canadian women with children. This situation increases their stress and health risks.

Fourthly, another finding consistent with other studies addressing factors associated with health perceptions is the fact that age, level of education and the province of work were found to be the main factors significantly associated with SF-36v2 health-related quality of life outcomes of HBC workers. A surprising finding was that the youngest age group of HBC workers (under 40 years old) was more susceptible to report poorer health outcomes than those older. This finding is supported by the study conducted by Cockerham, Sharp and Wilcox (1983) underlying that when assessing perceived health-related quality of life status, individuals of older age groups tend to perceive their health in a significantly more positive fashion than people of younger adult age groups. Both our study and theirs didn't explain why it is the case. Future studies may try to explain the previous finding.

In Canada, there are no postsecondary credentials required to work as a regulated or licensed HBC provider (Flanagan, Beach, Michal & Cormier; 2009) but HBC workers in Quebec tend to complete less postsecondary education than those in Ontario. HBC workers with a postsecondary level of education were more likely to report higher scores in the role emotional domain than those with a lower level of education. This finding is in line with the literature. Indeed,

higher education contributes to higher income, better medical treatments and social status, healthier lifestyle, enhanced social behaviors and generally better mental health (Baker, Leon, Smith Greenaway, Collins & Movit, 2011; Goldman and Smith, 2011; Hummer and Hernandez, 2013; Pampel, Krueger & Denney, 2010).

The province of work was found to be the most relevant factor as it is associated with most HBC workers health outcomes. Indeed, HBC workers in Ontario were more likely to report better health outcomes than those working in Quebec. Our work did not explain what could explain this fact but it is known that HBC workers in Ontario work with a lower number of children and fewer hours per week. Indeed, HBC workers in Ontario work 59 hours weekly with four children while those in Quebec work 64 hours per week with six children because the number of children is limited by age in Ontario (e.g. max of 2 children of age 2, max of 3 children of age 3) (Stitou, Bourgeault & Kohen, 2016).

Contrary to our findings showing that marital status is not associated with perceived health among HBC workers, the study of Cockerham, Sharp and Wilcox (1983) showed that divorced, separated or widowed individuals tend to have positive perceptions of their health status while those single tend to have negative perceptions. Moreover, previous studies revealed that singles, divorced couples, and widowed individuals go to the doctor more often, have higher hospital admissions, are more likely to suffer from illnesses and have a highest morbidity rates than married couples because they have lower incomes and less access to health insurance (Anson, 1989; Carter & Glick, 1976; Wood, Goesling, & Avellar, 2007; Wyke & Ford, 1992). In addition, because these women have less access to emotional support from an adult living partner compared to married or in common-law union individuals, their sense of belonging is decreased and their stress and mental

health risks are increased (Berkman, 1988; Coombs, 1991; Kessler & Essex 1982; Ross, Mirowsky & Goldstein, 1990; Simon & Marcussen, 1999).

Contrary to our results showing that status in Canada is not associated with perceived health among HBC workers, it is documented that status in Canada is a determinant of health (Ng, Wilkins, Gendron and Berthelot, 2005). Immigrant's health is influenced by different factors related to the migration to Canada, the location of their home country and the way they were living there, and finally the way and the reason why they immigrated (Gushulak, Pottie, Hatcher-Roberts, Torres & DesMeules, 2011). In Canada, immigrants generally arrive with better health than natives (Ng, Wilkins, Gendron and Berthelot, 2005). Because they are screened on medical and health-related criteria before immigrating to Canada, they are usually healthier than the Canadian-born population at arrival (Ng, Wilkins, Gendron and Berthelot, 2005). About 97% of them indicate a good, very good or excellent health when asked about their health (Chui, 2003). Jasso, Massey, Rosenzweig & Smith (2004) state that in some cases, immigrants understate health issues, either because they have different perceptions or health problems were not diagnosed. This can give the appearance of a healthy immigrant population when it is not the case. Many immigrants from developing countries who moved to developed countries (e.g. Canada) are advantaged by the fact they have favorable habits from the native country and the good healthcare system of their new country (Powles, 1990; Khlat & Darmon, 2003). With years, immigrants adopt the lifestyle and habits of their host country, which impacts their health (Kennedy, McDonald & Biddle, 2006). The additional living years in the host developed country contributes to narrow health gap considerably between native-born individuals and immigrants by worsening the latter's health after about 20 to 30 years in Canada (Antecol & Bedard, 2006). This declining in health involves not only socio-economic (e.g. difficult access to health services, adoption of the host's country

lifestyle such as diet), cultural, behavioural, environmental and biological factors, but also pre-immigration history (Ng, Wilkins, Gendron and Berthelot, 2005).

Finally, the implications of the previous results are important for stakeholders and decision makers in the childcare sector who can intervene on potential health risk factors to improve HBC workers' health such as HBC regulation and working conditions.

Limitations and areas for future research

Results should be interpreted with caution and take into account the limits of this study. Firstly, the recruitment process was challenging in Ontario and only 74 HBC workers participated in this study compared to 621 HBC workers in Quebec. The childcare agencies involved in the process of recruitment explained this by the fear of participants to share their personal information online, refusal of participants' spouses, the incapacity to use technologies (e.g. Ipad, computer) to complete the anonymous online survey or the inability of participants to understand one of Canada's official Languages. The difference in terms of number of participants in Quebec and Ontario could be explained by the fact the HBC workers in Quebec were in the process of negotiating their provincial second collective agreement when we were collecting our data. They were very interested in sharing and explaining the challenges of their work so that stakeholders can consider their situation with more attention. Moreover, most participants in Ontario were from the Champlain region while in Quebec, participants were from all regions although 13 childcare networks among 17 participated.

Secondly, we acknowledge that most collected data for this study was based on self-reported data and represented responses at the time when the survey was completed. The survey study limited participants to the SF-36v2 preconstructed questions and responses. No study based

on perceptions or self-reported data could avoid entirely the risk of social desirability (Paulhus, 1991). Thus, we had to trust the way that HBC workers assessed their health.

Thirdly, the SF-36v2 doesn't provide any indicator on the mortality rate (incidence of death in a population measured in terms of the number of people per 100 000 in a population that die over a period of time), the morbidity rate (incidence of disease in a population measured in terms of the number of people per 100 000 in a population that become sick over a period of time) or life expectancy (the average number of years a person can expect to live) as another way to evaluate subjective health among HBC workers. We assessed HBC workers' perceived health using the SF-36v2 and controlling for the individual and socioeconomic factors (e.g. age group, province of work, level of education, annual income, marital status, and status in Canada). This study doesn't allow knowing if pre-existing chronic conditions were related to the poor SF-36v2 scores especially among HBC workers in Quebec. Future studies may examine how other social determinants of health than the individual and socioeconomic factors influence the HBC workers' perceived health such as the lifestyle-related factors or pre-existing chronic conditions for examples.

Fourthly, because of the lack of research on regulated HBC workers' perceived health in Canada and internationally, we were not able to discuss our findings in the light of what other researchers would have found. Despite the previous fact, we conducted comparison analyses of HBC workers' subjective health (SF-36v2 scores) with the Canadian normative data for women developed by Hopman & al. (2000). The latest included individuals aged over 24 years old while our data included women aged over 20 years old. Also, comparisons of HBC workers' SF-36 scores with Canadian normative data by age-group and/or province weren't possible. Our study included the age-groups 20-29, 30-39, 40-49 and 50 and more while the Canadian normative data included the age-groups 25-34, 35-44, 45-54, 55-64, 65-74 and 75 or more. SF-36 normative data by

Canadian province wasn't accessible to our team. Other potential differences could exist between our sample of HBC workers and the Canadian norms developed by Hopman & al. (1998) due to the differences in work status, income, level of education, etc.

Fifthly, the results may not be generalizable to the whole population of regulated HBC workers in Canada. Indeed, the study was conducted in two provinces where the majority of the national workforce of HBC workers is located (62%) and their work context may differ between provinces due to the provincial regulations shaping the childcare sector. Also, because age was a categorical variable, HBC workers in Quebec and in Ontario were matched in a ratio of 1:1 to control for the differences in age distribution categories, we believe that these match groups are not representative of all HBC workers in Quebec and in Ontario. Chance could have played a role in our findings as many comparisons have been made. Thus, our results are generalizable to the sample studied only. Moreover, the exact response rate is unknown since many regional home-based childcare networks avoided confirming the total number of invitations sent out and whether or not a reminder was sent two weeks after the initial invitation. However, we estimate that 3.3% ($f = n/N \approx 695/21000 = 3.3\%$) of the population of HBC workers in Quebec and Ontario participated in the survey.

Finally, our findings revealed that age group, level of education, and the province of work used in the regression models explained a very low percentage of the variance in the data (max 8.9%). Although these variable fitted in all models and each model was weighted, we recommend to future researchers to explore other factors than those used in this study that may explain better the perceived health-related quality of life scores of HBC workers. For example, a future study could examine if the presence of a chronic health condition influences self-assessment of mental and physical health among HBC workers especially in Quebec where they tend to report poorer perceived health outcomes.

Despite the previous limitations, our study has several strengths. It remains to our knowledge the first and the largest study on HBC workers' health-related quality of life (n = 695) in the Canadian context. It assesses their subjective health by taking into account the SF-36v2 norm of 50 for good perceived health-related quality of life and underline age group, marital status and the province of work as sociodemographic factors associated with HBC workers' perceived health-related quality of life. In addition, it used an online anonymous survey, which was an advantage for our study. According to the American Association for Public Opinion Research (2010), research participants tend to report higher socially undesirable attitudes and behaviours in self-reported web-based questionnaires than in face-to-face interviews. The social distance and the impersonal nature of the Internet when using a web-based research are factors that may eliminate some of the social desirability (Joinson, 2001; Newman, Des-Jarlais, Turner, Gribble, Cooley & Paone, 2002). Thus, we believe that HBC workers were encouraged to share their real perceptions of their health-related quality of life.

CONCLUSION

HBC workers in Ontario assessed positively their overall mental and physical health while those in Quebec reported poor perceived overall mental health. The main provincial difference in health outcomes among HBC workers was related to mental health. Moreover, HBC workers perceive poorly their health compared to Canadian women. Finally, age group, level of education, and the province of work were factors associated with SF-36v2 health-related quality of life outcomes among HBC workers.

TABLE 1: Description of SF-36 Health-Related Quality of Life Below and Over the Norm of 50

	Scores below 50	Scores over 50
Physical functioning (PF)	Limited a lot in performing most physical activities including bathing or dressing due to health	Performs all types of physical activities including the most vigorous without limitations to health
Role-Physical (RP)	Problems with work or other daily activities as a result of physical health	No problem with work or other daily activities as a result of physical health
Bodily Pain (BP)	Very severe and extremely limiting pain	Evaluates personal health as Excellent
General Health (GH)	Evaluates personal health as poor and believes it is likely to get worse	Evaluates personal health as excellent
Vitality (VI)	Feels tired and worn out most of the time	Feels full of pep and energy all of the time
Social Functioning (SF)	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
Role-Emotional (RE)	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
Mental Health (ME)	Feelings of nervousness and depression most of the time	Feels peaceful, happy and calm all of the time.
Physical Component Summary Score (PCS)	Substantial limitations in self-care, physical, social, and role activities; severe bodily pain; frequent tiredness; health rated “poor”	No physical limitations, disabilities, or decrements in well-being; high energy level; health rated “excellent”
Mental Component Summary Score (MCS)	Frequent psychological distress, substantial social and role disability due to emotional problems; health in general rated “poor”	Frequent positive affect; absence of psychological distress and limitations in usual social/role activities due to emotional problems; health rated “excellent”

Adapted from Ware & Kosinski (2001)

TABLE 2: Durbin-Watson Statistic

Models	d
Model 1 : Physical functioning	1.941
Model 2 : Role physical	1.92
Model 3 : Bodily pain	1.788
Model 4 : General health	1.795
Model 5 : Vitality	1.741
Model 6 : Social functioning	1.836
Model 7: Role emotional	1.934
Model 8: Mental health	1.827
Model 9 : Physical component summary	1.84
Model 10 : Mental component summary	1.811

TABLE 3: Socioeconomic Characteristics of Home-Based Childcare Providers (n = 695)

	Total sample		Quebec		Ontario		χ^2	P-value
	n	%	n	%	n	%		
Total	695	100%	621	100%	74	100%		
Age							8.0	p <0.05
20-29 y	32	4.6%	28	4.5%	5	6.8%		
30-39y	257	37.0%	239	38.5%	18	24.3%		
40-49 y	257	37.0%	229	36.9%	28	37.8%		
50 y and +	149	21.4%	125	20.1%	23	31.1%		
Education							17.9	p <0.001
Secondary School or less	226	32.5%	212	34.1%	14	18.9%		
College	302	43.5%	266	42.8%	36	48.6%		
University	130	18.7%	106	17.1%	24	32.4%		
Other	37	5.3%	37	6.0%	0	0.0%		
Income							0.393	0.822
\$25 000 and less	268	38.6%	237	38.2%	31	41.9%		
\$25 001 - \$40 000	300	43.2%	270	43.5%	30	40.5%		
\$40 001 and +	127	18.3%	114	18.4%	13	17.6%		
Marital status							274.1	p <0.001
Married	345	49.6%	339	54.6%	6	8.1%		
Common-law union	192	27.6%	191	30.8%	1	1.4%		
Single	104	15.0%	46	7.4%	58	78.4%		
Divorced, separated or widowed	54	7.8%	45	7.2%	9	12.2%		
Status in Canada							1.5	0.23
Canadian	621	89.4%	558	89.9%	63	85.1%		
Immigrant	74	10.6%	63	10.1%	11	14.9%		

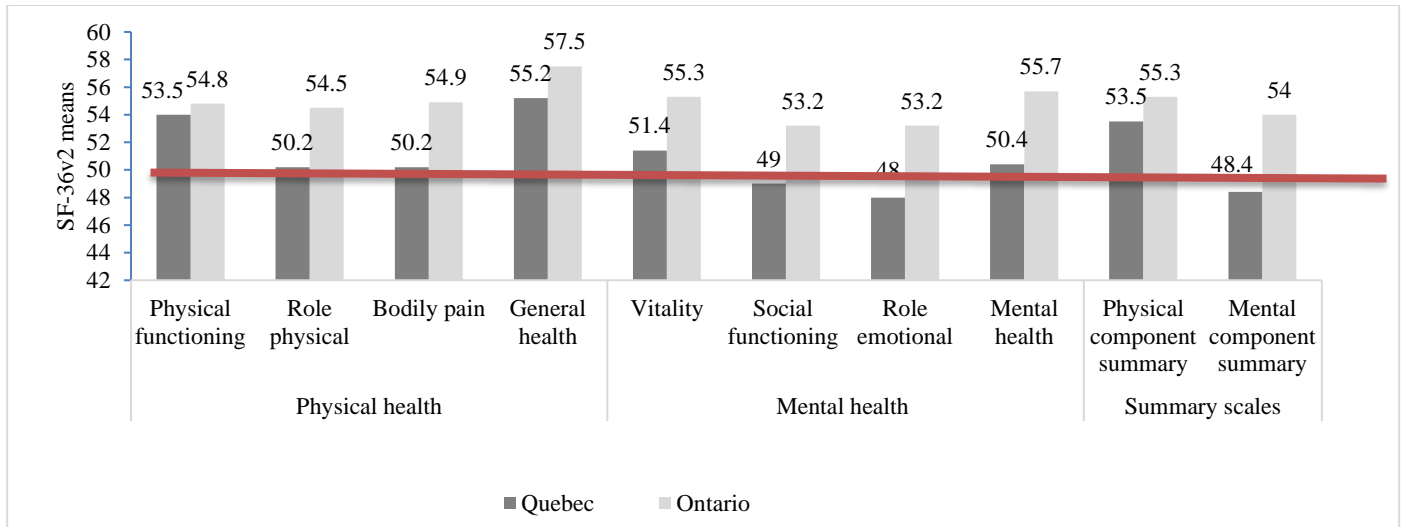


Figure 1: Mean Norm-Based Scores for Eight Health-Related Quality of Life Domains of The Medical Outcomes Study 36-Item Short Form and for the Two Summary Measures (Physical Component and Mental Component) for Home-Based Childcare Workers in Quebec and Ontario (N=695)

TABLE 4: Comparison of Equal Age, Level of Education and Marital Status Distributions of Home-Based Childcare Workers' SF-36v2 Scores in Quebec and in Ontario

Adjustment by		Age* (n = 74 in each group)		Level of Education* (n = 74 in each group)		Marital status* (n = 60 in each group)	
		Mean	SD	Mean	SD	Mean	SD
Physical functioning	QC	54,4	4,3	54,9	4,4	53,4	8,7
	ON	54,8	5,0	55,1	5,1	55,0	5,4
Role physical	QC	51,1	6,7	50,8	6,9	50,4	8,0
	ON	54,5	5,8	54,4	5,8	54,1	6,1
Bodily pain	QC	51,9	10,0	49,9	10,6	49,3	11,3
	ON	54,9	7,6	55,1	7,5	54,7	8,0
General health	QC	57,2	6,0	55,9	6,5	56,1	8,4
	ON	57,5	6,7	57,6	6,8	57,5	6,9
Vitality	QC	52,0	7,9	52,1	6,0	52,3	8,5
	ON	55,3	8,9	55,3	8,9	54,8	9,6
Social functioning	QC	50,3	9,0	49,5	8,3	48,5	8,9
	ON	53,2	7,3	52,9	7,3	52,5	7,7
Role emotional	QC	47,9	8,3	48,2	8,5	47,9	9,8
	ON	53,2	6,2	53,1	6,2	52,6	6,6
Mental health	QC	53,0	7,3	51,2	7,8	51,2	7,9
	ON	55,7	6,5	55,6	6,4	55,3	6,9
Physical components summary	QC	54,5	6,1	53,8	6,9	54,0	6,4
	ON	55,3	4,9	55,3	4,9	55,1	5,2
Mental component summary	QC	49,6	8,9	49,1	8,9	49,0	9,5
	ON	54,0	6,9	54,0	6,8	53,5	7,3

*t-test p<.05 in bold

TABLE 5: Comparison of Home-Based Childcare Workers and Canadian Women SF-36v2 Health-Related Quality of Life Scores

	Canadian Women (n = 6527)		Home-Based Childcare Workers (n = 695)		t-test
	Mean	S.D	Mean	SD	
Physical functioning	83.5	21.2	90.9	14.6	47.7*
Role physical	78.7	35.5	82.0	20.9	-
Bodily pain	73.3	23.3	72.0	24.0	6.8**
General health	76.4	17.7	76.7	18.1	2.0*
Vitality	69.9	18.4	60.9	16.8	54.7*
Social functioning	84.3	20.7	80.3	21.3	21.5*
Role emotional	81.2	33.7	81.7	21.2	-
Mental health	76.1	15.7	75.2	15.8	5.6**
Physical components summary	49.7	9.4	53.7	7.0	-
Mental component summary	50.9	9.6	49.0	9.1	-

- For this health-related quality of life domain, the Canadian normative data available was the SF-36v1 while we used the SF-36v2 data for Home-Based Childcare Workers. No comparison was possible.

*p<.001

** p<.05

TABLE 6: Weighted Multiple Linear Regression Analyses – Relationship Between Age, Level of Education, Income, Marital Status, Status in Canada And The Province of Work With SF-36v2 Health-related Quality of Life Domains (n = 695)

Factors *** SF-36v2 domains	Physical health domains								Mental health domains								Summary health domains			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9		Model 10	
	Physical functioning		Role physical		Bodily pain		General health		Vitality		Social functioning		Role emotional		Mental health		Physical component summary		Mental component summary	
	B	Beta	B	Beta	B	Beta	B	Beta*	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	52,634		50,016		47,786		53,992		52,684		47,674		47,150		51,706		52,437		49,963	
Age less than 40 y.	-.928	-.084*	-.715	-.048	-1,006	-.052	-.748	-.044	-1,323	-.081*	-1,200	-.068	-.081	-.004	-1,098	-.065	-1,020	-.074	-1,634	-.088*
Postsecondary education completed	.688	.063	.206	.013	-.538	-.028	-.593	-.035	.095	.006	.234	.013	1,623	.088*	.299	.017	.421	.030	.639	.033
Income of \$40,000 and plus	-.664	-.043	-.574	-.031	-.744	-.031	-1,259	-.054	-.728	-.033	.325	.015	.538	.024	-.242	-.012	-1,131	-.062	.327	.015
Married or in common-law union	.892	.068	.818	.051	1,749	.080	1,449	.075	-.834	-.043	1,283	.068	-.327	-.018	-1,009	-.058	.961	.068	-.924	-.049
Canadian	.783	.045	-.206	-.010	2,046	.062	.949	.032	.055	.002	.589	.021	.069	.003	-.111	-.004	.767	.040	-.649	-.023
Working in Ontario	1,229	.085	4,744	.272*	5,943	.245*	3,628	.161*	3,167	.122*	5,191	.243*	4,703	.243*	4,364	.213*	2,191	.141*	4,746	.226*
Model summary (R)	0,141		0,253		0,217		0,148		0,179		0,224		0,290		0,272		0,152		0,298	
Model summary (R2)	0,02		0,064		0,047		0,022		0,032		0,05		0,084		0,074		0,023		0,089	
Test of good fit Anova (F)	2.329**		7.862**		5.71**		2.596**		3.806**		5.982**		10.498**		9.212**		2.728**		11.245**	
Mean	54.1		50.7		50.7		55.4		51.8		49.5		48.5		51		53.7		49	
SD	0.72		1.41		1.8		1.18		1.44		1.55		1.8		1.8		0.92		2.05	

*t-test p<.05

** F test p<.05

*** Factors were coded as binary variables.

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Manuscript 2
**Chronic Conditions Among Home-Based
Childcare Workers and Associations with Broader
Determinants of Health of the Dahlgren Model**

Manuscript 2: Chronic Conditions Among Home-Based Childcare Workers and Associations with Broader Determinants of Health of the Dahlgren Model

INTRODUCTION

Caregivers in general tend to report a poorer health status compared to non-caregivers due to the physical and psychological job strain and are subject to an increased risk of mortality (Schulz & Beach, 1999). There is a lack of data focusing on the health and well-being of regulated Home-Based Childcare (HBC) workers in Canada (Halfon, 2014). Nearly 62% of the national workforce of HBC workers is found in the provinces of Quebec and in Ontario ((Beach & Costgliola, 2005). Chronic health conditions among HBC workers in Canada are one of the topics poorly documented. A chronic health condition is an illness of long duration, which usually develops slowly, is rarely curable, and requires permanent use of medication and treatments (Ward, Schiller & Goodman, 2014). It may cause periodic pain, reveal symptoms of imminent diseases, in addition to having difficulties in accomplishing everyday tasks. We do not know the proportion of HBC workers in Canada concerned with chronic conditions, which ones are the most prevalent among this occupational group, if they developed some health issues because of their daily work or other non-work-related factors (e.g. age, gender, etc.) and if they do this work because they have chronic conditions making it difficult to do other kinds of work. Personal factors and factors related to their lifestyle, social and community networks, working conditions and socioeconomic conditions are known to be broader social determinants of health (Dahlgren and Whitehead, 1991). We suspect these modifiable and non-modifiable risk factors to be associated with chronic health conditions among HBC workers.

Personal factors

Age and gender are non-modifiable personal factors that determine the health status of individuals. On one hand, chronic conditions may appear at any age including in childhood, adulthood, or in middle age (Ward, Schiller & Goodman, 2014) and the risks may increase with the natural process of aging among different populations (Slingerland, van Lenthe, Jukema, Kamphuis, Looman, Giskes, Huisman, Narayan, Mackenback, & Brug, 2007; Ward, Schiller & Goodman, 2014). On the other hand, women are more affected by chronic conditions than men because they tend to live longer and to experience more decline in functions over the time (Morrissey, 1998).

Individual lifestyle factors

Daily level of physical activity, daily fruit and vegetable consumption, hours of sleep, and tobacco use are modifiable factors that can increase, reduce or delay the occurrence of chronic conditions. Firstly, being physically active can reduce the risk of mortality from many health conditions such as cardiovascular disease (Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010). The Canadian Physical Activity Guidelines (2011) recommend at least 150 minutes of moderate-to-vigorous physical activity per week for adults aged 18 and over to achieve health benefits. Secondly, an adequate consumption of fruits and vegetables in terms of variety and quantity (e.g. 400 gr.) reduces risks for cardiovascular diseases, stomach cancer, and colorectal cancer, diabetes and obesity (WHO, 2016b). The adoption of a healthy lifestyle combining physical activity, good nutrition, and a healthy weight can prevent up to 80% of coronary heart diseases, 90% of type 2 diabetes, and near 34% of all cancers (Hu, Manson, Stampfer, Colditz, Liu, Solomon & Willett, 2001; Key, 2002; Stampfer, Hu, Manson, Rimm & Willet

2000). Thirdly, adults should sleep eight hours a day, to reduce health risks including cardiovascular diseases, diabetes, high blood pressure, hypertension, abdominal obesity, and elevated fasting glucose (Ayas, white & Manson, 2003; Cappuccio, Stranges & Kandala, 2007; Horne, 2004; Hall, Muldoon, Jennings, Buysse, Flory & Manuck, 2008; Spiegel, Leproult & Van Cauter, 1999; Van Dongen, Maislin, Mullington, Dinges, 2003). Sleep durations of less than six hours or more than nine hours are associated with increased morbidity and mortality (Kripke, Garfinkel, Wingard, Klauber & Marler, 2002; Wingard & Berkman, 1983). Finally, smoking and tobacco exposure are among the main causes of many chronic diseases (e.g. cardiovascular disease, pulmonary diseases, cancer, etc.) and deaths across the world (Samet, 2013; WHO, 2008). Smoking is more prevalent in low-income populations and the prevalence is higher among women than men (WHO, 2006).

Social and community networks factors

Help in daily life and relationship with family members, friends, supervisors and parents are modifiable social and community networks factors that may affect an individual's health. The quality and the quantity of social relationships shape a range of health outcomes including mental health, physical health, behaviours and mortality risk (Umberson & Karas-Montez, 2010). Indeed, the quality of relationships with others depends on the personal emotions, feelings, and perceptions (Fisher & Shapiro, 2006). Having positive relationships with other may decrease the health risks. Regular social support increases the individual's feelings of control, promotes health and well-being (Ganster, 1995; Lutgendorf, Sood, Anderson, McGinn & Maseri 2005; Miyazaki, Ishikawa, Nakata, Sakurai & Miki, 2005; Moynihan, Larson, Treanor, Duberstein & Power 2004; Cohen, Doyle, Skoner, Rabin & Gwaltney 1997), encourages better healthy habits

(Rozanski Blumenthal & Kaplan, 1999) and enhances self-esteem and purpose in life (Cohen 2004; Thoits 1983).

Working conditions factors

The number of hours of work per week, the number of children and babies under care, the children's gender, the floor of work, the number of years worked, the support received at work and the type of house where HBC workers spend their time are some of the factors defining their working conditions.

HBC providers perform more tasks than those working in the centre-based childcare or in kindergarten but alone and for a higher number of hours on daily basis (7h vs. 10h and +) (Stitou, Bourgeault, Kohen, 2016). Indeed, their tasks require more than 50 hours weekly and are related to physical care, emotional care, special care, housekeeping and domestic work, business administration and self-development. Previous studies showed that working over 40 hours per week and 8 hours per day are strongly correlated with higher risks of injuries and illnesses (Dembe, Erickson, Delbos, Banks, 2005). A higher number of working hours has been linked to unhealthy behaviours such as smoking, sedentary lifestyle, poor nutritional habits, and fewer health examinations (Maruyama, Kohno & Morimoto, 1995).

In terms of the number of children and babies under care, working with a higher number of children may increase the physical and the mental demands of the workers which affect their health. In their daily work at home, HBC workers care for four to ten children under five years old depending on the province where they work (Doherty, Lero, Goelman, Tougas, LaGrange, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2000). Home-

based childcare services receive mainly children under three years old, and requiring continuous assistance from adults continuously (Bee and Boyd, 2008).

Taking care of boys is usually more challenging, as they are more emotionally reactive than girls (Tronick & Weinberg, 1997). They receive generally more disciplinary actions than girls (Spaulding, 1963). Boys are at greater risk of developing behavioral problems, and require more parental involvement than girls (Hetherington, 1989; Hunter, Pearson, Ialongo, & Kellam, 1998). They tend to be noisier and more active compared to girls that are generally quiet and well behaving (Lundeberg, 1997). Thus, female caregivers need to put extra efforts with boys compared to girls (Trevvarthen, Kokkonaki & Fiamenghi, 1999). This increases the work demands, which may increase health risks.

For the floor of work, Blair, Kohl, Barlow, Paffenbarger, Gibbons & Macera, (1995) and Erikssen, Liestol, Bjornholt, Thaulow, Sandvik, & Erikssen (1998) suggest that using different floors for work is beneficial for workers as it increases their level of physical activity, which in its turn improves the cardiovascular and respiratory health, and lower their health risks in general.

The number of years worked may increase the risks of burnout among caregivers as has been documented for nurses (Kempe, Sauter & Lindner, 1992). In some cases, it may also contribute to sleep disorders as has been documented for both shift and non-shift workers (Garbarino, DeCarli Nobili, Mascialino, Squarcia, Penco, Beelke, Ferrilla, 2002). In general, the workers' risk of developing depression and mental illnesses can appear in less than 4 years of work seniority (Scott, Monk, & Brink, 1997).

Finally, a supportive work environment increases job satisfaction, the performance of workers, as well as the control of the family and work environment (Ganster, 1995;

Gelsema, Van Der Doef, Maes, Janssen, Akerboom, & Verhoeven, 2006). This reduces negative emotions, family fights, job frustration, and health issues.

General socioeconomic factors

Status in Canada, marital status, level of income, level of education, and the province of residence are socioeconomic factors affecting the individual's health. In general, immigrants, single, divorced, separated or widowed individuals, low-income workers below the poverty cut-off, and poorly educated people (secondary school or less) are more likely to suffer from physical and mental illnesses, to experience higher mortality, to be exposed to more health-threatening conditions and have less resources to buffer health threats (Adler, Boyce, Chesney, Folkman & Syme, 1993; Goldman & Smith, 2002; Marmot, Ryff, Bumpass, Shipley & Marks, 1997).

This study aims to address the literature gap on chronic conditions among HBC workers by 1) examining these in the two Canadian provinces, Quebec and Ontario, where they are the most concentrated, and by 2) identifying the broader social determinants of health factors associated with chronic conditions.

METHODOLOGY

This quantitative study was granted ethical approval from the University of Ottawa Research Committee for the data collection (H-11-13-16).

- **Sample and recruitment**

Our study on HBC workers is a sample survey conducted in 2014. The target population consisted of approximately regulated 21,000 HBC workers: 15,000 HBC

workers in the province of Quebec according to its department *Ministère de la famille* (2014), and 6,000 HBC workers in the province of Ontario according to the department Ministry of Education (2014). As for the sampling frame, it was composed of the lists of the addresses of HBC workers, which were available at childcare agencies/coordinating offices and regional networks.

The regional home-based childcare networks in Quebec (n = 13 out of 17) and the regional childcare agencies in Ontario (n = 4 out of 123) were involved in the process of recruitment of participants on a voluntary basis. They were asked to send by email a letter of information to their HBC workers including the links to the anonymous online survey of this study as well as a reminder two weeks after the initial invitation. The inclusion criteria used were: 1) being an Anglophone or Francophone man or women and 2) working as a regulated HBC worker affiliated with a childcare agency in Ontario or a coordinating office in Quebec. A sample of 695 HBC workers responded: 621 HBC workers in Quebec and 74 HBC workers in Ontario. The reasons explaining the lower number of participants in Ontario are presented in the limitations and areas for future research section. Because many childcare agencies and networks avoided confirming the total number of invitations sent out and whether or not a reminder was sent two weeks after the initial invitation, the exact response rate is unknown since. However, we estimate that 3.3% ($f = n/N \approx 695/21000 = 3.3\%$) of the population of HBC workers were included as participants.

- **Survey questionnaire and measures**

The data used for this study was part of a larger anonymous online study on HBC workers' work and health we conducted in 2014. Its questionnaire included five sections for a total of 62 multiple-choice response questions, 86 multiple-choice response sub-

questions and 1 open question : Section A - Profile of regulated HBC worker (11 questions and 2 sub-questions), Section B - Working conditions of regulated HBC worker (23 questions and 43 sub-questions including the Karasek job content (KJC) questionnaire), Section C - Impacts on health (19 questions and 25 sub-questions including the SF-36 questions), Section D - Actions taken to stay healthy (9 questions and 16 sub-questions), and Section E - HBC worker's comments (1 open question). All questions were formulated by the team of research, except the questions on the SF-36 and Karasek JCQ. Licences for the use of these measure instruments were requested from QualityMetric Health and Dr. Robert Karasek. The content of the survey was formulated in terms of simple questions that HBC workers could easily understand. The completion of the survey required about 20-30 minutes. The study was intended to get as many respondents as possible. Moreover, prior to sending the invitations to HBC workers, we asked for suggestions and feedbacks from three HBC workers in Quebec and three HBC in Ontario. After modifications to the content, the final version of the survey was set up online on Fluid Survey. Respondents were invited to read a consent form including information on the purpose of the study, the criteria for participation, the benefits, the risks, the confidentiality and anonymity statements, and the retention of data before completing the anonymous online survey requiring about 20 to 30 minutes in the official language of their choice.

The presence of chronic conditions (No/Yes) was the dichotomous health outcome variable used along with 32 explanatory variables divided in accordance with the five groupings of determinants of health factors in the Dahlgren and Whitehead including: Personal factors, Individual factors, Social and Community Network factors, Living and Working conditions and General Socioeconomic factors. The variables used for each group of determinants of health are presented in Appendix 1.

- **Data analysis**

Statistical analyses were conducted using SPSS version 23. HBC workers answered all questions and consequently, no data were missing for any variables.

