

MELANOMA AND TANNING: A CASE STUDY OF SUN SAFETY KNOWLEDGE  
AND PRACTICES AMONG 15 CANADIAN UNIVERSITY WOMEN

RESEARCH THESIS

Submitted to the Faculty of Graduate Studies

KAINAT BASHIR

B.Sc., University of Toronto (St. George), 2009

School of Human Kinetics

University of Ottawa

2013

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## ACKNOWLEDGMENTS

First and foremost, I would like to thank my supervisor, Dr. Eileen O'Connor, for her unparalleled support, vision and encouragement throughout my graduate studies and especially this project. Since I first started working on my thesis, I have found her to always be accessible and inspiring. Her knowledge, insight and approachability have enabled me to be confident in my research. Her guidance has also enabled me to always be in the know of any opportunities to present and share my research. Since I started the program, I have been able to present my initial findings at an international conference in Barcelona that Professor O'Connor also attended to show her support. Her presence that day was reassuring and that along with her guidance enabled me to publish my first manuscript in the *International Journal of Interdisciplinary Civic and Political Studies*.

My sincerest gratitude also goes to Dr. Alex Dumas and Dr. Denise Moreau for their encouragement, insightful comments, and thought-provoking questions. Their input has been invaluable in shaping my research and analysis.

I would also like to thank my supervisors and colleagues at Parks Canada Agency, with whom I have been working with throughout most of my graduate studies. They have been incredibly understanding of my need to devote time to my thesis and have been very accommodating with my work schedule for the last two years.

Last but not least, I would like to thank my family and friends who have been with me every step of the way and whom I have recruited to either proofread my drafts or bounce ideas off. Their words of encouragement and support throughout my research project have been invaluable and I could not have done this without them.

## ABSTRACT

The purpose of this thesis was to investigate the knowledge and perceptions on the sun, risks of prolonged exposure, tanning and beauty of young Canadian women. Conversations with 15 young women from the University of Ottawa were tape-recorded, transcribed, and then analyzed using thematic analysis and theories on gender and beauty. The results were divided into two articles, the first exploring the perception and knowledge young Canadian women have about the sun, tanning and its risks. In the first article, the themes generated were (a) perceptions of benefits and risks of sun exposure; (b) outdoor versus Indoor tanning; (c) conformity; (d) conflicting and ambiguous messaging; (e) self risk and other's risk and; (f) no UV index awareness. The second article explores how the fifteen interviewees make sense of the sun safety messaging they are exposed to, and how they act on it. The themes identified were: (a) tanning as a social activity; (b) beauty; (c) base tanning; and (d) wearing SPF and reapplication. The overall conclusion to be drawn from this study is that while for the most part the group of women I interviewed was well informed when it came to sun safety and tanning, they still felt the pressure to tan from peers, society and the media. There were times when they shared that they were misinformed on the risks of engaging in harmful tanning practices. Further, the study contributed to finding that the vast majority of the participants admitted to not checking the UV index before going outdoors, either because they did not understand it or because they felt it would not make a difference to their daily practices and behaviours. This contradicted previous literature that emphasized on the connection Canadians often made with the environment and UV index. Impacts, implications, and future research directions are discussed in both articles.

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## **Chapter 1**

### **Introduction**

Melanoma is one of the fastest growing cancers worldwide. One third of all cancers diagnosed worldwide are skin cancers and the incidence rate of skin cancer in developed countries has risen dramatically in the last few decades (World Health Organization -WHO, 2013). From 1970 to 2009, the incidence of melanoma increased by 800 percent among young women and 400 percent among young men (Melanoma International Foundation, 2012). There are two types of skin cancer: non-melanoma skin cancers, which are more common and includes basal cell cancer and squamous cell cancer, and melanoma, which is less common but more likely to be fatal. According to the World Health Organization, between 2 and 3-million non-melanoma skin cancers and approximately 130,000 malignant melanomas are diagnosed each year (WHO, 2013). The WHO also estimates approximately 66,000 deaths annually from melanoma and other skin cancers (WHO, 2013).

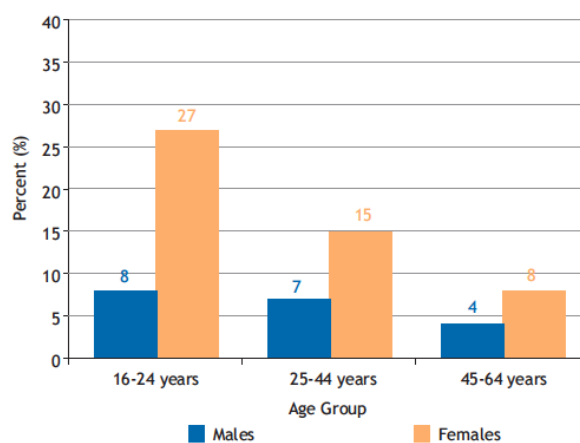
Non-melanoma (basal and squamous) skin cancer represents the most common of all cancers diagnosed worldwide and among Canadians (Lomas et al., 2012; Canadian Cancer Society's Steering Committee on Cancer Statistics). In 2012, an estimated 81,300 Canadians were diagnosed with non-melanoma cancer and 320 died from it (Canadian Cancer Society's Steering Committee on Cancer Statistics). Whereas melanoma was diagnosed in 5,800 Canadians, but an estimated 970 died from it (Canadian Cancer Society's Steering Committee on Cancer Statistics).

Melanoma has a wide age distribution. Although it is most prevalent in those over 80 years of age, it is also one of the more common cancers among adolescents and young adults (Krueger et al., 2010). In Canada, melanoma is the third most common cancer in females aged 15-29 (Krueger et al.). In Ontario alone, melanoma is the second most common cancer in young adults aged 15 to 34 (Media Backgrounder - Skin cancer facts, 2008). Melanoma

rates were also recorded higher for females than males between the ages of 15 and 49, (Krueger et al., 2010). Women aged 39 and under have a higher probability of developing melanoma than any other cancer except breast cancer (Melanoma International Foundation, 2012).

Sun exposure can be classified into two types - intense intermittent exposure and chronic occupational sun exposure. Studies show that different patterns of sun exposure appear to lead to different types of skin cancer. Intense intermittent exposure to the sun is a stronger risk factor for melanoma than chronic occupational sun exposure that outdoor labourers, farmers, golf pros, etc. are subjected to. Intermittent exposure is usually obtained during outdoor recreational activities, such as swimming or boating or while indoor or outdoor sun tanning. Intense intermittent sun exposure occurs when the sun exposure is periodic; for example, a number of closely timed indoor tanning sessions. Intermittent sun exposure is also strongly associated with basal cell carcinoma. Chronic sun exposure however, appears to be a stronger risk factor for squamous cell carcinoma.

Figure 6. Percentage of Canadian adults who used tanning equipment in the past 12 months, 2006



Data Source: Second National Sun Survey<sup>10</sup>

Within intense intermittent sun exposure, those who use indoor tanning beds before 35 are 75% more likely to develop melanoma. Indoor tanning has been linked with skin cancers including melanoma (the deadliest type of skin cancer), squamous cell carcinoma, and

cancers of the eye (ocular melanoma). Previous studies have found that young women are more likely to engage in both indoor and outdoor tanning and therefore take greater intense intermittent sun exposure risks (Boldeman et al., 2001; Yoo & Kim, 2012; Shoveller et al., 2003). Data from 2006 indicates that 27% of young Canadian women between 16-24 used tanning equipment vs. 8% of men as shown in the graph above (National Skin Cancer Prevention Committee, 2010). The WHO recommends that artificial tanning equipment not be used by minors under the age of 18, or by individuals who have one or more characteristics that increase their risk of skin cancer (WHO, 2010).

Although the increasing incidence of melanoma in Canada could be in part due to better detection, it more likely reflects greater recreational UV exposure from sun and artificial tanning (Kachuri et al., 2013). Tanning beds are a known carcinogen (WHO 2013). According to the Canadian Cancer Society, the most commonly cited finding to explain the higher incidence rate among this group of women is an elevated exposure to radiation from the sun or from artificial UV light through the use of tanning beds or sun lamps (Media Backgrounder - Skin cancer facts). The WHO (2010) also found that the use of sunbeds for tanning continues to increase in popularity, especially among young women.

A survey conducted on behalf of the Canadian Cancer Society in 2012 found that nearly one in 10 young people, primarily women between 12 and 17 in Ontario use tanning beds. Among young people in Grades 11 and 12, a total of 16% use tanning beds (Weeks, 2013) Similarly, data from a 2005 U.S. study revealed that 9% of adolescent girls aged 14-17 years had used tanning equipment (CCS Ontario Division). Girls aged 14–17 were seven times more likely to tan artificially than boys in the same age group. The use of tanning equipment increased with age from 14–17 years (CCS Ontario Division). Previous studies have also found that young women are more likely to engage in both indoor and outdoor

tanning and therefore take greater risks than young men to tan (Boldeman et al., 2001; Yoo & Kim, 2012; Shoveller et al., 2003).




Even though there is a lack of current information on the prevalence of indoor tanning among Canadians over 18 years old, data from 2004 is available for seven public health units in the Ontario which indicate that 7.2%-11.5% of adults age 18 and over report having used artificial tanning equipment in the past 12 months (Canadian Cancer Society Ontario Division, 2009). Among people aged 18 to 34 years, use of tanning equipment ranges from 13.2% to 23.6% (CCS Ontario Division).

Statistics from Canada and the US show that young women indoor tan frequently (Boldeman et al., 2001; Yoo & Kim, 2012; Shoveller et al., 2003). The WHO has proven that indoor tanning increases your risk of developing melanoma. Therefore, this study is situated within the growing problem of young women diagnosed with melanoma (WHO, 2010). Hence, my proposed research seeks to explore perceptions of tanning and sun safety among Canadian women 18-29 years old. The guiding objective is to investigate what the types of knowledge young Canadian women have with regard to tanning and sun safety, and how they act on this knowledge. More specifically, what do young Canadian women know about the sun, tanning and the impact of sun exposure? Where do they receive their sun safety information? Is it through peers, social media, weather reports, etc.? Do they feel they receive conflicting messages and if so, how do they make sense of these messages? Lastly, in what ways does their sun safety knowledge influence their sun safety practices or lack thereof? This research project aims to provide a better understanding of the increasing incidence rate of this disease in Canada through a qualitative analysis of fifteen (15) Canadian women's perceptions and practices related to the sun. A potential contribution would be to inform future studies that design more effective future skin/sun safety promotions campaigns targeted at young Canadian women.

**Understanding the Disease**

Skin cancer occurs when malignant cells are found in the outer layers of your skin, particularly to areas exposed to sunlight such as the face, especially the nose, neck, hands, and arms. There are several types of skin cancer, as outlined in chart 1.

**Chart 1: Types of Skin Cancer**

Type of Cancer		What is the Disease	Risk Factors	Treatment	Canadian Rates			
					Incidence (2012)	Projected Incidence (2013)	Mortality (2012)	Projected Mortality (2013)
Non-melanoma Skin Cancer	<b>Basal Cell Carcinoma</b> 	<ul style="list-style-type: none"> <li>- Most common type</li> <li>- Arises from the basal keratinocytes of the epidermis</li> <li>- Most common form is a pink, pearly papule or plaque on sun-exposed skin, usually face</li> </ul>	<ul style="list-style-type: none"> <li>- Fair complexion</li> <li>- Chronic sun exposure</li> <li>- Ionizing radiation</li> <li>- Risk increases when older than 40</li> <li>- Incidence also increasing in younger patients</li> </ul>	<ul style="list-style-type: none"> <li>- Topical creams</li> <li>- PDT</li> <li>- ED&amp;C</li> <li>- Mohs surgery</li> <li>- Excision</li> <li>- XRT</li> </ul>	81,300	81,700	320	420
	<b>Squamous Cell</b> 	<ul style="list-style-type: none"> <li>- 2<sup>nd</sup> most common type</li> <li>- Arises from the epidermal keratinocytes</li> <li>- Typically occurs as a scaly papule, plaque or nodule on sun-exposed skin</li> <li>- Can grow rapidly and has an increased risk of metastasis, especially in chronically immunosuppressed patients such as organ transplant recipients</li> </ul>	<ul style="list-style-type: none"> <li>- Fair complexion</li> <li>- Chronic sun exposure</li> <li>- Ionizing radiation</li> <li>- Risk increases when older than 40</li> <li>- Cigarette smoking</li> <li>- Incidence also increasing in younger patients</li> </ul>	<ul style="list-style-type: none"> <li>- Topical creams</li> <li>- PDT</li> <li>- ED&amp;C</li> <li>- Mohs surgery</li> <li>- Excision</li> <li>- XRT</li> </ul>				
<b>Malignant Melanoma</b> 		<ul style="list-style-type: none"> <li>- 3<sup>rd</sup> most common type</li> <li>- Leading cause of skin-cancer-related deaths</li> <li>- Arises most commonly from the melanocytes that are in the basal layer of the epidermis, hair follicles, sebaceous glands and other adnexal structures</li> <li>- Often forms as an irregularly bordered, pigmented macule</li> </ul>	<ul style="list-style-type: none"> <li>- Fair, sun-sensitive skin that burns rather than tans; freckles;</li> <li>- Red or blond hair</li> <li>- Have many moles (more than 50) or moles which are large or unusual in colour or shape</li> <li>- Hereditary or if they have suffered from a history of severe sunburns</li> <li>- Excessive exposure to UV from the sun or sunbeds</li> </ul>	<ul style="list-style-type: none"> <li>- Standard is surgical excision</li> </ul>	5,800	6,000	970	1,050

Basal cell carcinoma is the most common form of skin cancer in Canada (Hendi & Martinez, 2011). Despite the fact that it is the least dangerous form of skin cancer, it needs to be detected and treated quickly since it continues to grow, invade and destroy surrounding skin tissue causing disfigurement (Hendi & Martinez, 2011). According to studies, fair-skinned people with blond or red hair who are susceptible to burns when out in the sun are at most risk (Hendi & Martinez, 2011). The likelihood increases, as people get older, especially over the age of 50. However incidence rate is increasing among teenagers and people in their early 20s more so than it was in the mid 1970s (Christenson et al., 2005). In fact, the incidence rate among teenage girls in the United States tripled between 1973-2004 (Purdue et al., 2008). This is largely attributed to increased public awareness, surveillance, detection and treatment of skin cancer, as well as widespread use of the tanning beds among younger women (Christenson et al., 2005).

Squamous cell skin cancer is the second most common form of skin cancer in Canada (Hendi & Martinez, 2011). This form of skin cancer mainly affects those who underwent solid tissue transplantations such as kidney, liver or heart (Hendi & Martinez, 2011). It must be treated to prevent the lesion from growing in size and damaging surrounding tissue, and spreading to other areas of the body (Hendi & Martinez, 2011).

Lastly, malignant melanoma is a less common but highly dangerous form of skin cancer (Hendi & Martinez, 2011). If discovered at an early stage, melanoma has one of the highest cure rates of all cancers at more than 90 per cent (Hendi & Martinez, 2011). However, if left untreated, melanoma invades into the lymphs. If it reaches the blood stream or the lymphatic system, it can spread to other parts of the body and often cause death (Hendi & Martinez, 2011).

The risk of developing melanoma is higher within certain groups of the population (Hendi & Martinez, 2011; WHO, 2006). One is more likely to develop melanoma if they

have fair, sun-sensitive skin that burns rather than tans; freckles; red or blond hair (Hendi & Martinez, 2011; WHO, 2006). People who have many moles (more than 50) or moles that are large or unusual in colour or shape are also more likely to develop melanoma (Hendi & Martinez, 2011; WHO, 2006). Additional risk factors are if someone in their family has been diagnosed with melanoma or if they have suffered repeated severe sunburns in the past (Hendi & Martinez, 2011; WHO, 2006). Excessive exposure to UV from the sun or sunbeds is also a cause of melanoma and one that is preventable (Hendi & Martinez, 2011; WHO, 2006). The risk of developing melanoma multiplies if one has several of the aforementioned risk factors although individuals with no risk factors and those with darker skin are not immune to developing melanoma (Hendi & Martinez, 2011; WHO, 2006).