To answer the first objective of this study examining chronic conditions among HBC workers, we used descriptive statistics and comparison analyses. On one hand, descriptive statistics were used to draw the profile and the characteristics of HBC workers with and without chronic conditions in light of the various determinants of health (Table 1). For the categorical variables, percentages were calculated (e.g. age group, daily level of physical activity, daily fruit and vegetable consumption, daily sleeping hours, tobacco use, help in daily life, family relationships, friends relationships, supervisor relationships, parents of children relationships, floor of work, number of years worked, help at work, type of house, status in Canada, marital status, level of income, level of education, number of doctor visits, dentist, optometrist, chiropractor, nurse, physiotherapist, psychologist and other healthcare professional, number of use of health information line) and for continuous variables, means and standard deviation were computed (e.g. number of hours of work per week, number of children under care, number of babies, number of girls, number of boys, and number of HBC workers' minor children living the latter's).

To compare HBC workers without a chronic condition with those with chronic conditions, two tests were used: the Chi-square test for categorical variables and the independent-samples t-test for continuous variables. A total of 18 Chi-square tests were conducted to test whether the distribution of each determinant of health of HBC workers without a chronic condition differs significantly from the distribution of the determinant of health of HBC workers with chronic conditions. The determinants of health pertaining to the five broad social determinants of health of the Dahlgren model used were the daily

level of physical activity, daily fruit and vegetable consumption, daily sleeping hours, tobacco use, help in daily life, family relationships, friends relationships, supervisor relationships, parents of children relationships, floor of work, years worked, help at work, type of house, status in Canada, marital status, level of income, and the level of education and the province of work. In addition, to test whether the distribution of a specific chronic condition among workers in Quebec differs from the distribution of those in Ontario, we used the Chi-square test for chronic back pain and the Fisher's exact test for the other 18 chronic conditions. For the Chi-square test, three assumptions were considered: 1) the dependent and independent variables are categorical (ordinal or nominal), 2) the independence of observations within groups, and 3) the expected frequencies are equal or greater than 5 in each cell of the contingency table. When at least one cell counts less than 5 expected observations, SPSS provided a correction using an asymptotic Chi-square distribution (Fisher's exact test).

A total of five t-tests were conducted to test if there are significant differences between HBC workers with and without a chronic condition in terms of the number of hours of work per week, number of children under care, number of babies, number of girls, and the number of boys in the group. For the t-test, five assumptions were respected. First, the provincial samples were randomly drawn from the population. Second, observations within each provincial sample of HBC providers were independent. Third, the normality of sampling distribution of the mean was assumed with large sample sizes over 30 (Quebec = 621 and Ontario = 74). Fourth, the assumption of homogeneity of variance was tested using Levene's Test for Equality of Variances, which is produced in SPSS when running the independent samples t-test. When results of Levene's Test were significant, we used the

unequal variances t-test data. Fifth, the dependent variables were continuous. The significance level of 0.05 was used for both tests.

To answer the second objective of this study, which aims to identify the determinants of health associated with chronic conditions, a binary logistic regression test was used. We studied six binary logistic regression models testing if personal factors, Individual and lifestyle factors, social networks factors, living and working conditions, and general socioeconomic factors were associated with chronic conditions or not as a health outcome. For the logistic regression, four assumptions were respected. First, the dependent variable is binary and the factor level 1 of the dependent variable represents the desired outcome since logistic regression assumes that $P(Y=1)$ is the probability of the event occurring. Second, observations were independent from each other. Third, a minimum of ten observations was considered for each level of each nominal variable as suggested by Garson (2009). Fourth, the model fitted correctly the data (e.g. Hosmer and Lemeshow test goodness-of-fit). The variable *family relationships* was excluded from the binary logistics regression models because the minimal size required of ten observations was not met. The logistic regression included the adjusted odds-ratios, the p-value statistics and the confidence interval (95% CI). The significance of each model was assessed using the model summary test (Cox and Snell R^2 , Nagelkerke R^2), and Hosmer and Lemeshow for each logistic regression model. The Cox and Snell R^2 , and the Nagelkerke R^2 explain which fraction of the variability in the model is explained and measure how strongly the model predicts an association with chronic conditions. The Hosmer and Lemeshow test goodness-of-fit should be greater to 5% and it was used to test the null hypothesis that predictors fit perfectly in the model. The significance level used for all tests was 0.05.

Finally, because age is an important predictor of health and it determines what the most common health problems are in a population, we ensured having an equal age distribution of HBC workers with chronic conditions and without a chronic condition matched in 1:1 ratio for a total of 620 possible pairs selected by SPSS from the initial random sample of 695 HBC workers, prior to using the previous statistical tests. Because we have a categorical measure of age, the 1:1 matching remains a good option that allows having comparable groups where age distribution of HBC workers in Quebec and in Ontario is equal. Although the 1:1 matching discards a large number of observations and thus would apparently lead to reduced power, the reduction in power is often minimal. The 1:1 matching has two advantages. First, it reduces bias as the power increases when the groups are more similar (Snedecor and Cochran, 1980). Second, it has lower standard deviations than estimates from a linear regression (Smith, 1997).

RESULTS

Sample descriptive statistics are found in tables 2 and 3. All HBC workers were female and principally Canadian born (89.4%), aged 30 to 49 years old (74%), married (49.6%), had at least one child living with them (69.4%), had completed a college or a university level of education (61.8%) and earned an annual gross income of \$40,000 or less (81.8%) (Table 1). Most of them were moderately or very active (67.6%), consuming five to ten portions of fruits and vegetables daily (65.6%), sleeping seven hours or more (64.4%) and avoiding smoking (79.2%) (Table 1). Approximately 33% of HBC workers were using both of the ground floor and the basement of their homes and living in a single house (86.2%) (Table 1). The majority have been working as a HBC provider for the last five years (71.2%) (Table 1). They work 63 hours ($SD = 27.5$) on average with a total of 6

children ($SD = 1.6$) including one baby ($SD = 1.1$) (Table 3). A percentage of 39% receive help at work from their family members or supervisors (Table 1). Almost all of them receive help in daily life (90.1%) from members of their families, friends or social circle (Table 1). Although, the majority of them have good relationships with their family members (98.2%), friends (97%), supervisors (82.6%) and parents of children (65%), more than the third of HBC workers have poor relationships with the latter (34.9%) (Table 1). Finally, one half of them (53.4%) were healthy while the other half (46.6%) were dealing with at least one chronic condition (Table 1).

Comparison analyses of HBC workers with and without a chronic condition

➤ HBC workers with chronic conditions

HBC workers with chronic conditions were mainly Canadian born (89.8%), aged 40 to 49 years old (41%), married (53.7%), have at least one minor children living with them (68.2%), have completed a college level of education (44.8%) and earn an annual gross income of \$40,000 or less (82.4%) (Table 1). Most of them were moderately or very active (63.9%), eating five to ten portions of fruits and vegetables per day (66.7%), sleeping seven hours or more (59.9%), and avoiding smoking (81.9%) (Table 1).

HBC workers with chronic conditions were mainly using the ground floor (35.2%) of their single house (87%) and working at home for at least five years (76.5%). They work 64 hours weekly ($SD = 30.4$) on average with a total of 6 children ($SD = 1.6$) including one baby ($SD = 1.1$) (Table 3). Only 38.6% of them receive help during their working hours particularly from members of their families and supervisors (Table 1). The majority receive help in daily life (87.3%) from their social circle and entertain good relationships with their family members (97.5%), friends (97.2%), supervisors (86.4%) and parents of children

(59.9%). About 40% of these workers experience poor relationships especially with parents of children.

Finally, among workers with chronic conditions ($n = 324$), chronic back pain (48%), asthma (17%), hypertension (14%), skin diseases (11%), and arthritis (9%) were the five main chronic illnesses reported (Figure 1). Significant provincial differences were found in terms of anxiety disorders ($\chi^2 = 11.2$; $p < .01$) and mood disorders ($\chi^2 = 6.5$; $p < .05$). Indeed, a higher percentage of HBC workers in Ontario reported being diagnosed by a health professional with anxiety (17.9% vs. 3.7%) and mood disorders (7.1% vs. 1%) than those working in Quebec (Table 4). Only 6.2% of HBC workers have consulted a psychologist (Table 2). In addition, although chronic back pain was the main illness affecting these workers, a low percentage of them have used the services of a chiropractor (26.5%) or a physiotherapist (12.7%) (Table 2). HBC workers tended to consult with a family doctor (89.8%) rather than with other health care professionals (Table 2).

➤ **HBC workers without a chronic condition**

HBC workers without a chronic condition were mainly Canadian born (88.9%), aged 30 to 39 years old (41%), married (46.1%), had at least one child living with them (70.6%), had completed a college level of education (42.3%) and earned an annual gross income of \$40,000 or less (81.1%) (Table 1). Most of them were moderately or very active (70.9%), consuming five to ten portions of fruits and vegetables daily (64.7%), sleeping seven hours or more (61.2%) and avoiding smoking (79.2%) (Table 1). They were mainly using both of the ground floor and the basement of their homes (37.2%) simultaneously and living in a single house (85.4%) (Table 1). The majority have been working as a HBC provider for the last five years (66.6%) (Table 1). They work 63 hours ($SD = 26.4$) on

average with a total of 6 children ($SD = 1.6$) including one baby ($SD = 1.1$) (Table 3). Only 39.4% receive help at work from their family members or supervisors (Table 1) while 91.9% receive help in daily life from members of their families, friends or social circle (Table 1). Finally, although the majority of them have good relationships with their family members (98.7%), friends (97%), supervisors (92.5%) and parents of children (72.2%), near the third of HBC workers have poor relationships with the parents of children (27.8%) (Table 1).

➤ **Comparison analyses**

Results from the independent-samples t-test show no significant difference between groups for the number of hours of work per week, total number of children under care, number of babies, number of girls in the group and the number of boys in the group (Table 3).

Results from the chi-square test for association between determinants of health and chronic conditions are presented in Table 5. Statistically significant differences were detected in groups in four determinants of health including physical activity ($\chi^2 = 9.397$; $p < .05$), daily sleeping hours ($\chi^2 = 6.581$; $p < .05$), supervisors' relationship ($\chi^2 = 5.887$; $p < .05$), parents' relationship ($\chi^2 = 11.576$; $p < .01$) and province of work ($\chi^2 = 3.981$; $p < .05$). Compared with HBC workers without a chronic condition, a higher proportion of those with chronic conditions were more prone to be somewhat active (31% vs. 23.3%) or inactive (5.5% vs. 3.5%), to sleep less than seven hours (37.7% vs. 30%), to have poor relationships with their supervisors (14.2% vs. 8.1%) and parents of children (40% vs. 27.1%) and to be living in the province of Quebec (94.5% vs. 90.3%). Workers without a chronic condition were more frequently than those with chronic conditions to be very or

moderately active (73.2% vs. 63.6%), to sleep eight hours or more daily (30.3% vs. 22.3%), to have good relationships with their supervisors (91.9% vs. 85.8%) and parents of children (72.9% vs. 60%) and to be living in the province of Ontario (9.7% vs. 5.5%).

Binary logistic regression models

Six binary logistic regression models were conducted to identify the determinants of health factors associated with chronic conditions among HBC workers as a health outcome after controlling for other factors of the same category of determinants of health. The results of Hosmer and Lemeshow Test of goodness-of-fit indicate that all models fit well the data ($p > 0.05$).

➤ Model 1: Age as a personal factor

Table 6 shows results from a binary logistic regression of age on chronic conditions among HBC workers. The odds ratio of having a chronic condition were more than two times higher for workers aged 40 to 49 years old [OR=2.741; 95% CI: 1.221-6.153], and 50 to 59 years old [OR=2.733; 95% CI: 1.186-6.299] compared to the reference age group of 20-29 years old.

➤ Model 2: Individual and lifestyle factors

Table 7 shows results from the equal age distribution logistic regression of physical activity, fruits and vegetables consumption, daily sleeping hours, and tobacco use on chronic condition among HBC workers. Only physical activity practice and sleeping hours were significantly associated with chronic conditions after controlling for the other individual and lifestyle factors. The odds ratio of having a chronic condition were nearly

two times higher for those somewhat active [OR=1.874; 95% CI: 1.174-2.993] and three times higher for physically inactive HBC workers [OR = 2.993; 95% CI: 1.224-7.315] compared to those very active physically. Finally, the odds ratios were decreased for those sleeping at least eight hours daily [OR = 0.553; 95% CI: 0.363-0.844] compared to the reference group of those sleeping seven to eight hours.

➤ **Model 3: Social networks factors**

Table 8 shows results from the equal age distribution logistic regression of the help received in daily life as well as the type of relationship with friends, supervisors and parents of children on chronic conditions among HBC workers. Only the relationships with supervisors and parents were significantly associated with chronic conditions. The odds ratio of having the chronic conditions are greater for HBC workers having poor relationships with their supervisors [OR = 1.682; 95% CI: 0.992-2.851] and parents of children [OR = 1.666; 95% CI: 1.181-2.351] compared to the reference group of those entertaining good relationships.

➤ **Model 4: Living and working conditions factors**

Table 9 shows results from the equal age distribution a binary logistic regression of the number of hours work per week, the total number of children under care, the number of babies, the number of girls in the group, the number of boys in the group, the floor of work, the years worked, the help at work and the type of house on chronic condition among HBC workers. Only the floor of work and the number of years worked were significantly associated with chronic conditions after controlling for the other living and working factors. The workers using both of the ground floor and the basement simultaneously for

their work had lower odds of reporting poor health [OR = 0.677; 95% CI: 0.452-1.014] compared to the reference group of those using the ground floor only. Finally, HBC workers working at home for 5 years or more had more than twice [OR = 2.319; 95% CI: 1.085-4.957] the odds of having a chronic condition of the reference group of new workers (less than 1 year).

➤ **Model 5: General socioeconomics factors**

Table 10 shows results from the equal age distribution binary logistic regression of status in Canada, marital status, number of workers' minor children, level of income, level of education and the province on chronic condition among HBC workers. Although, the results of Hosmer and Lemeshow test of goodness-of-fit indicate that the model fits the data well ($p > 0.05$), none of these factors would be significantly associated with chronic conditions.

➤ **Model 6: Broader determinants of health**

Table 11 shows results from the equal age distribution binary logistic regression of factors from the previous models that were significantly associated with chronic health conditions among HBC workers. The physical activity level, the number of daily sleeping hours, and the type of relationships with supervisors and parents were significantly associated with chronic conditions after controlling for age and years worked. The odds of having a chronic condition were increased for HBC workers who were somewhat active [OR = 1.864; 95% CI: 1.161-2.993] or having poor relationships with their supervisors [OR = 1.743; 95% CI: 1.012-3.001] or with parents of children [OR = 1.592; 95% CI: 1.11-2.283] compared to the reference group of those who were very active or entertaining good

relationships, respectively. Finally, HBC workers sleeping eight hours daily or more [OR = 0.566; 95% CI: 0.369-0.871] or using both of the ground floor and the basement simultaneously [OR = 0.662; 95% CI: 0.439-0.997] had lower odds of reporting chronic conditions compared to the reference group of those sleeping seven to eight hours or using the ground floor only.

DISCUSSION

Main contributions to literature

The main objectives of this study were to 1) examine chronic health conditions among HBC workers, and 2) identify the determinants of health factors of the Dahlgren and Whitehead model that are associated with chronic health conditions in a sample of HBC workers. This work contributes to the literature on regulated early childhood workers' health. Using survey data from 695 HBC workers working in the regulated childcare sector in Quebec and in Ontario, descriptive analyses revealed that one out of two HBC workers had a chronic health issue with the most frequent health condition being reported by 22.4% was chronic back pain.

In Canada, 38.4% of the population aged 20 and older are affected by at least one of the following ten major chronic diseases: heart disease, stroke, cancer, asthma, chronic obstructive pulmonary disease, diabetes, arthritis, Alzheimer's or other dementia, mood disorder (depression), and anxiety (PHAC, 2015). Cancer, diabetes, cardiovascular diseases and chronic respiratory diseases are the four main diseases affecting 21.4% of the Canadian population aged 20 years and older (PHAC, 2015). Contrary to Canadians, the four main conditions affecting HBC providers are chronic back pain, asthma, hypertension and skin diseases. Thus, a different type of chronic conditions mainly affects these workers.

The prevalence of chronic back pain among Canadian adults is 18.9% (Schopflocher, Taenzer & Jovey, 2011) and in this study, it was 22.4% among caregivers. According to Schoenborn (2004), individuals aged over 45 years old are more inclined to develop lower back pains than other groups of age. Nearly 60% of HBC workers in this study were aged over 40 years old. Our findings suggest that chronic conditions were more prevalent among HBC workers compared to the Canadian general population and the proportion of these workers dealing with chronic back pain was comparable to the latter. Contributing factors to back pain include sedentary lifestyle, obesity, smoking, improper or heavy lifting, and stress (Dunn & Croft, 2004; Kopec, Sayre & Esdaile, 2004; Van Tulder & Koes, 2002). HBC workers in this study were mostly active and avoided smoking. The low percentage of these workers who use the chiropractors and the physiotherapist health services including those dealing with chronic back pain may reveal a limited health care access. Indeed, the public provincial health system in Canada doesn't cover freely such services and workers who have a private health insurance may not be fully covered, which discourage the use of these services.

This study also shows that more HBC workers in Ontario were dealing with chronic mental health issues such as anxiety and mood chronic disorders than workers in Quebec and they are less likely to consult a psychologist. Ill HBC workers use the services of doctors mainly.

When looking at the associations between chronic conditions and determinants of health factors of the Dahlgren and Whitehead model, findings revealed that HBC workers' age, individual lifestyle factors, social and community networks factors, living and working conditions factors were relevant to chronic conditions except the socio-economic conditions factors which were not significantly relevant. Past research found that aging,

low physical activity, poor relationships, and number of years worked are associated with chronic diseases or conditions (Kurt, 2007; Slingerland, Van Lenthe, Jukema, Kamphuis, Looman, Giskes, Huisman, Narayan, Mackenback, & Brug, 2007; Warburton, Charlesworth, Ivey, Nettlefold & Bredin, 2010; Umberson & Karas-Montez, 2010; Warburton, Katzmarzyk, Rhodes & Shephard, 2007; Ward, Schiller & Goodman, 2014). In line with these studies, our findings have shown that factors such as being aged 40 years old or more, being somewhat physically active or inactive, having poor relationships with supervisors or parents of children, and working for five years or more as a HBC provider are associated with chronic conditions. The fact that nearly the third of HBC workers in the total sample were only somewhat active was surprising given the literature suggesting that HBC workers are working more than 60 hours per week, working alone at their homes, and having demanding working conditions. Gender is another factor known to be affecting women's health status more than men's (Morissey, 1998). In this study, all HBC workers were women. Because women have more family responsibilities than men in general, are more concerned with health issues and HBC workers' tasks and duties are demanding, we support that female HBC workers might be more affected in terms of their health than male HBC workers and men in general. Those who are mothers with young children had more family life responsibilities than women without children and men in general. Previous research has shown that an increase in childcare responsibilities within the family is directly associated with low well-being, negative emotions, and illnesses (Ozer, 1995). Working mothers are at higher risk of anxiety and mood disorders, burnouts and illnesses due to their multiple tasks at home and at work (Gjerdingen, Mcgovern, Bekker & Willemsen, 2001).

Another finding consistent with other studies addressing the relation between the floor of work and health among workers in general (Blair, Kohl, Barlow, Paffenbarger, Gibbons & Macera, 1995; Erikssen, Liestol, Bjornholt, Thaulow, Sandvik, & Erikssen, 1998) is that using different floors for work was negatively associated with chronic condition. These studies have suggested that working on different floors may increase the individual level of physical activity, which improves the cardiovascular and respiratory health, and lowers their health risks of the individual. By contrast to the results of Kripke, Garfinkel, Wingard, Klauber & Marler (2002) and Wingard & Berkman (1983) supporting that sleep durations less than six hours or more than nine hours are associated with increased morbidity, our study showed that HBC workers who were sleeping eight hours and more are less likely to report a chronic condition.

HBC workers were Canadian born, married, had at least one minor children living with them, on average have a college level of education, and had an annual income (e.g. 59% earn at least \$25,000) over the low-income cut-off of \$21,359 for a family of four living in an urban Canadian community as defined by Statistics Canada (2008). Although our results have shown no significant associations between these and chronic conditions among HBC workers, previous studies have shown that these socioeconomic conditions are associated with good health. Canadian born experience less health decline over time compared with immigrants due to different factors including less discrimination on the job market and easier access to health services (Fuller-Thomson, Noack & George, 2011). Also, married individuals experience less physical and mental health problems than those unmarried (Coombs, 1991). Moreover, a higher level of education contributes to better social status, healthier lifestyle, enhanced social behaviors and a generally better mental health (Baker, Leon, Smith Greenaway, Collins & Movit, 2011; Goldman and Smith, 2011;

Hummer and Hernandez, 2013; Pampel, Krueger & Denney, 2010). Finally, having middle to high income affects positively the individual health by increasing access to healthy foods, adequate housing, and good working conditions (WHO, 2007).

The implications of these results are particularly important for stakeholders and decision makers who can intervene on potentially modifiable health risk factors to improve HBC workers' health. Because prevention is a cost-effective option to diminish the rise of chronic diseases (Choi, Bonita & McQueen, 2001, World Health Assembly, 1998), stakeholders and decision makers are encouraged to implement mechanisms for the management of difficult relationships experienced by HBC workers (e.g. trainings, support from childcare agencies, etc.), to promote an active lifestyle among these workers by encouraging them using different floors for their work as much as possible and to encourage them using chiropractic and physiotherapy health care services when needed.

Limitations, strengths and areas for future research

This study has a number of limitations that should be acknowledged. First, the survey study limited participants to preconstructed questions and responses. This might not allow participants to share their thoughts and experiences. It was based on self-reported data for most variables. We recognize that participants may have been influenced by many factors at the time of data collection such as the difficulty to recall some information or to under/over-report data. For example, HBC workers may have underestimated the number of working hours and only reported the number of hours spent with children under their care as the total number of weekly working hours while others have considered the time spent for activities related to their job in the absence of children. Another limitation related

to the survey was the usage of an online survey. We acknowledge that only participants familiar with the usage of computers and technologies were able to participate.

Second, because of the lack of a previous research on chronic conditions and health among the professional group of HBC workers in Canada, we were not able to discuss our findings in the light of what other researchers would have found. In addition, this study doesn't allow knowing if pre-existing chronic conditions lead to the associations with the social determinants of health factors or vice-versa. The present research has examined a limited number of determinants of health, future work should consider focusing on other determinants of health factors associated with chronic conditions such as genetics, gender, cultural or environmental factors for example.

Third, the results may not be generalizable to the Canadian HBC workers' workforce as the survey was conducted in only two provinces (Quebec and Ontario). Thus, our results are applicable to the survey population composed of Regulated HBC workers in Ontario or in Quebec who are Anglophone or Francophone and have access to Internet, instead of the target population. Results should be interpreted with caution, especially in Ontario where most participants were from the Champlain region while in Quebec, participants were from all regions although 13 childcare networks among 17 participated. It would be an asset to our understanding to examine in detail the prevalence of chronic conditions among these workers in the Canadian level as well as their coping strategies and if there are any barriers to health care services access (e.g. chiropractor).

Fourth, the recruitment process was challenging especially in Ontario where only 74 HBC workers have participated compared to 621 in Quebec. This gave approximately a relatively low sampling fraction $f = n/N \approx 695/21000 = 3.3\%$ due to the low participation of the regional childcare networks in the recruitment and of HBC workers. A limited

number of childcare networks have emailed our letter of invitation to their members while others did not respond to our invitations or have explained that the timing is not appropriate for them (e.g. too many communications have been sent to their HBC workers in the last months). Those who have been involved in the recruitment process stated that many of their members work in their mother tongue with children of their communities (e.g. Chinese), do not understand one of Canada's official Languages, and thus it is suitable to have the survey translated to other languages. They also underlined the long working hours of their members that leave them with no time, their fear of sharing their experiences or personal life, and the incapacity of some workers to use technologies (e.g. Ipad, computer). Given that, future researchers may be encouraged to have their questionnaires in different languages and format (electronic and paper). The difference in terms of number of participants in Quebec and Ontario could be also explained by the fact the HBC workers in Quebec were in the process of negotiating their provincial second collective agreement when we were collecting our data.

Finally, despite these limitations, our study included a recent and a large sample (n = 695) allowing for several statistical analyses. To our knowledge, this study is the first one to address chronic conditions among HBC workers in two Canadian provinces (Quebec and Ontario) and highlighted many factors associated with these such as the HBC workers' age, individual lifestyle factors, social and community networks factors, living and working conditions. Further studies may explore in depth why these workers are more likely to have poor relationships with their supervisors and especially with parents of children and how these may negatively affect their health.

CONCLUSION

In brief, chronic back pain is the main chronic condition among HBC workers. Workers aged over 40 years old, somewhat active, having poor relationships with their supervisors or parents of children, and working for at least five years at their homes had greater odds of reporting chronic conditions. Workers sleeping more than eight hours daily and using both of the basement and the ground floor for their daily work are less likely to report a chronic condition.

TABLE 1: Distribution and Comparison of Home-Based Childcare Workers With and Without Chronic Condition by Determinants of Health Categories (N = 695)

	Determinants of health	Total sample n = 695	Chronic conditions	
			No (n = 371)	Yes (n = 324)
	Total	100%	53.4%	46.6%
Personal factor	Age category			
	20-29 y	4.7%	6.2%	2.8%
	30-39y	37%	41.0%	32.4%
	40-49 y	37%	33.4%	41.0%
	50y and +	21.4%	19.4%	23.8%
Individual and lifestyle factors	Daily level of physical activity			
	Very active	21%	23.7%	17.9%
	Moderately active	46.6%	47.2%	46.0%
	Somewhat Active	27.9%	25.3%	30.9%
	Inactive	4.5%	3.8%	5.2%
	Daily fruit and vegetable Consumption			
	Less than 5 portions a day	28.9%	30.2%	27.5%
	5 - 10 portions a day	65.6%	64.7%	66.7%
	More than 10 portions a day	5.5%	5.1%	5.9%
	Daily sleeping hours			
	Less than 7 hours	35.5%	38.8%	40,1%
	7-8 hours	39.4%	33.2%	38,3%
	8 hours and plus	25.1%	28.0%	21,6%
	Tobacco Use			
	Daily	11.8%	11.3%	12.3%
Occasionally	8.6%	9.4%	7.7%	
Former smoker	27.2%	28.8%	25.3%	
Never smoked	52.4%	50.4%	54.6%	
Social networks factors	Help in daily Life			
	No help received	9.9%	7.8%	12.3%
	Help received	90.1%	91.9%	87.3%
	Family relationships			
	Good relationship	98.2%	98.7%	97.5%
	Poor relationship	1.8%	1.3%	2.5%
	Friends relationships			
	Good relationship	97.1%	97.0%	97.2%
	Poor relationship	2.9%	3.0%	2.8%
	Supervisors Relationship			
Good relationship	82.6%	92.5%	86.4%	
Poor relationship	10.4%	7.5%	13.6%	

Living and working conditions factors	Parents Relationship				
		Good relationship	65.1%	72.2%	59.9%
		Poor relationship	34.9%	27.8%	40.1%
	Floor Of Work				
		Ground floor	32.7%	30.5%	35.2%
		Basement	31.4%	29.4%	33.6%
		Ground floor and basement	32.5%	37.2%	27.2%
		Other	3.5%	3.0%	4.0%
	Number of years worked				
		Less than 1 year	7.8%	9.2%	6.2%
		1-2 years	5%	7.0%	2.8%
		2-3 years	7.2%	8.1%	6.2%
		4-5 years	8.8%	9.2%	8.3%
		5 years and +	71.2%	66.6%	76.5%
	Help at work				
	No help received	61%	60.6%	61.4%	
	Help received	39%	39.4%	38.6%	
Type of house					
	Single house	86.2%	85.4%	87.0%	
	Semi-detached	5.3%	6.7%	3.7%	
	Town-House	5%	4.6%	5.6%	
	Other	3.5%	3.3%	3.7%	
General socio economics factors	Status in Canada				
		Canadian	89.4%	88.9%	89.8%
		Immigrant	10.6%	11.1%	10.2%
	Marital Status				
		Married	49.6%	46.1%	53.7%
		Common-law union	27.6%	28.8%	26.2%
		Single	15%	16.7%	13.0%
		Divorced, separated or widowed	7.8%	8.3%	7.1%
	Level of income				
		\$25 000 and less	38.6%	36.4%	41.0%
		\$25 001 to \$40,000	43.2%	44.7%	41.4%
		\$40 001 and +	18.3%	18.9%	17.6%
	Level of education				
		University	18.7%	20.8%	16.4%
		College	43.5%	42.3%	44.8%
	Secondary School or less	32.5%	31.0%	34.3%	
	Other	5.3%	5.9%	4.6%	
Province					
	Quebec	89.4%	87.3%	91.7%	
	Ontario	10.6%	12.3%	8.3%	

TABLE 2: Percentage of Home-Based Childcare Providers Health Care Usage by Type of Health Professional Consulted in 2014 (N = 695)

	None	1 visit	2 visits	3 visits	4 visits and more
Nb. Doctor visits	10.2%	34.3%	29.6%	10.2%	15.7%
Nb. Dentist visits	24.1%	42.9%	23.8	5.6%	3.7%
Nb. Optometrist visits	51.5%	46.0%	1.5%	0.9%	0%
Nb. Chiropractor visits	73.5%	6.2%	4.0%	2.5%	13.9%
Nb. Nurse visits	87.0%	7.1%	1.9%	1.5%	2.5%
Nb. Physiotherapist visits	87.3%	2.5%	1.9%	1.2%	7.1%
Nb. Psychologist visits	93.8%	1.5%	0.6%	0.6	3.4%
Nb. Other health professionals	71.0%	7.4%	5.6%	3.4%	12.7%
Nb. Use of health information line	79.3%	8.0%	6.2%	2.2%	4.3%

TABLE 3: Comparison of Home-Based Childcare Providers' Working Conditions

	Total sample		No chronic condition		Chronic condition		t-test*	
	Mean**	SD	Mean**	SD	Mean**	SD	t	Sig.
Hours of work per week	63	27.5	63	26.4	64	30.4	-.422	.677
Nb. of children under care	6	1.6	6	1.6	6	1.6	.561	.576
Nb. of babies	1	1.1	1	1.1	1	1.1	.391	.696
Nb. Girls	3	1.7	3	1.7	3	1.8	1.139	.256
Nb. Boys	3	1.8	3	1.8	3	1.8	-.523	.601

*With significance level of 0.05

** Means were rounded to be representative of the variables

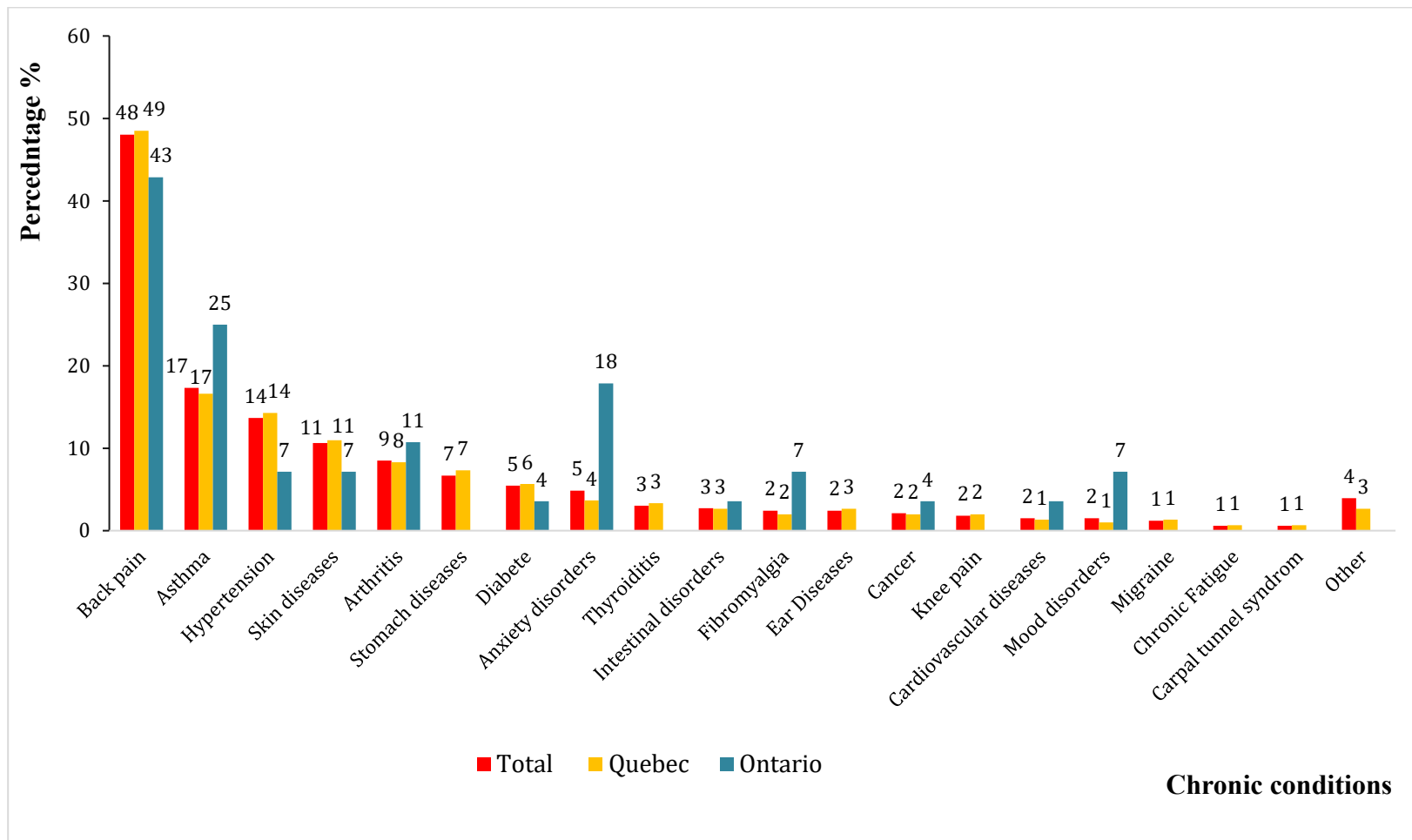


Figure 1: Distribution of Chronic Condition Among Home-Based Childcare Workers Having at Least One Chronic Health Condition (N = 695)

TABLE 4: Prevalence of Chronic Health Condition Among Home-Based Childcare Providers

		Total (n = 695)	Quebec (n = 621)	Ontario (n = 74)	χ^2	p
Anxiety disorders					11.17	p<0.05
	Yes	4.9%	3.7%	17.9%		
	No	95.1%	96.3%	82.1%		
Arthritis					0.1909	0.662
	Yes	8.5%	8.3%	10.7%		
	No	91.5%	91.7%	89.3%		
Asthma					1.259	0.262
	Yes	17.3%	16.6%	25.0%		
	No	82.7%	83.4%	75.0%		
Cancer					0.31	0.578
	Yes	2.1%	2.0%	3.6%		
	No	97.9%	98.0%	96.4%		
Cardiovascular diseases					0.86	0.354
	Yes	1.5%	1.3%	3.6%		
	No	98.5%	98.7%	96.4		
Carpal tunnel syndrom					-	-
	Yes	0.6%	0.7%	0.0%		
	No	99.4%	99.3%	100%		
Chronic back pain					0.327	0.567
	Yes	48.0%	48.5%	42.9%		
	No	52.0%	51.5%	57.1%		
Chronic Fatigue					-	-
	Yes	0.6%	0.7%	0.0%		
	No	99.4%	99.3%	100%		
Diabete					0.21	0.647
	Yes	5.5%	5.6%	3.6%		
	No	94.5%	94.4%	96.4%		
Ear Diseases					-	-
	Yes	2.4%	2.7%	0.0%		
	No	97.6%	97.3%	100%		
Fibromyalgia					2.86	0.091
	Yes	2.4%	2.0%	7.1%		
	No	97.6%	98.0%	92.9		
Hypertension					1.107	0.292
	Yes	13.7%	14.3%	7.1%		
	No	86.3%	85.7%	92.9%		
Intestinal disorders					0.08	0.777
	Yes	2.7%	2.7%	3.6%		
	No	97.3%	97.3%	96.4%		
Knee pain					-	-
	Yes	1.8%	2.0%	0.0%		
	No	98.2%	98.0%	100%		
Migraine					-	-

	Yes	1.2%	1.3%	0.0%		
	No	98.8%	98.7%	100%		
Mood disorders	Yes	1.5%	1.0%	7.1%	6.47	p<0.05
	No	98.5%	99.0%	92.9%		
Skin diseases					0.3933	0.531
	Yes	10.6%	11.0%	7.1%		
	No	89.4%	89.0%	92.9%		
Stomach diseases					-	-
	Yes	6.7%	7.3%	0.0%		
	No	93.3%	92.7%	100%		
Thyroiditis					-	-
	Yes	3.0%	3.3%	0.0%		
	No	97.0%	96.7%	100%		
Other						
	Yes	4.0%	2.7%	17.9%		
	No	96.0%	97.3%	82.1%		

TABLE 5: Chi-Square Test Results Comparing Equal Age Distribution of Home-Based Childcare Workers With And Without Chronic Conditions (N = 620)

	Determinants of health	Chronic conditions		Chi-square test	
		No	Yes	χ^2	p-value
Individual and lifestyle factors	Daily level of physical activity			9.397	p<. 05
	Very active	25.5%	18.1%		
	Moderately active	47.7%	45.5%		
	Somewhat Active	23.3%	31.0%		
	Inactive	3.5%	5.5%		
	Daily fruit And vegetable Consumption			.181	.914
	Less than 5 portions a day	29.0%	27.7%		
	5 - 10 portions a day	65.2%	66.8%		
	More than 10 portions a day	5.8%	5.5%		
	Daily Sleeping Hours			6.581	<. 05
Less than 7 hours	30.0%	37.7%			
7-8 hours	39.7%	40.0%			
8 hours and plus	30.3%	22.3%			
Tobacco Use			1.621	.655	
	Daily	9.4%	11.0%		
	Occasionally	8.7%	7.1%		
	Former smoker	29.0%	26.1%		
	Never smoked	52.9%	55.8%		
Social networks factors	Help in daily Life			2.379	.157
	No help received	9.0%	12.9%		
	Help received	90.6%	86.8%		
	Family relationships			2.314	.222
	Good relationship	99.0%	97.4%		
	Poor relationship	1.0%	2.6%		
	Friends relationships			0.000	1.000
	Good relationship	93.9%	93.9%		
	Poor relationship	3.2%	3.2%		
	Supervisors Relationship			5.887	<. 05
Good relationship	91.9%	85.8%			
Poor relationship	8.1%	14.2%			
Parents Relationship			11.576	<. 01	
Good relationship	72.9%	60.0%			
Poor relationship	27.1%	40.0%			
Living	Floor Of Work			6.621	.085
	Ground floor	31.6%	34.2%		
	Basement	28.7%	34.5%		

	Ground floor and basement	36.4%	27.4%		
	Other	3.3%	3.9%		
	Number of years worked			4.598	.331
	Less than 1 year	7.1%	3.9%		
	1-2 years	4.5%	2.9%		
	2-3 years	6.5%	6.1%		
	4-5 years	8.7%	8.7%		
	5 years and +	73.2%	78.4%		
	Help at work			0.242	.682
	No help received	60.3%	60.0%		
	Help received	39.7%	40%		
	Type of house			4.712	.194
	Single house	87.4%	87.1%		
	Semi-detached	6.5%	3.9%		
	Town-House	2.6%	5.2%		
	Other	3.5%	3.9%		
	Status in Canada			0.018	.894
	Canadian	90.0%	89.7%		
	Immigrant	10.0%	10.3%		
	Marital Status			3.997	.262
	Married	47.7%	54.8%		
	Common-law union	29.0%	27.4%		
	Single	14.8%	11.0%		
	Divorced, separated or widowed	8.4%	6.8%		
	Level of annual gross income			2.009	.366
	\$25 000 and less	34.2%	39.7%		
	\$25 001 to \$40,000	45.5%	41.9%		
	\$40 001 and +	20.3%	18.4%		
	Level of education			3.394	.335
	University	20.6%	15.5%		
	College	42.9%	45.5%		
	Secondary School or less	30.6%	34.2%		
	Other	5.8%	4.8%		
	Province			3.981	< .05
	Quebec	90.3%	94.5%		
	Ontario	9.7%	5.5%		

TABLE 6: Model 1 - Logistic Regression of Age as a Determinant of Chronic Conditions of Chronic Condition Among Home-Based Childcare Workers (n = 695)

Factors	Unequal age distributions	
	OR [95%CI]	P-value
Age category		
20-29 y (ref)		
30-39y	1.765 [.786-3.967]	.169
40-49 y	2.741 [1.221-6.153]	<.05
50 y and +	2.733 [1.186-6.299]	<.05

* Dependent variable: chronic condition (1=yes)

Model Summary Test indicates that the independent variables explain between 1.8% (Cox & Snell R^2) and 2.3% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = .000$; $p > 0.05$). The model correctly classified 55.4% of cases.

TABLE 7: Model 2 - Logistic Regression of Individual Lifestyle Determinants of Chronic Conditions Among Home-Based Childcare Providers (n=620)

Factors	Equal age distributions	
	OR [95%CI]	P-value
Physical Activity Practice		
Very active (ref)		
Moderately active	1.345 [0.886-2.042]	0.164
Somewhat active	1.874 [1.174-2.993]	<.01
Inactive	2.993 [1.224-7.315]	<.05
Fruit And Vegetables Consumption		
More than 10 portions a day (ref)		
5 - 10 portions a day	0.993 [0.492-2.005]	0.985
Less than 5 portions a day	0.826 [0.393-1.737]	0.614
Daily Sleeping Hours		
7-8 hours (ref)		
Less than 7 hours	0.814 [0.559-1.185]	0.283
8 hours and plus	0.553 [0.363-0.844]	<.01
Tobacco Use		
Never smoked (ref)		
Former smoker	0.83 [0.57-1.209]	0.332
Occasionally smoker	0.744 [0.403-1.376]	0.346
Daily smoker	1.066 [0.615-1.849]	0.819

* Dependent variable: chronic condition (1=yes)

Model Summary Test indicates that the independent variables explain between 3.1% (Cox & Snell R^2) and 4.4% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow Test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = 3.141$; $p > 0.05$). The model correctly classified 57.1% of cases.

TABLE 8: Model 3 - Logistic Regression of Social Network Determinants of Chronic Conditions Among Home-Based Childcare Providers (n=620)

Factors	Equal age distribution	
	OR [95%CI]	P-value
Help In Daily Life		
Help received (ref)		
No help received	1.411 [0.841-2.369]	0.192
Friends relationships		
Good relationship (ref)		
Poor relationship	0.952 [0.368-2.465]	0.919
Supervisor Relationship		
Good relationship (ref)		
Poor relationship	1.682 [0.992-2.851]	<.05
Parents Relationship		
Good relationship (ref)		
Poor relationship	1.666 [1.181-2.351]	<.01

* Dependent variable: chronic condition (1=yes).

The variable *family relationships* has been excluded from the binary logistics regression model because the minimal size required of ten observations (Garson, 2009) was not met. The model Summary Test indicates that the independent variables explain between 2.7% (Cox & Snell R^2) and 3.6% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow Test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = .667$; $p > 0.05$). The model correctly classified 57.6% of cases.

TABLE 9: Model 4 - Logistic Regression of Living And Working Conditions as Determinants of Chronic Conditions Among Home-Based Childcare Providers (n=620)

Factors	Equal age distribution	
	OR [95%CI]	P-value
Hours of work per week (per 1 increase)	1.001 [0.995-1.006]	0.817
Nb. of children under care (per 1 increase)	0.909 [0.79-1.047]	0.185
Nb. of babies (per 1 increase)	1.03 [0.876-1.212]	0.718
Nb. Girls (per 1 increase) (per 1 increase)	0.967 [0.874-1.069]	0.511
Nb. Boys	1.07 [0.971-1.18]	0.172
Floor Of Work		
Ground floor (ref)		
Basement	1.161 [0.772-1.746]	0.473
Ground floor and basement	0.677 [0.452-1.014]	<.05
Other	1.225 [0.486-3.089]	0.667
Number of years worked		
Less than 1 year (ref)		
1-2 years	1.092 [0.356-3.352]	0.878
2-3 years	1.782 [0.679-4.676]	0.24
4-5 years	2.121 [0.847-5.313]	0.108
5 years and +	2.319 [1.085-4.957]	<.05
Help at work		
Help received (ref)		
No help received	0.969 [0.658-1.426]	0.874
Type of house		
Single house (ref)		
Semi-detached	1.22 [0.512-2.912]	0.653
Town-House	2.137[0.878-5.201]	0.094
Other	0.649[0.307-1.375]	0.260

* Dependent variable: chronic condition (1=yes)

Model Summary Test indicates that the independent variables explain between 3.4% (Cox & Snell R^2) and 4.6% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow Test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = 8.829$; $p > 0.05$). The model correctly classified 56.6% of cases

TABLE 10: Model 5 - Logistic Regression of General Socioeconomics and Cultural Conditions as Determinants of Chronic Conditions Among Home-Based Childcare Providers (n=620)

Factors	Equal age distribution	
	OR [95%CI]	P-value
Status in Canada		
Canadian (ref)		
Immigrant	1.104 [0.620-1.968]	0.736
Marital Status		
Married (ref)		
Common-law union	0.794 [0.538-1.170]	0.234
Single	0.764 [0.415-1.406]	0.387
Divorced, separated, widowed	0.674 [0.353-1.285]	0.230
Workers' minor children		
None (ref)		
1	1.432 [0.905-2.266]	0.125
2	0.990 [0.650-1.507]	0.963
3	0.950 [0.553-1.633]	0.854
4 and more	0.992 [0.391-2.517]	0.986
Level of annual gross income		
\$40 001 and + (ref)		
\$25 001 to \$40,000	1.002 [0.646-1.553]	0.994
\$25 000 and less	1.261 [0.803-1.980]	0.314
Level of Education		
University (ref)		
College	1.453 [0.871-2.422]	0.152
Secondary School or less	1.431 [0.894-2.290]	0.135
Other	1.090 [0.483-2.461]	0.835
Province		
Quebec (ref)		
Ontario	0.687 [0.319-1.479]	0.337

* Dependent variable: chronic condition (1=yes)

Model Summary Test indicates that the independent variables explain between 2.3% (Cox & Snell R^2) and 3.0% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow Test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = 3.817$; $p > 0.05$). The model correctly classified 56.1% of cases

TABLE 11: Model 6 - Logistic Regression of Broader Determinants of Chronic Conditions Among Home-Based Childcare Providers (n=620)

Factors	Equal age distribution	
	OR [95%CI]	P-value
Age category		
20-29 y (ref)		
30-39y	0.897 [.317-2.540]	0.838
40-49 y	0.838 [.296-2.372]	0.74
50 y and +	0.895 [.306-2.619]	0.839
Physical Activity Practice		
Very active (ref)		
Moderately active	1.434 [0.936-2.199]	0.098
Somewhat active	1.864 [1.161-2.993]	<.05
Inactive	2.383 [0.958-5.931]	0.062
Daily Sleeping Hours		
7-8 hours (ref)		
Less than 7 hours	0.813 [0.553-1.195]	0.292
8 hours and +	0.566 [0.369-0.871]	<.05
Supervisor Relationship		
Good relationship (ref)		
Poor relationship	1.743 [1.012-3.001]	<.05
Parents Relationship		
Good relationship (ref)		
Poor relationship	1.592 [1.11-2.283]	<.05
Floor Of Work		
Ground floor (ref)		
Basement	1.071 [0.71-1.615]	0.744
Ground floor and basement	0.662 [0.439-0.997]	<.05
Other	1.181 [0.457-3.052]	0.732
Number of years worked		
Less than 1 year (ref)		
1-2 years	1.315 [0.42-4.118]	0.638
2-3 years	1.716 [0.646-4.555]	0.279
4-5 years	1.776 [0.703-4.482]	0.224
5 years and +	2.124 [0.986-4.576]	0.054

* Dependent variable: chronic condition (1=yes)

Model Summary Test indicates that the independent variables explain between 6.4% (Cox & Snell R^2) and 8.6% (Nagelkerke R^2) of the variation in results. Hosmer and Lemeshow Test of goodness-of-fit indicates that the model fits the data well ($\chi^2 = 8.582$; $p > 0.05$). The model correctly classified 61.9% of cases

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Appendix 1: Summary of Variables Used in the Study

Variables	Description
Chronic health condition*	Categorized into (0) No and (1) Yes
Type of chronic health conditions**	(1) Anxiety disorders, (2) Arthritis, (3) Asthma, (4) Chronic back pain, (5) Cancer, (6) Cardiovascular diseases, (7) Chronic fatigue, (8) Diabetes, (9) Hypertension, (10) Intestinal disorders, (11) Knee pain, (12) Migraine, (13) Mood disorders, (14) Skin diseases, (15) Stomach diseases, (16) Thyroiditis, (17) Other
Usage of healthcare professional services	
Doctor visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Dentist visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Optometrist visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Chiropractor visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Nurse visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Physiotherapist visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Psychologist visits	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Other health professionals	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Trial to get information about health	Categorized into (1) No visit, (2) 1 visit, (3) 2 visits, (4) 3 visits, and (4) 4 visits and more
Personal factor	
Age	Categorized into (1) 20-29 y, (2) 30-39y, (3) 40-49 y, and (4) 50 y and +.
Gender	Categorized into (1) Male, and (2) Female. This variable was excluded from regression models, as all participants were female.
Individual lifestyle factors	
Daily level of physical activity	Categorized into (1) Very active, (2) Moderately active, (3) Somewhat active, and (4) Inactive.
Daily fruit and vegetable consumption	Categorized into (1) Less than 5 portions, (2) 5-10 portions, and (3) More than 10 portions
Daily sleeping	Categorized into (1) Less than 7 hours, (2) 7 - 8 hours, and (3) 8 hours and plus

Tobacco use	Categorized into (1) Never smoked, (2) Former smoker, (3) Occasionally, and (4) Daily
Social and community networks factors	
Help in daily life	Categorized into (0) No help received, and (1) Help received
Family relationship	Categorized into (0) Poor relationship, and (1) Good relationship.
Friends relationships	Categorized into (0) Poor relationship, and (1) Good relationship
Supervisors relationship	Categorized into (0) Poor relationship, and (1) Good relationship
Parents relationships	Categorized into (0) Poor relationship, and (1) Good relationship
Working conditions factors	
Number of weekly hours of work	Continuous
Number of total children in the group	Continuous
Number of babies in the group	Continuous
Number of boys in the group	Continuous
Number of girls in the group	Continuous
Floor of work	Categorized into (1) Ground floor , (2) Basement, (3) Ground floor , and basement, (4) Other
Number of years worked	Categorized into (1) Less than 1 year, (2) 1-2 years, (3) 3-4 years, and (4) 5 years and +
Help at work	Categorized into (0) No help received, and (1) Help received
Type of house	Categorized into (1) Single house, (2) Semi-detached, (3) Town-house, (4) Apartment, and (5) Other
General socioeconomics factors	
Status in Canada	Categorized into (0) Immigrant and (1) Canadian
Marital status	Categorized into (1) Married, (2) Common-law union, (3) Single, (4) Divorced, separated or widowed.
Workers' minor children	Categorized into (0) None, (1) 1, (2) 2, (3) and (4) 4 or more.
Level of annual gross income	Categorized into (1) \$25 000 and less, (2) \$25 001 to \$40,000, and (3) \$40 001 and +
Level education	Categorized into (1) University, (2) college, (3) Secondary school or less, and (4) Other (e.g. professional training)
Province	Categorized into (0) Quebec, (1) Ontario

* Dependent variable

** Multiple choices

Manuscript 3
**Overview of the Broader Social Determinants of
Health of Regulated Home-Based Child Care workers**

Manuscript 3: Overview of the Broader Social Determinants of Health of Regulated Home-Based Child Care workers

INTRODUCTION

The childcare workforce plays a fundamental role in determining quality in early childhood programs (Halfon, 2014). Canada counts near 44,000 regulated Home Based Childcare (HBC) workers that are predominantly women across the country (Beach & Flanagan, 2010). They care for children during early childhood and perform duties related to physical care, emotional care, special care, housekeeping and domestic work, business administration and self-development (Stitou, Bourgeault & Kohen, 2016).

HBC regulations differ from one province to another but tend towards two models: a direct licensing model and an agency model (Ferns & Friendly, 2015). Direct licensing is used in Prince Edward Island, New Brunswick, Manitoba, Saskatchewan, British Columbia, Yukon, Northwest Territories, and Nunavut. The agency model is used in Ontario, Quebec, and Nova Scotia. In addition, HBC regulations define the maximum number of children, age group restrictions, HBC provider-children ratio, inclusion of the provider's own children in the ratio, monitoring and accountability (e.g. annual inspections), provider's qualifications (e.g. level of education, work experience, police check), smoking (e.g. Smoke Free Ontario Act), and nutritional standards (e.g. Canada Food Guide) (Doherty, Lero, Tougas, LaGrange & Goelman, 2000). Although working conditions are different from one province to another, HBC workers are generally self-employed or on contract with childcare agencies (Beach & Flanagan, 2010). They work five days a week for at least 50 hours and care for up to ten children varying in ages and earn a gross annual income of \$24,000 or less (Beach, Bertrand, Forer, Michal & Tougas, 2004). For their part, Beach &

Costigliola (2005a) have reported that those working in centers earn \$21,000 on average, while those who work in the regulated HBC have an annual net income of about \$15,000 on average. In addition, they spend up to 75% of their gross income to cover child care-related expenses including food for children, toys, art supplies, equipment, etc. (Doherty, Lero, Goelman, Tougas & Lagrange, 2000) and their income is low compared to other female-dominated professions (Halfon, 2014).

In Canada, data focusing on these workers is limited (Halfon, 2014) and "there is no formal research program or regularly collected data on the childcare workforce" (Halfon, 2014 p. 2). Moreover, there is a lack of data to answer important questions on the Canadian childcare sector (Beach Bertrand & Cleveland, 1998). Since 1984, several local, provincial and pan-Canadian studies have been conducted by independent university-based researchers, childcare organizations, or federal ministries (e.g. Census of Statistics Canada) (Halfon, 2014; Kohen, Dahinten, Khan, Hertzman, 2008). They have mainly examined factors affecting childcare quality in regulated center-based childcare settings such as childcare workforce characteristics and working conditions, caregiver's education, qualifications and training, wages, group sizes and child-staff ratios (Beach, Bertrand & Cleveland, 1998; Beach, Bertrand, Forer, Michal & Tougas, 2004; Cleveland & Hyatt, 2000; Cox, 2005; Goss Gilroy Inc., 1998; Doherty, 2002; Doherty, Lero, Goelman, LaGrange & Tougas, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2001; Flanagan, Beach and Varmuza, 2013, Halfon, 2014; Huntsman, 2008; Mathers, Eisenstadt, Sylva, Soukakou & Ereky-Stevens, 2014; Schom-Moffatt, 1984; Taylor, Dunster & Pollard, 1999). A limited number of studies have addressed HBC workers' work and working conditions (Beach & Flanagan, 2010; Cox, 2005; Ferns & Friendly, 2015; Doherty, Lero, Goelman, Tougas, & LaGrange, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2000; Goss Gilroy, 1998). However, very little is

known about the broader determinants of HBC workers' health, commonly referred to as the social determinants of their health. In addition to being important for workers themselves, the conditions for workers are key factors supporting a delivery of high-quality early childhood programs.

Social Determinants of Health

Health and well-being changes over time and are influenced by many determinants of health within or outside the individual control (Yaya, 2010). Determinants of health are factors that contribute to individuals' and communities' health status. They play a major role in influencing health and well-being, preventing diseases, reducing the number of deaths from certain types of diseases as well as the social costs of pathologies. The Dahlgren & Whitehead model (1991) is one of the most widely known models of determinants of health that tackles health inequalities by exploring the influence of these determinants on health outcomes. This model recognizes five broad categories of determinants of population health including personal, individual lifestyle, social and community networks, structural, general socio-economic, cultural, and environmental conditions. Personal factors are related to age, gender, and heredity. Individual lifestyle factors refer to the individual behaviors, which can prevent diseases and promote personal health. For example, smoking, unhealthy dietary practices, lack of sleeping, physical inactivity, substance abuse, sexual practices, and lack of disease screening practices are modifiable risk factors exerting a strong influence on health outcomes and well-being. They have been shown to be relevant for chronic diseases, several cancers, and obesity. Factors related to social and community networks refer to family, friends and the individual's circle who are able to bring support when needed. Structural factors include work environment, education, agriculture, employment, access to clean water, health services and housing. Finally, general socio-economic,

cultural and environmental conditions comprise factors such as income, marital status, religion, language, etc. In this model, personal factors are considered fixed while the other types of factors are potentially modifiable. The Dahlgren and Whitehead model indicates that in Western countries, 40% of early deaths were due to behaviours and lifestyles, 30% to genetic predispositions, 15% to social conditions, 10% to medical care services, and 5% to environmental conditions (Dahlgren & Whitehead, 1991). The purpose of this study is to give an overview of social determinants of health factors among regulated HBC workers drawing upon the Dahlgren and Whitehead model. Addressing social determinants of health may help to highlight areas where health inequalities experienced by HBC workers can be addressed.

METHODOLOGY

This study was granted ethical approval from the University of Ottawa Research Ethics Board for the data collection (H-11-13-16). It included quantitative and qualitative descriptive data to explain more fully the determinants of health by studying them from more than one standpoint, to provide the motivation behind certain preferences or behaviours and to ensure greater data validity.

Quantitative data

- **Sample and recruitment**

This study was conducted in two Canadian provinces (Quebec and Ontario) where 62% of the regulated national workforces of home-based childcare workers work (Beach & Costgliola, 2005a). The target population was composed of approximately 15,000 HBC workers in Quebec (*Ministère de la famille*, 2014), and 6,000 in Ontario (Ministry of Education, 2014). Two criteria

for participation to this study were: 1) being an Anglophone or Francophone man or woman and 2) working as a regulated HBC worker affiliated with a childcare agency in Ontario or a coordinating office in Quebec. The regional home-based childcare networks in Quebec (n = 13 out of 17) and the regional childcare agencies in Ontario (n = 4 out of 123) were involved in the recruitment process. They were asked to send bilingual letters of information to their members via email asking them to participate in this study on a voluntary basis, in addition to sending a reminder two weeks after the initial invitation. The letter of information included the bilingual links to the anonymous online questionnaire. A total of 695 female participants (QC=621; ON = 74) completed the online questionnaire between April and November 2014. The exact response rate is unknown since many agencies and coordinating offices avoided confirming the total number of invitations sent out and whether or not a reminder was sent two weeks after the initial invitation. However, we estimate that 3.3% ($f = n/N \approx 695/21000 = 3.3\%$) of the population of HBC workers were included as participants.

- **Survey questionnaire and measures**

The data used for this study was part of a larger anonymous online study on HBC workers' work and health we conducted in 2014. It included five sections for a total of 62 multiple-choice response questions, 86 multiple-choice response sub-questions and 1 open question : Section A - Profile of regulated HBC worker (11 questions and 2 sub-questions), Section B - Working conditions of regulated HBC worker (23 questions and 43 sub-questions including the Karasek job content (KJC) questionnaire), Section C - Impacts on health (19 questions and 25 sub-questions including the SF-36 questions), Section D - Actions taken to stay healthy (9 questions and 16 sub-questions), and Section E - HBC worker's comments (1 open question). All questions were

formulated by the team of research, except the questions on the SF-36 and Karasek JCQ. Licences for the use of these measure instruments were requested from QualityMetric Health and Dr. Robert Karasek. Prior to sending the invitations to the participants, the bilingual anonymous online survey was circulated for pre-testing among three HBC workers in Quebec and three in Ontario who provided feedback. Suggestions made by participants were incorporated into the final online survey set up on Fluid Survey. The respondents were invited to read a consent form including information on the purpose of the study, the criteria for participation, the benefits, the risks, the confidentiality and anonymity statements, and the retention of data before completing the anonymous online survey requiring about 20 to 30 minutes in the official language of their choice. For this research, we used the responses to questions related to the determinants of health defined in the Dahlgren & Whitehead Model (1991) and included in the survey. The following variables were collected all based on self-report: personal factors (age and gender), individual lifestyle factors (information about the level of daily physical activity, physical appearance satisfaction, daily fruit and vegetable consumption, daily sleeping, tobacco use, and action undertaken to improve health), social and community networks factors (information about type of relationships with family, with friends, with parents, and with supervisor in addition to the sources of help received in daily life.), structural factors (work environment, and housing) and general socio-economic conditions factors (status in Canada, level of education, marital status, level of annual income, income satisfaction, and sources of stress). The details of these are presented in Appendix 1.

- **Data analysis**

Statistical analyses were conducted using SPSS version 23. No data was missing for any of the variables. Descriptive statistics such as means, standard deviations, and percentages were

used to analyze the determinants of health for HBC by province. Comparison analyses by province for each determinant of health were performed using the Chi-square tests for categorical data (e.g. personal factor, structural factors, etc.) and the independent-samples t-tests for continuous data (e.g. weekly working hours, number of children under care). For the Chi-square test, three assumptions were considered: 1) the dependent and independent variables are categorical (ordinal or nominal), 2) the independence of observations within each provincial sample of HBC workers, and 3) the expected frequencies are equal or greater than 5 in each cell of the contingency table. When at least one cell counts less than 5 expected frequencies⁶, SPSS provided a correction using an asymptotic Chi-square distribution (Fisher's exact test). For the t-test, five assumptions were respected. First, the provincial samples were randomly drawn from the population. Second, observations within each provincial sample of HBC workers were independent. Third, the normality of sampling distribution of the mean was assumed with large sample sizes over 30 (Quebec = 621 and Ontario = 74). Fourth, the assumption of homogeneity of variance was tested using Levene's Test for Equality of Variances, which is produced in SPSS when running the independent t-test. When results of Levene's Test were significant, we used the t-test data for unequal variances. Fifth, the dependent variables were continuous. The significance levels of 0.001, 0.01 and 0.05 were applied when appropriate.

⁶ **Observed frequencies** are the numbers of cases from the study for each cell of the contingency table.

Expected frequencies are the marginal distributions of the observed frequencies using the marginal totals of the contingency table.

Qualitative data

- **Data collection**

Secondary qualitative data coded from the semi-structured interviews of the study *The impact of Job Content, Context and Requirements on Regulated Home-Based Childcare Workers' Health* described in Stitou, Bourgeault and Kohen (2016), were included in the findings of this research. For both studies, criteria for participation were the same, except the limitation to the cities of Gatineau (Quebec) and Ottawa (Ontario) for the second study. The participants were recruited via local childcare agencies, childcare Networks, and coordinating offices in the city of Gatineau, Quebec and in the city of Ottawa, Ontario. These organizations sent a letter of invitation in French and in English to their HBC workers. A total of 11 home-based childcare workers (Quebec=7; Ontario=4) were interviewed between November 2014 and January 2015.

- **Data analysis**

The interviews were recorded, transcribed, and coded using the approach of Blais and Martineau (2006). This approach consisted of transcribing the interviews in a uniform format, reading them, coding the first categories, and reviewing categories until data saturation. For the present study, we mainly used the data on the job content and context factors affecting health or well-being (e.g. physical demands, income, payroll deductions, operating expenses and benefits, difficult relationships with supervisors and parents of children), actions taken to improve health, reasons for leaving their job, and sources of stress.

RESULTS

General profile of HBC workers

HBC workers in the sample (n = 695) were all female and the majority of them were Canadian born, married, aged over 30 years old, mainly working in Quebec (n = 621) or Ontario (n = 74), and had completed at least a college level of education. Their personal annual gross income tended to fall mainly between \$25,001 and \$40,000 per year.

Most HBC workers were working in their own homes as HBC workers for at least five years and with four children for those in Ontario and six children for those in Quebec. Some of them work on the ground floor, in the basement, or use both floors. They have good relationships with their family, friends, supervisor, and parents of children in their care, were satisfied or very satisfied with their work at home, and intend to continue working at home with young children in the coming years.

The majority of respondents were non-smokers, moderately physically active, eat at least 5 portions of fruits and vegetables per day, and sleep at least 7 hours per night. They were satisfied with their physical appearance, work, and income even if they found it insufficient for a decent living. HBC workers do not receive any help during working hours while they do receive it from members of their families in daily life. In addition, they were very satisfied with relationships with their family and friends, housing and neighbourhood. Finally, lack of time and their poor financial situation were the main sources of stress for HBC workers.

Overview of the broader determinants of health experienced by HBC workers

Personal and individual lifestyle factors

➤ Age

HBC workers were mainly aged between 30 and 49 years old in the total sample (74%) (Figure 1). Those working in Quebec were significantly younger than those working in Ontario ($\chi^2=8.0$; $p<.05$). Indeed, 79.7% of HBC workers in Quebec were under age of 40 compared to 68.9% in Ontario who were aged over 40 years old.

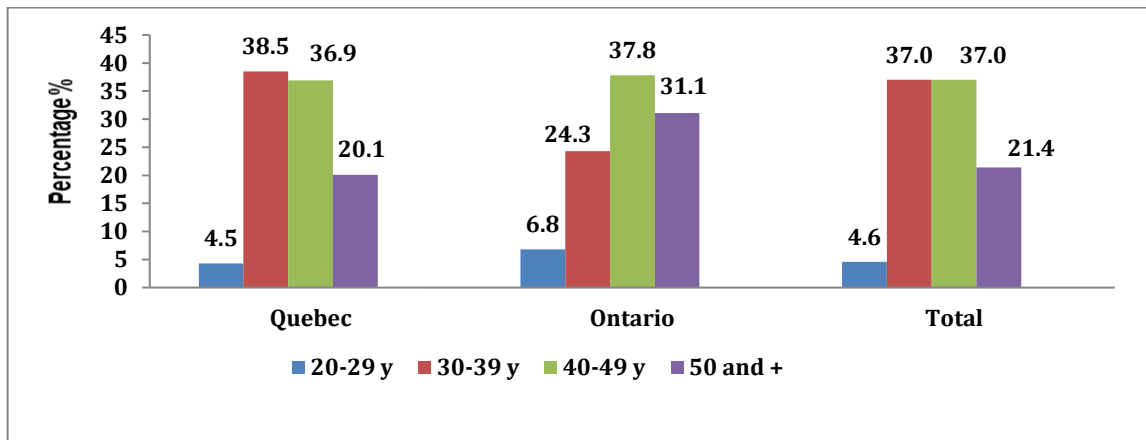


Figure 1: Percentage of Home-Based Childcare Workers by Province and Age Category (n = 695)

➤ Physical activity

Most of HBC workers in the total sample (95.5%) were at least somewhat physically active (Figure 2). Participants in Quebec and in Ontario were mainly moderately active (45.6% vs. 55.4%). A small proportion of HBC workers in both provinces were inactive (4.7% vs. 2.7%). Interviewees mentioned that they were physically active during their working hours as their daily tasks require high physical efforts. Indeed, they worked more than 10 hours a day, and raise/carry children continuously especially when they were under 2 years old to move them from one place to another, to provide hygiene assistance (e.g. diapers change, hand washing and toilet assistance,

dressing, etc.), dressing assistance, or feeding assistance. A higher proportion of respondents in Ontario were satisfied or very satisfied with their physical appearance compared to Quebec (82.4% vs. 78%).