There is, however, considerable debate on assessing what is considered prolonged sun exposure. Sun exposure is not altogether bad for one's health. One can get their daily-recommended dose of Vitamin D from spending a few minutes a day unprotected in the sun (Field & Newton-Bishop, 2011). Vitamin D is needed for healthy bones and muscles, especially in children and the elderly (Field & Newton-Bishop, 2011). Growing evidence shows that vitamin D may reduce the risk of some types of cancer, particularly colorectal and breast cancers (Field & Newton-Bishop, 2011). While some researchers are concerned about vitamin D deficiency, it is important to remember that one can also get the vitamin sufficiently through a proper diet or supplements (Field & Newton-Bishop, 2011).

This confusion as to what is considered adequate sun exposure has led to much debate on how much daily sun exposure is healthy. Proponents of the indoor tanning industry have capitalized on this confusion. To attract patrons to tanning salons, advertising focuses on health benefits perceived to be obtained through UV sunbed

exposure (Lim et al., 2011). Although there are studies that show a statistical relationship between lower vitamin D levels and a higher incidence rate of some of diseases like MS, there are also multiple studies that indicate a high vitamin D intake can lead to health problems, and receiving Vitamin D through prolonged indoor tanning is linked to skin cancers (Lim et al., 2011).

Yet, the indoor tanning industry is large and continues to grow, with 2007 domestic sales in excess of \$5 billion in the United States (Gilchrest, 2007; Greenman, 2010). The industry is responsible for propagating the idea of the “safe (or safer) tan acquisition” through conceived “regulated” or “controlled” tanning as opposed to beach tanning or just tanning outside that would be considered “unregulated” or “uncontrolled” (Autier, 2004). The tanning industry has also developed a large part of its marketing strategies around the concept of “safe tan acquisition” which is the acquisition of a tan without incurring or with incurring less harmful effects of UV exposure, mainly sunburns, skin cancers, and skin aging (Autier, 2004). According to the industry, a “controlled” tan acquisition is safer than sunbathing because of the constancy of several UV-exposure criteria like the UV intensity in wavelength and in time. This concept of “controlled tan acquisition” is especially popular in hot countries like Italy and Australia to convince consumers that using the sunbed is a good alternative to beach sunbathing (Autier, 2004).

In March 2005, the World Health Organization (WHO) released recommendations that artificial tanning equipment should not be used for cosmetic purposes and that therapeutic use of artificial tanning equipment should only be under medical supervision. In addition, the WHO recommended that artificial tanning equipment not be used by minors under the age of 18, or by individuals who have one or more characteristics that increase their risk of skin cancer from UV radiation exposure. These included those that have light coloured skin, eyes and hair (particularly red hair), a tendency to freckle, many

moles, a family history of skin cancer and several blistering sunburns as a child (Canadian Cancer Society, 2006; WHO, 2003; WHO, 2010).

### **Literature Review**

The existing literature on skin cancer is predominantly quantitative in nature and can be grouped into several broad categories: 1) bio-medical literature that looks mainly into biological risk factors of developing skin cancer and effectiveness of treatments, 2) studies that look at the impact of the physical environment on melanoma incidence rates, and lastly 3) psycho-social studies that look into social factors contributing to excessive sun exposure, as well as studies of the effectiveness of school, community, media and promotion campaigns. Most existing academic literature is from researchers in the United States, Australia or Europe, while very little qualitative research has been carried out in Canada. As such, key studies on skin cancer outside of Canada also inform my research.

The following literature review provides a foundation on which my research is based, and is limited to the areas most relevant to my study. Literature pertaining to knowledge, perception and practices involving sun safety and tanning were retrieved from a literature review search of Scholars Portal, Google Scholar and PubMed. As the bio-medical literature was considered outside the scope of this present study, my review focuses on literature exploring the social environment of tanning.

### **Perception of tan equating beauty and health**

In North American culture and in many other cultures around the world, attractiveness is considered essential desirable quality for women to acquire and maintain. Attractiveness is defined as “having the power to attract” or “arousing interest and pleasure” therefore to be attractive one has to be able to ignite a positive reaction in another person (Worell, 2002). This is similar to the notion of femininity that is to be

pleasing and aesthetically pleasing to others. Several cultural myths help to secure the importance of beauty and attractiveness in women's lives. Standards of beauty do not vary only by gender but also by social, economic and political contexts as well; the construction of beauty intersects gender, class, race, ethnicity, age, sexual orientation and other variables (Worell, 2002). It can be difficult to ignore cultural messages that reinforce a norm that beauty is important to a woman's identity and social status. Myths associated with beauty give meaning to women's beauty and serve to maintain the importance of attractiveness in women's lives (Worell, 2002), even though this notion is never stable and uncontested.

One of beauty myths is that certain culturally-desirable physical traits are genetic, and therefore some women are able to inherit the privilege while others are excluded. Not only do beauty myths portray contradictory messages about how beauty influences women's lives, they also foster competition, divisiveness and distrust among women (Worell, 2002). Beauty myths often destroy productive and supportive relationships among women and emphasize that beauty, as social capital, is an important aspect of a woman's being thus fostering the social competition for resources and power among women.

Since the 1990s, there has been a renewed interest in the beauty dilemma (Craig, 1998). The dilemma refers to the struggle women face with the notions of femininity and beauty and their interdependence with the fashion and cosmetics industries (Craig, 1998). This struggle was first observed in the 1970s when feminists were first forced to confront the conflict between a feminist ideology that rejected sexual objectification and the over-commercialized American cultural definition of femininity (Craig, 1998). Pressures on women to become more beautiful have caused many women to carry out actions that can lead to health problems. Examples include reactions to implants and piercings, eating

disorders, adverse reactions to cosmetics, dangers associated with cosmetic surgeries, over-reliance on diet pills, and increasing the likelihood of cancer due to tanning (Craig, 1998).

According to Naomi Wolf who wrote about the beauty dilemma in her book "The Beauty Myth" in 1991, the old myth in the West that women were fulfilled as housewives and mothers had gradually been replaced with the "beauty myth" by advertisers (Craig, 1998). This myth stated that to be accepted by a society of liberated and independent women, one has to meet the new standards of slimness, beauty and fashion (Craig, 1998). This myth is evident in the images and messages in the various magazines and advertising women are exposed to today. There is a difference in how health magazines portray tanned women as opposed to beauty magazines (Cho et al, 2010). Health magazines promoted the positive belief that tanned women are fit and healthy (Cho et al, 2010). Images in these magazines often present the tanned women engaging in exercise or outdoor sport or recreation (Cho et al, 2010). Beauty magazines, on the other hand, did it in a negative manner (Cho et al, 2010). They are well known to characterize the ideal woman as looking waif, emaciated or starved. Beauty magazines also promote the negative belief that tanned women personify the ideal, and not a sign of vanity and shallowness (Cho et al, 2010). By reading the beauty and fashion tips and information that usually accompany these tanned images, young women often perceive that it is acceptable to tan instead of looking at it as behavior that exhibits vanity or shallowness. (Cho et al, 2010).

It has also been shown that perceived attractiveness is one of the strongest predictors of behaviours associated with getting a tan (Banerjee et al, 2008). Examples include excessive sunbathing and using tanning beds. People with low levels of body satisfaction were observed to sunbathe more than those with higher levels (Banerjee et al,

2008). Tanning behaviours were more shaped by motivations to maintain an attractive appearance as opposed to interests of health (Banerjee et al, 2008). Tanned people are also perceived to be healthier than those without a tan even if they are not necessarily so (Banerjee et al, 2008). A study that looked at the male perception of beauty when it came to tans found that male respondents preferred dark tans and found them more attractive and healthier looking than medium tans (Garvin & Wilson, 1999). Women on the other hand preferred medium tans (Garvin & Wilson, 1999). This proves that appearance-related motivations are often effective in changing tanning behavior (Garvin & Wilson, 1999).

Researchers that study beauty myths not only look at their impact but also focus on the social and political influences that shape the expectations associated with the attractiveness of women (Wolf, 1991). According to the feminist perspective, beauty is integrated into a larger system of meaning and is rarely an expression of individual aesthetic preference). These systems are a reflection of societal values, beliefs about gender roles and power). Standards of beauty are socially constructed and evolve and change over time along with social, economic and political factors (Worell, 2002).

Social and psychological pressures that encourage people to engage in risky beauty-related activities like sun tanning are complex and apt to change with social and temporal variances (Garvin & Wilson, 1999). Although definitions of attractiveness are considered fixed by society, high personal control can be undertaken over how a person's body adheres to some of these definitions (Garvin & Wilson, 1999). Sun tanning, like other behaviours, is an individual intervention that represents conflict between one's personal health and social values placed on physical attractiveness (Garvin & Wilson, 1999). Tanning is often associated with physical attractiveness and an active, healthy lifestyle (Garvin & Wilson, 1999).

Perceived attractiveness is one of the strongest predictors of behaviours associated with getting a tan. Tanned skin is often equated with beauty, and can serve to reinforce dominant values towards youth, leisure, rest and relaxation. (Banerjee et al., 2008). People with low levels of body satisfaction were observed to sunbathe more than those with higher levels (Banerjee et al., 2008). In her/his study on 896 American college students, Banerjee found that tanning behaviours were most often shaped by motivation to maintain an attractive appearance as opposed to interests of increasing vitamin D exposure (Banerjee et al., 2008).

Tanned people are also perceived to be healthier than those without a tan even if they are not necessarily so (Banerjee et al., 2008). Most of the qualitative literature pertaining to tanning and melanoma discuss the effects of tanning on appearance with positive attributes such as beauty and success as the primary motivation for high UV exposure and low skin protection (Hillhouse et al., 2008; Heckman et al., 2012; Jackson & Aiken, 2006; Nolan et al., 2009; Poorsattar & Hornung, 2007; Schneider, 2010)

Similarly, Rudd and Lennon (2000) found that the body image was a central influence in the lives of college-aged women and many of them engaged in risky appearance-management behaviours such as disordered eating, heavy exercise, and tanning in response to gendered social norms in Western culture. Although some of the participants in the study were able to self-identify behaviours they engaged in as being unhealthy, most accepted even risky appearance-management behaviours as a way to discipline one's body as doing so meant that they had a sense of control or agency over their appearance in a gendered world (Rudd and Lennon, 2000). The study also found that social influence also played a role in motivating young women to strive for a certain look and engage in certain behaviours (Rudd and Lennon). Yoo and Kim (2012) also found that young women are more likely to engage in both indoor and outdoor tanning

practices than young men. This finding illustrated how important it is for young women to achieve an ideal appearance (Yoo & Kim). The study also found that participants with higher BMI were more likely to engage in indoor tanning than those who were underweight or normal-weight who were more likely to engage in outdoor tanning behaviours as a way to secure some beauty capital where they lost some perceived power due to their weight (Yoo & Kim).

Previous studies that looked at the attitudes, behaviours and beliefs when it comes to skin and sun safety have shown that women are more likely to use sun tan oils, lotions and artificial tanning creams (Kemp & Eagle, 2009; Berwick, 2008; Spencer & Amonette, 1995). The study also indicated that women were twice as likely as men to get sunburnt at least once in the previous summer (Kemp & Eagle, 2009). Statistics such as this, which indicate the prevalence of sun safety, prove that it would be interesting to look at the issue of attitudes towards sun and skin safety from a feminist or gendered perspective. Studies have also shown that there is a distinct difference between the way women and men perceive and reflect sun safety knowledge and behaviours. Although women are known to have a greater knowledge of skin cancer than their male counterparts, they are also more likely to sunbathe and use tanning beds in order to achieve the beauty ideal (Kemp & Eagle, 2009).

Lynda Johnston's (2005) analyzed the construction of "whiteness" and feminine beauty among the Pakeha ('white' or European) in New Zealand and its relevance to leisure culture in the country and found that the Pakeha's attitudes to sun exposure and tanning had changed since the early 1900s like most other Western countries. Many of the women interviewed desired to be darker as they viewed tanned skin to be 'unflawed' as the tan would hide cellulite and blemishes in one's skin while at the same time they viewed porcelain, unblemished skin as being something that was desirable (Johnston,

2005). The inability of many of these women to achieve a porcelain perfection led them to pursue what they perceived to be flawless looking skin by tanning and by doing so they age their skin through excessive sun exposure (Johnston, 2005).

A 2010 study conducted by Mahler, Beckerley and Vogel (2010) found that media exposure plays a significant role in promoting risky sun behaviours among young women aged 18 to 30. The study found that young women who viewed ads depicting models with untanned skin expressed less favourable attitudes toward tanning than those that viewed control ads or those that viewed tanned models (Mahler, et al., 2010).

Similarly, Sjober, Holm, Ullen and Brandberg (2004) found that young women were more likely to engage in risky sun behaviours and one of their main motivations for doing so is the “cosmetic motive”. Although young women were more aware of the risks associated with tanning and overexposure to the sun, they still continued to expose themselves to the risks of tanning more than the young men who participated in the study because they believed that a suntan made for a more attractive appearance (Sjober et al., 2004). The study concluded with describing tanning as a form of strongly motivated risk taking as knowledge about the risks and how to protect oneself had limited positive effects. Young people were more likely to perceive personal risks as smaller than risks to others and they tended to have overly optimistic views of their personal risks when it came to tanning (Sjober et al., 2004).

Research shows that tanning is a more common practice among Caucasians (Cheng, 2010). However, excessive exposure to the sun can also have a harmful impact on racialized populations (Cheng, 2010). There is a definite gap in literature when it comes to looking at how the Western media’s constructions of beauty and femininity shape how they affect diverse populations. More specifically, there is a significant gap in the literature that deals with visible minority populations living in Western societies.

Although their oft-darker skin means that they are less likely to develop skin cancer than their Caucasian counterparts, it does not mean that they are altogether immune. It will be interesting to look into how they interpret and behave on any sun safety messaging they come across in Western society. Although the notion of a tan being beautiful is a Caucasian based concept, it still has relevance for the broader population and there needs to be more studies looking into it.

Analysis of gender figures prominently in the literature of sun and skin safety. Stephen Arthey and Valerie A. Clarke (1995) examine how gender constructs influence attitudes and behaviours related to sun tanning and sun protection. The study found that there is definite gender difference in health beliefs and behaviours (Arthey & Clarke, 1995). Even though women are more likely to understand the risks associated with tanning and skin cancer and are more likely to use sunscreen and engage in skin-protective behaviours than men, they still desire being tanned and perceive tanned skin as being a sign of health (Arthey & Clarke, 1995). This indicates that most women are more likely to put aside the dangers of tanning and believe that the benefits outweigh the risks (Arthey & Clarke, 1995). Both people that tanned regularly and those that avoided it in another study believed that although tanned skin is not particularly healthy, they indicate a higher social status is attached to tanned skin (Garvin & Wilson, 1999). The respondents in the study also perceived tanned women as being young, socially active, and popular (Garvin & Wilson, 1999).

Additionally, a Canadian study conducted in the province of Quebec found that tanning bed use was very prevalent in that region, especially among young women (Rhains, Guire, & Claveau, 1999). Approximately 20.2% of the respondents in that study had reported that they had used a tanning device at least once during the last 12 months before the study was carried out (Rhains, Guire, & Claveau). A significantly

high proportion was young and female aged 18 to 34 years old (Rhainds, Guire, & Claveau). The study also found that the most common reason given for using the tanning devices was to “to improve their appearance by a tan” (Rhainds, Guire, & Claveau). It will be very interesting to explore why young women who are most likely knowledgeable about potential risks are still prone to putting themselves at risk of developing skin cancer and explore their sun behaviours.