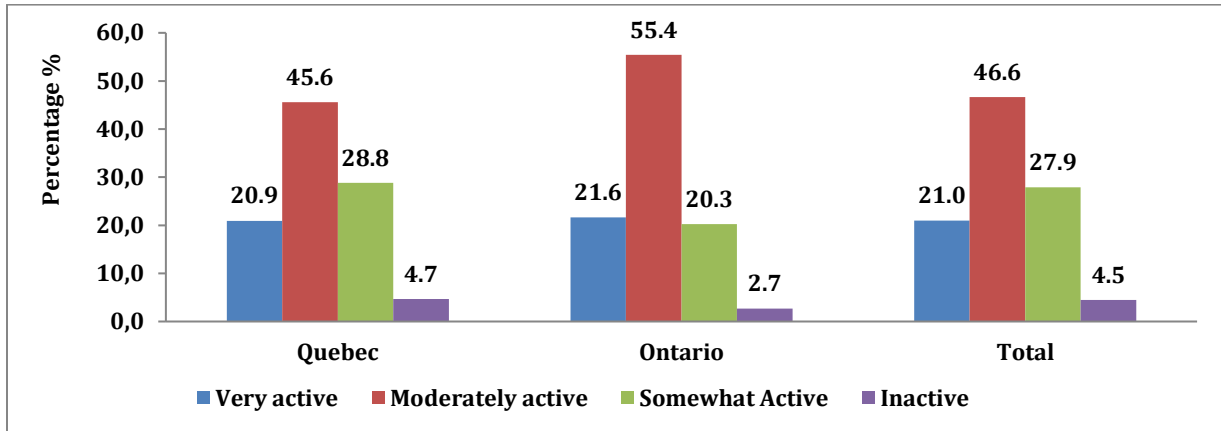


Figure 2: Percentage of Home-Based Childcare Workers by Province and Physical Activity Practice (n = 695)

➤ **Fruit and vegetable consumption**

The majority of HBC workers in the total sample (71.1%) consumed at least five portions of fruits and vegetables daily and less than third of them (28.9%) consumed less than five portions. A higher percentage of HBC workers in Quebec than in Ontario consumed at least five portions of fruits and vegetables (71.7% vs. 66.2%). During interviews, some participants mentioned eating daily homemade foods with the group of children under their care and following Canada's Food Guide as much as they could in accordance with the children eating habits and preferences. Only a few HBC workers mentioned avoiding processed food, using less white sugar and less salt in their meals. Many HBC workers reported that their coordinating childcare agencies play an important role in their food choices as they provided them information about healthy eating habits, Health Canada recommendations, strategies to encourage children eating more fruits and vegetables, in addition to annual training in this field. For example, interviewees from Gatineau

have completed three hours of mandatory training in food hygiene and safety offered by *Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec* according to the provincial law in the childcare sector. In addition, they appreciated all the content of this training and learned new things about food hygiene.

➤ **Daily sleeping**

In the total sample, 64.5% of HBC workers were sleeping at least seven hours daily. Statistically significant differences were found between provinces ($\chi^2=11.9$; $p<.01$). A higher percentage of respondents were sleeping at least seven hours (66.5%) in Quebec while those in Ontario sleep less than seven hours (52.7%). During interviews, workers in Gatineau (Quebec) mentioned taking a relaxation period of 1 to 2 hours daily during children afternoon nap. This helped them feel less tired, physically and mentally stronger resulting in better job performance.

The rest period in the afternoon allows me to feel less tired and have more energy for my job. (Hana, Gatineau, own translation)

➤ **Tobacco use**

Half of HBC workers in the total sample have never smoked (52.4%) while the third of them were former smokers (27.2%) and the rest were daily (11.8%) or occasional smokers (8.6%). When comparing provinces, statistically significant differences were found ($\chi^2 = 298.2$; $p<.001$) and a higher percentage of smokers was found in Ontario than in Quebec. Indeed, about 96% of HBC workers in Ontario were daily or occasional smokers compared to 11.4% in Quebec. All

participants in the qualitative interviews were non-smokers. Thus, this study could not investigate further how they managed smoking while caring for children.

➤ **Actions taken to improve health in the last four weeks**

HBC workers were largely healthy (53.4%) but a sizeable minority (46.6%) were dealing with at least one chronic health condition. Chronic diseases were significantly more prevalent ($\chi^2 = 3.4$; $p < .05$) among those working in Quebec (47.8%) than those working in Ontario (36.5%). Chronic back pain (Total = 22.4%; Quebec = 23.5%; Ontario = 16.2%), asthma (Total = 8.2%; Quebec = 8.2%; Ontario = 9.5%), hypertension (Total = 6.5%; Quebec = 6.9%; Ontario = 2.7%), skin diseases (Total = 5%; Quebec = 5.3%; Ontario = 2.7%), arthritis (Total = 4%; Quebec = 4%; Ontario = 4.1%), and stomach diseases (Total = 3.2%; Quebec = 3.5%; Ontario = 0%) were the main six chronic conditions reported among these workers (Figure 3).

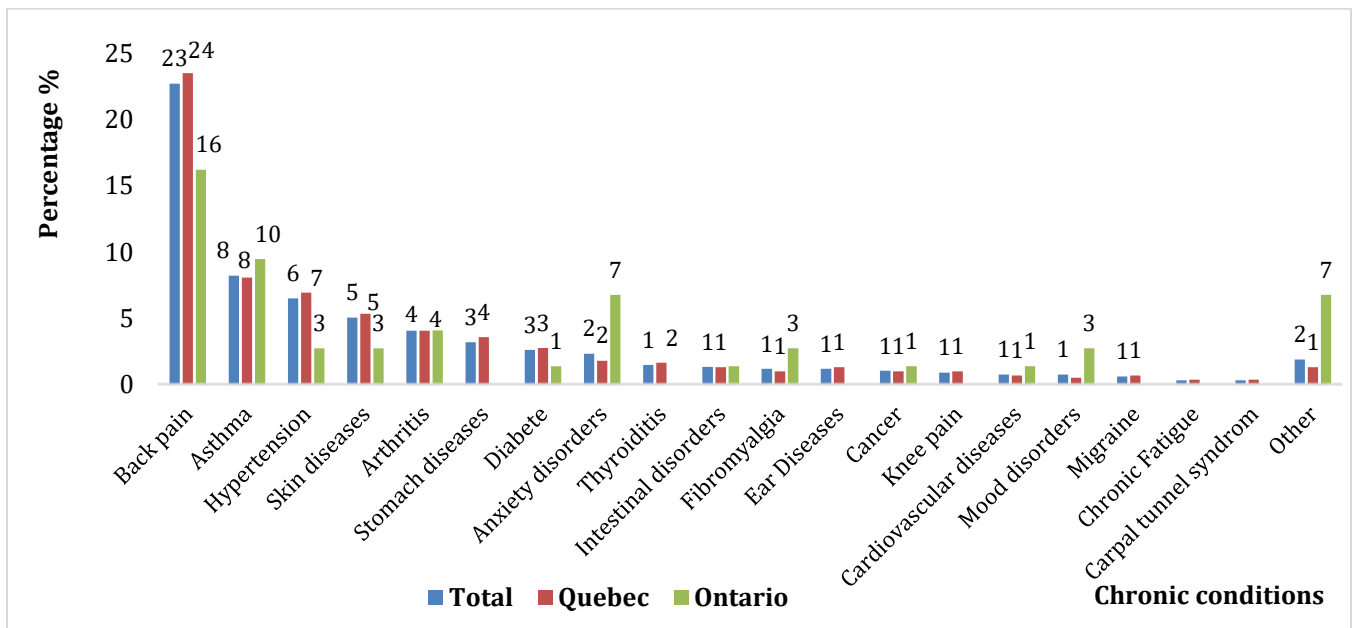


Figure 3 : Percentage of Home-Based Childcare Workers by Province and Type of Chronic Condition (n = 695)

HBC workers were concerned with their health and most of them did a preventive health screening at least once a year. Indeed, doctors (Total = 86%; Quebec = 85.8%; Ontario = 87.8%), dentists (Total = 78.8%; Quebec = 78.7%; Ontario = 79.7%) and optometrists (Total = 51.4%; Quebec = 52.0%; Ontario = 45.9%) were the main health professionals visited by HBC workers for annual preventive health screening in both provinces (Figure 4). Chiropractors (Total = 21.4%; Quebec = 22.2%; Ontario = 14.9%), nurses (Total = 11.2%; Quebec = 12.2%; Ontario = 2.7%), and psychologists (Total = 5.9%; Quebec = 13.0%; Ontario = 4.1%) were also consulted but less frequently than other types of healthcare professionals. When comparing provinces, a statistically significant difference was found between provinces for the nurse services usage ($\chi^2 = 6.0$; $p < .05$). HBC workers in Quebec used more often the nurse services as they benefit from a private health insurance with their childcare agency covering medication, family doctor services and partially other health professional services (e.g. chiropractor services) than workers in Ontario who have no private health insurance.

Here in Quebec, we have benefits that are inadequate; you have no paid sick leave, no dental insurance or other important types of health insurance. Our health insurance covers the medication and partially the fees of chiropractor services (Farah, Gatineau)

In Ottawa we have no benefit, no insurance, no paid vacation and we work more than 10 hours a day. (Cora, Ottawa).

According to interviewees, because of the lack of health insurance, their access to other medical health services, such as chiropractor services for their back pain is limited.

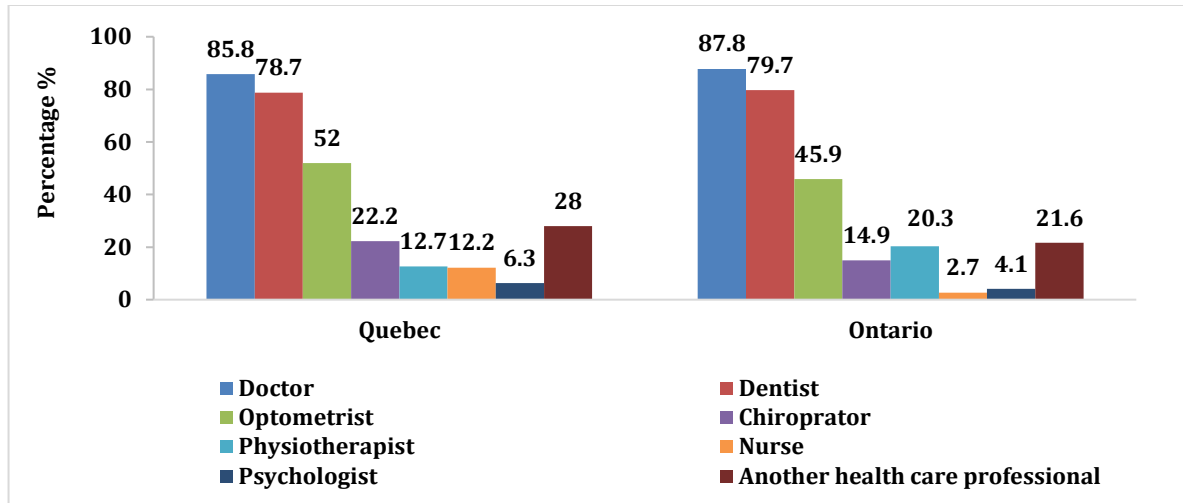


Figure 4: Percentage of Home-Based Childcare Workers by Province and Type of General Health Screenings (n = 695)

Increasing exercise and physical activities (Total = 40.1%; Quebec = 39.5%; Ontario = 45.9%), changing diet and improving eating habits (Total = 38.8%; Quebec = 39.1%; Ontario = 36.5%), taking vitamins (Total = 18.7%; Quebec = 18.2%; Ontario = 23%), reducing exposition to stressful situations (Total = 15.3%; Quebec = 15.1%; Ontario = 16.2%), receiving medical treatments (Total = 12.8%; Quebec = 13.7%; Ontario = 5.4%), consuming less alcohol (Total = 3.3%; Quebec = 2.7%; Ontario = 8.1), stopping or reducing smoking (Total=3.2%; Quebec = 3.1%; Ontario = 4.1%) were the main actions undertaken by most HBC workers (Total = 65.3%; Quebec = 65.2%; Ontario = 66.2%) to improve their health. Workers in Quebec were more likely to undergo medical treatments than their counterparts in Ontario (13.7% vs. 5.4%) while those in Ontario were more likely to reduce alcohol intake compared to HBC workers in Quebec to improve their health (8.1% vs. 2.7%).

Those who were interviewed have undertaken actions related to their lifestyle, work, and social network to improve their health. First, actions related to lifestyle comprised ensuring good hygiene (e.g. wash hands often, daily cleaning of the workplace, sanitize toys, wear gloves and mask during diaper change, ventilate the house every day), excluding from the childcare sick children who could make others sick, organizing quiet activities with children to avoid noise (e.g. coloring, relaxation period), choosing less heavier children, searching for information on prevention of contamination in childcare, and cleaning the air ducts of the home ventilation system once a year. Second, actions related to lifestyle included taking a walk each day, eating home-made foods, and following Canada's Food Guide as much as possible, losing weight, using natural products, sleeping more hours, taking a relaxation period during the children's afternoon nap, taking vacation to relax, and visiting family doctor at least once a year for preventive health screening. Third, actions related to social support were mainly talking to family members or friends when moral support is needed. Also, the majority of participants stated that their coordinating offices and childcare agencies play a key role in health promotion by periodically sending out information about contagious diseases, prevention of contamination, nutrition, and on ergonomics in the workplace, and distribute pamphlets for parents about vaccines, childhood illnesses, and child development.

In the total sample, 34.7% (n = 241) of HBC workers were unable to undertake actions to improve their health for several reasons, including their work schedule (100%), family responsibilities (66.4%), their self-identified lack of willpower and self-discipline (63.5%), financial constraints (46.5%), weather problems (11.6%), health problems (9%), and transportation problems (5.4%). Other reasons were reported such as pregnancy making them feel tired after work, absence of an adult to watch their young children after work, evening studies after

work, feelings of fatigue, and demotivation because of stressful relationships with children's parents.

Social and community networks

In the total sample, HBC workers reported good relationships with their family (98.2%), friends (97.1%), supervisor (82.6%), and children's parents (65.1%). A significant difference between provinces was found in terms of the type of HBC workers' relationships with supervisor ($\chi^2=9.6$; $p<.001$). All workers in Ontario reported having good relationships with their supervisor (100%) and only a small proportion of HBC workers in Quebec experienced bad relationships (11.6%) with their supervisors. These were the result of misunderstandings about the physical workplace and personal values. Workers in Quebec were under the impression that their supervisor was heavily focused on giving them statements of offence, revoking licenses, and inconsistently applying regulations.

Another significant difference between provinces is the type of HBC workers' relationships with parents of children ($\chi^2 = 5.3$; $p<.05$). A higher proportion of HBC workers in Quebec reported having poor relations with parents of children compared to those in Ontario (34.9% vs. 21.6%). Poor personal attitudes and non-compliance with HBC rules such as late payments, non-respect of opening or closing hours, and the lack of providing appropriate clothing and hygiene items for their children were the main disagreements experienced by respondents.

Finally, in their daily life, 90.1% of HBC workers in the total sample received help mainly from their families, friends, supervisors or neighbours. A significant difference between provinces was found in terms of the help in daily life received ($\chi^2=8.9$; $p<.01$). HBC workers in Ontario were mainly helped by parents of children (41.9%) contrary to their counterparts in Quebec who were

mostly helped by their own family members (56.5%). A higher percentage of workers in Quebec have received assistance from their supervisors compared to those in Ontario (16.8% vs. 6.8%).

Structural factors

➤ Work environment

➤ Job characteristics

The job characteristics of HBC workers depended on the province where they work. The total number of children under care ($t = 11.8$; $p < .001$), babies ($t = -6.3$; $p < .001$), girls ($t = 1.714$; $p < .001$), boys ($t = 4.0$; $p < .05$) and floor of work ($\chi^2 = 27.1$; $p < .001$) were significantly different between provinces. In Quebec, HBC workers worked 64 hours in average ($SD = 28.3$), cared for six children ($SD = 1.6$), had at least one baby under 18 months in their group ($SD = 1.0$) and an equal number of boys ($n = 3$ and $SD = 1.8$) and girls ($n = 3$ and $SD = 1.8$) within the group. In addition, an equal proportion of HBC workers used the basement floor (33.5%) to reduce interference between their job and their family and personal life, the ground floor (30.4%), or both floors (33.3%) of their houses for their work.

Their counterparts in Ontario worked 59 hours weekly ($SD = 19.1$) with a group of four children on average ($SD = 1.5$) including two babies under 24 months ($SD = 1.2$) and an equal number of boys and girls within the group. They mainly worked on the ground floor of their houses (51.4%).

➤ Career choice and satisfaction

HBC workers chose their job mainly because they could work while staying at home with their young children (Total = 38.3%, Quebec = 38.8%, Ontario = 33.8%), loved spending time

with young children (Total = 34.2%, Quebec = 35.6%, Ontario = 23%), or wished to be their own boss (Total = 16.3%, Quebec = 25.6%, Ontario = 21.6%).

The years of work ($\chi^2=153.3$; $p <.001$), work satisfaction ($\chi^2 = 62.1$; $p <.001$), intention to continue working at home ($\chi^2=295.3$; $p <.001$) and help received at work ($\chi^2=8.9$; $p <.01$) were significantly different between provinces. In Quebec, 76% of HBC workers have done this kind of work for at least five years compared to only 31.1% in Ontario. In Ontario, 41.9% of participants in the sample were new workers for less than one year as compared to 3.7% in Quebec (Figure 5). Also, 77% of HBC workers in Ontario and 59.1% in Quebec do not receive any help at work. In both provinces, they receive help mainly from their families (Quebec = 54.3%; Ontario = 82.4%). In the total sample, HBC workers were very satisfied or satisfied with their work (85.6%) and a higher proportion of those in Ontario were very satisfied (74%) compared to their counterparts in Quebec (29%) (Figure 6). The majority of those working in Ontario intended to change their career in the next two years contrary to those in Quebec (Quebec = 10.7%; Ontario = 87.9%) (Figure 7). When interviewed about the reasons explaining their decision of leaving their job in the future, HBC workers reported their working conditions as the main reason. Specifically, they mentioned that low wages, exceeding 10 working hours daily, high physical and mental demands, difficulty of filling available spots, absence of contact with other adults during working hours, lack of external help during working hours, interference with personal and family life, and some difficult relationships with infants, supervisors or parents as a source of emotional stress may encourage them to leave their job. Those working in Ottawa (Ontario) underlined the lack of benefits such as pension plans, paid vacation, health insurance (e.g. dental), and parental or family leave, as other reasons.

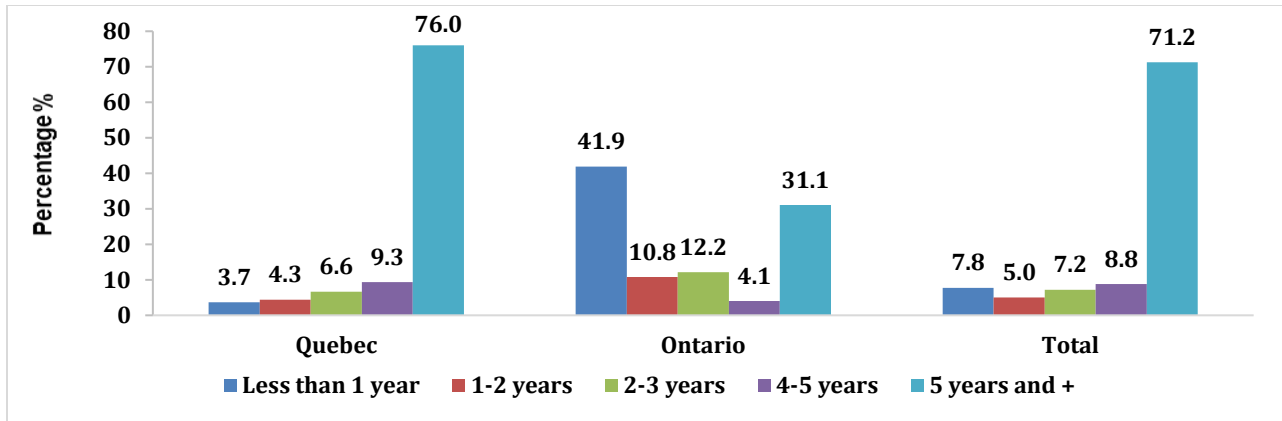


Figure 5: Percentage of Home-Based Childcare Workers by Province and Years of work (n = 695)

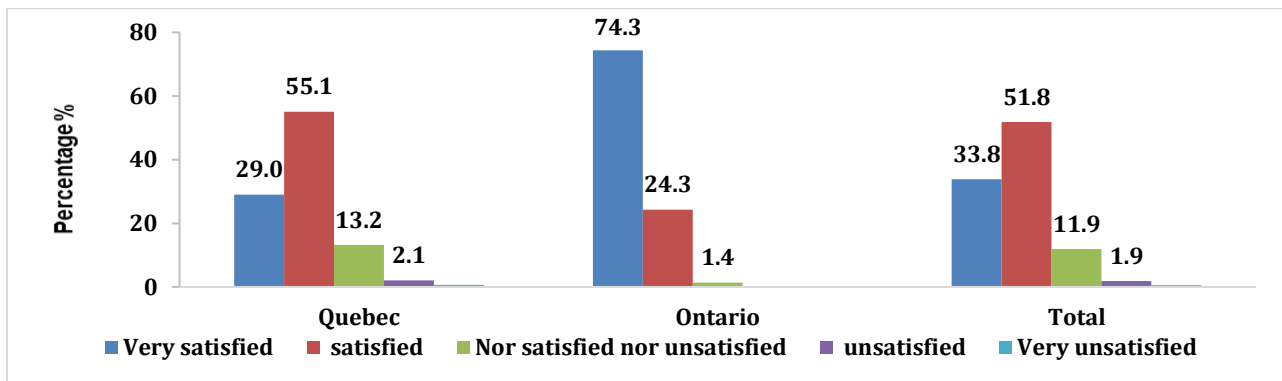


Figure 6: Percentage of Home-Based Childcare Workers by Province and Work Satisfaction (n = 695)

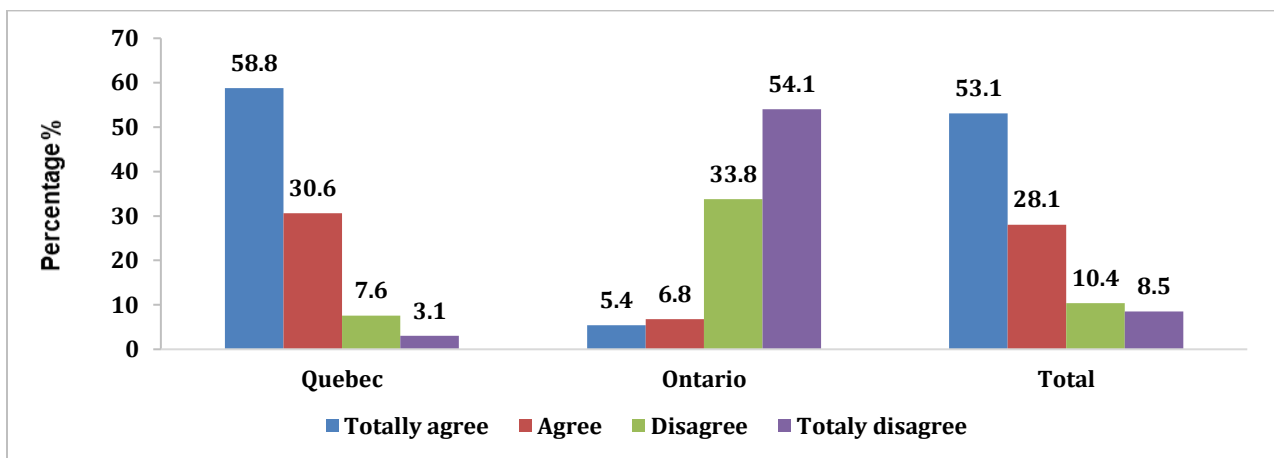


Figure 7: Percentage of Home-Based Childcare Workers by Province and Intention to Continue Working at Home in the 2 next years (n = 695)

➤ **Housing**

In the total sample, the majority of HBC workers were homeowners (91.4%) living in a single family home (86.2%) and were satisfied or very satisfied with their housing environment (89.1%) and neighbourhood (90.6%). Provincial differences were found in terms of the type of housing occupant ($\chi^2 = 26.5$; $p < .001$), type of house ($\chi^2 = 34.5$; $p < .001$), housing satisfaction ($\chi^2 = 19.6$; $p < .05$), and neighbourhood satisfaction ($\chi^2 = p < .001$). Compared to HBC workers in Quebec, a higher percentage of those in Ontario were home tenants (21.6% vs. 6.3%) living in a townhouse (18.9% vs. 3.4%), satisfied or very satisfied with their housing environment (91.9% vs. 88.7%) and neighbourhood (97.3% vs. 89.9%).

General socio-economic conditions

A high proportion of HBC workers in the total sample and in both provinces were Canadian-born (Total = 89.4%; Quebec = 89.9%, Ontario = 85.1%). Provincial significant differences were found in marital status ($\chi^2 = 296.5$; $p < .001$). Participants from Quebec were mainly married (54.6%) or in common-law union (30.8%) while those in Ontario were mainly single (78.4%) (Figure 8). HBC workers' family composed of at least one minor children represent 69.9% in Quebec and 64.9% in Ontario.

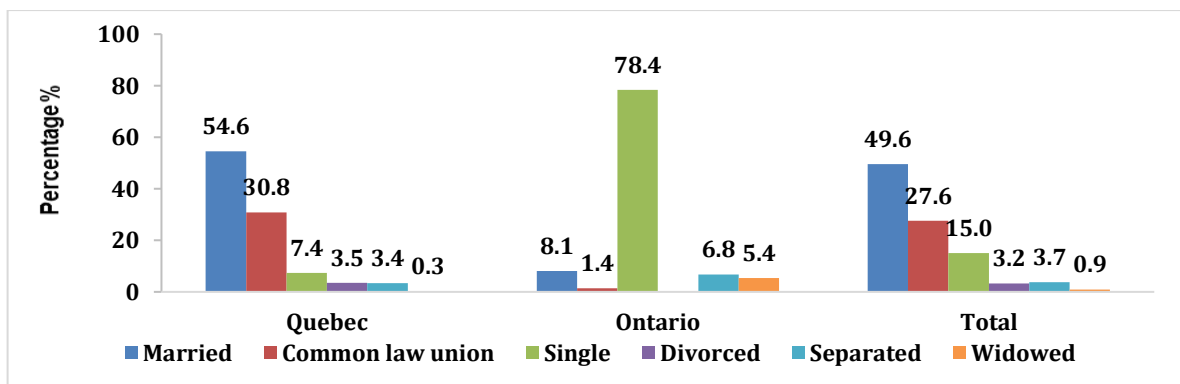


Figure 8: Percentage of Home-Based Childcare Workers by Province and Marital Status (n = 695)

In the total sample, the majority of HBC workers (62.2%) completed a postsecondary level education. In both provinces, the college level of education was the most popular grade among HBC workers (Quebec = 42.8%; Ontario = 48.6%). A significant difference between provinces was found for the level of education ($\chi^2=17.9$; $p <.001$). A higher proportion of workers held a university degree in Ontario than in Quebec (32.4% vs. 17.1%) and secondary school level in Quebec than in Ontario (34.1% vs. 18.9%). In Quebec, 28.5% of HBC workers held a college degree in early childcare (ECE) compared to 27% in Ontario. Those without an ECE degree in Quebec had completed a 45-hour course plus six hours of professional development per year.

The annual gross income from childcare services was under \$40,000 for the majority of workers in both provinces (Total = 81.8%; Quebec = 81.7%; Ontario = 82.4%). More than half of participants in both provinces consider their income insufficient for a decent living (Total = 61.4%; Quebec = 62.2%, Ontario = 55.4%). A significant difference in income satisfaction ($\chi^2 = 62.1$; $p <.001$) was found between provinces. Indeed, in Quebec, 33.5% were satisfied or very satisfied with their income contrary to 62.1% of HBC workers in Ontario (Figure 9).

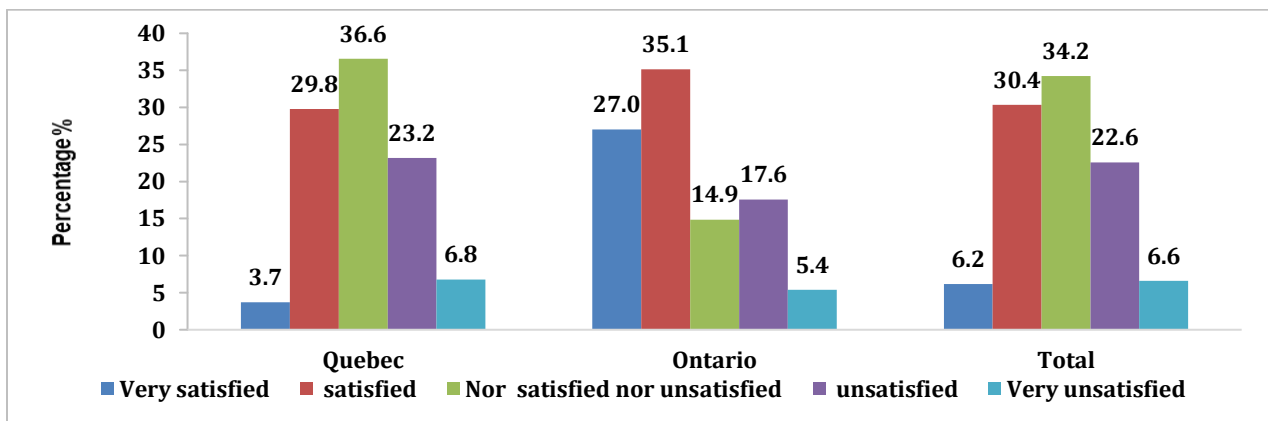


Figure 9: Percentage of Home-Based Childcare Workers by Province and Income Satisfaction (n = 695)

Respectively, 12% of HBC workers in Quebec and 15% in Ontario were holding down a second part-time job to increase their income. Interviewees explained that they were paid based on the number of children in their care (maximum of five in Ontario and six in Quebec if they work alone, or nine with an assistant) and based on the number of working days. They also experienced difficulties filling available spots. The daily rate per child is established by the *Ministère de la famille* in Quebec for the whole province (\$34 a day per child aged over 18 months and \$42 a day per child under 18 months) and by the local childcare agencies in Ontario (e.g. the rate varies between \$34 and \$45 a day per child in Ottawa). These workers affirmed covering all expenses related to their job (e.g. food, hygiene products, educational materials, etc.) with their own income as there is no additional subsidy to cover the operating costs of the childcare service. By contrast to their counterparts in Ontario, HBC workers in Quebec have a monthly payroll and social deductions that were introduced after their provincial unionization in 2010 (union fees = \$60/month, health insurance = \$260 to \$400/month, life insurance = \$90/month, and holidays deduction depending on the revenue). Although they can claim a percentage of their work expenses on income tax, they consider their income insufficient and a second income from a second part-time job or from their spouses alleviates this burden.

In the total sample, most HBC workers (84.2%) were experiencing stress (Figure 10), with the main sources of stress being the lack of time (31.7%), followed by the financial situation (26.7%). Other stressful factors reported included work issues (9.9%), family problems (5%), and health status (3.6%). Provincial differences were detected between provinces in terms of feelings of stress ($\chi^2 = 24.3$; $p < .001$). A higher percentage of HBC workers in Ontario reported being unstressed compared to Quebec (31.1% vs. 14%). The main source of stress was the financial situation in Ontario (39.2%) and the lack of time in Quebec (38%). In Ontario, no HBC worker

was stressed by her health status and a lower proportion were stressed by their work than in Quebec (Ontario = 3.9%; Quebec=12.5%). Interviewees mentioned that their working conditions especially the difficult relationships with infants having behavioural problems or strong personalities, with supervisors during unexpected visits (e.g. misunderstanding about physical environment, educational activities, etc.), with parents (e.g. non-compliance with HBC rules and bad attitudes), and with tasks requiring important physical and mental efforts as sources of high stress.

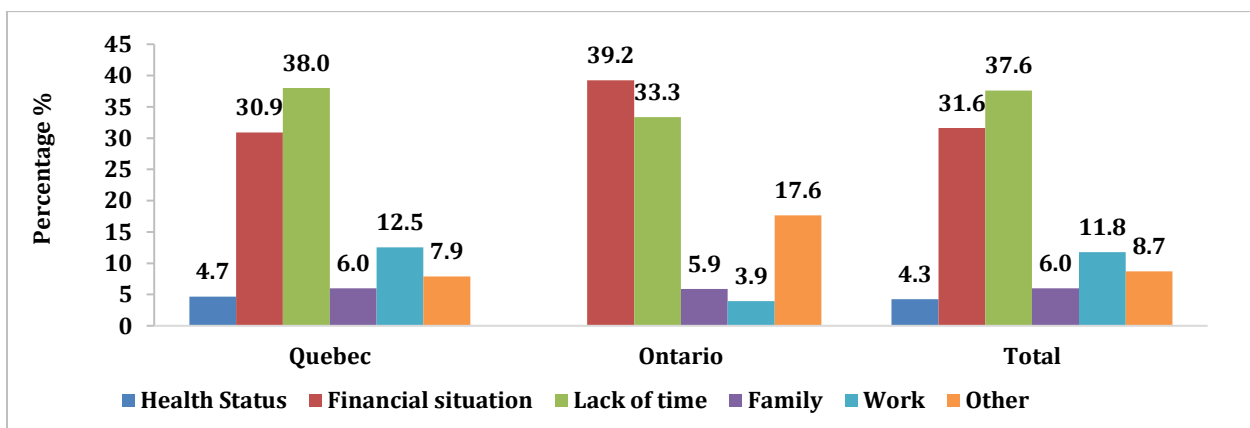


Figure 10: Percentage of Home-Based Childcare Workers by Province and Sources of Stress (n = 695)

DISCUSSION

Key contributions to the literature

Because of the lack of prior research studies on regulated HBC workers' health, the primary aim of the study was to draw an overview of the broader social determinants of health among regulated HBC workers based on the Dahlgren and Whitehead model. Personal, individual lifestyle, social and community networks, structural, and general socio-economic factors were addressed and several differences have been identified. Considering provincial regulations and

work contexts of HBC workers, the primary findings of the study are that determinants of health of HBC workers are statistically different between provinces for all of the five categories of factors.

➤ **Age as a personal factor**

Results of this research show a significant provincial difference in age between HBC workers. A higher proportion of workers in Quebec were younger than those in Ontario. Our work did not explain why this difference exists. There is evidence that the risks of developing chronic conditions increase with the natural process of aging increases (Slingerland, van Lenthe, Jukema, Kamphuis, Looman, Giskes, Huisman, Narayan, Mackenback, & Brug, 2007; Ward, Schiller & Goodman, 2014). Considering this fact, HBC workers in both provinces are concerned with chronic conditions but those in Quebec would have a lower risk to suffer from the latter than their counterparts in Ontario as they are younger.

➤ **Individual lifestyle factors**

For individual lifestyle factors, no significant differences were found between workers in Ontario and Quebec for physical activity, satisfaction with physical appearance, and fruit and vegetable consumption. However, workers in Quebec tended to sleep less than seven hours per night and to avoid tobacco while those in Ontario tended to sleep at least seven hours and more frequently reported smoking tobacco on a daily basis. This study showed that more HBC workers were smokers (20%) than the Canadian women smoking (14.8%) (Statistics Canada, 2016) as well more smokers were found in Ontario (96% are daily or occasional smokers) than in Quebec (11.4% are daily or occasional smokers).

There is growing evidence that sleeping enough (7-8 hours per night) and avoiding smoking are protective health factors. Sleeping less than 7 hours per night is strongly correlated to long-term health damages (Hall, Muldoon, Jennings, Buysse, Flory & Manuck, 2008). Lack of sleep increases adult risks of developing chronic medical conditions such as cardiovascular diseases, diabetes, high blood pressure, hypertension-related illness, abdominal obesity, and elevated fasting glucose (Ayas, white & Manson, 2003; Cappuccio, Stranges & Kandala, 2007; Spiegel, Leproult and Van Cauter, 1999). According to Wingard and Berkamn (1983), sleep deprived women (less than 7 hours a night) increase their mortality rate by 9-years compared to those who sleep 7-8 hours a night.

Smoking and tobacco exposure are related to different types of cancers (e.g., larynx, pharynx, lungs, oral cavity), heart diseases, complications during pregnancy, chronic obstructive pulmonary disease (COPD) and other chronic illnesses (US Public Health Service, 2000). According to the *World Health Organization* (2015), smoking continues to be the principal cause of preventive deaths across the world. Female smokers are more likely to suffer from anxiety and depression compared to male smokers (Lasser, Boyd, Woolhandler, Himmelstein, McCormick & Bor, 2000; Weissman, Bland, Joyce, Newman, Well & Wittchen, 1993). Thus, HBC workers in both provinces are exposed to modifiable health risk factors related to their sleeping habits (Quebec) and smoking (Ontario). The higher percentage of daily or occasional smokers in Ontario (96%) could be explained by the fact that they are single mothers dealing with more life responsibilities without any support from a partner (e.g. spouse) and working for nearly 60 hours per week. The fact of ending up with a cigarette could represent the only moment they have for themselves.

This study also shows that HBC workers in both provinces had mainly used the services of doctors, dentists, and optometrists. Differences in the usage of health services between HBC workers were apparent especially for the nurses' services, with those in Quebec using more than in Ontario. Repetitive tasks among these workers often cause chronic back pain, which is the most relevant chronic condition in both provinces among them according to this study. After being unionized, HBC workers in Quebec have access to health insurance, which covers partially the costs of chiropractor services contrary to workers in Ontario who do not have access to any health insurance with their childcare agency.

➤ **Social and community network factors**

In terms of social and community networks, no significant differences were found between provinces in the type of family and friends' relationships (poor/good). The main differences were related to the help received in daily life and to the type of relationships with supervisor and parents of children.

HBC workers in Quebec receive more help in daily life, experience less positive relationships with their supervisors and children's parents compared to those in Ontario. The fact that most workers in Quebec were married and living with their spouses and children could explain the help received in daily life compared to workers in Ontario who were mainly single women without children. In addition, more HBC workers in Quebec reported poor relationships with their supervisor and parents of children. The quality of relationships with others depends on personal emotions, feelings and perceptions (Fisher and Shapiro, 2006). Often, misunderstandings and conflicts with parents occur when views differ on how to educate a child or when they do not comply with HBC rules. HBC workers who do not feel appreciated, autonomous, and supported

by their supervisor are more likely to have negative relationships professionally and personally, to be hostile and socially isolated. A supervisors' role could have a positive impact on workers' performance by identifying their strengths and weaknesses (Brunetto, Farr-Wharton, & Shacklock, 2010). Listening, understanding and valuing HBC workers as an agent representing an official organization, may encourage these workers to perceive their supervisors as a source of support rather than a threat. Support from supervisors decreases the antisocial behaviour compromising conflict resolutions (Gere & MacDonald, 2010) and alleviates stress among workers (Kath, Stichler, & Ehrhart, 2012). Workers positively supported by their supervisor's show higher rates of job satisfaction and performance (Gelsema, Van Der Doef, Maes, Janssen, Akerboom, & Verhoeven, 2006). The supportive work environment helps workers have the control of their family and their work, which reduce family fights, health issues and job frustration (Ganster, 1995). This may help reducing negative emotions, misunderstandings, and conflicts in addition to promoting a supportive and less stressful work environment.

➤ **Structural factors**

Results of this research show significant differences between the two provinces for several structural factors such as work environment, housing, and usage of health care screening services.

• **Work environment**

Family composition of HBC workers was the main factor affecting the career choice of participants. Staying at home with their young children while earning a monthly income is often the impetus to become a HBC provider especially for mothers with young children. Several significant differences have been found between provinces due to provincial HBC regulations.

First, HBC workers in Quebec may have more health risks than their colleagues in Ontario due to regulations in place defining the job characteristics. Workers in Quebec work with a lower number of babies (QC=1 vs. ON = 2) and a higher number of total children under care (QC=6 vs. ON = 4) compared to those in Ontario. Working with more young children increases the physical and mental demands, which may affect not only the quality of service but also the workers' health (Belleau, 2002; Tessier, Blais & Dion, 1995). Although the long working hours per week (QC=64h vs. ON = 59h) and the isolated environment from other adults were not significantly different between provinces, there is evidence that working long hours may disrupt workers' family and social activities that leave them with little to no time for personal activities or leisure, which increases the risks for mental and physical illnesses including chronic disease (Harrington, 2001) while loneliness and social isolation are both associated with mental health illness and increases the risk for early mortality (Holt-Lunstad & Smith, 2015).

Second, another significant difference found was that workers in Quebec are more prone to work with their group of children in the basement contrary to those in Ontario who prefer using the ground floor. Most workers in Quebec were married mothers and using the basement for their work helps them to reduce interference between their job and their family and personal life contrary to workers in Ontario who were mainly single mothers. Having a designed workplace may help them manage their work environment and reduce misunderstandings with supervisors during unannounced visits as only rooms used for work are visited and controlled. Working in the basement with young children requires additional physical demands than working on the ground floor since workers have to carry and move them more often (e.g. outdoor activities). It is well documented that high physical demands during long hours increase workers' stress levels (Maslach & Pines, 1977). In addition, this floor is often associated with poor natural lighting and ventilation,

and is nearby potentially dangerous substances and devices (e.g. gas system, heating system, etc.) promoting development of moulds, fungi, and increasing concentration of volatile organic compounds such as carbon monoxide and radon. These affect the indoor environment which has negative consequences on the occupants' health (e.g. respiratory health), especially when exposed for long hours. Indeed, Radon is the second leading cause of lung cancer after tobacco smoking (WHO, 2009). In Canada, radon represents half of the annual exposure to naturally occurring radioactivity (Ruano-Ravina, 2009) and up to 29% of lung cancers are attributed to residential radon exposure (Health Canada, 2006). Although the low rate of Canadian homes (6.9%) concerned with radon levels above the radon guideline of 200 Bq/m³ (Health Canada, 2012), stakeholders and childcare agencies could encourage HBC workers to work on the ground floor of their houses as much as possible, to open windows, install heat recovery ventilation (HRM) to replace radon-laden indoor air with outdoor air, and to seal cracks in openings to reduce the flow of radon into the house. Indeed, an appropriate venting system can reduce significantly indoors radon concentrations (Canadian Home and Mortgage Corporation, 2010).

- **Housing**

Our findings support that there are significant differences for the type of house, type of housing occupant, housing satisfaction, and neighbourhood satisfaction. Indeed, HBC workers' homeowners were more likely to be in Quebec while tenants are found in Ontario. Homeowners in Quebec tend to have a single house while those in Ontario own either a single house or townhouse. Living in such type of homes increase the feeling of control and well-being among mothers (Evans, Wells & Moch, 2003). This could explain why participants were in majority

satisfied or very satisfied with their personal houses and neighborhood. Neighborhood satisfaction has a direct correlation with mental wellbeing (Evans and Kantrwitz, 2002).

- **Other factors**

Finally, the years of work, work satisfaction and intention to continue working at home were other structural factors significantly different between provinces. Workers in Quebec have held their position for at least 5 years, were satisfied with their work, and intended to continue working at home while those in Ontario were working for less than one year, were less satisfied, and did not intend to continue in this occupation in the next two years. Given that, we assume that years of work as a HBC provider seems to increase workers coping strategies with high physical and mental demand tasks, which increase job satisfaction and encourage retention of workers. Having access to benefits is another factor increasing the workers' satisfaction.

- **General socioeconomic conditions**

This study showed no statistically significant differences between HBC workers in Quebec and Ontario in terms of status in Canada, level of education, level of annual income and perceptions of the latter. The main differences were in marital status, income satisfaction, and feelings of stress.

- **Marital status**

Findings of this study show that more single mothers are inclined to work as HBC workers in Ontario than in Quebec. Single individuals have higher rates of morbidity and are less likely to be healthier than married individuals, respectively (Fuller-Thomson, Noack & George 2011; Wyke and Ford, 1992; Schoenborn, 2004). Marriage and common-law union are protective factors

against illnesses and unhealthy behaviours and are associated with a higher income, health insurances acquisition, decreases in sick days, and hospital stays (Wood, Goesling, & Avellar, 2007). Finally, another statistically significant finding was that five and four workers out ten in Quebec and in Ontario respectively were mothers living with their spouses and minor children. Previous research has shown that an increase in childcare responsibilities within the family is directly associated with low well-being, negative emotions, and illnesses (Ozer, 1995).

- **Level of education**

HBC workers in Quebec tend to complete less postsecondary education than in Ontario. By contrast to HBC workers, those working in center-based childcare must often hold a postsecondary level of ECE education or related fields (e.g. education, psychology, social sciences). In Canada, there are no postsecondary credentials required to work as a regulated or licensed HBC provider (Flanagan, Beach, Michal & Cormier; 2009). Thus, access to this occupation remains less challenging in terms of the minimal level of education required in both provinces. Unless they have a postsecondary diploma in early childcare education, they are required to complete a professional training of 20 to 60 hours on safety, preventative health education, child nutrition, child's psychological development and educational program depending on the province where they intend to work (Flanagan, Beach, Michal & Cormier; 2009). Folbre & England (2002) and Stacey (2011) support that this occupation is a continuity of domestic work and family life and this is why it requires a low level of education (e.g. secondary school or less) and attracts predominantly vulnerable workers subject to discrimination on labour market such as women and immigrants. It is well known that higher education contributes to higher income, better medical treatments and social status, healthier lifestyle, enhanced social behaviors and generally

better mental health (Baker, Leon, Smith Greenaway, Collins & Movit, 2011; Goldman and Smith, 2011; Hummer and Hernandez, 2013; Pampel, Krueger & Denney, 2010).

In the case of HBC workers, the level of education does not affect their income as they are paid based on the number of children under care, their ages, and number of working days. Although most of them have completed a postsecondary level education, a high proportion smoke tobacco on a daily basis in Ontario and sleep less than seven hours in Quebec. We assume that factors other than education are related to these harmful lifestyle habits such as socioeconomic or working conditions. Previous research has shown that an increase in number of working hours may be the culprit encouraging unhealthy behaviours such as smoking, sedentary lifestyle, and poor nutritional habits (Maruyama, Kohno, and Morimoto, 1995).

- **Income satisfaction**

Results of this study show that HBC workers in Ontario were more satisfied with their income contrary to those in Quebec who were unsatisfied. Although more than 80% of HBC workers in each province earn an annual gross income less than \$40,000, they perceive it insufficient for a decent living. The increase in the cost of living over the years in Canada, the marital status of workers (e.g. single women) as well as the compensation model in each province (e.g. child ratio restrictions, lack of subsidies to cover childcare operating costs) may explain why workers in both provinces consider their income insufficient. Indeed, between 1998 and 2012 the Consumer Price Index has increased by 24.95% (Statistics Canada, 2015) while the salaries in the childcare sector have increased by 7.2% on average for the same period (Friendly, 2015). In addition, working mothers earn less money than women without children (Budig and Hodges, 2010; Zossin-Slater, Ruhm & Waldfogel, 2013). On one hand, this applies to HBC workers as the

number of their own children accounts for their child ratio, which leads to a lower income. On the other hand, the high number of single HBC workers in Ontario suggests that they might be more affected by low income than those who are married or in common-law relationships and have access to a second source of income. Low and precarious remuneration may negatively affect the quality of life of workers and their families and lead to stress. In terms of compensation model, their pay is independent of the number of working hours, years of work, and level of education compared to those in child care centers. Only the number of children under care, their ages, and the number of working days determine the compensation. With their income that includes their own income, they must cover all expenses of their HBC (e.g. food, hygiene products, educational materials, household costs associated with childcare), and some payroll deductions for those working in Quebec. The payroll deductions introduced in Quebec in 2011 related to several benefits entirely self-funded such as life insurance, health insurance, maternity leave, sick leave, annual vacation, paid holidays, and professional training. By contrast to workers in center-based childcare services who work 35 hours weekly, HBC workers work 63 hours on average as they perform more duties and tasks such as business administration, housekeeping, and domestic work. As self-employed workers or childcare agencies contractors, they can claim a percentage of expenses related to their work on their taxes. Finally, workers in Quebec pay higher provincial tax income rates than those in Ontario (16% on \$41,935 vs. 5.05% on \$41,536 of taxable income or less), which further reduces more their income (Canada Revenue Agency, 2015).

- **Feelings of stress**

Stress is another social determinant of health that was significantly different between provinces. More workers in Quebec were stressed compared to those in Ontario. In Quebec, the

lack of time was the main source of stress among HBC workers who were married and have young children. Working mothers have more personal and family related responsibilities than single women without children. Because of that, they may have little to no free time to relax or for recreational activities that increase their stress. Previous research has shown that married individuals who receive support from their partner experience less physical and mental health problems than unmarried counterparts (Coombs, 1991). In Ontario, the financial situation was the main source of stress although they were satisfied or very satisfied with their income. Indeed, the level of stress is increased when they have available spots to be filled as the number of children determines their monthly income (Stitou, Bourgeault & Kohen, 2016). In addition to marital status and family composition, the type of relationships with parents of children and supervisors, and the work demands (e.g. more working hours, more children) are another reasons explaining the higher proportion of stressed workers in Quebec. Workers in Quebec report poorer relationships with parents of children and their supervisors, which can also be a source of emotional stress in their work environment. With more children in their groups (6 in Quebec vs. 4 in Ontario in average), the work demands increase leading to physical and emotional stress. Finally, work policies and practices, in general, do not take in account workers' stress, which could lead to an unfriendly working environment, poor job performances, and sick employees (Maslach & Florian, 1988; Maslach & Leiter, 1997).

Recommendations to policy makers

Considering findings on the social determinants of health from this study, some recommendations to childcare agencies and provincial stakeholders can be to:

- Promote healthy lifestyles among HBC workers to prevent long-term health illness especially in Ontario where it was found that 96% of HBC workers who responded to the survey smoke.
- Consider implementing a health insurance scheme that includes coverage for chiropractor services in Quebec and Ontario.
- Promote supportive work environments by organizing recreational activities and online fora for HBC workers in Quebec and Ontario, to help them feel less isolated, meet new colleagues, and make new friends.
- Implement retention strategies especially in Ontario the majority of workers (87.8%) intend to leave the profession.
- Provide HBC workers in Quebec with timely information sessions on regulation changes affecting their work to decrease misunderstandings and conflicts with supervisors.
- Review the compensation model of HBC workers to reflect the number of hours worked, the years of work, the level of education, and the operating costs of the childcare service.

Limitations and strengths

There are several limitations to the study. The study was conducted in two Canadian provinces, which limits its generalizability to other Canadian provinces. Results should be interpreted with caution, especially in Ontario where most participants were from the Champlain region while in Quebec, participants were from all regions although 13 childcare networks among 17 participated. Also, the recruitment process was challenging in Ontario with only 74 HBC workers responding compared to 621 HBC workers in Quebec. The main reason for the low participation explained by the Ontario childcare agencies was based on the process of recruitment,

including the inability of some HBC workers to understand English or French, the fear of sharing their experience or personal life, refusal of participation by participants' spouses among some ethnic groups, or the inability of some workers to use technology (e.g. Ipad, computer) to complete the anonymous online survey. Indeed, several childcare agencies in Ontario stated that their HBC workers do work in their native language with children of their communities (e.g. Chinese) and suggested having the survey translated into languages other than English and French would encourage more participants to be involved. Due to those factors, only HBC workers who were able to use technology and understand one of Canada's official languages responded. The difference in terms of number of participants in Quebec and Ontario could be also explained by the fact the HBC workers in Quebec were in the process of negotiating their provincial second collective agreement when we were collecting our data. Our results are statistically generalizable to the survey population of regulated of HBC workers working in Quebec and in Ontario who are Anglophone or Francophone, have access to Internet, are Canadian mothers, aged over 30 years old, had completed at least a college level of education, and earn annual gross income of \$40,000 or less, instead of the target population. Another limit of this study was the self-reported data related to most variables that cannot be verified. Despite these limitations, our study provides supporting evidence that differences in several broader social determinants of health do exist between workers in Quebec and in Ontario. It remains the first study in Canada to address the social determinants of health among HBC workers.

Areas for future research

Many Canadian studies on caregivers have limited their samples to nurses, parents of children with disability, elder caregivers, or educators working in center-based childcare services.

These studies have focused on the quality of services provided to children, patient's needs, working conditions, workers' mental health, or regulations affecting their work. Because there is a lack of research on home as well as on center-based childcare workers' health in Canada, additional work is necessary to optimize knowledge in the area of social determinants of health in regulated and unregulated childcare sectors. Further qualitative research could be conducted to explain in depth the differences we found (e.g. why HBC workers' marital status in Quebec and Tobacco use in Ontario don't match what would be expected? Why most HBC workers in Ontario plan to leave this profession contrary to those in Quebec?) and the interrelations between the different types of social determinants of health. Other studies could examine the differences between the social determinants of health of HBC workers working in the regulated versus those working in the unregulated sector. Finally, quantitative data on a larger sample of HBC workers in different Canadian provinces would provide a better picture of occupational health among these workers in the Canadian context. It is suitable to have both of the online and a paper based survey in other languages (e.g. Chinese) to allow those less familiar with technologies or with Canada's official languages to take part of the study.

CONCLUSION

Significant differences in social determinants of health persist between HBC workers in Quebec and in Ontario in terms of age, and factors related to individual lifestyles, social and community networks, structural factors, and general socio-economic conditions. Childcare stakeholders are encouraged to undertake corrective actions to reduce the health risks for HBC workers.

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Appendix 1: Other Data Used in the Study

TABLE 1: Summary of Variables Used in the Study

Variables	Description
Presence of a chronic condition	Categorized into (0) No and (1) Yes
Prevalence of chronic condition	
Anxiety disorders	Categorized into (0) No and (1) Yes
Arthritis	Categorized into (0) No and (1) Yes
Asthma	Categorized into (0) No and (1) Yes
Cancer	Categorized into (0) No and (1) Yes
Cardiovascular diseases	Categorized into (0) No and (1) Yes
Carpal tunnel syndrom	Categorized into (0) No and (1) Yes
Chronic back pain	Categorized into (0) No and (1) Yes
Chronic fatigue	Categorized into (0) No and (1) Yes
Diabetes	Categorized into (0) No and (1) Yes
Ear diseases	Categorized into (0) No and (1) Yes
Fibromyalgia	Categorized into (0) No and (1) Yes
Hypertension	Categorized into (0) No and (1) Yes
Intestinal disorders	Categorized into (0) No and (1) Yes
Knee pain	Categorized into (0) No and (1) Yes
Migraine	Categorized into (0) No and (1) Yes
Mood disorders	Categorized into (0) No and (1) Yes
Skin diseases	Categorized into (0) No and (1) Yes
Stomach diseases	Categorized into (0) No and (1) Yes
Thyroiditis	Categorized into (0) No and (1) Yes
Other	Categorized into (0) No and (1) Yes
Usage of healthcare professional services	
Doctor visits	Categorized into (0) Yes, and (1) No
Dentist visits	Categorized into (0) Yes, and (1) No
Optometrist visits	Categorized into (0) Yes, and (1) No
Chiropractor visits	Categorized into (0) Yes, and (1) No
Nurse visits	Categorized into (0) Yes, and (1) No
Physiotherapist visits	Categorized into (0) Yes, and (1) No
Psychologist visits	Categorized into (0) Yes, and (1) No
Other health professionals	Categorized into (0) Yes, and (1) No
Trying to improve one's health	Categorized into (0) Yes, and (1) No
Type of action undertaken to improve health	
Increase exercise, sports / physical activities	Categorized into (0) Yes, and (1) No

Change diet / improve eating habits	Categorized into (0) Yes, and (1) No
Stop smoking / reduce tobacco consumption	Categorized into (0) Yes, and (1) No
Consume less alcohol	Categorized into (0) Yes, and (1) No
Reduce stress levels (ex. sleeping, traveling, etc.)	Categorized into (0) Yes, and (1) No
Receive medical treatment	Categorized into (0) Yes, and (1) No
Take vitamins	Categorized into (0) Yes, and (1) No
Other	Categorized into (0) Yes, and (1) No
Causes preventing from improving health	
Lack of self-discipline	Categorized into (0) Yes, and (1) No
Family responsibilities	Categorized into (0) Yes, and (1) No
Work schedule	Categorized into (0) Yes, and (1) No
Health problems	Categorized into (0) Yes, and (1) No
Financial constraints	Categorized into (0) Yes, and (1) No
Transportation problems	Categorized into (0) Yes, and (1) No
Weather conditions	Categorized into (0) Yes, and (1) No
Other to specify	Categorized into (0) Yes, and (1) No
Reasons of career choice	
	Categorized into (1) I was looking for a way to earn an income while taking care of my own child, (2) I love children and I wanted to work with them, (3) A friend / relative / neighbor was looking for someone to care for his children, (4) I have not been able to find child care for my own children, (5) I wanted companions to my child, (6) Other employment opportunities are not available, (7) I answered a recruitment ad, (8) I had worked in a childcare center and I wanted to have my own home daycare, (9) other reasons
Intention to continue working as a HBC provider in the next 2 years	Categorized into (1) Totally agree, (2) Agree, (3) Disagree, (4) totally disagree
Personal factors	
Age group	Categorized into (1) 20-29 y, (2) 30-39y, (3) 40-49 y, and (4) 50 y and +.
Gender	Categorized into (1) Male, and (2) Female.

Individual lifestyle factors	
Daily level of physical activity	Categorized into (1) Very active, (2) Moderately active, (3) Somewhat active, and (4) Inactive.
Satisfaction with physical appearance	Categorized into (1) Very satisfied, (2) Satisfied, (3) Not satisfied nor unsatisfied, (4) unsatisfied, (5) Very unsatisfied
Daily fruit and vegetable consumption	Categorized into (1) Less than 5 portions, (2) 5-10 portions, and (3) More than 10 portions
Daily sleeping hours	Categorized into (1) Less than 7 hours, (2) 7 hours and plus
Tobacco use	Categorized into (1) Daily, (2) Occasionally, (3) Former smoker, and (4) Never smoked.
Social and community networks factors	
Help in daily life	Categorized into (0) No help received, and (1) Help received
Source of help in daily life	Categorized into (1) friends, (2) family, (3) Neighbours, (4) Supervisors, and (5) Other.
Family relationship	Categorized into (0) Poor relationship, and (1) Good relationship.
Friends relationships	Categorized into (0) Poor relationship, and (1) Good relationship
Supervisors relationship	Categorized into (0) Poor relationship, and (1) Good relationship
Parents relationships	Categorized into (0) Poor relationship, and (1) Good relationship
Living and working conditions factors	
Number of weekly hours of work	Continuous (In hours)
Number of total children in the group	Continuous (In numbers)
Number of babies in the group	Continuous (In numbers)
Number of boys in the group	Continuous (In numbers)
Number of girls in the group	Continuous (In numbers)
Floor of work	Categorized into (1) Ground floor, (2) Basement, (3) Ground floor , and basement, (4) Other
Years of work	Categorized into (1) Less than 1 year, (2) 1-2 years, (3) 3-4 years, and (4) 5 years and +
Work satisfaction	Categorized into (1) Very satisfied, (2) Satisfied, (3) Not satisfied nor unsatisfied, (4) unsatisfied, (5) Very unsatisfied

Help at work	Categorized into (0) No help received, and (1) Help received
Source of help at work	Categorized into (1) friends, (2) family, (3) Neighbours, (4) Supervisors, and (5) Other
Type of house	Categorized into (1) Single house, (2) Semi-detached, (3) Town-house, (4) Apartment, and (5) Other
House occupant status	Categorized into (1) Owner, (2) Tenant, and (3) Other
Housing satisfaction	Categorized into (1) Very satisfied, (2) Satisfied, (3) Not satisfied nor unsatisfied, (4) unsatisfied, (5) Very unsatisfied
Neighbourhood satisfaction	Categorized into (1) Very satisfied, (2) Satisfied, (3) Not satisfied nor unsatisfied, (4) unsatisfied, (5) Very unsatisfied
General socioeconomic factors	
Province	Categorized into (0) Quebec, and (1) Ontario
Level education	Categorized into (1) University, (2) college, (3) Secondary school or less, and (4) Other
Status in Canada	Categorized into (0) Immigrant and (1) Canadian
Marital status	Categorized into (1) Married, (2) Common-law union, (3) Single, (4) Divorced, Separated, or Widowed.
Worker's minor children	Categorized into (0) None, (1) 1, (2) 2, (3) 3, and (4) 4 and +
Level of annual gross income	Categorized into (1) \$25,000 and less, (2) \$25,001 to \$40,000, and (3) \$40,001 and +
Income satisfaction	Categorized into (1) Very satisfied, (2) Satisfied, (3) Not satisfied nor unsatisfied, (4) unsatisfied, (5) Very unsatisfied
Sufficiency of income	Categorized into (0) Sufficient, and (1) Insufficient
Hold a second job	Categorized into (0) Yes, and (1) No
Stress	Categorized into (0) No stress, (1) stressed
Source of stress	Categorized (1) Stressed because of health status, (2) Stressed because of financial situation, (3) Stressed because of lack of time, (4) Stressed because of family problems, (5) Stressed because of work, (6) Stressed because of other reasons

TABLE 2: Comparison of Health of Home-Based Childcare Workers' Broader Determinants of Health in Quebec and in Ontario

	Broader social determinants of health	Total	Quebec (n = 621)	Ontario (n = 74)	χ^2	p
Personal factors	Age category				8.0	p<0.05
	20-29 y	4.6%	4.5%	6.8%		
	30-39y	37%	38.5%	24.3%		
	40-49 y	37%	36.9%	37.8%		
	50y and +	21.4%	20.1%	31.1%		
	Gender				-	-
	Female	100%	100%	100%		
	Male	0%	0%	0%		
Individual and lifestyle factors	Daily level of physical activity				3.7	0.297
	Very active	21%	20.9%	21.6%		
	Moderately active	46.6%	45.6%	55.4%		
	Somewhat Active	27.9%	28.8%	20.3%		
	Inactive	4.5%	4.7%	2.7%		
	Satisfaction from physical appearance				7.6	0.105
	Very satisfied	27.2%	25.8%	39.2%		
	Satisfied	51.2%	52.2%	43.2%		
	Nor satisfied nor unsatisfied	14.7%	15.3%	9.5%		
	Unsatisfied	6.5%	6.3%	8.1%		
	Very unsatisfied	0.4%	0.5%	0.0%		
	Daily fruit and vegetable Consumption				0.97	0.616
	Less than 5 portions a day	28.9%	28.3%	33.8%		
	5 - 10 portions a day	65.6%	66.2%	60.8%		
	More than 10 portions a day	5.5%	5.5%	5.4%		
	Daily Sleeping Hours				11.9	p <0.01
Less than 7 hours	35.5%	33.5%	52.7%			
7-8 hours	39.4%	40.1%	33.8%			
8 hours and plus	25.1%	26.4%	13.5%			
Tobacco Use				298.2	p <0.001	
Daily	11.8%	5.8%	62.2%			
Occasionally	8.6%	5.6%	33.8%			
Former smoker	27.2%	30.4%	0.0%			
Never smoked	52.4%	58.1%	4.1%			

Social networks factors	Help in daily Life				8.9	p <0.01
	No help received	9.9%	11.1%	0.0%		
	Help received	90.1%	88.9%	100.0%		
	Source of help in daily life					
	Friends	16.9%	17.0%	16.2%		
	Family	52.9%	56.5%	25.7%		
	Neighbors	1.4%	1.4%	1.4%		
	Supervisor	15.7%	16.8%	6.8%		
	Other	12.1%	8.2%	41.9%		
	Family relationships				1.6	0.209
	Good relationship	98.2%	97.9%	100%		
	Poor relationship	1.8%	2.1%	0.0%		
	Friends relationships				0.009	0.924
	Good relationship	97.1%	97.3%	97.1%		
	Poor relationship	2.9%	2.7%	2.9%		
Supervisors Relationship				9.6	p <0.01	
Good relationship	89.6%	88.4%	100%			
Poor relationship	10.4%	11.6	0.0%			
Parents Relationship				5.3	p <0.05	
Good relationship	65.1%	65.1%	78.4%			
Poor relationship	34.9%	34.9%	21.6%			
Living and working conditions factors	Floor of Work				27.1	p <0.001
	First floor	32.7%	30.4%	51.4%		
	Basement	31.4%	33.5%	13.5%		
	First floor and basement	32.5%	33.3%	25.7%		
	Other	3.5%	2.7%	9.5%		
	Years of work				153.3	p <0.001
	Less than 1 year	7.8%	3.7%	41.9%		
	1-2 years	0.1%	4.3%	10.8%		
	2-3 years	7.2%	6.6%	12.2%		
	4-5 years	8.8%	9.3%	4.1%		
	5 years and +	71.2%	76.0%	31.1%		
	Work satisfaction				62.1	p <0.001
	Very satisfied	33.8%	29.0%	74.3%		
	Satisfied	51.8%	55.1%	24.3%		
	Nor satisfied nor unsatisfied	11.9%	13.2%	1.4%		
Unsatisfied	1.9%	2.1%	0.0%			
Very unsatisfied	0.6%	0.6%	0.0%			
Help at work				8.6	p <0.01	
No help received	61.0%	59.1%	77.0%			
Help received	39.0%	40.9%	23.0%			

Socioeconomic factors	Source of help at work					
	Supervisor	30.6%	31.9%	11.8%		
	Family	56.1%	54.3%	82.4%		
	Other	13.3%	13.8%	5.9%		
	Type of house				34.5	p <0.001
	Single house	86.2%	88.1%	70.3%		
	Semi-detached	5.3%	5.2%	6.8%		
	Town-House	0.1%	3.4%	18.9%		
	Other	3.5%	3.3%	4.1%		
	House occupant status				26.5	p <0.001
	Owner	91.4%	93.2%	75.7%		
	Rental	7.9%	6.3%	21.6%		
	Other	0.7%	0.5%	2.7%		
	Housing satisfaction				19.6	p <0.01
	Very satisfied	50.4%	48.1%	68.9%		
	Satisfied	38.7%	40.6%	23.0%		
	Nor satisfied nor unsatisfied	6.3%	6.8%	2.7%		
	Unsatisfied	4.0%	4.2%	2.7%		
	Very unsatisfied	0.6%	0.3%	2.7%		
	Neighbourhood satisfaction				21.6	p <0.001
Very satisfied	57.7%	55.1%	79.7%			
Satisfied	32.9%	34.8%	17.6%			
Nor satisfied nor unsatisfied	7.8%	8.5%	1.4%			
Unsatisfied	1.3%	1.4%	0.0%			
Very unsatisfied	0.3%	0.2%	1.4%			
Status in Canada				1.5	0.230	
Canadian	89.4%	89.9%	85.1%			
Immigrant	10.6%	10.1%	14.9%			
Level of education				17.9	p <0.001	
University	18.7%	17.1%	32.4%			
College	43.5%	42.8%	48.6%			
Secondary School or less	32.5%	34.1%	18.9%			
Other	5.3%	6.0%	0.0%			
Marital Status				274.1	p <0.001	
Married	49.6%	54.6%	8.1%			
Common-Law union	27.6%	30.8%	1.4%			
Single	15%	7.4%	78.4%			
Divorced, separated or widowed	7.8%	7.2%	12.2%			
Worker's minor children				3.6	0.468	
0	30.6%	30.1%	35.1%			
1	21.0%	21.1%	20.3%			

	2	31.7%	31.2%	35.1%		
	3	13.4%	14.0%	8.1%		
	4 and +	3.3%	3.5%	1.4%		
Level of annual gross income					0.393	0.822
	\$25 000 and less	38.6%	38.2%	41.9%		
	\$25 001 à \$40.000	43.2%	43.5%	40.5%		
	\$40 001 and +	18.3%	18.4%	17.6%		
Income satisfaction					68.9	p <0.001
	Very satisfied	6.2%	3.7%	27.0%		
	Satisfied	30.4%	29.8%	35.1%		
	Nor satisfied nor unsatisfied	34.2%	36.6%	14.9%		
	Unsatisfied	22.6%	23.2%	17.6%		
	Very unsatisfied	6.6%	6.8%	5.4%		
Sufficiency of income					1.273	0.259
	Sufficient	61.4%	62.2%	55.4%		
	Insufficient	38.6%	37.8%	44.6%		
Hold a second job					0.474	0.491
	Yes	12.4%	12.1%	14.9%		
	No	87.6%	87.9%	85.1%		
Stress					24.3	p <0.001
	No stress	15.8%	14.0%	31.1%		
	Stressed	84.2%	86.0%	68.9%		
Sources of stress					-	-
	Stressed because of health status	4.3%	4.7%	0.0%		
	Stressed because of financial situation	31.6%	30.9%	39.2%		
	Stressed because of lack of time	37.6%	38.0%	33.3%		
	Stressed because of family problems	6.0%	6.0%	5.9%		
	Stressed because of work	11.8%	12.5%	3.9%		
	Stressed because of other reasons	8.7%	7.9%	17.6%		