### **Changing environment**

The physical environment is a measure used to assess health impacts within the population. It is important to take this into account when implementing effective sun safety messaging in a country as enormous and diverse in terms of physical environment and weather as Canada. Skin safety and environmental awareness are closely linked in Canada. According to a study carried out by Garvin & Eyles (2001), which looked at the different ways sun safety messages were framed and narrated by governments in England, Australia and Canada. Canadians received their sun safety messages from both the Public Health Agency of Canada and Environment Canada. One of the main forms of sun safety messaging Canadians receive relates to the use of the UV Index to determine when to avoid the sun (Garvin & Eyles).

Canada was the first country to develop a UV Index through a federal environmental policy initiative called “The Green Plan” (Garvin & Eyles). Health Canada’s publications also discuss ozone depletion and makes the effort to ensure the public can link the ways in which detrimental impacts on the environment can impact their health, and more specifically their chances of developing melanoma (Garvin & Eyles). Extensive media coverage of developments in environmental-based research and

its impacts on human health has also helped influence public knowledge on the issue (Garvin & Eyles).

Sun safety messaging in Canada is not particularly sensitized to the increasing skin cancer rates. Research demonstrates that Canadians find out about the daily UV readings through the weather channel, websites or the newspaper but they are not necessarily able to explicitly make the link between the environmental message and their personal health (Garvin & Eyles). The messaging does not emphasize on the individual's health but frames the issue as more of an environmental issue (Garvin & Eyles). Emphasis is not placed on the individual or consumer decision in the Canadian context, but on the public's ability to tailor their sun exposure based on the scientific climatic readings of UV.

The changing environment is also something that has to be taken into account. Recent reports identified growing holes in the Northern hemisphere and more specifically the Arctic (Chang et al., 2010; Juzeniene et al., 2011). The destruction in the Arctic area was reported to be comparable to that which has been regularly observed in the Antarctic since the 1980s. Although changes in the physical environment impact health outcomes of a population, the most important factor in shaping sun safety attitudes is the social environment.

In sum, the studies discussed in this literature review explored many facets of melanoma, how gender and perceptions of feminine beauty by society construct ideas of an ideal when it comes to beauty and how it is important to acknowledge this when trying to understand sun safety attitudes and practices. Through my literature review, I discovered that although there have been numerous studies that have been carried out to observe and analyze young women and their attitudes towards tanning and sun safety,

very few were conducted in a university or college setting during campus activities and even fewer in the Canadian context.

### **Potential Contribution of the Study**

In summary, this literature review and statistics suggests that there is possibly a disconnect between the current sun safety messages being communicated to young Canadian women and the way they are being interpreted and applied. This problem could stem from contradictory messages conveyed by the government, media and society in general. It is also important to note that researchers indicate that Canadians receive their sun safety messaging differently from Australians and Americans, in that sun risk is closely tied to the environment. Employing a gender and thematic content analysis will be helpful in analyzing current sun safety messages young Canadian women are subjected to and their impacts on these women's sun practices. These findings could inform future research that seeks to develop a more effective and inclusive skin and sun safety program targeted to young women.

## **Theoretical and Methodological Framework**

This research study will draw on mixed methods and will be primarily qualitative in nature. I will situate my research within theories on gender, particularly as they relate to the gendered social construction of beauty. I'll be collecting my data through semi-structured interviews and conduct my analysis using thematic content analysis.

### **Theories on Gender and Beauty**

Theories on gender are being used to guide the analysis of this study because tanned skin and the issue of melanoma is a gendered issue associated with ideals of beauty within society. Gender as a social construct is well-established in the literature (Scott, 1986). This thesis will be informed by theories on the ways in which beauty shape women's leisure practices.

Brownmiller (1986) refers to a woman's quest for self-love and acceptance as "obsessive concentration," describing the inhumanity of trying to look a part that does not exist. She argues that the war against women is not only in photographs, it is everywhere and it is supported, even administered, by an ever-present media. According to Brownmiller (1984), the ideal is illustrated everywhere. It is inescapable and due to the recent ease of access to all forms of media in our increasingly visual culture, such images have the ability to reach and affect an even more dynamic array of viewers.

Similarly, according to Poran (2002), in the United States, people who are perceived as attractive are also perceived as having positive personality traits such as intelligence, sociability, kindness, virtue, nurturance, and warmth, and they are perceived as more successful in areas of work and personal life. Physical attractiveness stereotypes were found to be the dominant component of gender stereotypes, and they strongly and consistently implicate other components of gender stereotypes (Poran, 2002).

As indicated in this literature review and statistics associated with skin cancer in Canada and worldwide, there is a difference in the incidence rate among young women so a gender-sensitive approach is necessary to explore the ways in which a sample of young women think about the sun, tanning, and the risks.

### **Methodology**

Within a qualitative research methodology, I will employ thematic content analysis of the sun safety messaging my participants self identify as important. Thematic content analysis is a descriptive presentation of qualitative data (second citation). The term thematic connotes the analysis of story like verbal material and the use of relatively comprehensive units of analysis such as themas, themes or combinations of categories (Smith, 1992). A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set (Braun & Clarke, 2006).

Epistemologically, thematic content analysis is both positivist and interpretive. It is positive in that assertions are required to be supported with evidence, usually textual in nature. The methods and processes associated with thematic analysis can also be in used in interpretive analysis. Some of the strengths of thematic content analysis include how it is well suited to large data sets and team research. Thematic content analysis also allows for the inclusion of non-theme-based and quantitative techniques that adds analytical breadth. It is also a methodology that can be used to study topics other than individual experience (Guest & MacQueen, 2012).

Thematic analysis does not only count explicit words or phrases but focuses on identifying and describing both implicit and explicit ideas within the data generated (Guest & MacQueen, 2012). Codes developed for ideas or themes are then applied or

linked to raw data as summary markers for later analysis, which may include comparing the relative frequencies of themes or topics within a data set, looking for code co-occurrence, or graphically displaying code relationships (Namey et al., 2008). Thematic analysis is most useful in capturing the complex meanings within a textual data set and is the most commonly used method of analysis in qualitative research.

This methodology will be helpful in studying the skin and sun safety messaging being disseminated by health agencies and programs and how various discourses and social interactions have affected them, whether they are scientific discourses or ones that are influenced by Western perceptions of beauty and class. Thematic content analysis can also be used to study how sun tanning has become popular in today's society and how having tanned skin is perceived to be a sign of beauty and health (Arthey & Clarke, 1995; Johnston, 2005). In addition, it would also be interesting to look at how Canadians frame this problem in reference to an environmental discourse focusing on the UV index.

## **Methods**

### **Semi-structured Interview**

I employed a mixed methods approach in my study. I conducted semi-structured interviews with 15 female participants ages 18 to 29. The first step of my procedure was to look for concepts and themes suggested in the literature review and use this to help develop the questions I asked during the interviews. The interview guide was structured to allow for two (2) distinct blocks of questions that allowed me to use the data from each block to write a journal article.

The first block of questions focused on their sun practices and knowledge and perceptions. Questions asked included: Do you tan and how? For what reasons do you like to tan? What do you do when you're in the sun? Do you alter activities based on the

sun? Do you practice sun protection? How important was sun protection growing up in your household? Do you practice sun protection when engaging in physical activity outdoors? How often do you reapply your sunblock if/when you do use sun protection? Do you look for SPF in products? Is there any SPF in your makeup or moisturizer? When I talk about skin cancer, what comes to mind? What do you think are the benefits and risks of sun exposure? What are your thoughts on outdoor and indoor tanning? Do you think you are at risk of developing melanoma? Who should protect themselves and how?

The second block of questions focused on where they acquire their knowledge — their sources of information on sun and skin safety. Some of the questions asked included: How do you and your peers perceive tanning and tanned skin? Do you seek out information on the sun? Where do you find your information on the sun exposure? Do you receive conflicting messages and if so, how do you make sense of these messages? What is your impression of the UV/sun safety information provided? Do you look up information on melanoma risk? What are your thoughts on establishing tanning policies to restrict indoor tanning? Do you feel there is a safer means in getting a tan? Do you see any issue with the age restriction? Do you think people will make a more informed decision when they are 19? There are special initiatives in certain communities (Tanless proms). What are your thoughts on it? The questions were directed to gauge participants' knowledge, understanding and practices on tanning and sun safety. The data collected helped me gain a better appreciation of what my respondents understand about the sun, its risks, and how they mitigate these risks. The main questions and probes I formulated were not too abstract and the subject was able to answer it easily based on their experiences (Rubin & Rubin, 2005).

Recruitment of participants was carried out through word of mouth, posters and the snowball effect on the University of Ottawa campus. I interviewed the first 15

respondents and had an additional 7 names of volunteers in case any of the initial respondents changed their minds and withdrew from the study. I had a sample of participants that included 15 women aged 18 to 29, studying in various faculties, at various stages in their degree, and from diverse demographics: 10 of the 15 participants identified as being of Caucasian or European descent, 2 identified as being of African descent, 2 of South Asian descent and one identified as being part Metis. Some of the women identified themselves as frequent tanners, including indoor tanning, while others indicated they do not tan. Ethics was obtained from the REB at the University of Ottawa, and informed consent was obtained from each participant prior to the initiation of the interviews (see Appendix). Each participant was made aware of their right to withdraw from the study at any point in the research process and of the researcher's respect for participant confidentiality. Participants were given a \$15 coffee card upon completion of the interview as a gesture of appreciation for their time.

Interviews were conducted on main campus at the research interview space at the RCSCS in Montpetit building. Interview schedules were made in advance with the participants, and each interview session was approximately one hour in duration. They were carried out over a 2-week period in the fall of 2012. The interviews were semi-structured in nature, consisting mostly of open-ended questions that allowed the participants to elaborate on their perceptions and attitudes toward sun safety. Participants were asked for permission to be digitally recorded during the interviews and quoted anonymously during the study. In addition, notes were taken regularly in order to capture significant details.

Five of most salient interviews of the 15 interviews were initially transcribed, analyzed and coded manually to generate emerging themes and concepts. The rest of the interviews were then listened to in their entirety and select quotes were transcribed based

on the themes generated. No additional themes emerged from the listening to the rest of the interviews. Decisions on which themes to expand on for further analysis in this project were based on the consistency in which the theme was referenced throughout the interviews and its relevance to the literature the research questions were based on. Transcriptions were sent back to the participants for review; none had any suggested changes.

The themes generated were compared to existing literature on sun safety and tanning to check for similarities and divergences in findings. Horizontal and vertical analyses were then carried out on the data generated. Vertical analysis refers to looking for themes present in each interview and horizontal analysis refers to looking for common themes between the interviews. Throughout this analysis, I aimed to understand core concepts and discover themes that describe the world the subjects describe (Rubin & Rubin, 2005). The data generated helped guide me to the various factors that influence their sun safety beliefs and practices.

The themes that were identified were then defined. It was important to be as specific as possible during part of the analysis process. It was also imperative to make sure that I understand the concept or theme the way the participants used it rather than the way I define it using my own cultural lens (Rubin & Rubin, 2005). This is especially significant in my study since I will be interviewing a diverse young adult population.

The process of developing categories is one of continuous refinement (Dey, 1993). Through this, the criteria for including and excluding observations, which are often vague on the outset, become more precise during the course of the analysis (Dey, 1993). These criteria were set out as clearly as possible before observations were categorized in a reliable way (Dey, 1993). This also gives us the opportunity to go back to the analysis that has already been carried out to check for consistency. At this stage, I also looked for

relationships between the various concepts and themes that emerge. During this point of the project, I noted the various types of sun safety messaging the participants mention in order to study them and conduct my thematic content analysis.

### **My Location in the Study**

It was important for me to realize that as a researcher, I am also invested in the construction of data interpretation (Bauer, 2000). The researcher plays a role in the selection, unitization, and categorization of the raw data (Bauer, 2000). This is why I will asked the participants to direct me to the content they feel influences them in their daily lives whether it be family, peers, magazines, images, posters, television shows or other forms of media or messaging.

To foster a meaningful interview session, I strived to remain relatable and remind them that their opinions are valuable. It was my goal to gain their trust with the interview format to enable them to be as open and honest as possible while talking about sun and skin safety and how they perceive beauty and tanning.

In sum, this thesis project investigated fifteen (15) Canadian university women's knowledge and perceptions on the sun, risks of prolonged exposure, tanning and beauty. Through my data collection and analysis (thematic content analyses), I also explored how society and their peers influence their sun safety practices. My goal is to discuss my findings in the form of two publishable papers. The first manuscript paper focuses on how sun /skin health messages are communicated to the participants in my study. This will help shed light on where this population is most likely to seek and access health information related to the sun. The second publishable paper will explore how the fifteen interviewees make sense of the sun safety messaging they are exposed to, and how they act on it. This will allow me to explore competing perceptions, and contradictions

between knowledge and sun risk practices. A discussion and concluding chapter will discuss my findings and indicate potential areas for future research.

**Manuscript 1 (Chapter 2)**

**Perception and knowledge on the sun, tanning and risks among fifteen Canadian  
university women, 18-29**

Kainat Bashir

University of Ottawa

## **Introduction**

One third of all cancers being diagnosed worldwide are skin cancers and the incidence rate of skin cancer in developed countries has risen dramatically in the last decade (WHO, 2013). Currently, between 2 and 3 million non-melanoma skin cancers and 132,000 melanoma skin cancers occur globally each year (WHO, 2013). There are two types of skin cancer: non-melanoma skin cancer, which are more common and includes basal cell cancer and squamous cell cancer, and melanoma, which is less common but more likely to be fatal.

Non-melanoma skin cancer represents the most common of all cancers diagnosed among Canadians (Canadian Cancer Society's Steering Committee on Cancer Statistics). In 2012, an estimated 81,300 Canadians were diagnosed with non-melanoma cancer and 320 died from it (Canadian Cancer Society's Steering Committee on Cancer Statistics). Whereas melanoma was diagnosed in 5,800 Canadians, but an estimated 970 died from it (Canadian Cancer Society's Steering Committee on Cancer Statistics).

In Ontario alone, melanoma is the second most common cancer in young adults aged 15 to 34 (Media Backgrounder - Skin cancer facts). There is a higher melanoma incidence rate among females aged 20 and 59 than in men of the same age group in Canada (Canadian Cancer Society's Steering Committee on Cancer Statistics). Previous studies have also found that young women are more likely to engage in both indoor and outdoor tanning and therefore take greater risks than young men to achieve the ideal tan (Boldeman et al., 2001; Yoo & Kim, 2012; Shoveller et al., 2003). According to the Canadian Cancer Society, the most commonly cited finding to explain the higher incidence rate among this group of women is an elevated exposure to radiation from the sun or from artificial UV light such as tanning beds or sun lamps (Media Backgrounder - Skin cancer facts.).

This paper is part of a larger study that looks at sun safety and tanning knowledge and practices among young Canadian women, but the focus of this paper is to explore the perception and knowledge young Canadian women have about the sun, tanning and its risks. Some of the questions explored in this paper are: When I talk about skin cancer, what comes to mind? What do you think are the benefits and risks of sun exposure? What are your thoughts on outdoor and indoor tanning? Do you think you are at risk of developing melanoma? Who should protect themselves and how? How do you and your peers perceive tanning and tanned skin? Do you seek out information on the sun? Where you do find your information on the sun exposure? Do you receive conflicting messages and if so, how do you make sense of these messages? What is your impression of the UV/sun safety information provided? Do you look up information on melanoma risk?

The existing literature on skin cancer is predominantly quantitative in nature and can be grouped into several broad categories: 1) bio-medical literature that looks mainly into biological risk factors of developing skin cancer and effectiveness of treatments, 2) studies that look at the impact of the physical environment on melanoma incidence rates, and lastly 3) psycho-social studies that look into social factors contributing to excessive sun exposure, as well as studies of the effectiveness of school, community, media and promotion campaigns. Most existing academic literature is from researchers in the United States, Australia or Europe, while very little qualitative research has been carried out in Canada. As such, key studies on skin cancer outside of Canada will inform my research.