TABLE 3: Comparison of Home Based Childcare Workers' Job Characteristics in Quebec and in Ontario

	Total (n = 695)		Quebec (n = 621)		Ontario (n = 74)		t-test	
	Mean	SD	Mean	SD	Mean	SD	t	p-value
Number of weekly hours of work	63	27.5	64	28.3	59	19.1	1.4	0.164
Number of total children in the group	6	1.6	6	1.5	4	1.5	11.8	p<.001
Number of babies in the group	1	1.1	1	1.0	2	1.2	-6.3	p<.001
Number of boys in the group	3	1.7	3	1.8	2	1.5	1.7	p<.001
Number of girls in the group	3	1.8	3	1.8	2	1.4	4.0	p<.05

TABLE 4: Home-Based Childcare Workers' Chronic Health Conditions

		Total (n = 695)	Quebec (n = 621)	Ontario (n = 74)	χ^2	p
Presence of a chronic condition						
Presence of a chronic condition					3.4	p<0.05
	No	53.4%	52.2%	63.5%		
	Yes	46.6%	47.8%	36.5%		
Prevalence of chronic conditions among Home-Based childcare workers having at least one chronic health condition						
Anxiety disorders					11.17	p<0.05
	Yes	4.9%	3.7%	17.9%		
	No	95.1%	96.3%	82.1%		
Arthritis					0.1909	0.662
	Yes	8.5%	8.3%	10.7%		
	No	91.5%	91.7%	89.3%		
Asthma					1.259	0.262
	Yes	17.3%	16.6%	25.0%		
	No	82.7%	83.4%	75.0%		
Cancer					0.31	0.578
	Yes	2.1%	2.0%	3.6%		
	No	97.9%	98.0%	96.4%		
Cardiovascular diseases					0.86	0.354
	Yes	1.5%	1.3%	3.6%		
	No	98.5%	98.7%	96.4%		
Carpal tunnel syndrom					-	-
	Yes	0.6%	0.7%	0.0%		
	No	99.4%	99.3%	100%		
Chronic back pain					0.327	0.567
	Yes	48.0%	48.5%	42.9%		
	No	52.0%	51.5%	57.1%		
Chronic Fatigue					-	-
	Yes	0.6%	0.7%	0.0%		
	No	99.4%	99.3%	100%		
Diabete					0.21	0.647
	Yes	5.5%	5.6%	3.6%		
	No	94.5%	94.4%	96.4%		
Ear Diseases					-	-
	Yes	2.4%	2.7%	0.0%		
	No	97.6%	97.3%	100.0%		
Fibromyalgia					2.86	0.091
	Yes	2.4%	2.0%	7.1%		
	No	97.6%	98.0%	92.9%		

Hypertension					1.107	0.292
	Yes	13.7%	14.3%	7.1%		
	No	86.3%	85.7%	92.9%		
Intestinal disorders					0.08	0.777
	Yes	2.7%	2.7%	3.6%		
	No	97.3%	97.3%	96.4%		
Knee pain					-	-
	Yes	1.8%	2.0%	0.0%		
	No	98.2%	98.0%	100%		
Migraine					-	-
	Yes	1.2%	1.3%	0.0%		
	No	98.8%	98.7%	100%		
Mood disorders					6.47	p<0.05
	Yes	1.5%	1.0%	7.1%		
	No	98.5%	99.0%	92.9%		
Skin diseases					0.3933	0.531
	Yes	10.6%	11.0%	7.1%		
	No	89.4%	89.0%	92.9%		
Stomach diseases					-	-
	Yes	6.7%	7.3%	0.0%		
	No	93.3%	92.7%	100%		
Thyroiditis					-	-
	Yes	3.0%	3.3%	0.0%		
	No	97.0%	96.7%	100%		
Other						
	Yes	4.0%	2.7%	17.9%		
	No	96.0%	97.3%	82.1%		

TABLE 5: Home-Based Childcare Workers' Usage of Healthcare Services

		Total (n = 695)	Quebec (n = 621)	Ontario (n = 74)	χ^2	p
Doctor visits					.222	0.64
	Yes	86%	85.8%	87.8%		
	No	14%	14.2%	12.2%		
Dentist visits					0.39	0.844
	Yes	78.80%	78.7%	79.7%		
	No	21.20%	21.3%	20.3%		
Optometrist visits					0.974	0.324
	Yes	51.40%	52.0%	45.9%		
	No	48.60%	48.0%	54.1%		
Chiropractor visits					2.125	0.145
	Yes	21.40%	22.2%	14.9%		
	No	78.60%	77.8%	85.1%		
Nurse visits					6.034	p<.05
	Yes	11.20%	12.2%	2.7%		
	No	88.80%	87.8%	97.3%		
Physiotherapist visits					3.222	0.73
	Yes	13.50%	12.7%	20.3%		
	No	86.50%	87.3%	79.7%		
Psychologist visits					0.577	0.447
	Yes	5.9%	6.3%	4.1%		
	No	94.1%	93.7%	95.9%		
Other health professionals					1.362	0.243
	Yes	27.30%	28.0%	21.6%		
	No	72.70%	72.0%	78.4%		

TABLE 6: Home-Based Childcare Workers' Trial to Improve Their Health, Actions Undertaken and Causes Preventing from Improving Health

	Total (n = 695)	Quebec (n = 621)	Ontario (n = 74)
Trying to improve one's health			
Trying to improve one's health			
Yes	65.3%	65.2%	66.2%
No	34.7%	34.8%	33.8%
Action undertaken to improve health			
Increase exercise. sports / physical activities	40.1%	39.5%	45.9%
Change diet / improve eating habits	38.8%	39.1%	36.5%
Stop smoking / reduce tobacco consumption	3.2%	3.1%	4.1%
Consume less alcohol	3.3%	2.7%	8.1%
Reduce stress levels (ex. sleeping, traveling, etc.)	15.3%	15.1%	16.2%
Receive medical treatment	12.8%	13.7%	5.4%
Take vitamins	18.7%	18.2%	23.0%
Other	6.0%	6.1%	5.4%
Causes preventing from improving health			
Lack of will power / self-discipline	63.5%	62.0%	76.0%
family responsibilities	66.4%	64.4%	84.0%
Work schedule	100%	100%	100%
Health problem	9.1%	9.3%	8.0%
Financial constraints	46.5%	44.4%	64.0%
Transportation problems	5.4%	5.1%	8.0%
Weather problems	11.6%	10.6%	20.0%
Other	20.3%	16.7%	52.0%

TABLE 7: Home-Based Childcare Workers' Career Choice and Intention to Continue Working

	Total (n = 695)	Quebec (n = 621)	Ontario (n = 74)
Reasons of career choice			
I was looking for a way to earn an income while taking care of my own child	38.3%	38.8%	33.8%
I love children and I wanted to work with them	34.2%	35.6%	23.0%
A friend / relative / neighbor was looking for someone to care for his children	1.6%	1.0%	6.8%
I have not been able to find child care for my own children	1.7%	1.4%	4.1%
I wanted companions to my child	0.7%	0.5%	2.7%
Other employment opportunities are not available	0.9%	0.6%	2.7%
I answered a recruitment ad	0.7%	0.6%	1.4%
I had worked in a childcare center and I wanted to have my own home daycare	16.3%	15.6%	21.6%
Other reason	5.6%	5.8%	4.1%
Intention to continue working in the next 2 years			
Intention to continue working in the next 2 years			
Totally agree	53.1%	58.8%	5.4%
Agree	28.1%	30.6%	6.8%
Disagree	10.4%	7.6%	33.8%
Totally disagree	8.5%	3.1%	54.1%

Manuscript 4
The Job Requirements, Content, and Context of
Regulated Home-Based Childcare Workers

Manuscript 4: The Job Requirements, Content, and Context of Regulated Home-Based Childcare Workers

INTRODUCTION

Where and how we undertake our work and what is required of us affects our health. Although this is likely true for those who provide childcare services in their homes, we know little about the health implications of their job circumstances. In Canada, there are nearly 44,000 Home based-childcare (HBC) workers (Beach, 2013). Most of them are married, mothers of at least one child under 12 years old, aged of 39 years on average, and have pursued postsecondary education (Flanagan, Beach, Michal, & Cormier, 2009; Flanagan, Beach, Varmuza, 2013; Doherty, Lero, Goelman, Tougas, Lagrange, 2000; Government of Canada, 2013b). Because each province has its own HBC regulations, there are differences in terms of the level of education or training required, acceptable ratios of children to HBC workers, working conditions, salary, and benefits. Such differences in job requirements, content, and context can have important health implications for these workers. It is known that the working conditions of early childcare workers in the centers are demanding and increase their physical and emotional stress, which in its turn have a strong effect on the overall health and well-being including effects on mental health (e.g. depression, anxiety) and physical health (e.g. muscular pain, fatigue) (Maslach & Pines, 1977; Tessier, Blais & Dion, 1995; Tessier, Dion & Mercier, 1989). The existing Canadian studies on these workers have mainly focused on the regulations applicable to these, on the quality of services offered to children and lightly examined their working conditions (Beach & Flanagan, 2010; Cox, 2005; Ferns & Friendly, 2015; Doherty, Lero, Goelman, Tougas, & LaGrange, 2000; Doherty, Lero, Tougas, LaGrange & Goelman, 2000; Goss Gilroy, 1998; Stacey, 2011; Taylor, Dunster & Pollard, 1999; Tessier, Blais & Dion, 1995). Because the literature on HBC workers'

health and determinants of health which include their working conditions is still on its beginning in Canada (Halfon, 2014), the purpose of this study is to undertake a job analysis of HBC workers work – specifically with reference to job content, context, and requirements – emphasizing the workers’ perspective and identifying which job-related factors are perceived to be associated with their health.

Elements of a Job Analysis

A job analysis is a systematic procedure for gathering, documenting, and analyzing information about job content, context, and requirements (Bemis, Belenky & Soder, 1983). The purpose of a job analysis is “to provide an objective description of the job, not of the person performing it” (Bemis, Belenky & Soder, 1983 p. 1) and to document factors that may have an immediate positive or negative effect on an employee’s health and well-being (Bemis, Belenky & Soder, 1983).

Job requirements

Job requirements include factors such as education and experience (Bemis, Belenky & Soder, 1983). Before a regulated HBC is opened, the workers must undergo a screening process (Beach & al., 2009; LHCCNO, 2014; MFA, 2011; MFA, 2014). This includes submitting an application form identifying the level of education, the work experience obtained, and the personal qualities of the provider. In Canada, Regulated HBC workers are not required to have a formal education degree. Unless they hold a degree related to childcare, they have to complete professional training of 20 to 60 hours on safety, preventative health education, child nutrition, child's psychological development, and educational programming, depending on the Canadian province where they plan to work (Beach & al., 2009; MFA, 2011). They must also complete a

First Aid and CPR training of 8 hours. HBC workers are often required to have experience in childcare or household management showing that they have developed some skills (e.g. supervisory skills, effective verbal and listening communication skills, problem-solving skills, time management skills, etc.) and personal attributes (e.g. compassionate and understanding, respectful, flexible, work ethics, nurturing, etc.). During the screening process, HBC workers must undergo a health assessment and in many provinces, residents in their home may be required to undergo tuberculosis testing, complete a police record check for the vulnerable sector for each resident over 18 years old, provide references from a non-relative, vaccinate all pets, as undergoing an assessment of the environment, and the suitability and safety of the home (LHCCNO, 2014; MFA, 2014).

In Canada, because there are no minimal postsecondary credentials required to access the HBC occupation (Flanagan, Beach, Michal & Cormier; 2009), it is often thought to be a continuity of domestic work and family life, it ends up being a more accessible occupation than others (Armstrong, Armstrong et Scott-Dixon, 2008; Bourgeault & Khokher, 2006). Women held over 96% of the jobs in the childcare sector and most of them work full time (Beach, Bertrand, Forer, Michal & Tougas. 2004). It has traditionally attracted more socially vulnerable workers who have been subject to discrimination on the labour market (Armstrong, Armstrong et Scott-Dixon, 2008; Bourgeault et Khokher, 2006; Côté, 2008; England and Folbre, 2002; Stacey, 2011). It is also an option for those who would like to spend more time with their young children (Folbre and England, 2002; Stacey, 2011). Women and visible minorities are overrepresented in occupations where low wages, high physical and mental demands, long working hours, and lack of benefits are predominant (Armstrong, Armstrong et Scott-Dixon, 2008; Bourgeault & Khokher, 2006; Côté, 2008; England and Folbre, 2002; Stacey, 2011).

Job content

Job content refers to the duties and tasks of the occupation (Bemis, Belenky & Soder, 1983). In Canada, the National Occupational Classification (HRSDC & Statistics Canada, 2011) provides a standardized framework of the labour market by classifying and describing the job content of occupations in the Canadian economy. It defines the following tasks of HBC workers across Canadian provinces:

- Supervise and care for children in employer's or own residence
- Bathe, dress, and feed children
- Prepare formulas and change diapers for infants
- Plan, prepare, and serve meals for children and may perform other housekeeping duties
- Oversee children's activities, such as meals and rest periods, as instructed by employer
- Maintain a safe and healthy environment in the home
- Teach children personal hygiene
- Contribute to the emotional well-being of children and support their social development
- Discipline children according to the methods requested by the parents
- Organize and participate in activities such as games, crafts, reading, and outings
- Take children to and from school and appointments
- May be required to keep records of daily activities and health information regarding each child

These workers may also have to administer medication to children and use emergency medical equipment, (e.g. EpiPen or asthma inhaler) (MFA, 2012). Other duties may be negotiated with parents such as transportation from home, additional childcare services, etc. The duties and tasks described may vary by the age of the children under care.

Job context

Job context involves the purpose of work, the degree of accountability and responsibility, the extent of supervision received or given, the consequence of error, the physical demands and the working conditions (Bemis, Belenky & Soder, 1983). HBC workers are responsible for the care of babies and preschool aged children in their own home (Andrew Fleck Childcare Services, 2008; Beach, Friendly, Ferns, Prabhu, Forer, 2009, MFA 2014). Regulated HBC may be individually licensed by the provincial or territorial government or affiliated with a local licensed childcare agency/coordinating office (Beach & Flanagan, 2010). Agency-based models are found in Newfoundland and Labrador, Nova Scotia, Alberta, Ontario, and Quebec. Nearly two third of them are in Quebec and Ontario. These workers have to equip and maintain their residences, provide a safe environment and an appropriate educational program for the children in accordance with relevant legislation, regulations, policies, and procedures (Belleau, 2002). They are deemed independent contractors and thus, they are accountable for the quality of their services.

Depending on the provinces, regulated HBC workers are monitored by provincial or territorial government if individually licensed, or by home visitors if affiliated with a childcare agency or coordinating office (Beach & Flanagan, 2010). They can provide care for up to ten children under 12 years old depending on the province where they work, choose their clients and working hours, and receive regular payments from their agency depending on the number of children under their care and the number of working days (Beach & al., 2009; Government of Canada, 2013; MFA, 2014). In addition, they must comply with regulations set by the provincial *Day Nurseries Act* for the ratios of workers to children, health, and safety which are subject to inspection by a home visitor (LHCCNO, 2014; MFA, 2014). The visits are often unannounced and done on a monthly basis in some Canadian provinces (e.g. Ontario) or on a quarterly basis in others (e.g. Quebec). During each visit, homes must pass safety inspections, healthy

environmental standards for health care, and appropriate educational programs. If any non-compliance is found with legislated requirements but with no immediate danger to the health and well-being of the children, the home visitor is responsible for offering support, mentoring, or coaching. The locally regulated childcare agency or coordinating office offer ongoing support, access to resources, and opportunities to participate in professional development (Beach & al., 2009). Repeated instances of non-compliance may lead to the loss of the license or the agency affiliation.

The present study

HBC workers have job content and context that makes them subject to negative health effects. Indeed, they are known to deal with physical, mental, and environmental demands that may affect the quality of their services and their health (Belleau, 2002; Tessier, Blais et Dion, 1995). They carry children and equipment, perform many tasks daily for long hours without contact with other adults and without breaks, sit on child-sized furniture, and are in contact with ill children. These workers manage a number of situations concurrently and must maintain constant vigilance in the supervision of young children. Previous studies showed that working over 8 hours per day is strongly correlated with higher risks of injuries and illnesses (Dembe, Erickson, Delbos, Banks, 2005). A higher number of working hours has been linked to unhealthy behaviours such as smoking, sedentary lifestyle, poor nutritional habits, and fewer health examinations (Maruyama, Kohno & Morimoto, 1995). In addition, exposure to noise increases the risks of hearing impairment, hypertension, cardiovascular infarction, ischemic heart disease, secretion of stress hormones and alteration of the quality of sleep at night, reduction of cognitive performance, and appearance of certain mental diseases (Camard, Lefranc, Gremy, & Ferry, 2004). Finally, HBC workers are exposed to noisy environments and sometimes to offensive

smells associated with toileting. This job context may increase risks for workers' health and influence quality in early childhood programs. For example, when the job demands are increased and the freedom to make decisions affecting work is restricted, workers may experience a high job strain and more risks for psychological and physical illness such as hypertension, depression, anxiety, musculo-skeletal problems, etc (Karasek & Theorell, 1990). This research explicitly sheds light on the perceived job-related factors that may affect the HBC workers' health and well-being.

METHODOLOGY

- **Sample**

This paper is based on the qualitative analysis of 11 individual semi-structured interviews conducted with HBC workers. The sampling strategy for qualitative research focuses on the appropriateness and adequacy of the sample rather than the sample size (Bowen 2008; O'Reilly and Parker 2012). When the essence of the research is to examine in-depth the views of people who have experienced a specific event, Creswell (1998) recommends five to twenty-five interviews while Morse (1994) suggests a number of at least six interviews. Phenomenological research provides a rich and detailed description of the individual experience. In this study, the number of eleven interviews allowed reaching a certain level of saturation. Saturation is reached when no new data emerges from interviews to justify the addition of new categories. Total saturation is never achieved due to the uniqueness of each situation, person, or group (Corbin & Strauss 2008; Wray et. al. 2007). O'Reilly and Parker (2012) suggest considering a one-hour interview as a good indicator of the depth of analyses especially when the number of participants is smaller or when recruitment of participants is difficult.

Interviews provide access to thoughts, ideas, and perceptions of the participants in addition to establishing an emotional relationship with them (Deslauriers, 1991). The recruitment processes and interviews took place between November 2014 and January 2015 and focused on two cities due to limits of financial and time resources and accessibility. The interviewees were recruited through advertising with the assistance of local childcare Networks in the city of Gatineau in Quebec and the city of Ottawa in Ontario. These were asked to share a letter of invitation in French and in English directly to their HBC workers. The inclusion criteria were: 1) being an Anglophone or Francophone man or woman and 2) working as a regulated HBC worker affiliated with a childcare agency in Ottawa or a coordinating office in Gatineau.

The interviews were conducted in person at the participants' residence after their working hours; the interviews were recorded and transcribed by the principal author of this paper. Before starting each interview, each participant was asked a series of 'icebreaker' questions (ex. How are you? How was your day?) to make them feel comfortable. Then, in accordance with the ethical rules of research of the University of Ottawa, each interviewee was invited to read the consent form, to sign three copies of it, and to keep one copy. Before signing the consent form, each participant had the opportunity to ask questions about the research objective, the nature of the questions, etc.

- **Data collection**

The interview guide comprised approximately 29 open-ended questions designed to encourage participants to share their experiences, knowledge, and feelings about their job content, context, and requirements, reasons of their job choice, factors that may affect negatively or positively their health and well-being, and finally to propose some recommendations. Information about personal characteristics (age, education, etc.) was also

asked. The interview questionnaire was constructed based on four types of questions as stated by Kvale (1996):

1. *Descriptive questions* provided the opportunity for the researcher and participants to introduce themselves and establish the general profile of the participant (age, education level, income, etc.);
2. *Analytical questions* allowed participants to comment on their occupation requirements, content, and context;
3. *Positioning questions* during which interviewees adopt a position and express their critical points of view on the HBC workers' requirements, content, and context; and
4. *Theoretical questions* allowed interviewees to make broader generalizations and recommendations based on their experiences.

The research team validated interview questions to ensure clarity. Two pilot interviews were conducted with the first two participants to refine the interview guide. We found that the questions were easily understood and adequately captured the topic of interest. Each semi-structured interview lasted between 30 and 90 minutes depending on the participants' responses.

During the semi-structured interviews, participants responded to the issues raised in the interview guide through a description of their intended and actual career paths. Because the purpose of qualitative research is to gather as much information on a given topic (Deslauriers, 1991), information shared by the interviewees was synthesized across topics. The presentation of these emerging results is important because it provides insight into the work experiences of participants.

- **Data analysis**

To codify and reduce the data, we used the approach proposed by Blais and Martineau (2006):

- First, the raw data of each interview was transcribed in a uniform format (font, size, etc.) using Word. To preserve anonymity, fictitious names have been assigned to each participant. Each interview was saved individually on a USB key and printed afterwards.
- Second, the transcribed interviews were carefully read several times to become familiar with the content.
- Third, the raw data were reduced into descriptive categories. The coding of the initial categories was conducted at the sentence or paragraph level depending on the participants' responses.
- Finally, the initial categories were reviewed and refined to identify new categories and/or subcategories until data saturation. Blind coding was used to validate the analytical categories developed. In fact, a colleague coded two interviews separately and identified analytical categories, which we compared with those we developed to draw the final analysis categories.

As a result of this analytic strategy, the following categories were developed: participants profile; job requirement; job content factors affecting health and well-being; job context factors related to the nature of work affecting health and well-being; job context factors related to income and benefits affecting health and well-being; and career change. These are described in detail below.

RESULTS

Profile of participants

All 11 HBC workers in Gatineau and Ottawa were women aged at least 32 years, married, and had at least two children who were minors. They pursued postsecondary education in management, police, science, early childcare, or education. Seven of these participants have immigrated to Canada in the past 8 years and are settled in Canada as Canadian citizens.

At the time of the study, all of the HBC workers were working full time from Monday to Friday with a group of 4 to 6 children aged between 6 months and 4 years. Some workers were working in the basement and others at the first floor from 50 to 70 hours weekly. All Gatineau workers had two babies aged less than one-year-old in their group and more boys than girls while workers in Ottawa had mostly girls in their groups. They had an annual net income varying between \$20,000 and \$25,000. Table 1 shows characteristics of each participant.

The majority of participants have been working as HBC workers for at least two years⁷. They chose this occupation because they love spending time with children, have their own young children or teenagers, or prefer to work at home to better manage their family life. All participants who have immigrated to Canada found this occupation more accessible than others allowing them to occupy their time, to avoid commuting in the winter, or to be self-employed. Autonomy at work allows them to be the main decision makers, to choose their clients, to plan their educational activities, meals, and holiday dates. Kate expresses her choice of profession as follows:

⁷ HBC workers must meet some essential job requirements before obtaining their licence. Indeed, they must be over 18 years old; be in good physical and mental health; pursue professional training (45 hours in Gatineau or 20 hours in Ottawa) on safety, preventative health education, child nutrition, psychological development of the child, and educational programming; have essential skills, abilities, and personal attributes such as being very patient, a loving and compassionate person, a good communicator, an autonomous person, a flexible and multi-tasking person; be able to speak, read, and write in French, English, or both; complete the First Aid and CPR training and; have supportive family members who agree to share their homes with young kids.

I love singing with children and playing with them, to be self-employed and managing my daycare as I want. Having no boss, minimize travel in the winter season. Also, I love working with children who are able to express themselves, but I also like babies because they are cutes and innocent. (Kate, Gatineau, own translation)

TABLE 1: Profile of Participants

Name*		Farah	Hana	Lisa	Stephanie	Mylène	Kate	Carole	Sarah	Fanie	Cora	Lina
City	City	Gatineau	Gatineau	Gatineau	Gatineau	Gatineau	Gatineau	Gatineau	Ottawa	Ottawa	Ottawa	Ottawa
Status in Canada	Canadian Citizen	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Immigrant	8 years	10 years	30 years	20 years	No	15 years	No	No	No	9 years	12 years
Marital status and family composition	Married	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Children living at home	10 and 12 y.o	8, 10 and 15 y.o.	11, 19 and 23 y.o	14 and 17 y.o	6, 7, 10 and 15 y.o.	18 y.o.	18 y.o	5 y.o	2 y.o	12,15, and 18 y.o	13, 15 y.o
Age	Age	40	34	51	44	34	56	56	32	36	45	40
Level of education	College	Management studies				Police studies	Early childcare				Early childcare	
	University			Management studies				Education studies	Sciences studies	Education studies		
Job characteristics	Number of kids	6	6	6	6	6	6	6	5	5	4	4
	Floor of work	Basement	Basement	First floor	Basement	Basement	First floor	First floor	First floor	Basement	Basement	Basement
	Hours of work	55	50	70	70	70	65	60	50	55	55	60
	Years of work	5	5	2	6	7	7	20	3	6	7	10
	Net income	\$21,000	\$20,000\$	\$22,000	\$22,000	\$22,000	\$21,000	\$22,000	\$25,000	\$24,000	\$21,000	\$20,000

*Pseudonyms were used to ensure anonymity

Job content factors perceived to be affecting health and well-being

There were a number of tasks requiring high mental and physical efforts that emerged from the interviews. These were considered as potential factors affecting their mental and physical health and well-being.

a) Tasks requiring physical effort

All interviewees mentioned working at least 10 hours per day alone at their homes and five days a week. A majority of them are working from 7:00 to 17:00, and some of them from 6:00 to 16:00. HBC workers typical daily work tasks were reflected by the following:

7:00-9:00 : Opening and interior unstructured activities
9:00-9:20 : hand washing and morning snack
9:20-9 :30 : hand washing, changing diapers, toileting
9:30-10:00 : interior structured activities
10:00-10:15 : dressing
10:15-11:15 : outdoor activities
11:15-11:30 : undressing and washing hands
11:30 – 12:00 : dinner
12:00-12:15 : hand washing, changing diapers, toileting
12:15-12:30 : preparation of the break room
12:30-14:30 : Reading and nap
14:30-15:00 : awakening children, mat storage, hand washing, changing diapers, toileting
15:00-15:30 : afternoon snack
15:30-17:00 : Hand washing, changing diapers, toileting and interior unstructured activities until the arrival of parents

Figure 1: Typical Daily Home-Based Childcare workers' tasks

Six different types of duties undertaken by HBC workers are identified in Table 2: physical care, emotional care, special care, housekeeping and domestic work, business administration, and self-development. Within each of these types of duties, there is a large

number of tasks performed frequently on a daily basis involving a high physical demand. Some tasks are accomplished in the presence of children and others in their absence.

TABLE 2: Duties and Tasks of HBC Workers

Duties	Tasks	Frequency
Physical care	<ul style="list-style-type: none"> • Children hygiene assistance (e.g. diaper change, hand washing and toilet assistance, dressing, etc.) • Dressing assistance • Feeding assistance • Position change and movement • Indoor and outdoor physical activities 	<ul style="list-style-type: none"> • 6 to 14 times per kid daily • 2 to 4 times per kid daily • 3 times for each baby under 18 months daily • 8 to 10 hours daily • 15 to 30 min twice daily
Emotional care	<ul style="list-style-type: none"> • Communication with children (e.g. affection) 	<ul style="list-style-type: none"> • 8 to 10 hours daily
Special care	<ul style="list-style-type: none"> • Disease management • First aid care • Children with special needs management 	<ul style="list-style-type: none"> • Occasionally • Occasionally • 8-10 hours daily when included in the group
Housekeeping and domestic work	<ul style="list-style-type: none"> • Meals cooking • House cleaning • Toys sterilization • Environment management 	<ul style="list-style-type: none"> • 1 to 2 hours daily or 4 to 8 hours once weekly • 1 hour daily • 1 hour daily • 1 hour daily
Business administration	<ul style="list-style-type: none"> • Opening and closing hours management • Plan and prepare learning activities • Document the development of each child • Complete children attendance form • Complete payroll requisitions forms • Prepare fiscal receipts* • Purchasing supplies and doing grocery • Bookkeeping (e.g. data entry) • Communication with parents • Communication with home visitors • Visit childcare agency or coordinating office • Filling available spots (Marketing) 	<ul style="list-style-type: none"> • Daily • 1 hour daily • 30 min daily • 5 min daily • 10-30 min bi-weekly • One day once a year • Once a week • 1 to 2 hours monthly • 30 min to 1 hour daily • 30 min to 1 hour monthly • 0-30 min monthly • As needed
Self-development	<ul style="list-style-type: none"> • Professional training • Self-management of stress, health and safety 	<ul style="list-style-type: none"> • 3 to 6 hours per year • Daily

*Only noted by participants in Gatineau

HBC workers spend the vast majority of their day standing for long hours, rarely sit, and do not take a break in the presence of children. They also carry equipment and children daily by moving them from one place to another. Children aged 2 years or younger require more physical effort from workers and each child of that age is lifted from 15 to 20 times per day. Repetitive tasks have been reported as causing fatigue, pain, and injury to the back of the neck by the majority of interviewees regardless of the floor of work and especially among those working in the basement compared to those working on the first floor.

b) Tasks requiring mental effort

According to the majority of participants including those who graduated in education, working as a HBC worker involves more skills, abilities, and personal attributes than those learned during their studies. Those who have a college or a university degree in education or early child education, have stated that it is not easy to always apply educational theories because of the high number of tasks to be done at once in the HBC, and the varying needs of each child in a multi-age group. Multi-age groupings help develop children's social, emotional, and verbal skills and self-esteem in addition to improving attitudes toward school, though it is mentally demanding and challenging for HBC workers.

According to all participants, their work requires significant mental effort to perform a great number of duties and tasks (Table 2). They must be alert all times in the presence of young children. Working with young kids requires a lot of attention and patience, speaking a lot, and repeating instructions several times to be understood. Indeed, some of them reported that when children have a behaviour disorder or disability, the worker must exert even greater mental effort. Because boys are often physically more active than girls, many interviewees admitted that there is

a high mental demand when the group includes more boys than girls. As they are self-employed, HBC workers also added that they must think of several things simultaneously, perform multiple tasks for long hours with children of different ages where individual needs differ according to their ages. In addition, many interviewees have difficult relationships with infants, with home visitors, and with parents that are a source of emotional stress. According to them, poor relationships affect their mental health.

➤ **Difficult relationships with infants**

Because they are not adequately trained to deal with children with behavioural problems or strong personalities, some participants recognize having trouble to deal with this type of kids and feel stressed in such situations.

We work with what the child wants. Sometimes you plan an educational activity and the child has no interest to do it. Around the age of 3 years, the child begins to have a strong personality and character, and is not always easy to deal with it.

(Lisa, Gatineau, own translation)

It happened to me to have children with behavioural disorders. Often they live in economically disadvantaged families and their parents do not care about them, it makes my job stressful. (Cora, Ottawa)

➤ **Difficult relationships with home visitors**

Participants from both cities are aware of the staff coordinating offices or staff agency

responsibilities. According to them, tasks include to: 1) Grant, renew, suspend or revoke the HBC license, 2) Visit and supervise HBC workers to ensure compliance with regulation, 3) Provide technical and pedagogical support to HBC workers, 3) Deal with parental complaints against HBC workers, 4) Ensure eligibility of parents for childcare subsidies and, 5) Pay HBC workers. According to HBC workers, misunderstanding and disagreements with home visitors occur mainly during their unexpected visits. HBC workers in Gatineau are visited three times a year, but visits are monthly for those working in Ottawa. Despite the low number of unexpected visits, Gatineau workers affirm dealing with more disagreements and misunderstanding with their home visitors compared to their colleagues in Ottawa. From the HBC workers' perspectives, they confirm feeling constantly insecure and stressed by what they describe as home visitors aiming to find any excuse to give statements of offence, revoke their license, and are inconsistent with application of regulations. Indeed, for the same offence in the same province, some HBC workers are given a simple verbal warning, while others are given a statement of offence. The following testimonials are examples of misunderstandings and disagreements experienced by participants with the home visitors from the coordinating office:

The home visitor comes only to give statements of offence for any reason instead of supporting, guiding, and helping us. For example, during an unannounced visit, she came during the snack time, she saw pieces of cookies on the ground thrown by one kid just before I opened the door to her and she said that my work environment is not clean and I got a 'statement of offence'. After a number of statements of offence, the daycare is closed. (Kate, Gatineau, own translation)

I have little babies of 6-8 months and my home visitor requires me to go outside in the backyard each day for 30 minutes even when temperatures are low. Babies will suffer from frostbite for sure and their parents will be unhappy. Me too, I'll get sick if I'm exposed to cold temperatures. My home visitor doesn't understand that.
(Fanie, Ottawa)

Home visitors do not respect us as workers. I went to the coordinating office a couple of times and they spoke negatively of some workers in the presence of other people. It is unethical.... Last month, I got a statement of offense because I had to provide a certificate of first aid training before a specific deadline. I did the training three months before the deadline, but the training agency had moved and I received the certificate later. The coordinating office doesn't understand this situation. After several statements of offense, the childcare is closed. The coordinating office is severe. Another time, the supervisor began to open my kitchen cabinets and broke one of the doors during an unannounced visit and refused to pay the fees of reparation. My home visitor doesn't support and help, but she comes to give a statement of offense at any price. (Stephanie, Gatineau, own translation)

Only HBC workers in Ottawa have stated feeling very supported by their home visitors who support them in educational activities, educational equipment choices, the settlement of disagreements with parents, and their work in general. The disagreements and misunderstanding reported by HBC workers in Gatineau might explain why many of them feel less supported by their supervisors.