The following literature review provides a foundation on which my research will be based, and is limited to the areas most relevant to this paper. Literature pertaining to knowledge and perceptions involving sun safety and tanning will be considered, with particular attention paid to the messages and how they are framed and communicated.

## **Physical Environment**

One of the factors that influence the health of a population as measure by health status indicators is the physical environment. It is important to take this into account when implementing effective sun safety messaging in a country as enormous and diverse in terms of physical environment and weather as Canada. Skin safety and environmental awareness are closely linked in Canada. According to a study carried out by Garvin & Eyles (2001), which looked at the different ways sun safety messages were framed and narrated by governments in England, Australia and Canada, Canadians received their sun safety messages from both the Public Health Agency of Canada and Environment Canada. According to Garvin and Eyles (2001), one of the main forms of sun safety messaging Canadians receive relates to the use of the UV Index to determine when to avoid the sun.

Canada was the first country to develop a UV Index through a federal environmental policy initiative called “The Green Plan” (Garvin & Eyles). Health Canada’s publications also discuss ozone depletion and makes the effort to ensure the public can link the ways in which detrimental impacts on the environment can impact their health, and more specifically their chances of developing melanoma (Garvin & Eyles). Extensive media coverage of developments in environmental-based research and its impacts on human health has also helped influence public knowledge on the issue (Garvin & Eyles). Sun safety messaging in Canada is not particularly sensitized to the increasing skin cancer rates. Although changes in the physical environment impact health outcomes of a population, the most important factor in shaping sun safety attitudes is the social environment.

Perceived attractiveness is one of the strongest predictors of behaviours associated with getting a tan. Tanned skin is often equated with beauty, and can serve to

reinforce dominant values towards youth, leisure, rest and relaxation (Banerjee et al., 2008). People with low levels of body satisfaction were observed to sunbathe more than those with higher levels (Banerjee et al., 2008). Tanning behaviours were most often shaped by motivation to maintain an attractive appearance as opposed to interests of increasing vitamin D exposure (Banerjee et al., 2008). Tanned people are also perceived to be healthier than those without a tan even if they are not necessarily so (Banerjee et al., 2008). Most of the qualitative literature pertaining to tanning and melanoma discuss the effects of tanning on appearance with positive attributes such as beauty and success as the primary motivation for high UV exposure and low skin protection (Hillhouse et al., 2008; Heckman et al., 2012; Jackson & Aiken, 2006; Nolan et al., 2009; Poorsattar & Hornung, 2007; Schneider, 2010)

Similarly, Rudd and Lennon (2000) found that the body image was a central influence in the lives of college-aged women and many of them engaged in risky appearance-management behaviours such as disordered eating, heavy exercise, and tanning in response to gendered social norms in Western culture. Although some of the participants in the study were able to self-identify behaviours they engaged in as being unhealthy, most accepted even risky appearance-management behaviours as a way to discipline one's body as doing so meant that they had a sense of control or agency over their appearance in a gendered world (Rudd and Lennon, 2000). The study also found that social influence also played a role in motivating young women to strive for a certain look and engage in certain behaviours (Rudd and Lennon). Yoo and Kim (2012) also found that young women are more likely to engage in both indoor and outdoor tanning practices than young men. This finding illustrated how important it is for young women to achieve an ideal appearance (Yoo & Kim).

In sum, the studies discussed in this literature review explored the knowledge and perceptions involving sun safety and tanning with particular attention paid to the messages and how they are framed and communicated in the Canadian context. Through my literature review, I discovered that although there have been numerous studies that have been carried out to observe and analyze young women and their attitudes towards tanning and sun safety, very few were conducted in a university or college setting during campus activities and even fewer in the Canadian context recently. I believe that it would be valuable to understand how this group of women is influenced by its peers and society when it comes to sun safety. This population is unique because they are educated and have the ability to make informed decisions with regard to sun exposure.

### **Method**

This study uses semi-structured interviews and thematic content analysis of the data generated to examine in detail the discourses that surround melanoma, tanning and sun safety in the Canadian context. Theory-driven analysis enables the researcher to uncover emergent, data-driven themes, which may then be added to the analysis, and similarly data-driven analyses may generate theories to explain emergent structure (Namey et al., 2008). Thematic analysis does not only count explicit words or phrases but focuses on identifying and describing both implicit and explicit ideas within the data generated (Guest & MacQueen, 2012). It is most useful in capturing the complex meanings within a textual data set and is the most commonly used method of analysis in qualitative research. Thematic content analysis can be used to build theoretical models or find solutions to real-world problems (Guest & MacQueen, 2012).

### **Participants**

This study took place over 2 weeks in the fall of 2012 after obtaining ethics approval from the Research Ethics Board at the University of Ottawa. Fifteen participants

were recruited from the University of Ottawa student population through the use of poster advertising and word of mouth. The participants were all female and in the age group of 18 to 29. The participants recruited represented a diverse and inclusive sample population in terms of ethnic background, social background and program in which they are studying. Interviews were conducted in English, the first language of both the interviewer and interviewees.

Criteria for participation included being a student at the University of Ottawa aged 18-29. Informed consent was obtained from each participant before the start of the interviews. The participant of each participant consisted of one interview, conducted by the principal investigator. The interviews were conducted on the University of Ottawa campus.

The same interview protocol was administered for each of the subjects. The interview guide was developed after reviewing literature on melanoma risk factors and sun safety messaging. Each study participant was interviewed one at a time, and each interview lasted from 40 to 60 minutes. The interview guide dealt with topics such as sun practices, their knowledge and perceptions of the sun and its effects and melanoma risk, where they acquire their knowledge on sun/skin safety, and their thoughts on indoor tanning. All interviews were digitally recorded and transcribed by the principal investigator.

### **Data Analysis**

The same data analysis methods were used for each interview. Five of the 15 interviews were initially transcribed, analyzed and coded manually to generate overarching themes. The rest of the interviews were then listened to and select quotes were transcribed based on the themes generated. Themes were added, removed and

evolved through the analytical process. Decisions on which themes to expand on for further analysis in this paper was based on the consistency in which the theme was referenced throughout the interviews and its relevance to the literature the research questions were based on. Transcriptions were sent back to the participants for review; none had any suggested changes.

**Table 1: Data Analysis Chart**

<b>Theme generated</b>	<b>Quote</b>	<b>Interpretation</b>
Perceptions of benefits and risks	“Like you need your Vitamin D and that's what it helps improve your mood and yes definitely improves your mood. Because you notice in the winter when there is no sun, people are sad and grumpy and uh so I think this would be the main benefit.”	When asked about perceived risks and benefits of sun exposure, the participants listed them. The interviews were also littered with what they perceived to be benefits and risks of sun exposure.
Outdoor versus Indoor tanning	“I know indoor is a lot more powerful, that's for sure. And you can also get like the super beds, which are even more powerful than the regular beds. They go like twice as fast and you only have to go in for like 5 minutes and you're like tanned. Um, but I prefer outdoor.”	Participants were asked explicitly to describe their thoughts on outdoor and indoor tanning. They were also referenced to throughout the interviews at various points.
Conformity	“It kind of started in high school where in grade 12 when all the girls wanted to tan to look nice for grad and I was trying to be a rebel so I decided to actually start wearing sun protection at that point and so I was extra pale and that's how I maintained how pale I am but because I am first nations, well I'm originally Metis, I can tan really well and then actually look like I'm Metis. I just don't. There's like an innate fear that I'm going to have some skin cancer, I don't know why.”	Conformity to societal and peer standards of beauty was often referenced throughout the interviews. Participants mentioned feeling pressure from the media, peers at school and friends to look tanned.
Conflicting and Ambiguous Messaging	“If I was to heed the more glamorous side of the media, then yeah I would be conflicted. Yeah, I guess because when I think of that I think of ads with sunscreen but it would be obviously a perfect model and really	Conflicting and ambiguous messaging was often referenced throughout the interviews. These messages originated from the media for the most part.

	tanned anyway so it just makes me thinks if I use factor 15, I'm going to look amazing like her but um, conflicting messages, um, not really. I know I should but I don't."	
Self risk and other's risk	"Well I think everybody should. You know, it prevents, it's good for you to protect yourself from, it's mostly the UV rays that are bad for you. You know, when you keep risking younger, less wrinkles. So I think the earlier you start practicing good sunscreen protection it is better for you. At a younger age, you can prevent stuff like you start like you get wrinkles and you start doing sunscreen, it will help but you know some of the damage is already done and you already had 50 years of exposure so I think it's better to start young."	There was sometimes variance between the participant's self risk and what they perceived to be other's risk. Age was linked by some of the participants who thought that the elderly and young children were more at risk
No UV index Awareness	"I mean it pops up on weather network when you're watching the weather but um I usually don't pay too much attention to that. I try to use my common sense, if it's hot then you better stay inside"	When asked about UV index, all the participants had little to no knowledge on what it meant or did not pay attention to it

Interested participants were asked to fill out a short survey before being selected for participation. The following table outlines the responses of those that were selected:

**Table 2: Research Participants**

#	Age	Faculty/Department	Do you use/have used indoor tanning salons?	To which racial or ethnic group(s) do you most identify?
1	21	Political Science/Social science	No	Eastern European/Ukrainian
2	20	Psychology with a minor in Criminology	No	Caucasian (French)
3	18	History/political science	No	Caucasian
4	21	International Development and Globalization/Faculty of Social Sciences	No	Canadian born, Indian roots
5	22	Department of Computer Sciences, Faculty of Engineering	No	Caucasian
6	20	Arts and Social Sciences (English & Psychology)	Yes	I've only really ever identified myself as Irish with English roots?!
7	24	School of Translation and Interpretation (Arts)	Absolutely NOT	Metis but fair skinned.
8	18	Telfer School of Management - International Management	No	African (black)
9	18		Yes, frequent tanner	Caucasian
10	20	Criminology/Social Science	No	Afro-Caribbean
11	20	Human Kinetics	No	Caucasian
12	23	Health Science	No	Indian
13	20	Faculty of Social Science, Economics	No, I have never and will never use indoor tanning beds	Caucasian
14	21		Yes	Caucasian
15	18	Biomedical/Science	No	Caucasian

Of the fifteen participants, three had admitted to using a tanning bed in their lifetime so far – participants 6, 9 and 14. Participant 9 described herself as a “frequent tanner”.

**Findings – Knowledge and Perceptions**

The results of my interviews revealed several themes. The findings in this paper are organized according to what the participants interviewed know and where they know it from. Participants were asked questions focusing on their knowledge and perceptions on sun exposure, melanoma, and tanning and UV radiation.

**Benefits and risks of sun exposure**

The following table summarizes the range of opinions expressed with regard to the perceived benefits and risks of being in the sun.

**Table 3: Perceptions of the benefits and risks of the sun**

<b>Participant</b>	<b>Benefits</b>	<b>Risks</b>
1	Vitamin E, strength	Cancer, burn, pain, regeneration of skin
2	Vitamin D, hair, mood	Cancer, marks, sunspots, burns, sun stroke, dehydration
3	Vitamin D, being tanned, becoming darker, nice to be in atmosphere, warmth	Skin cancer, burns, heat stroke
4	Vitamin D, feel positive, help with pathogens	Skin cancer, unwanted (wrinkles, leathery skin), uneven skin tone, eye damage
5	Vitamin D, colour	Skin cancer, sun burn, bad for skin
6	Vitamin D, not many benefits, mood	Skin cancer, premature aging, damages skin, moles, ruins hair
7	Vitamin D (pills in winter), prevent sun depression through tanning	Premature aging, skin spots, cancer, moles, sunburns
8	Vitamin D, cheerful	UV ray exposure, skin cancer, global warming
9	Vitamin D, happier, colour, 10 minutes in the sun is good especially in the winter, relaxing	Cancer, burning, wrinkles, sunspots
10	Energy, Vitamin D, feel better, plant growth	Skin cancer, severe burns, sunstroke, dehydration
11	Vitamins, feels nice	Skin cancer
12	Vitamin D, being happy/more positive, outside, fresh air	Out too much -> skin cancer, too much tanning, UV rays
13	Some is healthy, Vitamin C or D, little bit of tan is good to prevent burn	Repeated burns are harmful, wrinkly with age, cancer
14	Vitamin D (good for you, mood)	Skin cancer, heat stroke, sun burns
15	15 min a day for Vitamin D, feel happier	Skin cancer, sun spots, wrinkle sooner, dehydration, nausea

When asked to discuss what they thought were the benefits and risks of sun exposure, almost all the participants mentioned Vitamin D as a benefit of sun exposure except for participant 1 who thought it was Vitamin E instead. Participant 13 also was unsure as to whether it was Vitamin C or D that was a health benefit of sun exposure. For

the most part, they are well informed but there is some ambiguity on the specifics of their knowledge.

Some of the women described getting colour by being out in the sun as a benefit of sun exposure. Participant 7 described the 'healthy glow' that comes from sun exposure: "They think it looks nicer to have that healthier glow to the skin as they always say..."

Another theme generated from my data demonstrates that almost all of the girls equated being out in the sun to putting them in a better mood and positive about themselves. Participant 14 explained how the lack of sunlight during the winter led people to being more depressed.

"Like you need your Vitamin D and that's what it helps improve your mood and yes definitely improves your mood. Because you notice in the winter when there is no sun, people are sad and grumpy and uh so I think this would be the main benefit."

Participant 9 also made the connection between the sun, the winter and people's mood. She explained how in the winter people she knows "become depressed and therefore that's why they're tanning because it somehow makes them happier...oh I'm depressed, it's too dark so I'm going to tan." She also described being out in the sun to being like by a fireplace, comparing it to being relaxing. Participant 7 explained how people she knew claimed to be "sun depressed" during the summer time because of the lack of sunlight:

"I've heard some people say that they get like sun depressed or something like that. Like in the winter, they become depressed and therefore that's why they're tanning because it somehow makes them happier but that is not the situation for me...oh I'm depressed, it's too dark so I'm going to tan."

At the same time, the women also acknowledged the risks of sun exposure. All the women interviewed identified skin cancer as a risk of too much sun exposure. Burns were also frequently mentioned as a risk. Some of the women interviewed recognized

that too much sun exposure could be damaging to the skin and cause premature aging (wrinkles and leathery skin). Visible spots and moles were also a cause for concern for some of the participants. In addition to Participant 4 who mentioned leathery skin as being a risk of too much sun exposure, Participant 9 also talked about how she noticed wrinkles in the summer time from being out in the sun for too long:

“Yeah, I noticed that in the sun, in the summer especially I like do get wrinkles on my face kind of just from moving my skin.”

Participant 7 also discussed how she noticed the visible effects of tanning on her peers' skin since she graduated from high school:

“Since graduation, I, you can go on Facebook profiles of all the people I graduated with and some of them they continue tanning and you can just see the wear and tear.”

In sum, most of the women commented on their mood while outside in the sun, reinforcing the idea that being in the sun and tanning improved their mood and made them happy. Another benefit of sun exposure mentioned by the women included the colour gained from being out in the sun, which made them feel that they looked more attractive, thus improving their mood. When it came to risks, the women identified skin cancer, burns, and visible aging as negative impacts of sun exposure. This finding corroborated with previous studies that found that many young women engaged in tanning behaviours because it helped them feel better about how they look.

### **Outdoor versus Indoor tanning**

Within the perception of risk, participants were asked to provide their knowledge of whether indoor or outdoor tanning was more beneficial. Of the fifteen participants, three had admitted to using a tanning bed in their lifetime so far – participants 6, 9 and 14. Participant 9 described herself as a “frequent tanner. The following table summarized participants' perceptions on tanning outdoors versus tanning by indoor tanning beds.

**Table 4: Participants' perceptions on outdoor and indoor tanning beds**

Participant	Response
1	Outdoor tanning is more natural, fabricated indoor tanning can be dangerous
2	Both are silly, used to think outdoor is healthier. Indoor tanning – child beauty pageants. Tanning industry is hypocritical
3	Indoor – absolutely not! Disturbing. Outdoor is ok to an extent. Lying in backyard is unacceptable
4	Indoor is not ok. Can do it naturally, odd colour, paying for it, purposely cooking yourself. Not ok to sit outside in bikini for 3 hours at noon
5	Indoor – bigger risk of skin cancer, don't look natural, outdoor – natural/less risk, looks better
6	Both are bad. Indoor is worse because it is intentional. Outdoor is bad as well. Sun is better than sunbed
7	Outdoor is better than indoor – not as direct. Still against outdoor.
8	Indoor tanning there is no point – does not make you look any better (like cigs). Outdoor is more natural.
9	Indoor is more powerful, prefer outdoor (don't like being enclosed, natural)
10	Tanning indoors damages skin. Spray tan and UV tans are both harmful
11	Opposed to indoor, uses proper protection when outdoors
12	Don't really know but outdoor is better because it is natural
13	Outdoor is natural if you don't try and tan but it happens from being outside
14	Both are not good, indoor is worse because of high intensity, sunscreen cannot protect completely outdoors
15	Indoor tanning is really bad. Outdoor is not harmful in moderation, more natural. People have evolved to withstand sun

All of the women interviewed except for participant 9 recognized that indoor tanning was more harmful than tanning outdoors. Participant 9 had described herself as a “frequent tanner” during the pre-selection. When asked if she felt there was difference between indoor and outdoor tanning during the interview, she responded:

“I know indoor is a lot more powerful, that's for sure. And you can also get like the super beds, which are even more powerful than the regular beds. They go like twice as fast and you only have to go in for like 5 minutes and you're like tanned. Um, but I prefer outdoor.”

When asked further why she preferred tanning outdoors, she said that she didn't like “being in the closed space that much...it's just it's natural. You don't hear the buzzing

of the lights and stuff". She also said the only reason she tanned indoors was to "build up a tan".

Some of the women described outdoor tanning as a more natural and healthier option. Participant 12 said:

"I feel like I don't really know because I don't tan. I've never really looked into it but from my unknowledgeable thoughts I think tanning outside is better because it's natural as opposed to indoor. You know outside at least you have fresh air; you have whatever positive benefits of being outside. Maybe on a beach or something but if you're like in a box in a room, paying money to get a tan. I think it's kind of awkward..."

Participant 4 echoed in saying:

Uh, I do not think indoor tanning is ok. Don't know if that's silly to say when I do admit to outdoor tanning but indoor tanning seems completely ridiculous to me. Like absolutely. Like we have sun and if you can enjoy the warmth and like naturally why would you do that in the side?

However a few of them also said that tanning outdoors was ok only within moderation. According to some of the participants, intent was also important. It was not ok to sun tan outside for hours just for the purpose of tanning. Some such as participant 5 considered it to be a consequence of every day behaviours:

"No one really, no one I know really like to go purposely tanning kind of you know just like today I'm going to go in the sun and get tanned. Tanning's always like a consequence of staying, of staying out."

Participant 11 agreed saying it is impossible to avoid being outside and to just be responsible. She emphasized on intention as well and thought it was okay to tan as long as it was a secondary consequence of being outside:

"Outdoor tanning like just being outside, well you have to be outside, you know what I mean so just the proper protection. If you get like a little bit of sun like it's fine. Like I don't go outside just to tan I think like on the beach or whatever, it's just like secondary from being outside."

Participant 8 also agreed that as long as one is responsible by using proper SPF, it is ok to be outside for prolonged periods of time:

"Well, you can get a tan but like still protect yourself from like SPF and stuff, with SPF. So like if you're gonna sit outside and tan, like as long as you put sunscreen on like every hour, and you don't do it for too long at a time I have nothing against tanning outdoors as long as you're safe about it. So like if you're gonna sit outside and tan like at like as long as put sunscreen on like every hour, and you don't do it for too long at a time then it's totally fine but don't just go like putting oil on your skin which like I think burns your skin or something like that."

Participant 6, who like participant 9 also admitted to indoor tanning, justified doing it by saying her life experiences thus far had allowed her to take on a reckless attitude toward her life and health:

"Possibly, I think I've taken on the last year's stuff that's happened, I've taken on the view whereby it's irresponsible but I do it anyway, um, I could die tomorrow so that's why that kind of that gives me that gives me like permission to be reckless now with my health a little bit so I should probably work on that."

In summary, participants revealed a range of opinions as to nature of outdoor tanning versus tanning in a salon. Most indicated that indoor tanning was dangerous while two were sufficiently aware of the dangers of the indoor tanning beds. This finding reflected previous literature that also found that women generally were well aware of the risks of indoor and outdoor tanning even if they may engage in risky behaviours that include sunbathing and using a sunbed (Rudd and Lennon, 2000).

### **Knowledge on Personal Risk and Likelihood**

Participants were asked to describe their risk to develop melanoma as well as what individuals should protect themselves from melanoma. The following table summarizes the participants' perception of risk of themselves or others to being diagnosed with melanoma.

**Table 5: Participants' perceptions of their risk to develop melanoma as well as their perception on who is most at risk for developing melanoma**

Participant	Self Risk	Everyone's Risk
1	I think I am on the safe side	Everyone should stay out 11-4, sunscreen and clothing
2	Don't know. Sunburns before certain age make it even riskier	Everyone should regardless of skin tone, children and elderly especially
3	Don't think so. Certain areas are more susceptible	Everyone. Guys, pale people should wear sunscreen
4	Anyone who likes to be out in the sun	Fairer skin, children, habits develop at young age, everyone should
5	No, not the kind to intentionally tan	People who live in hotter places, stay in sun all day, indoor tanning
6	Possibly	Everyone. Parents should look out for children
7	Yes, has more than 50 spots. Horrible fear of skin cancer	Everyone. Europeans who are fairer – English, Scottish, Irish
8	Yes, as much as anybody else	People who have moles, fairer skin, children, adults who think they are above it all
9	Yes everyone is. Anything can give cancer	Little kids, paler skin
10	No, not in family history, also because not intentionally in the sun, trains outside peak hours	Anyone in the sun for longer periods of time, long sleeves, hats, staying in shade, sunscreen, children and elderly
11	Always the risk, from sun exposure. Some more predisposed (burn easily)	Everyone should
12	As much as the average person	Everyone should, earlier the better
13	Don't know. Not in family history. Pale so higher risk	Little kids, everyone should
14	Yes, blonde, pale skin, outdoors a lot	Everyone should (age, skin, colour irrelevant)
15	Anybody can get it	Everyone should, but fair skin/light eyes/freckles more. Dark skin people too.

There were varying levels of self-risk assessments made by the participants. Most recognized that they had as much of a risk as everyone else and that everyone should be conscientious in practicing sun safety. Quite a few of them linked age with the need to protect themselves from the sun. Participant 12 said it was better to start young:

“Well I think everybody should. You know, it prevents, it's good for you to protect yourself from, it's mostly the UV rays that are bad for you. You know,

when you keep risking younger, less wrinkles. So I think the earlier you start practicing good sunscreen protection it is better for you. At a younger age, you can prevent stuff like you start like you get wrinkles and you start doing sunscreen, it will help but you know some of the damage is already done and you already had 50 years of exposure so I think it's better to start young.”

Participant 13 also pointed out that adults have to take responsibility for putting on sunscreen on children, as they did not always have the agency to do it themselves:

“I think definitely little kids. I hate nothing more than when I see parents at theme parks whose little kids are tomatoes and like the kid's going to hate life tomorrow because it just sucks and little kid's skins are just so sensitive and burn so easily and um, I think everybody.”

Participant 8, who is of African descent, discussed how people with darker skin take being out in the sun for granted because of their perceived inability to ‘tan’ and become darker:

"I was told once that like, um darker people need um get more sun, more Vitamin D so like a fair like a Caucasian can stand in the sun for 5 minutes and absorb the same amount of Vitamin D that we would absorb in 50 minutes so I know we have stronger resistance to the sun but I feel like we take that for granted like as a free pass so it's just like yeah it's ok like I don't need to put sunscreen on to do anything so I definitely feel like that might work against me the fact that I just think it don't think that it could ever happen to me but I don't think I'm more susceptible than like anybody else."

Melanoma appears to develop differently in fair-skinned people than in darker-skinned people in whom the disease normally appears on the palms, soles, and under the nails. Data suggests that UV radiation is not a significant risk factor for melanoma in dark ethnic groups (Glosterjr & Neal, 2006). However, UV radiation is considered a chief cause of the disease in fair-skinned people--specifically from intense early-life and blistering sunburns (Glosterjr & Neal, 2006). Even though fewer dark-skinned people developed skin cancer, a larger number of them died of the disease because most cases aren't diagnosed until they are more advanced and difficult to treat (Glosterjr & Neal, 2006). In summary, findings showed a range of perceptions within the participants when

it came to assessing their own risk of developing melanoma and who they thought were most at risk of melanoma.

In summary, findings showed a range of perceptions within the participants when it came to assessing their own risk of developing melanoma and who they thought were most at risk of melanoma. What is potentially troublesome is that some darker-skinned individuals believe they are not able to have melanoma, and thus seek detection later, and may take more risks in the sun or with regard to sun prevention strategies because they believe it is a disease of fair-skinned individuals.

### **Understanding the knowledge base**

#### **i) UV Index Knowledge**

The UV index was developed by scientists at Environment Canada in 1992 as a health protection tool for Canadians to gauge the strength of ultraviolet radiation they were exposed to. The UV Index forecast is the maximum value expected for a given day at solar noon. Generally, the further south in latitude, the higher the UV Index. However the UV Index is also dependent on altitude, reflection, clouds and of course, stratospheric ozone concentrations. Since then, it has conformed with standards set by the World Health Organization (WHO) and forecasts for 48 different locations across Canada in the weather page of newspapers, weather channel and on the weather segment of news broadcasts. The following image depicts the UV index range.

**Image 1: The UV Index Guidelines**

<http://www.who.int/uv/publications/en/GlobalUVI.pdf>

When participants were asked if they seek out information on the sun before heading outdoors, many responded that the UV index did not play a factor.

**Table 6: Acknowledgment of the UV Index**

Participant	Response
1	Do not pay attention, check temp (over 30), wind, humidity
2	Never check UV index
3	Don't look at UV, came across it in magazines
4	Never check UV, don't know how it works, try to avoid during midday
5	Does not check UV, checks weather (hot/cold)
6	Never heard of UV index
7	Heard about UV but don't understand it fully.
8	No. UV does not change daily activities
9	Does not care, does not check.
10	Does not look at UV
11	Does not check or pay attention to UV
12	Doesn't know about UV
13	Does not check UV because she doesn't understand it
14	Knows how to read UV, talked about it at work
15	Does not know what it is

The vast majority of the women interviewed never checked the UV index before going outdoors. Only one out of the fifteen participants had knowledge of what UV meant and used it to modify their behaviours. Most attributed this to the fact that they did not understand it such as participant 13 who said:

P: Not usually. I just assume if it's sunny, it's gonna be sunny and I need to put sunscreen on.

M: Right...do you know...why do you think you don't check it? Is it because you don't understand it or?

P: I think partly that and partly I don't know if it's relevant really because if it's if it's the UV index is low, if I know that it's low, maybe I won't put sunscreen on and I'll still get burnt...I don't know. I just I don't know much about it I guess.

Participant 1 also said that she did not really pay attention to the UV index while watching the weather and used her common sense instead:

“I mean it pops up on weather network when you're watching the weather but um I usually don't pay too much attention to that. I try to use my common sense, if it's hot then you better stay inside”

Some of them said that they did not bother checking because it would not change their day-to-day lives. Participants 6 and 12 said that they had never heard of the UV index before.

In summary, the vast majority of the participants admitted to not taking the UV index into account before going outdoors, either because they did not understand it or because they felt it would not make a difference to their daily practices and behaviours. This finding contradicted Garvin and Eyles' (2001) finding that skin safety and environmental awareness are closely linked in Canada. Although the UV index was readily available on weather reports, most of the women admitted to not paying attention to it because they did not understand what it meant.

## ii) **Family**

When asked where they find their information on sun exposure, the participants described various sources that included family, work, school, peers and the media. Participant 15 was the only participant who had melanoma in her family. She talked about how sun safety was important to her family since and how she still felt pressure to tan despite her family history with melanoma:

M: Oh ok. How important was sun protection growing up in your household?

P: Really important. Um, my aunt died from skin cancer. So it was my mum's sister and when she was like 20. I was the only of my cousins that had ever had any contact with her because she was my godmother so that was like a really big deal. So anytime I'm out in the sun I can't help but think of it. Even though I want to get a tan, I normally don't ever. Like I try to but I just don't have the commitment because you'd have to go like every day or every other day and like I can't stop thinking about like the effects now that I know what could happen.

M: Wow. How did she get the cancer? Was she like really active in the sun?

P: Well, they never knew for sure and it happened really fast but my mum tells stories and my grandma tells stories about how she would like lay out with metal like foil and stuff because you know they grew up in the 70s and 80s so yeah she would go out in the sun a lot and she would put lemon juice in her hair. Like they would talk about all the bad things like they would do in the sun and like yeah

M: Would you say your family is a lot more um careful now?

P: Oh yeah

M: After that happened?

P: Yeah. And my mum has had like skin cancer removed like nothing that's been bad but she's had had spots removed and so has my grandma. So it's definitely in the family but they both have a lot of freckles and I don't really have a lot of freckles. But um yeah my entire life I haven't really gone out in the sun. The only times I ever go in the sun is when I feel pressure to get a tan. (#15)

Participant 5 also talked about how she learnt from her family members and school about sun safety.

"Mostly probably at school or just like talking to people about it. Like uh, like a lot of times my grandmother actually, she always always tells me, (name), even if you're not going to stay in the sun you have to put sunblock on the hot days because of cancer and this and that. So she always actually she always told me that...but I never do. And she always said that no, people are dying of skin cancer. It's dangerous and this and that. So I guess it comes a lot from her I guess. And at high school, I studied about it at some point. And also talks I had with my dad and my mum too when I was little."

Participant 7 discussed how sun safety was important during school field trips when she was younger and that it led her mother to buy it because everyone else was

"When we were little, we never did unless it was a school trip or something like that and all the parents were like let's put on sunscreen. My mum would just do it I think more to humor um the rest of the families because why isn't that kid wearing some form of sun protection but I think also like in the 90s uh, it wasn't as well known for protecting your kids from sun as much either so I think they might have been ok with it."

Participant 10, on the other hand, talked about how her family's beliefs led her to not use sunscreen any products with chemicals in it because they felt that it was harmful to their bodies

“It's just a belief that my family has, like we just don't believe in slathering your skin with unnecessary things, like try and keep it as natural as possible and there is so many chemicals in SPF that in SPF creams that we're just like nah”

Thus, opinions expressed indicated that families could be helpful in providing knowledge about skin cancer and sun risks based on family experiences of prevention or the disease. Also, families could convey conflicting messages with regard to who is at most risk, the ages when sunscreen needs to be applied, or whether sunscreens are potentially harmful.

### iii) **Work**

Some of the participants described how they discussed sun safety at their workplaces. For example participant 14 who worked as a groundskeeper at a park during the summer described how the park employees all learnt about sun safety during training.

P: Yeah they talked about it a little bit. We've had training and stuff on how to protect ourselves from the sun and heat stroke...how to prevent...

M: Oh yeah? Did they have a workshop or session or something for everyone?