My home visitor is helpful and very supportive. She shared with me lots of strategies for dealing with difficult child behaviour. (Fanie, Ottawa)

➤ **Difficult relationships with parents**

According to all participants, they have good relationships with parents who currently use their HBC. Indeed, parents respect the opening and closing hours, pay the childcare costs in time, provide clothing and hygiene items for their children, are generally in a good mood, have great communication skills, and specify the needs of their children. However, most HBC workers have experienced disagreements with parents mainly due to non-compliance with HBC rules and bad attitudes of parents such as:

One of the parents has complained against me because he doesn't agree with my snack choices that are mainly fruits and milk. My coordinating office has not even taken the time to listen to me; they immediately closed my daycare for two weeks with no revenue in order to do their investigation. (Jamaela, Gatineau, own translation)

One parent was not friendly with me; he treated me like a maid and said rude things in my house. (Stephanie, Gatineau, own translation)

Throughout my career, I had two misunderstandings including one that ended with a cancelled contract. The parent did not agree with the snacks that I offer that do meet the Canadian Food Guide standards. The other parent did not always pay in

*time, did not wash his kid's clothes that smelled badly, and did not bath him often.
I didn't renew his contract. (Sarah, Ottawa)*

*I had one parent who always came late after the daycare closing times and I had to
fight with them to pay the extra costs. So I did not renew his contract. (Jamaela,
Gatineau, own translation)*

Job context factors related to the nature of work perceived to be affecting health and well-being

The absence of contact with other adults during working hours, lack of external help during working hours, difficulty filling available spots, noise, and interference with personal and family life of the worker are important contextual factors perceived by HBC workers as potential factors affecting their health and well-being.

a) Absence of contact with other adults during working hours

Due to the lack of social relationships with other adults during their working hours, all participants mentioned feeling lonely and socially isolated, which may negatively affect their mental health.

*... Work alone, see no one, and remain socially isolated, is hard for me (Kate,
Gatineau, own translation)*

*It's hard to work at home and not see any adult, share anything with another person.
(Stephanie, Gatineau, own translation)*

This work is not suitable for someone who likes to be surrounded by other adults.
(Sarah, Ottawa)

b) Lack of external help during working hours

Because they work alone, none of the HBC workers receive any formal assistance during their work hours. This makes their workdays challenging and stressful most of the time. They workers receive assistance and moral support after their working hours from their families and colleagues. Examples of assistance are:

My family did nothing to help me during my working hours but their smiles, their good humour, and moral support helps me (Lisa, Gatineau, own translation)

My husband helps me sometimes!! He does the grocery to help me. (Stephanie, Gatineau, own translation)

My colleagues are supportive and listening to me. They provide advice, share their experiences by phone, etc. (Farah, Gatineau, own translation)

c) Difficulty filling available spots

A majority of participants report having difficulties filling available spots in their HBC because child ratios need to be respected, increasing number of childcare centers in the market, the parents' lack of recognition of the HBC services' quality, the parents' ignorance of the tedious

procedure of opening a regulated HBC, and the promotion of the Ministry of Education of the childcare centers instead of HBC. Testimonies from Mylène and Cora are examples:

Even though I offer my spots for \$7 a day in Gatineau, it's not always easy to fill all spots due to the opening of several childcare centers not far from my daycare. Parents have a positive perception of childcare centers and a negative perception of home-based childcare. My coordinating office does nothing to help us. It's really me who must find children and fill all my spots (Mylène, Gatineau, own translation).

It is not easy to fill all spots all the time because I have to respect the children's age ratio and there is a shortage on the market of children for certain age groups. Because of that I feel stressed each time when it happens. The childcare agency here in Ottawa may refer parent to me and it works sometimes, but it is the parent who has the last word (Cora, Ottawa).

d) Enduring noise and bad odors

HBC workers' work environment is often noisy because the children under their care cry and scream, scrape toys on the floor, and play with noisy toys. This negatively affects their aural health and overall level of stress. They are also exposed on a daily basis to offensive smells related to toileting and illness (e.g. diarrhea) and to odours occurring from art materials and disinfecting solutions. Finally, they run the risk of being contaminated by seasonal diseases when sick children come to their childcare with a gastrointestinal illness, cold, flu, diarrhea or other infectious childhood diseases.

e) Interference with personal and family life of the worker

Having a regulated HBC may interfere with the workers' personal and family life because many rooms in the home are shared with children. Children can sometimes disturb residents in the home because of their noises. When HBC workers need to be absent to take care of an ill family member or for personal reasons, replacements can not be easily found, especially in Quebec. Often, they have to close except if they find a replacement employee who can fulfill the necessary requirements including police check, twelve hours of training on child development that dates less than three years, first aid, and CPR training. HBC workers should also get authorisation from childcare agency in Quebec. In addition, according to regulations under the provincial *Day Nurseries Act*, workers in both cities are not allowed to welcome guests during their working hours, including family members who are not usually living in the home.

I must close my daycare for several days without any pay when I plan to hire someone to paint my own kids' bedrooms in the other floor because we are not allowed to have a stranger adult at home while working with kids. I mean an adult not living at home usually. If it happens and by chance the home visitor came in, she will close my daycare for several days as a punishment (Lina, Ottawa)

Job context factors such as income and benefits perceived to be affecting health and well-being

Persistently low and precarious remuneration, incomplete or absence of benefits are other factors that may negatively affect HBC workers' health and well-being.

a) Low and precarious remuneration

HBC workers are paid based on the number of children under their care regardless of the level of education and the number of hours worked. Ottawa and Gatineau workers can care for up to six children full time. Because their salary depends on the number of children under their care, some interviewees have experienced financial difficulties when one spot or more were not filled for a long time. The annual incomes of participants from both cities are similar and vary between \$20,000 and \$25,000 annually. Interviewees in Gatineau are paid by their local childcare agencies based on the provincial rates established by the *Ministère de la famille du Québec* which are \$34 a day per child aged 18 months and up and \$42 a day per child under 18 months. The rates of those working in Ottawa vary between \$34 and \$45 per day per child and depend on the coordinating office. When all the spots are filled in HBC, workers in Gatineau have gross income of \$204 per day while the income of those in Ottawa ranges from \$170 to \$200 per day. With this income, they must cover all expenses for their HBC as well as food, hygiene products, educational materials, etc.

I have to cover all the expenses of my childcare from my own salary. There is no subsidy for daycare expenses. (Kate, Gatineau, own translation)

Our salary depends on the number of children. We can work with a maximum of 6 children in Gatineau. We are paid about \$26 per child per day by the government, which covers our wages, and work-related expenses such as meals, craft material, etc. The parent pays \$ 7.3 per day. So the total is \$33.3 per day per child. (Stephanie, Gatineau, own translation)

According to most participants in Gatineau, although they can claim a percentage of some work expenses on income tax (e.g. Hydro, phone, mortgage loans, renovation fee, etc.), their current income is insufficient, would not enable them to live decently, and a second income from a second job or from their spouses alleviates this burden. Single HBC workers are more affected by low income than those married or in common-law as they often have to found a second source of income (e.g. second job). The real work of HBC workers, and especially the quality of their services, are often misunderstood and underestimated by coordinating offices, childcare agencies, and the provincial ministry. This is why they feel their salaries do not reflect the value of tasks performed nor the minimal number of hours worked which is around 50 hours on average. Stephanie explains the lack of recognition of HBC workers as follows:

Our tasks need to be recognized by our coordinating office. HBC workers' tasks are different from those who are working in the centers. We have more tasks such as cleaning, cooking, accounting...to open our HBC, we must go through a process of 2 to 3 years, fill out many forms, pass many interviews, adapt our home as requested by coordinating office, etc. The Minister in our province thinks that we spend the day doing manicures or pedicures because we work at home and we do nothing else at home. Our income is not representative of the number of hours worked. We are paid for only 35 hours, while we work 70 hours a week. (Stephanie, Gatineau, own translation)

b) Non-existent or incomplete benefits

Participants in Gatineau are represented by the provincial union in contrast to their counterparts in Ottawa who are not part of a union. As part of being unionized, participants in Gatineau have benefits, contrary to their counterparts in Ottawa. The union negotiated and established a collective agreement with the *Ministère de la famille* in Quebec that protects their rights as workers and grants them various benefits such as union representation, access to life insurance, health insurance (excluding dental, optometric, psychology services), maternity leave, sick leave, 17 days of annual vacation partially paid, 8 partially paid holidays, and free access to six hours of training per year. Despite these benefits, HBC workers' economic autonomy is threatened by the lack of access to pension plans and paid benefits including sick leave, parental or family leave. Moreover, workers in Ontario do not have such benefits.

We don't have enough vacation time but just 17 days partially paid at \$7 per day by parents and no paid sick leave (Lisa, Gatineau, own translation)

Here in Quebec, we have benefits that are inadequate; we have no paid sick leave, no dental insurance, and other types of health insurance. (Farah, Gatineau, own translation)

In Ottawa we have no benefits, no insurance, no paid vacation, and we work more than 10 hours a day. (Cora, Ottawa)

Because payroll deductions were introduced after unionization, HBC workers found themselves economically poorer. For example, Kate explains this situation as follows:

Payroll deductions related to social benefits are totally self-funded by workers. The government does not finance any part of these amounts. Yes, there have been little increases in our salaries, but we have more deductions that didn't exist before such as union dues \$60 a month, life insurance \$90 a month, and health insurance which costs between \$300 and \$400 per month. The union says that our holidays are paid, but this is not true. They take an amount directly from our salaries and they give it back to us when we take our vacation. After unionization, we have more administrative tasks than before because now we are in charge of the whole process of registration of children. (Kate, Gatineau, own translation)

According to the majority of interviewees from both cities, coordinating offices and childcare agencies play a key role in health promotion of HBC workers and children under their care. They periodically send information to HBC workers about contagious diseases in childcare, prevention of contamination, on ergonomics in the workplace, and transmit pamphlets for parents about vaccines, childhood illnesses, and child development.

Career change of HBC workers

Despite the work factors presented above affecting their health and well-being, most participants are happy in their work and intend to continue to practice their profession in coming years. However, two interviewees in Gatineau are planning to leave their current job in the coming

years due to low pay and high physical and mental demands, while a third one wants to do so once her children get older.

DISCUSSION

The main contributions to the literature as well as a summary of findings grouped by job content and context, the limitations, and the areas for future research are presented below.

Main contributions to the literature

This research contributes to the area of occupational health, specifically among the group of HBC workers in the Canadian context. First, it documents the work of HBC workers and identifies six different types of duties performed by these workers: physical care, emotional care, special care, housekeeping and domestic work, business administration, and self-development. HBC's work is dominated by women since caregiving is recognized to be a female activity. Female caregivers still represent the majority in Canada and are more likely to provide assistance in relation to personal care and hygiene while men are more prone to take on a management role (Tran, 2014). Second, this research has also identified job content and context factors affecting health and well-being of HBC workers (Table 3).

Job content factors referring to the duties and tasks of the occupation interact closely with the job context factors such as the physical demands and the working conditions. It is challenging to dissociate one from the other. In this study, it was necessary to describe content factors by giving details on their context. For example, HBC workers reported that their tasks require high mental effort due to interactions with infants, parents, and/or home visitors.

TABLE 3: Job Related Factors Perceived by Home-Based Childcare Workers to Affect Their Health and Well-Being

Job content factors	Job context factors
<ul style="list-style-type: none"> • Tasks requiring high physical efforts • Tasks requiring high mental efforts 	<ul style="list-style-type: none"> • Absence of contact with other adults during working hours • Lack of external help during working hours • Difficulty filling available spots • Enduring noise and bad odors • Interference with personal and family life of the worker • Low and precarious remuneration • Non-existent or incomplete benefits

➤ **Job content findings affecting health and well-being and links to existing literature**

The research shows that HBC workers perform six different types of duties related to physical care, emotional care, special care, housekeeping and domestic work, business administration and self-development. These tasks require high physical, mental, and environmental demands because HBC workers have long working hours (50 to 70 hours/week) and work mainly with groups of kids aged between 6 months and 2 years who are not autonomous. These findings are consistent with previous research on center-based childcare workers. According to Bee and Boyd (2008), children under 3 years old usually attend HBC instead of childcare centers. At this age, they are dependent and require assistance from adults continuously. The center-based childcare workers accomplish a variety of tasks physically and/or mentally demanding such as carrying children at the time of diaper change, of lunch, of outdoor activities; planning pedagogical activities, etc. (Tessier, Blais, and Dion, 1995). They lift up to 1000 kg daily. Excessive physical efforts and long working hours increase workers' stress levels and result in negative attitudes toward children (Maslach and Pines, 1977) and leads to a quantitative work overload which can result in burnouts (Tessier, Blais, and Dion, 1995). Like in childcare centers,

the noise in HBC is produced by children (crying, shouting, laughing), noisy toys, escaped objects, door slamming, and residential heating and ventilation systems. Children under the age of 2 years old are the main source of noise in childcare centers and those working with the latter are exposed to more noise than those working with older children (Picard, 1999 and 2004). Exposure to more than 75 decibels for 8 hours has many adverse health effects including physiological effects and psychological effects such as hearing impairment, hypertension, cardiovascular infarction, ischemic heart disease, secretion of stress hormones and alteration of the quality of sleep at night, reduction of cognitive performance, and appearance of certain mental diseases (Camard, Lefranc, Gremy, & Ferry, 2004).

This study established that many participants experience difficult relationships mainly with parents and home visitors from coordinating offices or childcare agencies. These difficult relationships can be a source of emotional stress, which affects their health and well-being and ultimately work performance as well. Like our findings, the results of research conducted by Tessier, Dion & Mercier (1989 and 1995) showed that educators in childcare centers are subjected to stressful situations daily. These are determined by the level of control of many infants at once, mental and physical overload of work, lack of contact with colleagues during working hours and negative interactions with the children's parents. While work in childcare centers takes place mainly with children; interaction with parents, co-workers, and supervisors remains essential. With parents, exchanges are often brief and can become a source of disagreement when views differ on care of a child. Compared to center-based childcare, workers' relationships with parents are more relational and less formal in HBC, which make it difficult for them to implement policies like late fees and exclusion of sick children from daycare. In their interactions with children, educators do not always have control over the child behaviour, which generates stress if children have behaviour

problems. Getting help from co-workers alleviates the workload, which may decrease stress and health risks. Tessier, Dion and Mercier (1989 and 1995) argue that conflicts and disagreement can arise in relationships with co-workers and supervisors. In this case, stress increases among educators who are often left with little authority and low power in the process of decision-making. The impression of having low decision-making power is associated with burnout among educators in childcare centers (Tessier, Dion & Mercier, 1989 and 1995). Excessive chronic stress increases the chance of premature death by weakening the immune and neuroendocrine systems (Kunst, Groenhof & Mackenbach, 1998). However, social support that comes from a family member, such as a spouse that shows understanding, reduces the level of stress experienced by workers and acts as a protective factor of physical and mental health. Thus, we may encourage coordinating offices in Gatineau or childcare agencies in Ottawa to reinforce the social support for their HBC workers by implementing several practices such as:

- Organizing events allowing HBC workers to make new friends and meet new colleagues.
- Training home visitors so that they can properly identify the needs of HBC workers, provide support, and act as a coach.
- Implementing better human resources management practices focused on employee recognition (e.g. congratulate HBC workers)
- Demonstrating flexibility and consistency in the application of regulations based on the characteristics of cases handled during unannounced visits (e.g. inform workers of the new regulations before giving any statement of offense)

➤ **Job context findings affecting health and well-being and links to existing literature**

All HBC workers in this study were women. Traditionally, women were responsible for children care and education. Previous research supports that women-concentrated jobs are associated with low salaries (Bayard, Hellerstein, Neumark and Troske, 1999). Moreover, women are paid less than men for the same job qualification resulting in higher risks of mental illness for women than men, principally depressive disorders and generalized anxiety disorders (Platt, Prins, Bates and Keyes, 2015). According to Raphael (2001), Canadian women with a low income have double the chances to die from heart disease than well-paid women. Low income is part of social exclusion, which increases the chances of dying from a cardiovascular disease (Raphael, 2001). Also, wage inequality affects health through the perception of oneself in the social hierarchy. Indeed, having an insufficient pay leads to negative emotions (e.g. devaluing, poor self-esteem) having a physical impact on the body (Wilkinson, 1997). This poor self-perception encourages antisocial behaviours, and unhealthy behaviours (e.g. smoking and drinking) (Wilkinson, 1997). Moreover, precarious remuneration encourages some HBC workers to consider the option of leaving their job in future.

All HBC workers of this study were mothers. Working mothers are at higher risk of anxiety and mood disorders, burnouts, and illnesses due to their multiple tasks at home and at work (Gjerdingen, McGovern, Bekker & Willemsen, 2001). In contrast to HBC workers of this study who are taking care of their own children while working and earning revenue from home, women often delay motherhood to focus on their career and earn higher wages (Budig and England, 2001). Delaying childbirth by one year can increase women's job income by 9%, while men continue to have an increase in salary independently of the number of children they have. According to the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST) in Quebec,

pregnant HBC workers are forced to leave their job at 16th week of pregnancy. Thus, they experience low revenues, due to the partial percentage of paid income during their maternity leave (90% of the net revenue) that extends to 18 weeks after childbirth (*Travail, Emploi et solidarité sociale Québec, 2009*). Once the child is born, HBC workers must count their own children in their HBC-ratio (e.g. 6 children in Quebec) thus reducing their revenue. Budig and Hodges (2010) and Rossin-Slater, Ruhm & Waldfogel (2013) report that working mothers earn less money than women without children and are more subject to leave their jobs afterward due to the lack of paid maternity leave and affordable childcare services (Budig and Hodges, 2010; Zossin-Slater, Ruhm & Waldfogel, 2013).

This research shows that HBC workers are dealing with an absence of contact with other adults and lack of external help, during their working hours. In addition, they perceive their income as low because they experience some difficulties filling available spots, are paid based on the number of children under their care regardless of the level of education and the number of hours worked although they can claim a percentage of their work expenses on income tax. Unlike HBC workers who are paid based on the number of children and the number of working days, workers in childcare centers are paid according to their level of education, number of years of work experience, and number of hours worked per day. In Canada, childcare workers in centers earn \$21,000 on average, while those who work in a regulated HBC have an average income of about \$15,000 average (Beach & Costgliola, 2005). In one decade, their annual net income had increased by approximately 30% according to our study (\$15,000 to \$20,000) but it is still under the recent national wage average of \$32,100 for Canadian women (Statistics Canada, 2013). This creates unequal pay, especially when HBC workers must finance all expenses related to their work with their personal income.

Unlike HBC in Ottawa, our finding shows that Gatineau workers are represented by a provincial union that defends their rights. The current legal framework in Quebec extends worker's compensation and employment standards to regulated HBC workers even if they are self-employed and under the management of a local coordinating office. Thereby, they have access to several benefits entirely self-funded and protections of labour and employment laws. Life insurance, health insurance, maternity leave, sick leave, annual vacation, paid holidays, and free professional trainings are examples of benefits. On one hand, these are incentive measures encouraging future workers to join this field of work in Gatineau or in other cities in the province of Quebec. On the other hand, because benefits are entirely self-funded (e.g. Health insurance, life insurance), the increase in workers' salary serves only to cover new deductions introduced after unionization. Ontario local authorities and childcare agencies should be encouraged to use the framework in Quebec as an example and establish an employer-employee relationship. This would become an incentive leading workers to join as well as having positive consequences for quality childcare and early learning.

For all previous reasons, we encourage provincial government authorities to take into consideration the following recommendations:

- Review the compensation of regulated HBC in order to reflect the number of hours worked per week and the level of education of workers as well as pay gaps with other comparable women concentrated jobs (e.g. educators in center-based childcare)
- Provide a subsidy to HBC workers to cover the operating costs of the childcare service, as it is the case in many centers (e.g. costs related to food, educational materials, hygiene supplies, household costs associated with childcare, etc.).

Limitations and strengths

Three limits of this study are notable. First, access to participants was challenging despite the help of several organizations from Gatineau and Ottawa in the recruitment process. Several HBC workers withdrew from this study before the interviews because they have long working hours daily and need to take time for themselves after work instead of doing interviews, their spouses do not allow them to do interviews, etc. Second, the risk of social desirability is another limit. Indeed, no study based on perceptions or self-reported data could avoid entirely the risk of social desirability (Paulhus, 1991). Thus, we had to trust what HBC workers shared in terms of their experiences of work. Third, because of the limited number of studies conducted on HBC's health and well-being in the Canadian context, comparisons of our results were mainly based on literature looking at center-based workers.

Despite these limitations, this study meets the four criteria of trustworthiness in qualitative research including credibility, transferability, dependability (or reliability) and confirmability (internal consistency) (Gohier, 2004; Laperrière, 1998; Mucchielli 1996). The credibility of the research is based on the strength of the description of what the researcher saw and heard (Groulx, 1999). We reported all information shared by participants of this research including negative facts and experiences. Credibility is also related to the validation of data entry and the interpretation of the researcher (Laperrière, 1998; Mucchielli 1996). Verification of data from participants enhances the credibility of data and results (Blais and Martineau, 2006). By reformulating the ideas and thoughts of the participants during the semi-structured individual interviews, we were able to verify our interpretations and clarify ambiguous information. Moreover, as the interviews were recorded and transcribed, we had accessed all the information exchanged with the participants as much as needed. Finally, we used blind coding to validate our analytical categories with those

developed by a research peer.

The transferability of results applies in qualitative research, instead of generalizability, suggest that the findings have applicability in other similar contexts (Gohier, 2004). The ability of qualitative research conclusions to apply in other contexts require three conditions: 1) the composition of the sample and its representativeness of the characteristics of the target population and events, 2) the description of the study context to be able to determine similarities with other contexts in which we want to transfer the findings, and 3) the level of abstraction of the data analysis that makes understandable social and human processes (Mukamurera, Lacourse & Couturier, 2006). To ensure the transferability of the qualitative results of our work, we described the profile of all participants (e.g. age, level of education, gender, etc.), the data collection context, and reported all information shared about their work to allow the reader to establish similarities to other contexts. We also used the principle of saturation of data analysis categories to estimate the end of the data analysis and ensure the representativeness of the sample. In research, total saturation is never achieved due to the uniqueness of each situation, person, or group (Corbin & Strauss, 2008; Wray et. al. 2007). Although the limited number of participants (Gatineau = 7; Ottawa = 4; Total = 11), we believe that there are good chances that the qualitative results of this research may be transferable to similar contexts to this research for two reasons. First, the duration of interviews lasted between 30 and 90 minutes depending on the participants which reflect the richness of what HBC workers shared. A one-hour length of an interview is a good indicator of the depth of analyses especially when the number of participants is smaller or when recruitment of participants is difficult (O'Reilly & Parker, 2012). Second, the number of participants in our research is in line with the inclusion of five to twenty-five interviews in qualitative research suggested by (Creswell, 1998) to include. Finally, our qualitative work did not intend to compare

provinces but mainly to draw an overview of their daily work and job-related factors perceived to affect their health but they shared other types factors related to their socioeconomic conditions and social networks that may impact their health.

The dependability refers to the independence of data analysis from the ideologies of the researcher (Mucchielli 1996; Laperrière, 1998). As we used blind coding, founded our data analysis exclusively on what participants shared, and obtained a consistent result with the research objectives, independence of data analysis was ensured.

Finally, confirmability represents the degree of neutrality to which the findings are shaped by the respondents and not accidental or systematic variations (e.g. time of the interviews), researcher bias (e.g. mood), motivation, or interest (Mucchielli 1996; Laperrière, 1998). We interviewed the participants as soon as possible in accordance with their availability, we asked the same questions to all participants and we tried to respect the order of questions from one participant to another as much as possible to ensure the research confirmability.

Areas for future research

Since we conducted our study in one city in Quebec and in Ontario due to the limited resources, a future research may consider examining the HBC workers' work in other cities of these provinces to see if there are similarities in term of the content and context of HBC work and its implications for health. Future studies may use quantitative methods (e.g. surveys) on a larger sample to conduct job analysis between provinces, between immigrants versus Canadians born and identify similarities and differences.

CONCLUSION

HBC sector is a women concentrated job and pay inequalities persist compared to the center-based childcare sector. Workers are paid on a per child basis but their level of education, experience or input into care is not taken into consideration. In addition, HBC workers' health and well-being are mainly affected by a higher number of job context factors rather than job content factors. HBC workers job differ from center-based childcare educators. Although they perform business administration tasks and more housekeeping and domestic work than educators in the center-based childcare, the work of HBC workers had many advantages such as being their own boss, working while taking care of their own family, etc. Finally, many factors related to their work content and context have been perceived by HBC workers to affect their health and well-being.

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CONCLUSION

The purpose of this thesis was to examine HBC workers' health status (perceived health and chronic conditions) informed by broader social determinants of health in the Canadian regulated home-based childcare sector in the provinces where they are most concentrated - Quebec and Ontario. This thesis uses a population health approach, which enables an examination of health and health inequities among HBC workers by examining a broad range of factors and conditions that have a strong influence on health such as behaviours and lifestyles, social conditions and medical care services. Both quantitative and qualitative research methods were used to examine health status (perceived health-related quality of life and chronic health conditions) and broader social determinants of health yielding a total of four papers.

The first paper entitled *Assessment of Perceived Health-related quality of Life of Home-Based Childcare Workers Using the SF-36v2 Questionnaire* employed a quantitative survey methodology to assess the perceived health-related quality of life of these workers. It identified health differences between provinces and health differences using the international SF-36 to identify health differences with a national sample of Canadian women. The second paper entitled *Chronic Health Conditions Among Home-Based Childcare Workers and Associations with Social Determinants of Health* also used a quantitative survey methodology to examine chronic health conditions among these workers and to identify associated social determinants of health. The third paper entitled *Overview of the Broader Social Determinants of Health of Regulated Home-Based Child Care workers* used a mixed methods approach drawing upon surveys and interviews to give an overview on additional social factors important for the health of HBC workers (e.g. personal factors, individual lifestyle, social and community networks, the structural factors, general socio-economic factors) and to identify additional provincial differences. The fourth paper entitled *The Job Requirements, Content, and Context of Regulated Home-Based Childcare Workers' and*

Potential Association with Health used a qualitative interview methodology to examine the HBC workers' job content, context, and requirements emphasizing the worker's perspective and to identify what factors of their daily work are believe to be associated with their health and well-being. In the next sections, the lessons learned, the strengths, the practical implications, the limitations of this thesis, and the recommendations for stakeholder, decision makers, and future studies are addressed.

LESSONS LEARNED ACROSS STUDIES

In Canada, there is a lack of data on the childcare workforce, especially in the home-based sector, and the existing studies cover only a limited number of topics (Beach, Bertrand & Cleveland, 1998; Beach & Costgliola, 2005; Halfon, 2014). Many Studies on early childcare workers in Canada have often excluded the HBC workers occupational group or have grouped them with other types of early childcare workers in their analyses, which make it difficult to tease out the particularities of this specific subgroup of workers. The available work on HBC workers in Canada examines mainly the regulations applicable to them and none has documented their health. This thesis examined perceived health-related quality of life, chronic conditions, and broader social determinants of health to address these knowledge gaps. From the four papers drafted, a number of cross-cutting lessons learned emerged that are highlighted in this section.

LESSON 1: HBC workers are a uniquely burdened demographic

The existing literature support that HBC work is an occupation socially dominated by women since caregiving is recognized as a uniquely feminine activity (Beach, Beach, Bertrand, Forer, Michal & Tougas, 2004). Caregiving work is critical to improve the social conditions and economic reproduction of a society (Brodolini, 2011). Because caregiving remains unrecognized

and undervalued, women's rights are often undermined, their opportunities and choices are limited, their pay wages are low, and public policies rarely intend to improve their working conditions as carers (Brodolini, 2011; Esplen, 2009). As such, the care work largely provided by women can be seen as being taken for granted by governments and individuals (Brodolini, 2011; Esplen, 2009). The low social and monetary recognition of female carers is a heavy burden for women (Brodolini, 2011). Our findings revealed that the HBC occupation attracts a particular group of women - who are aged over 30 years old, mainly mothers of preschool or minor children, who had completed at least a college level of education in fields other than early childcare education, and were Canadian-born homeowners.

- **Women over 30 years old**

Most women who choose to do HBC work are over age 30 years old (95.3%) according to our findings. In contrast to Beach, Bertrand, Forer, Michal and Tougas (2004) reporting that in 2001, 38% of HBC workers were under the age of 35 years old, our work showed that in 2014, only 17% were under that age and 21% were over 50 years old. This shows that the regulated HBC sector in the provinces studied may be dealing with aging among its workers. In less than 15 years, the number of HBC workers under 35 years old decreased by more than 50%. Our work showed also that there were more older workers in Ontario than in Quebec. Indeed, about 20% of HBC workers in Quebec and 70% in Ontario were over the age of 40. Aging among HBC workers may be related to women being older when they have their own children and deciding to work from home while taking care of their children. In fact, the HBC sector has been found as having a higher proportion of workers over the age of 35 than the center-based childcare sector (Beach, Bertrand, Forer, Michal and Tougas, 2004).

- **Mothers**

A majority of these workers (69%) were mothers of at least one minor child. This finding is in line with what Doherty, Lero, Tougas, LaGrange & Goelman (2000) reported on early childcare workers in Canada. Our findings show that there are three main reasons why HBC workers choose this occupation: 1) the possibility of working while staying at home with their young children 2) an interest in childcare work; and 3) a wish of being their own boss to ensure more flexibility and availability for their families. Being a mother has an important impact on the participation in the labour market because women continue to bear a disproportionate part of the childcare and family responsibilities (Brodolini, 2011). An unequal share of domestic and family-related responsibilities over the lifecycle between parents with preschool children weakens the women's attachment to the labour market and strengthens their economic and social exclusion (Brodolini, 2011). The preponderance of mothers in these positions intending to work for several years until their own children are grown fosters a temporary nature of this work making them less likely to organize for their collective rights, especially in Ontario where the majority (88%) responded that they intended to leave the profession. In contrast to Ontario, those in Quebec are provincially unionized and most of them (89%) reported that they intended to continue working as a HBC worker, according to our findings.

- **Women with postsecondary level of education**

Although there are no minimal postsecondary credentials required to access the HBC occupation in the regulated sector (Flanagan, Beach, Michal & Cormier; 2009), our work showed that most HBC workers held a college (44%) or a university level (19%) of education. This may result in underutilisation of HBC workers talents especially when they hold postsecondary degrees in fields that are in demand on the job market. It is therefore in our interest to ensure that HBC

workers trained in other fields have the option to access new occupations in the labour market, if they are interested, once their preschool children could attend school.

The percentage of workers in the HBC sector who had completed a postsecondary education was greater in our study possibly suggesting an increase over the years. Indeed, only 38% of these workers in Canada held a postsecondary certificate or a diploma in 2001 (Beach, Bertrand, Forer, Michal & Tougas. 2004) compared to 62% in 2014 according to our work, although this difference may be attributable to study differences (e.g. national vs. 2 provinces). This rate is comparable to the overall Canadian female population where at least 60% of women had completed a postsecondary degree (Statistics Canada, 2006). Our work showed that HBC workers who had a college or a university degree in education or in early child education were not always able to apply educational theories on children because of the high number of tasks to be done at once in the HBC, and the varying needs of each child within a multi-age group.

- **Canadian-born women who are homeowners**

A large proportion of HBC workers are Canadian born (89%). Beach, Bertrand, Forer, Michal and Tougas (2004) support that around 20% of early childhood workers in Canada in different sectors (e.g. childcare centers, kindergartens, etc.) are immigrants, while in our work we had a lower percentage of immigrants (11%). This is another important distinction of home based in contrast to centre-based child care workers. The disproportionately larger proportion of Canadian born workers in this sector is likely due to the home-based nature of the work and the necessity to own one's own home (and a home of sufficient size) in most cases. That is, working as a HBC requires often access to a single house, semi-detached, or townhouse rather than a condominium or an apartment. Indeed, during the screening process with the childcare agencies, workers who intend to open a HBC are required to provide the proof of acceptance of their

neighbours and the homeowner to open a HBC, in the case that they live in an apartment or are tenants. Because immigrants have more employment challenges than Canadian born do (Fuller-Thomson, Noack & George, 2011), a limited number of them may have access to own a single, semi-detached or townhouse. Our work showed that 91.4% of HBC workers were homeowners and 96.5% were living in a single house, semi-detached or townhouse.

LESSON 2: The daily work of HBC workers is more challenging than previously detailed

The National Occupational Classification in Canada (HRSDC & Statistics Canada, 2011) defines HBC work as care provided to children on an ongoing or short-term basis. As an independent childcare agency contractor, individually licensed worker or self-employed worker, HBC workers work in their own homes or in the children's homes, where they may also reside (HRSDC & Statistics Canada, 2011). These regulated and unregulated workers contribute to the well-being, and the physical and social development of children. In addition, they assist parents with childcare and household duties. The National Occupational Classification delimits their tasks:

TABLE 1: Home-Based Childcare Workers Tasks

- Supervise and care for children in employer's or own residence
- Bathe, dress and feed children
- Prepare formulas and change diapers for infants
- Plan, prepare and serve meals for children and may perform other housekeeping duties
- Oversee children's activities, such as meals and rest periods, as instructed by employer
- Maintain a safe and healthy environment in the home
- Teach children personal hygiene
- Contribute to the emotional well-being of children and support their social development
- Discipline children according to the methods requested by the parents
- Organize and participate in activities such as games, crafts, reading and outings
- Take children to and from school and appointments
- May be required to keep records of daily activities and health information regarding each child.

Source: (HRSDC & Statistics Canada, 2011)

Contrary to the last definition, our work showed that the regulated HBC workers work at their own homes, are not responsible for bathing children under their care, nor taking them to and from school and appointments. We suspect that unregulated HBC workers are those who perform these tasks. There is a need to have the National Occupational Classification changed to capture regulated HBC workers separately from those unregulated. In their daily work, regulated HBC workers spend a considerable amount of their daily time working with young children under age 5. By contrast to workers in center-based childcare services who work 35-40 hours weekly, receive the help of co-workers, work with a group of children of the same age, and perform mainly educational tasks (no cooking, cleaning, etc.). Our work showed that HBC workers work alone over 60 hours weekly, with a multi-age group of children mainly aged between 6 months and 3 years and perform a cluster of six duties. Contrary to The National Occupational Classification (HRSDC & Statistics Canada, 2011), our work identified business administration and self-development as other duties of HBC workers (Table 2).