P: They have like a pamphlet and like at a staff meeting they have talked about it. Because there's a staff meeting at the beginning of the season and they talk about it then

Participant 9 who worked as a lifeguard on the other hand talked about how she and her colleagues never wore sunscreen while out in the sun even though they would remind the children visiting the pool to do so. She justified this by explaining that

P: You're getting wet anyway, teaching kids swimming lessons and all you're in the water all the time and it comes right back off and you forget to reapply and stuff so we just don't bother.

M: Oh ok, but the kids you teach, do they wear sunscreen? Do you notice?

P: Uhhh yeah, the kids do. It's kind of our job to remind them. Put your sunscreen on a half hour before you come to the pool.

M: Oh ok, so you tell them to wear sunscreen but you don't do it yourself

P: Yeah (laughs). They don't know that. (laughs)

Participant 7 who worked at a drug store discussed how she underwent training at work on the various types of sunscreens available at the store and which were the most popular (SPF 8 and 15). However, she also said that despite the training, she did not understand the UV index completely, which was common among most of the women interviewed.

**iv) School and peers**

For teens, schools are a site of intense social development. The desire to ‘fit in’ and conform to a groups’ identity is a key part of identity building among youth. Many of the participants talked about how tanning was especially prevalent in their high schools.

Participant 7 discussed how this phenomenon led her to start wearing sun protection:

“It kind of started in high school where in grade 12 when all the girls wanted to tan to look nice for grad and I was trying to be a rebel so I decided to actually start wearing sun protection at that point and so I was extra pale and that's how I maintained how pale I am but because I am first nations, well I'm originally Metis, I can tan really well and then actually look like I'm Metis. I just don't. There's like an innate fear that I'm going to have some skin cancer, I don't know why.”

Similarly, participant 14 discussed how during graduation, there was a pressure the students to tan:

P: Um, not. There wasn't a pressure per se but for grad there was.

M: For grad there was?

P: Yeah. Because like um everyone went tanning for grad just because you know like you want to look good in your dress and the sun's out but not...it hasn't been long enough for you to actually tan.

Participant 1 talked about how she learnt about using sunscreen in school when she moved to Canada from Ukraine where it was not commonly used:

“Umm coming back or being born in Ukraine, I don't even know if we use sunscreen there, I think it became more popular later umm but I really found out about sunscreen use when I came to Canada and umm grade 10 grade 8 was when I came so that's when the teachers like encouraged the students to use sunscreen but before I didn't use it at all

Participant 4 however, thought that sun safety was not emphasized enough when she was in school or in university:

“I mean I don't remember learning about it in school or from gym teachers or even university like. I mean I do think that's a flaw of university like some life skills...well I don't know if it's a skill but like everyday information should be conveyed. Like sun safety is super important and we never talked about it at a university level...no”

Participant 9 however, said she learnt about melanoma through a video she watched about cancer in high school: “I did chemistry in high school and they showed us a video. The Livestrong video...it was promoting Lance Armstrong cancer something.”

Participant 3 talked about how it was important in her social circle to be the first person to be ‘tanned’ when it got warmer:

“You try to be the first person tanned in the summer. Because June starts so it's kind of chill...like it's not warm enough but as soon as it's warm enough you want to come to school tanner and tanner and tanner in order to be dark. It's already summer to you and then at the end of the summer, people will be posting their pictures of them just black.”

She also discussed how young men in her social circles would tan to impress women while women did it to impress other women: “I feel like they (guys) don't tan to compete with guys but they do it to impress girls or girls do it to impress girls.”

Participant 7 talked about how she felt pressure to tan from her peers when she put up a picture of herself without a tan:

“I remember just this spring I bought a yellow dress and I posted a little Facebook photo and I was curious about what people think. Yellow dress on it's own is kind of...it was really bright and kind of in your face and I had so many people say you need to tan to make that dress work...and they were all like you need to tan, um everyone around me, they always everyone. I don't know a single person who does not like to tan...they all tan outside.”

Participant 13 talked about how she and her peers thought that tanning was a ‘dumb’ idea, unless they were base tanning before a vacation:

“My friends, we think tanning, like going to tanning salons is pretty dumb. Like, like overuse of them, not the whole like go once every couple of years when

you're about to go to Mexico. The over utilization of it, I don't think any of my friends do.”

Participant 10 made an important distinction between beauty ideals and common sense when it came to sun safety attitudes:

P: Society on the common sense level perceives it as like a really like not a smart thing to do like just kind of leave yourself as is but um society on a like beauty level is more like the healthier you look the better or depending on which type of beauty you're going towards like yeah, the you look healthier when you're tanned or the one...

M: You think that's the overarching perception in Canada

P: Yeah, yeah yeah.

As expected, young women received messages about tanned skin by their peers through social encounters at school or afterschool activities.

#### v) **Media**

When discussing the media's role in sun safety and tanning, the participants had many different perspectives but they all agreed that it did indeed play a big role.

Participant 3 talked about how reading about cancer in magazines made tanning seem undesirable: "The more and more I see in these magazines about skin cancer, the more and more I'm like I don't want skin cancer, I don't want any form of cancer."

Participant 7 felt that sun safety was not emphasized enough in the news and media:

“I don't think they ever actually explain it because this is like the most like they'll say on the radio is that the UV index is 7 and high but they don't ever I've never seen them say like and these are the issues that could come from it if you don't do it and I think that they should stress it more to kind of make people a little bit more aware of the issues that could happen but they don't whatsoever and so like even with SPF I don't I don't know what it does, I don't know what it means, I just know you need like UV I don't know...I don't really get what that is. I just know that it should be important for some unknown reason other than like...I feel like it should be more important and we should all know more about it even though I'm trying to, I don't do any research into it. I just know that it should have such things in it.”

Participant 8 discussed how media and society plays a big role in shaping ideas of what is beautiful:

“Well, I mean like they're probably just trying to fit into this like idea of what society has that's beautiful and society's telling them that they should be tanned. If you think, like 200 years ago the paler your skin was the better it was so they wouldn't have been tanning back then but now because they see all these people that are tanning and all these people with brown skin, they think to themselves yeah, that's what I should be and that's why they're doing it. It's probably some deep rooted insecure issues but on the surface they're just doing it because they like it.”

Participant 10 talked about how tanning was such a big issue at her high school that the teachers and staff held assemblies to discourage students from doing it:

Um, it was one of the physical education teachers slash health teachers and one of the VPs, vice principals.

M: Did they have a assembly where they talked about it or was it individual classes?

P: It was a little bit of both, first it started off as individual classes like anytime there's gym classes or something like that they'd bring it up but I feel there was like a huge assembly right before summer being like yay sun safety and like other things

M: Yeah right. That's interesting. Like so they actually just talked about like risks and everything and addressed the tanning bed issue?

P: Yeah, they addressed the tanning bed issue I know that correctly but I'm not sure like about like what else they talked about. I just know that there was a tanning bed talk and we were all just like really really uh...

M: Do you think it worked though?

P: Uh, no...

M: People are still...?

P: I'm sure people are still doing it. It was high school. Like people didn't care like what battles had to say

Participant 13 discussed how she came across a viral video (DTSM) that addressed melanoma and sun safety:

P: There was a viral video that was out a couple of years ago, last year...it's like dear past me or whatever...I was like oh I should wear more sunscreen.

M: Do you think those are effective?

P: I think that video was effective. I think everyone I know saw that video.

M: Was it all over Facebook?

P: Yeah, I can't remember where I watched it but I remember being like aha sunscreen.

In summary, the participants listed a variety of sources from which they received their sun safety information from including family, work, school and especially the role peers and the media play in influencing their attitudes and sun safety practices. This

finding indicates that women in this age group draw from all aspects of their lives when it came to sun safety but they were especially influenced by their peers and the media who are in turn influenced by ideals of beauty being upheld by the society in which they live. Tanning is often associated with physical attractiveness and an active, healthy lifestyle in Western cultures (Cho et al., 2010; Kemp & Eagle, 2009; Berwick, 2008; Rudd and Lennon, 2000; Spencer & Amonette, 1995).

### **Tanning Policy**

The Skin Cancer Prevention Act in Ontario has recently set in place a law to ban those under the age of 18 from using indoor ultra violet light treatments or tanning services, except when prescribed by a medical professional. It will also require salons to ensure that all employees who provide treatments have adequate safety training and that warning signs be posted which communicate the risks associated with indoor tanning. The following table summarizes the participants' knowledge and perception of this new policy.

**Table 7: Perceptions on new Ontario law that prohibits indoor tanning for minors**

Participant	Response
1	Agree with it. Against indoor tanning
2	Agree with it. Ideally none of it exists (cigarettes, alcohol)
3	Obvious, sticker incentive
4	Yes, people less informed in high school. Gov't control
5	Tricky situation – government control
6	Yes
7	8 year old tanning in Europe, good idea, base tanning
8	Didn't know about law, good idea, school regime to tan
9	Good idea, would not have started, never checked ID, parents don't care
10	High school kids complained about law on Facebook, don't think about consequences
11	Good idea, under 18 don't understand, increase awareness
12	It's ok. Less of a habit, everyone wants to look the same in high school
13	Kids should not be tanning, influence from magazines/media
14	Good idea, teenagers cannot grasp concept of risk, grade 10-11

15	Definitely should, people who tan are misinformed, hard to make decisions under 18
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When discussing the new tanning law that has just passed in Ontario, many of the participants said that they were not aware of the law passing. When asked about their views on the tanning policy and the age restriction, most agreed that it was a good idea. Participant 3, however, said that 18 was too low an age:

“I think that the age of 18 is still low because I feel like when you're 18, you can be 18 when you're in high school and I think that the pressure of high school is greater than when you're out of high school and you're back home somewhere and you know it's just your close friends than when you go to school every day in June and you see people that are darker and darker so you go home and tan. So I feel like it's a little low and especially because if you're not in university, you haven't had that like maturing period where you're off on your own, you make your own decisions and you become more of an adult whereas in high school you're still not.”

Participant 10 explained how young people often felt invincible when they engaged in risky behavior like tanning indoors

"They feel invincible. They feel like they can do anything and get away with it...no one goes in tanning thinking; oh I'm going to get cancer. Like no one goes in thinking that. They think like, I'm going to look fabulous but like they don't think automatically the consequences of possible consequences that occur"

Participants 3 and 13 discussed how tanning salons used incentivization techniques like stickers and stamp cards to lure and keep young customers. Participant 3 explained:

P: "And then I have another friend but she's older than me. She's like 19, 20. Well now she's 20 and she always goes tanning but I feel like she does it so that they give her the sticker so that she could have the sun like the uh, sun tan...you stick a sticker on you and you tan with the sticker on and then the bed, since the bed works so fast you just lie there for 10 minutes and you have like a little thing. And every time you go, they give you the sticker.

M: Is it like a design?

P: Yeah, it's a design. Like a heart or a star. Like here, wherever you want. Like usually people put it right above like their bikini line and then they keep going back and back. It's kind of like an incentive because like when you're out in the sand at a beach, you're not going to be sticking stickers on you...I tried with normal sun one time and it didn't work. The sticker just falls off.

In summary, when discussing the Skin Cancer Prevention Act that was just passed in Ontario, many of the participants said that they were not aware of the law passing. When asked about their views on the tanning policy and the age restriction however, most agreed that it was a good idea because they thought the government were in the right to intervene to prevent harmful practices such as tanning from taking place at least among minors.

### **Conflicting Messages/Ambiguous Practices**

#### *How to Improve Messaging?*

When asked if they were subjected to conflicting messages on tanning and tanned skin, many of the participants said that there were indeed conflicting messages they have come across from the media and more health focused media. Participant 6 said:

“If I was to heed the more glamorous side of the media, then yeah I would be conflicted. Yeah, I guess because when I think of that I think of ads with sunscreen but it would be obviously a perfect model and really tanned anyway so it just makes me think if I use factor 15, I'm going to look amazing like her but um, conflicting messages, um, not really. I know I should but I don't.”

Participant 14 also discussed the media's role in shaping views on tanning in society:

P: Um I think just in general we get messages saying that being tanned and stuff is good and it's socially accepted in our society. You know like the fashion industry and all that stuff but they don't really tell you how to get tanned safely and you see all the celebrities are all tanned and like everything but you never see them talking about sun safety and...

M: So you think that in society they're kind of promoting this image of being tanned but like people know that it's harmful but they don't know how to get that

P: Yeah there's like the media and just like they're portraying tanned as being what's good but really they should be talking about safety. And I think some do but not enough

M: Some what exactly?

P: Like some talk about the risks and stuff

M: Like celebrities?

P: Yeah some celebrities but not the extent where it's making people think. It's not making them go okay maybe I should put on a hat and stay out of the sun.

Participant 9 also talked about how tanned skin was valued in magazines and media:

P: Yeah, like kind of pretty mixed up messages. Yeah like the health people are telling you "don't do it. It's bad for you. It's so bad for your health" and stuff but

then magazines are like Vitamin D and stuff and it's good to go every once in a while in the winter. And then...

M: Go where exactly?

P: Like tanning...

M: Indoor tanning?

P: Yeah. Or just like get your vitamin D from it kind of in the winter. Um, and then everyone's saying that it's bad for you. Like, other magazines but then you have all these people who do it. Like I know so many people who tan so you're like "I guess it can't be that bad if so many people do it"

M: Do you think all these people are aware of these...

P: I think they know...

M: They know?

P: Because people joke about getting cancer all the time.

M: Oh ok

P: Like "Oh I've got cancer. I'm so dark right now" but no one actually takes it seriously

M: Nobody actually thinks they're going to get it? It's just like oh it might happen

P: Yeah, because we're still so young right? Yeah.

Similar views were also shared by participant 8:

Just in that same magazine you'll see an article about like accepting like your body or something like that and then you flip to literally like the next page and you'll see the skinniest model ever at like some Givenchy like runway show so like I wanna be like I'm above it all because obviously it effects everybody but it's kind of just like, ok, it's the world we live in, it sucks but I feel like if they really want to make an effort in saying it was bad, they could really make an effort but like too much to the point where it's just like no every model in the magazine therefore has to like her natural like skin tone, I feel like that's would be really hard to do so in their own way, I guess they're making their own half hearted attempt to protect us from like um, to protect from the sun but that's all anybody can really do.

Participant 1 shared some scepticism on some of the sun safety messaging that she had come across. She said:

“Well for one side they said it's good that vitamin E (D) is good and on the other there is like cancer risks and everything now so you really don't know whether its just a rumor or whether they are trying to scare you with all the cancer risks or...whether its not so bad like you have to know your own limits when you're in the sun and you'll be fine.”

Participant 15 discussed how she knew about tanning salons spreading misinformation on how indoor tanning works in order to promote their product:

P: Yeah, yeah I read that there was a company that called various tanning places pretending to be a customer and asking like is this going to be harmful for me, should I not come, I have this color skin and stuff and they give them the

complete wrong information even though it's like illegal to do that and they have certain information that they have to tell the customer that the people answering the phone will lie um and then yeah so yeah (laughs) that's how the actual stores will try to convince you

M: You mean the tanning salons?

P: Yeah...Anything else? Like let's not talk about the indoor tanning. Like just in general? Like sun safety, do you think like there's any sort of um, mixed messages?

P: I know there's some sort of like I've heard some of the scientific sounding things that talk about like UVA and UVB rays and like with indoor tanning they have like certain type of UV light that's like a black light so it's not bad for you because it's like the type of UV ray it is and then I've read other things that say that's completely wrong. Like any type of UV rays can be harmful that like high levels. It's mainly just like been indoor tanning misinformation because like outdoor tanning everybody kind of knows that it can be bad and that overexposure is bad but it's hard to tell in a tanning bed if you're being overexposed especially because you normally don't burn so you just get like a healthy looking even tan and it's like very short amounts of time. It's like 7 minutes, 7 to 10 minutes so it does not seem like that a big of a deal. Whereas like outdoor tanning, while you're tanning, you can really feel the heat, you sweat, you feel it. It gets hot and you burn and it's a lot easier to tell when you're like harming your skin.