TABLE 2: Duties of Home-Based Childcare Workers in The Canadian Context

- 1. Physical care:** HBC workers provide assistance for children hygiene (e.g. diapers change), dressing, feeding, position changes, indoor and outdoor physical activities.
- 2. Emotional care:** HBC workers show affectation and interact verbally continuously with children under their care.
- 3. Special care:** HBC workers provide first aid care and manage disease among children when necessary.
- 4. Housekeeping and domestic work:** HBC workers prepare meals, clean and sterilize their work environment (e.g. toys, tables, etc.)
- 5. Business administration:** HBC workers complete administrative forms (e.g. children attendance, document daily activities of each child, etc.), plan, organize, direct and control their activities (e.g. educational activities, bookkeeping, grocery, communications, etc.)
- 6. Self-development:** HBC workers pursue professional training to update their knowledge if required by their province. For example, workers in Quebec are required to register for a six-hour training yearly to keep their license.

Source: (HRSDC & Statistics Canada, 2011)

Finally, working alone without co-workers or helpers remains one of the main challenges for HBC workers because they can't have break periods during their working hours and must stay continuously alert in the presence of young children.

LESSON 3: HBC workers' income is below the national wage average for women

Our findings confirm what was previously known in terms of HBC workers' income below the national wage average. As they are deemed as an independent childcare agency contractor, HBC workers' income in Quebec and in Ontario depends exclusively on the number of children under their care and the number of days worked. The number of hours worked, the years of work, the level of education, and the operating costs of the HBC are not taken into account to determine their income. They spend at least 40% of their gross annual income to cover their HBC operating expenses (e.g. food, hygiene products, educational materials, etc.) and taxes which leaves them with an annual personal income varying between \$21,000 and \$25,000, when all spots have been filled for the whole year and they worked five days per week during the year. Our work showed no provincial significant difference in terms of their annual gross incomes but HBC workers in Quebec pay more taxes than those working in Ontario. Indeed, those in Quebec pay about 31% of their gross income in taxes (provincial tax of 16% and federal tax 15%) compared to 20.1% for those in Ontario (provincial tax of 5.05% + federal tax 15%) (Canada Revenue Agency, 2016). Beach, Bertrand, Forer, Michal & Tougas (2004) underlined that HBC workers gross annual income was on average around \$24,000 or less while Beach & Costgliola (2005) have estimated their annual net earnings to about \$15,000 on average. Our work showed that our sample had an increased annual net income by approximately 40% (\$15,000 in 2005 vs. \$21,000 in 2014). Despite the previous fact, their income is still under the national wage average of \$32,100 for Canadian women (Statistics Canada, 2013).

LESSON 4: HBC workers, particularly in Quebec, report poor perceived mental health

No previous study has examined HBC workers' perceived health-related quality of life in the Canadian context to our knowledge. The first study of this thesis examined the perceived health-related quality of life of these workers. Our work showed that HBC workers in Quebec reported positive perceived overall physical health and poor perceived overall mental health. Indeed, they scored below the SF-36 norm of 50 for good health-related quality of life in the social functioning and role emotional domains for mental health suggesting that they deal with problems with work or other daily activities as a result of emotional problems. Study 1 did not examine explanations of the previous fact but our study 3 revealed that a proportion of HBC workers in Quebec reported poor relationships with their supervisors (11%) and parents of children under their care (35%). In comparison, those in Ontario reported positive overall physical and overall mental health as they scored over the SF-36 norm of 50 for good health in all domains.

Provincial comparison of perceived health-related quality of life revealed that HBC workers in Ontario rated their physical and mental health as excellent, had less problems with work or other daily activities, felt less physical pain, less fatigue, less nervousness, and less depression than what their counterparts reported in Quebec. Moreover, the significant provincial difference was mainly related to the overall mental health-related quality of life rather than the overall physical health. Indeed, HBC workers in Quebec perceived poorly their overall mental health compared to their counterparts in Ontario.

Compared to Canadian women, HBC workers (Quebec and Ontario grouped) were experiencing more pain, more fatigue, more interference of health problems with social activities, and more psychosocial distress. Many factors might explain this result but we believe that the presence of chronic health conditions among nearly half of HBC workers (Study 2), the fact they

work more than 60 hours per week (Study 3), perform a wide number and range of tasks at once and the lack of breaks as they work alone⁸ (Study 4), are factors of interest.

Our studies 1 and 4 allowed us to address several factors associated with HBC workers perceptions of their health (Table 3). The HBC workers' perceptions of their health-related quality of life depend significantly on the province where they live and work, their age, and level of education rather than their marital status, level of annual income, and status in Canada according to our study 1. Those working in Ontario reported a better perceived mental and physical health-related quality of life as compared to those working in Quebec. HBC providers of older age groups (40 years old and up) perceived their health in a more positive fashion than those of younger groups (less than 40 years old). HBC workers with a postsecondary level of education reported better health-related quality of life outcomes than those with a lower level of education. Although age groups, level of education, and the province of work were relevant to SF-36 perceived health domains, they explained a very low percentage of the variance in the Data (max 8.9%). Thus, there is a need to

TABLE 3: Factors perceived to be associated with poor perceived health

Individual factors

- Age less than 40 years old

Socioeconomics factors

- Working in Quebec
- Less than a postsecondary level of education
- Lack of benefits

Social and community networks factors

- Poor relationships with supervisors
- Poor relationships with children
- Poor relationships with parents of children

Working conditions factors

- High physical and mental efforts
- Absence of contact with other adults when working
- Lack of help during working hours
- Difficulty of filling available spots
- Exposition to noise and bad odors
- Interference of work with personal and family life

explore other factors that might explain the remaining variance in perceived health-related quality

⁸ HBC workers in Quebec may work with an assistant if they have 9 children but in our qualitative study, our sample was composed of HBC workers working with no more than 6 children.

of life among HBC workers. These may include lifestyle factors (e.g. physical activity, fruit and vegetable consumption, etc.). Moreover, other perceived factors reported to be affecting their health in our study 4 were the lack of benefits, the poor relationships with parents and supervisors, high job demands, work isolation, the lack of help during working hours, the difficulty of filling available spots which impacts their income, the work environment, and the interference of work with personal and family life according to our study 4. Finally, our work revealed that most factors associated with poor perceived health were related to the challenges of their daily work (social and community networks factors & working conditions factors).

LESSON 5: A considerable proportion of HBC workers are dealing with chronic health conditions

No previous study has examined HBC workers' chronic health conditions in the Canadian context to our knowledge (Table 4). Our work showed that a non-negligible proportion of HBC workers (47%) are dealing with at least one chronic health condition diagnosed by a health professional. Chronic back pain,

TABLE 4: Main Facts on Chronic Health Conditions Among Home-Based Childcare Workers

- **47%** of HBC workers had at least one chronic condition
- **22%** of HBC workers reported being diagnosed with chronic back pain
- **48%** of HBC workers having at least one chronic condition reported being diagnosed with chronic back pain
- **18%** of HBC workers having a least one chronic condition in Ontario against **4%** in Quebec were dealing with a diagnosed anxiety disorder

asthma, hypertension, skin diseases, and arthritis are the five main chronic health conditions among HBC workers. Thus, the main chronic health issues affecting these workers differ from those affecting the general Canadian population. Indeed, cancer, diabetes, cardiovascular diseases and chronic respiratory diseases are the four main diseases affecting the Canadian population aged over

20 years (PHAC, 2015). It is possible that the demanding working conditions of HBC workers may increase the risks of developing chronic health conditions, such as chronic back pain (e.g. demanding physical work for more than 60 hours per week), hypertension (e.g. demanding physical and mental work) and skin diseases (e.g. housekeeping and domestic work for about 4h on a daily basis).

Chronic mental health issues diagnosed by a health professional such as anxiety and mood chronic disorders were more prevalent among workers in Ontario (10%) than in Quebec (3%). A surprising finding from our study 3 was that despite the prevalence of diagnosed mental health conditions in Ontario, workers in this province had positive perceptions of their mental health-related quality of life as outlined in our study 1, while those in Quebec reported poor perceived mental health summary despite the low percentage of them diagnosed with a mental health condition. A possible explanation we suspect is that poor relationships with parents and supervisor reported by HBC workers might be the culprit as well as the potential drugs consumption among HBC workers in Ontario for their diagnosed mental health conditions might help them feel better and this is why they positively perceived their mental health. A future study could examine in depth other reasons explaining why the results from diagnosed (SF-36) and self-reported mental health appears to be contradictory findings.

Finally, the odds ratios of having chronic health conditions among HBC workers were significantly higher for those over age of 40, for those who were physically inactive, reported poor relationships with their supervisors or parents of children, and had been working for five years or more (Figure 1). Thus, their work seems to play a key role in their chronic health.



Figure 1: Broader Social Determinants of Health Associated With Chronic Health Conditions Among Home-Based Childcare Workers

LESSON 6: There are a number of key provincial differences in the social determinants of health of HBC workers

No previous study has examined HBC workers' determinants of health in the Canadian context to our knowledge. Our work identified several statistically significant provincial differences in social determinants of health (Figure 2). These were categorized into individual, lifestyle, social and community networks, living and working conditions and socioeconomic factors as described in the Dahlgren & Whitehead model (1991). HBC workers in Quebec were younger (less than 40 years old) than those in Ontario. They were married (55%) or in common-law unions (31%) while those in Ontario were mainly single (78%). They held a postsecondary education in a lower proportion than those in Ontario (60% vs. 81%). In addition, HBC workers in Quebec tended to sleep less than seven hours per night, to avoid tobacco, and to consult more with health professionals particularly nurses. Moreover, they work with a higher number of children (6 vs. 4), of boys (3 vs. 2) and girls (3 vs. 2) in the group, and a lower number of babies (1 vs. 2) compared to those in Ontario.

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Figure 2: Social Determinants of Health Differences Among Home-Based Childcare Workers in Quebec and in Ontario

Although our work did not intend to examine provincial differences, our studies 3 and 4 revealed many potential facts that explain the provincial differences in social and community network factors, in lifestyle factors (e.g. health care services usage), as well as in the living and working condition factors identified in Figure 2.

The provincial differences in social and community networks factors (e.g. relationships with parents and supervisors, and help received) could be explained by the family composition of HBC workers and misunderstandings or conflicts with parents and supervisors. Indeed, because HBC workers in Quebec were mainly married or in common-law unions, they likely received more help, more emotional support, and more financial support from their partner compared to those in Ontario who were single mothers.

The differences in health care services usage pertaining to the lifestyle category of determinants of health factors may be explained by the provincial HBC regulations in place. First, because HBC workers in Quebec are provincially unionized they benefit from a health insurance covering medication, family doctor services, and other health professional services contrary to workers in Ontario who have no private health insurance with their agencies., This is one possible explanation for why workers in Quebec used more health services than their counterparts in Ontario.

Moreover, some of the differences in the living and working conditions can also be explained by the provincial HBC regulations. First, the number of children under care was different between the two provinces for two reasons. On one hand, in the time when we collected our data (2014), HBC workers in Ontario and in Quebec were allowed to care for a maximum of five and six children respectively. On the other hand, the number of the workers' own children counted in the ratio (e.g. children under 9 years old in Quebec and 10 years old in Ontario) and this would have reduced the maximum number of children permissible. In August 2015, the government of Ontario introduced new regulations allowing HBC workers to care for up to six children but they have to include their own children under age of 13 in the ratio (Government of Ontario, 2014). Second, the type of house occupied and occupant status differs between provinces. As explained previously, HBC workers who are tenants have to provide proof of acceptance of their neighbours

and homeowners in the screening process of opening a HBC. Thus, individuals who are homeowners of single, semi-detached or townhouse are more susceptible to open a HBC.

SUMMARY OF FINDINGS

The following table summarizes our findings and shows the knowledge gaps filled:

TABLE 5: Summary of General Findings

Knowledge gaps	General findings
No previous study has described in-depth the profile of HBC workers.	<p>HBC occupation attracts mainly those:</p> <ul style="list-style-type: none"> - who are aged over 30 years old, - who are mothers of preschool or minor children, - who had completed at least a college level of education in fields other than early childcare education - who are Canadian-born - who are homeowners.
No previous study has examined the HBC workers' perceived health-related quality of life	<ul style="list-style-type: none"> - HBC workers in Quebec reported a positive perceived overall physical health and a poor perceived overall mental health-related quality of life - HBC workers in Ontario reported a positive perceived overall physical health and overall mental health - HBC workers experience more pain, more fatigue, more interference of health problems with social activities, and more psychosocial distress compared to Canadian women - Age, marital status, and the province of work are highly associated with their perceived health-related quality of life
No previous study has examined the HBC workers' chronic health conditions	<ul style="list-style-type: none"> - One out two HBC workers have a chronic health condition - Chronic back pain is the main chronic conditions - The HBC workers' determinants of chronic health conditions are: being aged over 40 years old, being inactive, entertaining poor relationships with supervisors and parents of children, accumulating more that five years of work, and using one floor for work instead of two.
No previous study has examined the HBC workers' determinants of health	<ul style="list-style-type: none"> - Most HBC workers in Quebec were under age of 40 while most of those in Ontario were mainly over 40 years old - Most HBC workers in Quebec sleep at least seven hours while most of those in Ontario tend to sleep less than seven hours - Most HBC workers in Ontario smoke compared to a minority in Quebec - The prevalence of smoking among HBC workers in Ontario is seven times higher than the national prevalence rate (96% vs. 14%) - Most HBC workers in Quebec and in Ontario do a preventive health screening at least once a year - HBC workers in Quebec receive more help in daily life than their counterparts in Ontario - HBC workers in Quebec tend to experience more poor relationships with their supervisors than those in Ontario - HBC workers in Quebec tend to experience more poor relationships with parents of children than those in Ontario. - HBC workers in Quebec work more hours weekly than those in Ontario - HBC workers in Quebec work with a higher number of children than those in Ontario

	<ul style="list-style-type: none"> - HBC workers in Quebec work with fewer babies (less than 18 months) than those in Ontario - Most HBC workers in Quebec had done this kind of work for at least 5 years while those in Ontario had accumulated less than one year. - Most of HBC workers in Quebec use both of the basement and the ground floor for their work while those in Ontario use mainly the ground floor. - HBC workers in Quebec received less help at work than those in Ontario. - A lower proportion of HBC in Quebec were very satisfied with their work compared to their counterparts in Ontario. - A higher proportion of HBC in Quebec were homeowners compared to their counterparts in Ontario. - HBC workers in Quebec tend to occupy a single house while those in Ontario tend to occupy a single or a townhouse. - HBC workers in Quebec were married while those in Ontario were mainly single mothers. - A lower proportion of HBC workers in Quebec tends to complete postsecondary education than those in Ontario. - Most HBC workers in Quebec were unsatisfied with their income while most of those in Ontario were satisfied.
<p>No previous study has documented the HBC workers' content and context of work from their perspectives.</p>	<ul style="list-style-type: none"> -HBC workers perform a cluster of six duties, which are physical care, emotional care, special care, housekeeping and domestic work, business administration, and self-development. - HBC workers perceive several work-related factors to be increasing the risks for their health including high physical and mental efforts required, the absence of contact with other adults during working hours, the lack of external help during working hours, the difficulty filling available spots, the Interference with personal and family life of the worker, the low and precarious remuneration, the non-existent or incomplete benefits, and exposure to the noise and bad odors is perceived to may present potential risks for health

STRENGTHS

This study has a number of strengths, including:

- **Novelty and knowledge contribution**

No previous study has examined HBC workers' perceived health in the Canadian context to our knowledge. This thesis is one of the first studies contributing to the area of occupational health, specifically among the group of regulated HBC workers in the Canadian context. It examines their health (perceived health & chronic health conditions) and social determinants of health in particular. The literature on early childcare workers underlined that the tasks and duties of regulated early childcare workers depend on where they work (e.g. home-based childcare, childcare center or school kindergarten). Indeed, it was known prior our study that those working at home seem to have more tasks, less postsecondary education, and earn a lower annual income compared to educators working in the centers or in the kindergarten. The few existing studies on HBC workers in Canada have mainly focused on the quality of services offered by these and on the provincial differences in terms of regulations or working conditions (e.g. processes of licensing, ratio worker-children, number of working hours, etc.).

Findings from our work contribute not only to the health and work literature in general but also to population health knowledge. In terms of contributions to health and work literature in general, our studies shed light on the daily work of HBC workers and show that the working conditions factors such as the number of years of work and the usage of two different floors for work are associated with chronic health conditions among these workers. Moreover, our work underlined several work-related factors associated with poor health-related quality of life such as the absence of contact with other adults while working with children, the lack of help during

working hours, the high number and range of tasks to be done at once without a break, the high physical and mental efforts, the difficulty of filling available spots (e.g. emotional stress of revenue loss), interference of work with personal and family life, and the exposure to noise and bad odours.

Finally, in terms of contributions to population health knowledge, our work assessed the perceived health-related quality of life and chronic health conditions of the population of HBC workers in two Canadian provinces (Quebec and Ontario), identified a range of individual and collective factors associated with their health, and applied the resulting knowledge to recommend actions to improve the health and well-being of this population as presented below.

- **Use of the Dahlgren and Whitehead model as a theoretical framework**

The use of this model facilitated addressing the provincial profiles of HBC workers (e.g. age groups, level of education, etc.) and identifying the differences in terms of broader social determinants of health. In addition, it allowed the identification of what categories of factors are associated with chronic health conditions among HBC workers. All were relevant to chronic health conditions except the general socioeconomic factors (e.g. annual income). Finally, the social determinants of health approach enabled us to say more about HBC workers because it accounted for modifiable and non-modifiable health factors including individual, lifestyle, social community and networks, living and working conditions, and general socioeconomic factors that influence the health and well-being considering gender. The inclusion of gender as a cross-cutting determinant enabled additional insights and depth to our analysis.

- **Use of mixed methods methodologies**

The use of both quantitative and qualitative data to explain more fully the determinants of health of HBC workers by studying them from more than one standpoint and providing the motivation behind certain preferences or behaviours is another strength of our work. Indeed, the use of mixed methods ensured greater data validity, provided stronger evidence for conclusions through convergence and corroboration of findings, and brought more complete knowledge to inform theory and practice. Many provincial social determinants of health were identified using the quantitative methods and were explained in depth using qualitative data from semi-directed interviews.

- **Use of quantitative methodology**

The goal of quantitative studies is to gather numerical data, to provide summaries of data that support generalizations or to explain a particular phenomenon (Babbie, 2010; Muijs, 2010). To our knowledge, our work remains the largest study to address regulated HBC workers' health and social determinants of health in Canada with 695 regulated HBC workers having completed our anonymous online survey in two Canadian provinces. Our quantitative results on HBC workers' health status (chronic conditions and perceived health-related quality of life) and determinants of health provide precise information and are statistically generalizable to the population of regulated HBC workers in Quebec and Ontario studied for three reasons. First, the use of inclusion criteria to define the population has ensured obtaining a quality sample since only those exerting this occupation and who are regulated were included. Second, the use of random sampling strategy from the target population⁹ in both provinces gives an equal chance to each

⁹ Anglophone or Francophone man or women working as a regulated HBC worker affiliated with a childcare agency in Ontario or a coordinating office in Quebec and having access to Internet.

individual to be included in the study. Finally, because our provincial samples were large ($n > 30$), the use of standard tests of statistical inference was possible (e.g. t-test). In addition to the generalization of results to the population of HBC workers in Quebec and Ontario, another advantage of using quantitative methods is that the results are relatively independent of the researcher since the latter keeps a distance from participants and uses statistical techniques to interpret results.

- **Use of a qualitative methodology**

The goal of qualitative studies is to provide a rich contextualized understanding of the individual's experience through the intensive study of particular cases (Polit & Beck, 2010). Our work documented the daily tasks and duties as well as the factors related to the content and the context of work that may affect HBC's health. Our qualitative data met the four criteria of trustworthiness in qualitative research including credibility, transferability, dependability (or reliability) and confirmability (internal consistency) (Gohier, 2004; Laperrière, 1998; Mucchielli 1996). The justifications of how our qualitative work meets each of the previous criteria have been explained previously in detail in Manuscript 4.

POLICY AND PRACTICAL IMPLICATIONS

Based on the data collection, analysis, and conclusions, the following recommendations identify a framework to address the HBC workforce challenges in the regulated childcare sector:

- **Promote increased pay**

The pay of HBC workers in Quebec and in Ontario is different but in both cases, wages of this occupational group remain very low compared to other female-dominated work such as those working in the centre-based childcare services. Their work is undervalued and they finance all operational costs of their childcare services exclusively with their own pay. Considering that fair wages would have a powerful impact on HBC workers' retention, particularly in Ontario where most of them intend to leave their job, we highly recommend policymakers in the childcare sector in Quebec and Ontario to review the compensation model of these workers and to reflect the work value, the number of hours worked per week, the years of work, the level of education, and the operating costs of the childcare service. In addition, providing a subsidy to HBC workers to cover the operating costs of childcare service would alleviate their financial burden and increase their wages (e.g. costs related to food, educational materials, hygiene supplies, household costs associated with childcare, etc.).

- **Improve access to benefits**

Since 2011, although HBC workers in Quebec are considered self-employed, they acquired access to benefits including union representation, access to life insurance, health insurance (excluding dental, optometric, psychology services), maternity leave, sick leave, 17 days of annual vacation partially paid, 8 partially paid holidays, and free access to six hours of training per year. Despite these benefits, HBC workers' economic autonomy and well-being are threatened by the lack of access to pension plans and paid benefits including sick leave, parental, or family leave. Because payroll deductions were introduced after unionization and wages did not increase as much, HBC workers found themselves economically poorer. For their part, those in Ontario

reported having no benefits with their childcare agencies. Considering the previous facts, implementing benefits in Ontario as it is the case in Quebec and giving access to pension plans and paid benefits including sick leave or family leave may have a positive and powerful impact on the workers' recruitment and retention.

- **Enhance childcare agencies leadership practices and supports**

Good leadership practices contribute to promoting a supportive and less stressful work environment, in addition to reducing negative emotions, misunderstandings, and conflicts among workers (Ganster, 1995). Providing relevant support may have a positive impact on HBC workers' physical and mental health status especially that they are poorly paid and are isolated. Efforts to strengthen childcare agencies leadership practices to support HBC workers should include 1) providing home visitors (e.g. supervisors) with enhanced training to more fully support and coach HBC workers; 2) ensuring supportive childcare work environments by organizing recreational activities for HBC workers, to help them feel less lonely, meet new colleagues, and make new friends; and 3) providing HBC workers with timely information sessions on regulation changes affecting their work to decrease misunderstandings and conflicts with supervisors, particularly in Quebec. Such practices may reduce the risks on HBC workers' health and improve the quality of childcare services. For example, a HBC worker who knows how to deal with difficult parents will feel less emotional stress related to her work and will be inclined to provide better educational and care services to children rather than perceiving her job as a burden.

- **Encourage health promotion strategies**

Because chronic back pain is the main chronic health condition among HBC workers in Quebec and in Ontario, we recommend providing these workers with mandatory training on occupational health. In addition, we recommend promoting healthy lifestyles among these workers in a positive and supportive fashion to prevent long-term health illness especially in Ontario where 96% of HBC workers smoke (62.2% daily and 33.8% occasionally). The latter smoking rate exceeds the average rate of female smokers in Ontario of 13.3% in 2014 (Statistics Canada, 2015). Childcare stakeholders are encouraged to develop a Tobacco control strategy in concert with public health workers to encourage HBC workers to quit smoking.

- **Develop a retention strategy in Ontario**

Most HBC workers in Ontario (88%) intend to leave their occupation mainly because of the precarious remuneration, the demanding working conditions and the non-existent or incomplete benefits. This potential increase in the employees' turnover may create instability and negatively affect the quality of childcare services in Ontario. A retention strategy must mainly address the working conditions of HBC workers, the compensation model, the lack of benefits, and work satisfaction.

- **Promote universal childcare access**

The primary function of childcare settings is the provision of education to children and ensuring the equal access of women to the labour market (Friendly, 2009). In the case of HBC services, this thesis showed that the main job of HBC workers is to care for young children in their parents' absence and in the meantime provide educational services. Currently, the cost of childcare

differs from one to province to another and it results in access inequities between provinces. Indeed, Quebec offers subsidized childcare services to parents of all income levels while Ontario subsidizes the cost of childcare services for low-income families only. Quebec parents pay since April 2015 the basic contribution (7,57\$ charged per day, per child), and an additional contribution adjusted to their family income at the end of the fiscal year. That is the maximum cost of childcare varies between \$12 and \$22 per day. For their part, Ontario parents pay fully the childcare fees that usually vary between \$25 and \$120 per day unless they have a low income. Despite the subsidized childcare system in Quebec, low-income parents of this province pay more childcare fees than those in Ontario.

Considering that childcare services can further help to provide a fairer start in life for all children and contribute to social equity and integration, we highly recommend establishing a comparable universal childcare system between provinces. Access to childcare services is a social policy that counts as a population health intervention for many reasons (McLaren & McIntyre, 2013). First, childcare policies fall within provincial ministries other than health such as education, which aligns with the population health intersectoral approach. Second, the importance of early childhood high quality services for later health, social, psychological, cognitive and economic outcomes is well documented Third, childcare policy is relevant for the whole population as it benefits to children (well-being and healthy development), their parents and families (supporting child education and employment), and the society (exposure to diversity, development of tolerance, equity of universal interventions, interact with others). Having such system promotes childcare services quality broadly which is of key importance for child development in addition to sliding scale pay system for parents where lower income parents pay reduced fees that are comparable between provinces. High quality of childcare services depend on high adult to child

ratios, stable and consistent caregiving, small group sizes, workers well-trained in early childhood education, adequate health, safety and physical environment, decent wages and working conditions, and good workplace morale. This universal childcare system could be effective if sustained by effective fiscal and social measures.

LIMITATIONS

Our work had a number of limitations, including:

- **Exact rate of participation in the online survey unknown**

Because the lists of HBC workers are not public, the help of regional home-based childcare networks in Ontario and in Quebec was needed. A total of four regional childcare agencies in Ontario and all regional home-based childcare networks in Quebec (n = 13) accepted sending our bilingual letter of information to their HBC workers including the links to the anonymous online survey as well as a reminder two weeks after the initial invitation. The participation of HBC workers in this study was voluntary and the recruitment process was challenging for both of the quantitative and the qualitative studies.

For the quantitative study, 74 HBC workers in Ontario responded compared to 621 HBC workers in Quebec. Four potential barriers preventing HBC workers in Ontario from participating in this research were: 1) the inability of some HBC workers to understand one of Canada's official languages (English or French) as stated by several home childcare regional networks, 2) the inability to use technologies (e.g. iPad, computer) to complete the anonymous online survey, 3) the fear of sharing their experience or personal life, and 4) the refusal of participation by participants' spouses among some ethnic groups. For HBC workers in Quebec, no barrier to

recruitment has been reported to us by the regional home-based childcare networks. Indeed, their workers were more likely to work in one of Canada's official languages, to use technologies, and concerned with improving their work conditions. In addition, because they were in the process of negotiating their provincial second collective agreement when this study was conducted, many workers were very interested in sharing and explaining the challenges of their work. This may have impacted their self-reported responses to the survey.

The exact response rate is unknown since many regional home-based childcare networks avoided confirming the total number of invitations sent out and whether or not a reminder was sent two weeks after the initial invitation. We estimate that 3.3% ($f = n/N \approx 695/21000 = 3.3\%$) of the population of HBC workers in Quebec and in Ontario were included as participants.

Despite these limitations, our study provides useful information about remains to our knowledge the largest study in Canada examining the regulated HBC workers' health and determinants of health.

- **Limited number of participant in the qualitative study**

For the qualitative study, although the help of several early childcare organizations (e.g. regional home-based childcare networks, childcare agencies, etc.) and the incentive of \$20 for participation, only seven HBC workers from Gatineau and four from Ottawa had participated. A number (10) initially agreed but then withdrew from this study before interviews, mainly because of their need to take time for themselves after a long working day instead of doing interviews.

- **Risk of social desirability**

No study based on perceptions or self-reported data could avoid entirely the risk of social desirability, which is the tendency of an individual to distort self-reports in a favourable direction (Paulhus, 1991). The self-reported data related to most variables of the online survey and to semi-directed interviews of our work cannot be verified. Thus, we had to trust what HBC workers shared in terms of their experiences and personal information regarding their work, health, and determinants of health online and during face-to-face semi-directed interviews. According to the American Association for Public Opinion Research (2010), research participants tend to report higher socially undesirable attitudes and behaviours in self-reported web-based questionnaires than in face-to-face interviews. In line with the previous fact, Crutzen and Göritz (2010) had conducted a study on social desirability and self-reported health risk behaviours in web-based research and their findings showed no meaningful associations between social desirability and self-reported health risk behaviours in web-based research. The social distance and the impersonal nature of the internet when using a web-based research are factors that may eliminate some of the social desirability (Joinson, 2001; Newman, Des-Jarlais, Turner, Gribble, Cooley & Paone, 2002). For this research, the use of the anonymous online survey avoiding collecting personal information that allows identifying participants or contacting them later (e.g. names, phone number, email, and address), and our commitment to protect the identity of participants in the individual semi-directed interviews were incentives to share true information. In addition, the possibility of reformulating and clarifying the ideas, thoughts or contradictions expressed by participants during the individual semi-directed interviews helped reducing the risk of social desirability.

- **Limited generalizability of quantitative results**

In quantitative research, generalizability is a major criterion for assessing the quality of a study (Kerlinger & Lee, 2000). In statistics, sampling errors are always part of the process of data collection because 1) a sample was used instead of the whole population, 2) simple random sampling was used instead of stratified random sampling and 3) sample means were used to estimate the population means. Generalizability of our quantitative results to all HBC workers in Canada is not possible as our studies were conducted in only two provinces and the HBC work context may differ between provinces due to the provincial regulations shaping the childcare sector. The target population counts 20,695 HBC workers in Quebec (14,480) and in Ontario (5,855). Our results apply principally to the survey population studied instead of the target population. Indeed, the survey population comprised regulated HBC workers working in Quebec and in Ontario who are Anglophone or Francophone, have access to Internet, are Canadian mothers, aged over 30 years old, had completed at least a college level of education, and earn an annual gross income of \$40,000 or less.

- **No data on unregulated HBC workers**

With respect to the research objectives of this thesis, our work focused only on regulated HBC workers in the provinces of Quebec and Ontario. Thus, our four studies do not report any information on those working on their own without being licensed or affiliated with a childcare agency. Future studies could focus on unregulated HBC workers' health and well-being.

- **Lack of comparisons with other studies on HBC workers**

Because of the limited number of studies conducted on HBC's work, health and well-being in the Canadian context and internationally, we discussed our results mainly in the light of the literature looking at the center-based workers or what is known on health in general. For the four studies, no comparisons with the results of previous studies were possible to confirm or contradict their findings.

- **Lack of explanation of the provincial differences in broader social determinants of health**

Our study 3 did not explore the reasons explaining most of the differences in broader social determinants of health nor the interrelations between the different types of social determinants of health as we mainly intended to draw the HBC workers' profile and to identify provincial differences. Future studies could explore why might there be differences. For example, they could examine the following questions: Why HBC workers in Quebec are younger than workers in Ontario? Why HBC workers in Quebec tend to be married while those in Ontario tend to be single mothers? Why the HBC occupation tends to attract married mothers in Quebec and single mothers in Ontario? Why HBC workers in Quebec tend to sleep less than seven hours while those in Ontario tend to sleep more than seven hours? Why Tobacco use is more prevalent among HBC workers in Ontario than in Quebec? Why a higher proportion of HBC workers in Ontario completed their postsecondary education than in Quebec? Moreover, future studies could explain why HBC workers' marital status in Quebec and Tobacco use in Ontario don't match what would be expected. Indeed, our work showed that most HBC workers in Quebec were married while this province is known for having a high rate of common-law unions. We also found that 96% of HBC workers in

Ontario were smokers while the average rate of female smokers in Ontario of 13.3% in 2014 (Statistics Canada, 2015).

- **Examination of the association of only three categories of social determinants of health factors with the HBC workers' perceived health**

Our studies 1 and 4 did not explore other social determinants of health than the individual, socioeconomic and working conditions that could influence the perceived health. Indeed, in our first study we intended assessing HBC workers perceived health using the SF-36v2 and controlling for the individual and socioeconomic factors (e.g. age, province of work, level of education, annual income, marital status, and status in Canada), while the fourth study tried to identify the factors related to working conditions perceived to be associated with health. For example, future studies may examine how other social determinants such as lifestyle-related factors influence the HBC workers' perceived health such as the lifestyle-related factors for example.

- **No gender comparisons**

Despite the criteria for participation to this study of inviting men to participate, only female HBC workers participated. Thus, no gender comparisons were possible. We were nevertheless able to discuss the gendered implication of HBC workers as a nearly entire female health workforce in terms of the general devaluing of their caring labour.

RECOMMENDATIONS FOR FUTURE RESEARCH

Considering the fact that there is no regularly collected national data on the childcare workforce in Canada (Halfon, 2014) and much less on the HBC workers, research is needed to draw a national picture of occupational health among these workers. A national research agenda particularly on HBC workers' working conditions, compensation model and benefits would enable the childcare sector to better assess the related impacts on their health and on quality of services as well as the workers' retention. From our research experience, we highly encourage future researchers to allow enough time for data collection, to translate tools of data collection to other languages than French and English, and to use multiple data collection tools.

- **Allow enough time for data collection**

Considering the challenge in the recruitment of participants, a period of ten months was given to allow more HBC workers enrolment in our study. Indeed, the online survey was completed between April and October 2014 while interviews were conducted between November 2014 and January 2015. Thus, future studies should consider allowing enough time for any data collection.

- **Translate tools of data collection to other languages**

Canada is known as one of the rich multicultural countries in the world. A considerable number of immigrant women including those with a higher level of education may easily access the HBC occupation rather other occupations in their study fields. During our recruitment and data collection processes we learned that a non-negligible number of HBC workers in Ontario were immigrant with a low or absent knowledge of one of Canada official languages. Several home

childcare regional networks in Ontario stated that their HBC workers do work in their native language with children of their communities and home visitors were from their ethnic communities. Thus, it is essential that future studies translate into other languages than English and French any survey and data collection tools. One of the childcare agencies invited to be involved in our project suggested translating the survey to Chinese language.

- **Use multiple data collection tools**

Since many HBC workers are not familiar with the use of technologies (e.g. Ipad, computer) to complete online surveys, we highly recommend the use of multiple approaches to reach HBC workers by combining online surveys, paper surveys, phone surveys, and face-to-face surveys to increase the participation rate and capture more data on HBC workers.

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