For participant 13, however, there was lack of clarity on SPF numbers and what it means of their effectiveness: "I think the most conflicting thing was the uh, effectiveness of different SPFs because that's a little ambiguous to me like what the difference is like yeah."

Several participants discussed how many people believed that they were not at risk of developing melanoma and almost thought themselves to be invincible even though they were engaging in harmful sun practices regularly. Participant 13 suggested that the hazards of tanning should be better disseminated through social media to the public to raise awareness. She said:

"I think people just think that they're like oh I'm not gonna old and all wrinkly and gross. I'm not gonna get cancer. I can tan. I need to look pretty now. Screw future me. So I don't know, maybe more...I think social media's definitely a good tool to get messages like that across because people that are overusing tanning beds are the ones that are using social media. Um I don't think they are aware. I don't know. I think they are aware and they are just ignoring it to be honest."

The findings of this study also revealed more dangerous marketing methods being used by the tanning industry to get their customers hooked onto tanning. Some of the participants discussed how tanners were encouraged by the tanning salons to visit regularly through incentivization. Participant 3 described how her friend would visit a tanning salon regularly to maintain a design that wearing a sticker would leave on her skin while in the tanning bed:

“I have another friend but she’s older than me. She’s like 19, 20 and she always goes tanning but I feel like she does it so they give her the sticker so she can have the sun the sun tan...you ever heard of that? No, you stick a sticker on you and you tan with the sticker on and then like the bed, like the bed works so fast. You just lie there for 10 minutes and you have like a little thing and every time you go they give you the sticker...yeah it’s a design like a heart or a star or something and you put it here or wherever you want. Usually people put it right above their bikini line and then they keep going back and back, it’s kind of like an incentive so because like when you’re out in the sand by the beach, you’re not going to be sticking stickers on you...”

Participant 15 described another way tanning salons incentivized their services through a stamp card program.

“No, and they go with their mom. I don't think there are any laws on it. It’s really popular in the south like everybody goes and they go like together and they have like tanning passes and they’ll go for Menchies you can get those cards for frequent users...”

Such aggressive marketing techniques and the use of “unlimited” tanning packages by many tanning salons promote overexposure to harmful UV radiation, especially among young women (Kwon et al., 2001).

## **Conclusion**

When the participants were asked to discuss what they thought were the benefits and risks of sun exposure, almost all of them mentioned Vitamin D as a benefit of sun exposure except for one of them who mistook it for Vitamin E instead and another participant was unsure as to whether it was Vitamin C or D that was a health benefit of

sun exposure. In sum, most of the women commented their mood while outside in the sun, reinforcing the idea that being in the sun and tanning improved their mood and made them happy. The women also perceived gaining a tan or colour from being out in the sun as a benefit of sun exposure. When it came to risks, the women identified skin cancer, burns, and visible aging as negative impacts of sun exposure.

The participants revealed a range of opinions as to what they think of outdoor tanning and tanning in a salon. Most responded that they thought that indoor tanning was dangerous while two were sufficiently aware of the dangers of the indoor tanning beds. One of the most important findings of the study is that the vast majority of the participants admitted to not taking the UV index into account before going outdoors, either because they did not understand it or because they felt it would not make a difference to their daily practices and behaviours. This contradicted previous literature that emphasized on the connection Canadians often made with the environment and UV index (Garvin & Eyles, 2001). The research did however confirm the inability of most Canadians to make the connection between their health and the environmental implications of the UV index (Garvin & Eyles).

Findings also showed a range of perceptions within the participants when it came to assessing their own risk of developing melanoma and who they thought were most at risk of developing melanoma. Most recognized that they had as much of a risk as everyone else and that everyone should be conscientious in practicing sun safety. Several participants linked age with the need to protect themselves from the sun, citing children and elderly at most risk. One of the participants who were of African descent also discussed how people with darker skin take being out in the sun for granted because of their perceived inability to 'tan' and become darker.

When asked, the participants listed a variety of sources from which they received their sun safety information from including family, work, school and especially the role peers and the media play in influencing their attitudes on tanning, what is considered beautiful and sun safety practices. They also discussed the contradictory messages present in society on tanning and tanned skin and the numerous incentives used by the tanning industry to attract customers.

### **Future Research**

More study is needed in understanding why well-educated women still continue to engage in harmful tanning behaviours in Canada. Studies also need to be carried out on how to better educate and disseminate health messaging when it comes to sun safety and tanning. Research into sun safety measures such as the various types sunscreens and their popularity among the public would also provide much insight into which prevention measures are most effective and preferred by this demographic.

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**Manuscript 2 (Chapter 3)**

**Fifteen Canadian university women's sun practices and skin cancer prevention  
strategies**

Kainat Bashir

University of Ottawa

## **Introduction**

Melanoma is one of the fastest growing cancers worldwide. 90% of melanomas are caused by exposure to ultra violet (UV) radiation from sunlight, including radiation from tanning beds. It is therefore the most preventable cause of melanoma. According to the Melanoma Network of Canada, melanoma is one of the most frequent cancers in Canada, diagnosed in 5800 people in 2012 and causing 970 deaths. Although an individual is at higher risk for melanoma if they have certain biological characteristics such as fair skin, red or blond hair, freckle easily, have many moles, have a close family history of melanoma, it can affect anyone regardless of sex, age, or race. The likelihood of developing melanoma is higher if the individual has a history of severe burns or is subject to excessive exposure to UV light from the sun or use of tanning beds. Evidence shows that it takes only one blistering sunburn to double a person's chances of developing melanoma.

Non-melanoma skin cancer represents the most common of all cancers diagnosed among Canadians (Canadian Cancer Society's Steering Committee on Cancer Statistics). In 2012, an estimated 81,300 Canadians were diagnosed with non-melanoma cancer and 0.4% will die from it (Canadian Cancer Society's Steering Committee on Cancer Statistics). Whereas melanoma will be diagnosed in 5,800 Canadians, but an estimated 17% will die from it (Canadian Cancer Society's Steering Committee on Cancer Statistics). In Ontario alone, melanoma is the second most common cancer in young adults aged 15 to 34 after lymphoma (Media Backgrounder - Skin cancer facts, 2008).

This paper is part of a larger study that looks at sun safety and tanning knowledge and practices among young Canadian women, but the focus of this paper is to explore the sun safety and tanning practices young Canadian women engage in and the reasons behind it. Some of the questions explored in this paper are: Do you tan and how? For

what reasons do you like to tan? What do you do when you're in the sun? Do you alter activities based on the sun? Do you practice sun protection? How important was sun protection growing up in your household? Do you practice sun protection when engaging in physical activity outdoors? How often do you reapply your sunblock if/when you do use sun protection? Do you look for SPF in products? Is there any SPF in your makeup or moisturizer?

The existing literature on skin cancer is predominantly quantitative in nature and can be grouped into several broad categories: 1) bio-medical literature that looks mainly into biological risk factors of developing skin cancer and effectiveness of treatments, 2) studies that look at the impact of the physical environment on melanoma incidence rates, and lastly 3) psycho-social studies that look into social factors contributing to excessive sun exposure, as well as studies of the effectiveness of school, community, media and promotion campaigns. Most existing academic literature is from researchers in the United States, Australia or Europe, while very little qualitative research has been carried out in Canada. As such, key studies on skin cancer outside of Canada will inform my research. The following literature review provides a foundation on which my research will be based, and is limited to the areas most relevant to this study. Literature pertaining to attitudes and practices involving sun safety and tanning will be considered, with particular attention paid to the messages and how they are framed and communicated.

### **Social Environment**

Perceived attractiveness is one of the strongest predictors of behaviours associated with getting a tan. Tanned skin is often equated with beauty, and can serve to reinforce dominant values towards youth, leisure, rest and relaxation. (Banerjee et al., 2008). People with low levels of body satisfaction were observed to sunbathe more than those with higher levels (Banerjee et al., 2008). In her/his study on 896 American college

students, Banerjee found that tanning behaviours were most often shaped by motivation to maintain an attractive appearance as opposed to interests of increasing vitamin D exposure (Banerjee et al., 2008). Tanned people are also perceived to be healthier than those without a tan even if they are not necessarily so (Banerjee et al., 2008).

Lynda Johnston's (2005) analyzed the construction of "whiteness" and feminine beauty among the Pakeha ('white' or European) in New Zealand and its relevance to leisure culture in the country and found that the Pakeha's attitudes to sun exposure and tanning had changed since the early 1900s like most other Western countries. Many of the women interviewed desired to be darker as they viewed tanned skin to be 'unflawed' as the tan would hide cellulite and blemishes in one's skin while at the same time they viewed porcelain, unblemished skin as being something that was desirable (Johnston, 2005). The inability of many of these women to achieve a porcelain perfection led them to pursue what they perceived to be flawless looking skin by tanning and by doing so they age their skin through excessive sun exposure (Johnston, 2005).

Analysis of gender figures prominently in the literature of sun and skin safety. Stephen Arthey and Valerie A. Clarke (1995) examine how gender constructs influence attitudes and behaviours related to sun tanning and sun protection. The study found that there is definite gender difference in health beliefs and behaviours (Arthey & Clarke, 1995). Even though women are more likely to understand the risks associated with tanning and skin cancer and are more likely to use sunscreen and engage in skin-protective behaviours than men, they still desire being tanned and perceive tanned skin as being a sign of health (Arthey & Clarke, 1995). This indicates that most women are more likely to put aside the dangers of tanning and believe that the benefits outweigh the risks (Arthey & Clarke, 1995). Both people that tanned regularly and those that avoided it in another study believed that although tanned skin is not particularly healthy, they indicate

a higher social status is attached to tanned skin (Garvin & Wilson, 1999). The respondents in the study also perceived tanned women as being young, socially active, and popular (Garvin & Wilson, 1999).

Additionally, a Canadian study conducted in the province of Quebec found that tanning bed use was very prevalent in that region, especially among young women (Rhainds, Guire, & Claveau, 1999). Approximately 20.2% of the respondents in that study had reported that they had used a tanning device at least once during the last 12 months before the study was carried out (Rhainds, Guire, & Claveau). A significantly high proportion was young and female (18 to 34 years old) (Rhainds, Guire, & Claveau). The study also found that the most common reason given for using the tanning devices was to “to improve their appearance by a tan” (Rhainds, Guire, & Claveau). It will be very interesting to explore why young women who are most likely knowledgeable about potential risks are still prone to putting themselves at risk of developing skin cancer and explore their sun behaviours.

Studies in American have found that knowledge of UV radiation, skin cancer and protection is high among the general population and had improved greatly in the last two decades (Robinson et al., 2008; Stanton et al., 2004). Although there has been such an improvement in awareness, adolescents and young adults were still found to have the lowest skin protection rates of all the age groups thus receiving the most exposure to harmful UV radiation and increasing their chances of developing melanoma (Stanton et al., 2004). This indicates that although they seem to know the dangers of too much UV radiation and ways to prevent overexposure, they are still not practicing them on a regular basis.

In sum, the studies discussed in this literature review explored many facets of melanoma, how gender and perceptions of feminine beauty by society construct ideas of

an ideal when it comes to beauty and how it is important to acknowledge this when trying to understand sun safety attitudes and behaviours. Through my literature review, I discovered that although there have been numerous studies that have been carried out to observe and analyze young women and their attitudes towards tanning and sun safety, very few were conducted in a university or college setting during campus activities and even fewer in the Canadian context recently. I believe that it would be valuable to understand how this group of women is influenced by peers and society when it comes to sun safety. This population is unique because they are educated and have the ability to make informed decisions with regard to sun exposure.

The aim of this chapter is to contribute to an increased understanding of their sun practices. I am interested in the dominant sun safety messages targeted to women and how these messages are received and understood. A qualitative analysis of women's experiences will reveal gaps in effective sun safety messaging, as well as provide insight on the ways in which the issue could be addressed with the goal to stimulate further research in this understudied area.

## **Method**

This study uses the two qualitative methods, semi-structured interviews and thematic content analysis to examine in detail the discourses that surround melanoma, tanning and sun safety in the Canadian context. Data was analyzed through the lens of gender analysis. In addition to bringing focus on the cultural and social attitudes related to tanning and sun/skin safety practices and practices in my research project, discourse analysis is also helpful in grounding it in the constructionist epistemology to carry out the investigation of the discourses present in the issue. This involved the analysis of individuals and organizations through spoken words, symbols, pictures and written text

to understand the context within the various discourses representing and influencing sun safety messages.

## **Participants**

This study took place over 2 weeks in the fall of 2012 after obtaining ethics approval from the Research Ethics Board at the University of Ottawa. Fifteen participants were recruited from the University of Ottawa student population through the use of poster advertising and word of mouth. The participants were all female and in the age group of 18 to 29. The participants recruited represented a diverse and inclusive sample population in terms of ethnic background, social background and program in which they are studying. Interviews were conducted in English, the first language of both the interviewer and interviewees.

Criteria for participation included being a student at the University aged 18-29. Informed consent was obtained from each participant before the start of the interviews. The participant of each participant consisted of one interview, conducted by the principal investigator. The interviews were conducted on the university campus. The same interview protocol was administered for each of the subjects. The interview guide was developed after reviewing literature on melanoma risk factors and sun safety messaging. Each study participant was interviewed one at a time, and each interview lasted from 40 to 60 minutes. The interview guide dealt with topics such as sun practices including prevention, how they tanned, their knowledge and perceptions of the sun and its effects and melanoma risk, where they acquire their knowledge on sun/skin safety, and their thoughts on indoor tanning. All interviews were digitally recorded and transcribed by the principal investigator.

**Data Analysis**

The same data analysis methods were used for each interview. Five of most salient interviews of the 15 interviews were initially transcribed, analyzed and coded manually to generate overarching themes. The rest of the interviews were then listened to and select quotes were transcribed based on the themes generated. No additional themes emerged from the listening to the rest of the interviews. Decisions on which themes to expand on for further analysis in this paper was based on the consistency in which the theme was referenced throughout the interviews and its relevance to the literature the research questions were based on. Transcriptions were sent back to the participants for review; none had any suggested changes.

**Table 1: Data Analysis Chart**

<b>Theme generated</b>	<b>Quote</b>	<b>Interpretation</b>
Tanning as a social activity	“Yeah (laugh) but it's like a relaxing thing almost right. You can go and just like chill with your friends and get your nails done. You're not really talking to your friends the entire time but it's just doing something together.”	Some of the participants that tanned mentioned that it was a social activity in their peer groups, whether it be indoor tanning or just sun bathing outdoors.
Beauty	“I mean I think one of the younger pressures is that everyone is pressured to look a certain way. Everyone wants to be sun kissed and glowing and nice shoulders and a tan is in right? So if no one is getting that look then maybe that's a good thing whereas if some people have the look, you're like oh I want that right but none of you are not allowed to do it but then that also seems really like, “I control you” which kind of freaks me out a bit.”	Beauty is often referenced when describing the look of tanned skin. It is thought to be more attractive and healthier looking than pale skin.
Base tanning	“Um, when I was going on vacation, I was going on vacation in Florida in like late February March-ish and I was really pale that time of year so I wanted to work a base tan so I when I got there I didn't burn like right away on the first day so I had a little bit of colour when I was there.”	The practice of getting a base tan was referenced by some of the participants as being common in their peer circles. It is wrongfully thought to be a protective measure against the sun damage.
Wearing SPF and reapplication	"I kept meaning to get sunscreen honestly to get a better tan but I never ended up getting it so I would kind of purposely stay out in the sun more...Not baby oil but like a tan accelerator or something like my friend she had some but I never ended up using them anyway. I was torn between using that and using just a low factor sunscreen...yeah it does (have sunscreen) but a low one and I think it's I'd say it's a lot more dangerous than normal SPF"	The participants described their SPF and sunblock use, which varied from participant to participant. Some were diligent about reapplication and using the right SPF whereas others preferred using low SPF tanning oils and never reapplied as needed.

Interested participants were asked to fill out a short survey before being selected for participation. The following table outlines the responses of those that were selected:

**Table 2: Research Participants**

#	Age	Faculty/Department	Do you use/have used indoor tanning salons?	To which racial or ethnic group(s) do you most identify?
1	21	Political Science/Social science	No	Eastern European/Ukrainian
2	20	Psychology with a minor in Criminology	No	Caucasian (French)
3	18	History/political science	No	Caucasian
4	21	International Development and Globalization/Faculty of Social Sciences	No	Canadian born, Indian roots
5	22	Department of Computer Sciences, Faculty of Engineering	No	Caucasian
6	20	Arts and Social Sciences (English & Psychology)	Yes	Only really ever identified as Irish with English roots
7	24	School of Translation and Interpretation (Arts)	Absolutely NOT	Metis but fair skinned.
8	18	Telfer School of Management - International Management	No	African (black)
9	18		Yes, frequent tanner	Caucasian
10	20	Criminology/Social Science	No	Afro-Caribbean
11	20	Human Kinetics	No	Caucasian
12	23	Health Science	No	Indian
13	20	Faculty of Social Science, Economics	No, I have never and will never use indoor tanning beds	Caucasian
14	21		Yes	Caucasian
15	18	Biomedical/Science	No	Caucasian

Almost all of the participants indicated they were tanners or enjoyed tanning. Of the fifteen participants, three had admitted to using a tanning bed in their lifetime so far – participants 6, 9 and 14. Participant 9 described herself as a “frequent tanner”.

## **Findings**

### **A) Practices**

Participants were asked if they tanned and the reasons why. Throughout the interviews, some of the participants explained why they engaged in tanning behaviours. For some of them, it was a way to socialize with their peers. Others cited that they wanted to look more attractive and disliked having tan lines and pale, pasty skin.

#### **i) Tanning as a social activity**

Some of the participants described how tanning had become a social activity among their peers. Participant 9 described how she and her friends went to the tanning salon together just like most girls her age would go to the nail salon:

“Yeah (laugh) but it's like a relaxing thing almost right. You can go and just like chill with your friends and get your nails done. You're not really talking to your friends the entire time but it's just doing something together.”

Participant 15 also talked about how many of her peers would visit tanning salons together.

“I think a lot of my peers...I know a lot of people go tanning together. Um, then like I don't even try to tell them off because I think they know but just don't really care so...”

Participant 4 also discusses how she and her friends would lay out in the sun together to tan before big events such as prom or a wedding.

“Um, quite normal. Uh, I mean at least majority of girls not so much guys but like my girlfriends it's totally normal, and in many different circles of friends, it's completely normal to be like, “Wanna come over, let's tan by the pool?” or we're talking about what dress are you going to wear to prom or to the wedding or to some kind of big event, you're like “oh my god, I have tan lines. I have to get rid

of those". Like that's completely normal to me. Even though like I think about it and it sounds quite stupid but it is the way it is. And um..."

In sum, tanning was a social activity the women discussed was common among their peers. Not only were they tanning together outdoors, but they were also visiting tanning salons together much like they would visit nail or hair salons.

## ii) **Beauty**

When discussing reasons why people tanned, the most frequent reason given by the participants interviewed was that having a tan was considered attractive and a standard of Western beauty ideals. According to participant 9, woman today are influenced by media and society's perceptions of beauty. She says:

"I think it also has to do with like the stereotypical kind of just like pretty girl these days. Like if you see Jersey Shore? Yeah, like the guidos or whatever, tanned skin, dark hair like that's what people are...they see that and they're like "I gotta look like that too. I gotta tan there so..."

Participant 1 chimes in on this when she says that tanned skin is a sign of beauty and that it makes one look better. She says, "So I think that it's uh also that it's a sign of beauty (laughs) but that its something that adds a little bit to the way you look..." When asked why she tanned, participant 4 explained, "Um, I guess the same reasons as most people. To have a nice glowing colour." Participant 9 also said something similar when asked why she liked being tanned: "Yeah, and like the colour too. It's nice to have some colour."

Another reason why many of the participants explained why they liked to tan was because they did not like being pale or "pasty". Participant 9 summed it up when asked about what she thought her and her friends considered ideal beauty. She said, "I think tans are nice anyway. I like colour over being pasty white. Colour is nice. That's what I consider pretty. Like a little bit of colour." Participant 15 also believed that tanned skin

was universally desired but that there were also other standards of beauty but they were harder to achieve

“I think everybody loves tanned skin. I don't think I've met somebody who's said that I like someone who's really really pale. I think that looks nice. Some people try to be different and are like oh I like people with like red hair and pale skin but that's like a really specific look and like really classy ivory skin and really hard to get.”

According to some participants, having some colour in their skin made them look nicer and hid their imperfections better. This was especially emphasized with some of the participants' disdain for tan lines. Participant 4 talked about how she sun tanned to get rid of tan lines before prom: “But like actually going to lie out in the sun to get rid of lines and stuff but I don't think I've ever really done that for any other event.” Participant 15 shared that sentiment when she said, “I just feel it looks better when you have tanned skin. You can see less imperfections.”

Some of the participants recognized that age played a factor in societal influence when it came to standards of beauty. They explained that tanning was more common in high school as the pressures to conform to a certain look were greater then. Participant 4 explained when discussing the law to ban indoor tanning for those under 18 in Ontario:

“I mean I think one of the younger pressures is that everyone is pressured to look a certain way. Everyone wants to be sun kissed and glowing and nice shoulders and a tan is in right? So if no one is getting that look then maybe that's a good thing whereas if some people have the look, you're like oh I want that right but none of you are not allowed to do it but then that also seems really like, “I control you” which kind of freaks me out a bit.”

She also discussed this in further detail when she said:

“So like grade 9 through 12, I mean that's a huge part of your life that that growing stage and a lot of it is I would say based on appearance. There's a lot of pressure to look a certain way so I do think I had a lot more friends in high school that were indoor tanning than I do now but I wonder if now they look back on that and are wondering or thinking that they shouldn't have been doing that. I'm not sure.”

Participant 15 also discussed the pressure she faced from peers to conform to the ideal look. She said:

“People constantly saying “oh you’re so white, you’re so white” so I’ve always thought about that and I would be like I don’t want to be white anymore and I tried spray tan. It was ok...it was just weird.”

Participant 9 similarly said that she would feel encouraged by her peers when they would compliment her tanned skin:

“Yeah, like oh, you look so tanned. Yeah like thanks. (laughs) Or you look so tanned. Have you gone away on vacation. I'd be like no. But I've been outside all the time. I just like having a tan.”

Participant 1 on the other hand did think that individuals had some autonomy over how they treated their bodies. She said that even though there was pressure to conform, it was ultimately up to the individual to decide what he or she wanted to do:

“We are all influenced by society in one way or another so even if your just talking to your family or friends there is some society element in that you can never run away from that but of course it depends on the extent to which you depend on what the media tells you like you should be skinny so I'll kinda go and get surgery or not eat for 3 months.”

In sum, the participants described how society and its standards of beauty (which is to have glowing tanned skin) influenced them to engage in practices which would lead them to gain a bronzed complexion, whether it be by tanning outdoors in a social setting with friends or by engaging in the even more harmful practice of visiting tanning salons. Tanned skin was equated with beauty with all the women interviewed regardless of their skin tones, whether it was Caucasian, Asian or African.

### iii) **Base tan**

Another phenomenon that came up numerous times during the interviews is the act of getting a base tan before vacations. Several women interviewed mentioned how they thought getting a base tan would protect them from burns during their trips.

Participant 9 said:

“Um, when I was going on vacation, I was going on vacation in Florida in like late February March-ish and I was really pale that time of year so I wanted to

work a base tan so I when I got there I didn't burn like right away on the first day so I had a little bit of colour when I was there."

Participant 13 also observed that her peers were getting base tans for the same reason.

She believed that by getting a base tan, a person would not get burnt while on vacation:

"I know people that go and get like light base tans before they go somewhere tropical in the winter because once like the middle of winter hits your skin like what's sun and then don't get as like just like in the summer when I play after a couple of weeks, it won't burn as badly because you have like that base tan. What how much like which is more harmful? Not getting the base tan from the tanning salon and getting really burnt in Mexico or going and getting a base tan and then not getting super burnt. I don't know."

Similarly, participant 4 said that most of the people she knew who visited tanning salons did so to get base tans:

"Yeah, I think actually that's the majority of people I know use the indoor tanning salon for. It's to get the base tan so that they don't burn...Um, at least with my lighter skinned friends, they for their base tan before they're going down south or somewhere because they're pigments, it prevents burns. I'm not sure how that works. I don't really believe in that but again I don't have super fair skin."

Participant 7 talked about how she would consider getting a base tan before she went on vacation as she had seen many of her peers do the same. She believed that it would help compensate for not practicing proper sun safety during her trip:

"Though I've always question, I've never gone somewhere really warm. I wonder if, say Mexico, I would consider to get this base tan before I left so I didn't get as burnt as bad. I've heard a lot of people do that and I've thought about it but I've never...I've always wondered if they get the base tan so that they can just continue to get tanner and then they don't have to practice sunscreen safety because I think the whole reason they're doing that is then because they're not practicing proper sun care because it's just like if you have a good strong SPF and you continually apply it, should you not get burnt. Like that's my thoughts so I don't think I would...I don't know if I would...Everyone goes and gets a base tan before they go somewhere warm, yeah...I've never not known a single person who's never gotten the base tan before they left. So like Mexico or wherever...even Las Vegas."

Similarly participant 13 talked about how she contemplated getting a base tan before going on vacation to Mexico:

"Last summer when I went to Mexico, I thought about going to a tanning salon like once to try and get just a little bit of colour so I wouldn't burn as bad and then I went to Mexico and I didn't do that I got really sunburnt. So it's kind of like if I

just go on how much harmful would it have been then it would have been to like get the really bad sunburn so I don't really know how that works.”

Participant 13 also discussed how building a base tan naturally helped her prevent burns while working as a tree planter during the summer.

“Yeah, I won't burn as much once I have some colour versus like...or this summer planting I always put sunscreen on but then I took off a layer and I had skin on my back exposed and I forgot about it and I had a really bad sunburn for like a week. I couldn't wear the bags I had to wear. But like the rest of my body even though like I had only applied sunscreen like once or twice that day, the rest of me didn't get burned. Only those patches that hadn't had any tan on them burned. So like that little bit of a base tan that I get after a few weeks keeps me from burning in the summer.”

As described, it seems that a few of the women and their peers believed that having a base tan would protect them from getting burnt during any of the activities they engaged in after whether it be a sunny vacation or tree planting at work. The misconception that a base tan will protect the skin is dangerous even for those who never burn, as prolonged exposure to ultraviolet (UV) radiation can lead to skin aging (including wrinkles, lines and age spots) as well as skin cancer. The idea is that getting a base tan increases the amount of melanin (protective pigment) in your skin, which will in turn protect you from further UV damage. While this idea might seem logical, there are some problems with this theory. While it's true that melanin does protect skin from getting burned, the amount generated from a base tan is not substantial enough to do so. Tanned skin is damaged skin.

## **B) Prevention**

### **i) Wearing SPF**

When discussing sunscreen and the use of SPF products, several women discussed how they found it to be unpleasant, especially when it came in a cream/lotion form. Participant 7 said:

“Um, no, definitely. I find if I use SPF lotion like just for under, some people do that say that underneath the foundation, it breaks my skin out so I just avoid it. Um, sometimes my SPF is in the foundation but it's still low. It's like 15.”

She continued and talked about how she preferred using it in the spray form:

“I like the spray. The spray for convenience because I find that although you're not getting as nice of a coverage as lotion, I don't like putting lotion on. I find that it's not nice of a texture thing so. I think that was also an integral part of how I started getting into sunscreen more because I could not stand that – the lotions.”

Some of the participants interviewed discussed how they would wear products with a low SPF such as tanning oils and accelerators to build their tan and prevent burns while they were outdoors. Participant 9 discussed it when asked about what SPF product she uses: “I did get this one...it was like sunscreen oil...it was SPF 4...It helped with the tan. I don't know what it did for sun protection but it worked with my tan.” Similarly participant 15 said she preferred using a low SPF sun protection because she thought it did enough to protect her against harmful UV rays while allowing her to build a tan:

“Well, um, the ones that are 10 say 'tanning' on them so they're more like a tanning oil kind of thing but they still have some SPF in them. And I know like that most amount of UV rays you can keep off are the best so yeah if I'm willing to compromise for the small SPF.”

She continues and says that if she were wearing anything with an SPF higher than 30 she would not get any colour: “Like I know for a fact that if I'm wearing anything 30 or higher I will not get any colour unless I'm out for a very long time.” Participant 6 also talked about how she intends to buy a low SPF sunscreen or tan accelerator so that she can get a ‘better tan’:

"I kept meaning to get sunscreen honestly to get a better tan but I never ended up getting it so I would kind of purposely stay out in the sun more...Not baby oil but like a tan accelerator or something like my friend she had some but I never ended up using them anyway. I was torn between using that and using just a low factor sunscreen...yeah it does (have sunscreen) but a low one and I think it's I'd say it's a lot more dangerous than normal SPF"

Participant 5, on the other hand, said that she does not check the SPF on the sunscreen she buys, but instead goes for the cheapest one available: “P: No, I don't. I know it's bad

but only if I'm at the beach...I use sun tanning lotion once a day...I'm not sure (if it has SPF). I buy the cheapest one."

Some of the participants talked about how one of her peers used tanning oil while they were lying out in the sun during the summer. Participant 3 said:

"That kills me. It's tanning oil...they love it. They love tanning oil. Like it's ridiculous. Like oh can I borrow your tanning oil? Like I went to my friend's house and I'm putting on 30 SPF sunscreen because like we're tanning, well we're lying in the sun really but I guess that counts as tanning. And she's putting on like sun-like tanning oil every half hour...because you don't burn because you reapply it so often because like it glistens right...so it attracts the sun but you have a very small SPF so you don't burn."

According to participant 7 who worked at a Shoppers Drug Mart, the most popular SPF sunscreens that were sold in her store were 8 or 15: "Probably the most popular sunscreen is 8 or 15 SPF because people are like they want to tan. Or the oils. The oils sell like crazy still."

## ii) **Reapplication of sunscreen during prolonged sun exposure**

All the women were asked about how often they reapplied sunscreen if they used it. Out of the 15, 9 used sunscreen regularly, 4 used it sometimes and 2 never. When asked about reapplication, there were varying answers as well. Some of the women were diligent about reapplying when they felt it was needed like participant 14:

"Um, when I'm working it's every 2, 3 hours I'll reapply some sunscreen on my face especially and my neck. Um, but when I play softball and stuff, it's only at the beginning. But the game's only about an hour and a half anyway. In general I would say 2, 3 hours every 2, 3 hours."

Participant 2 on the other hand, reapplied at least once though the day: "At least once during the day. Like I'll put it on at the beginning of the day and reapply halfway through." Participant 3, however, admitted that she did not remember to reapply sunscreen and therefore she would become darker: "I don't reapply every half hour so naturally you become darker"

The participants interviewed all had varying sunscreen use habits and preferences. Some of them were not fond of the texture associated with most products that contain SPF while some talked about how they preferred using a low SPF as they thought it helped them develop a tan while protecting them from the harmful UV rays. A few of the women admitted to not being diligent with reapplying sunscreen when needed while others talked about how they would at least once throughout the day.

### **Site Specific Prevention Techniques**

#### **iii) Sun safety during leisure**

Most of the women interviewed thought that it was healthier to get a tan from being outdoors than by tanning indoors. Some of them described how they enjoyed spending time relaxing outdoors and building a tan. Participant 14 described how she knew it wasn't a good thing to do but she liked it because she felt good doing it:

“I didn't mind it. It was like tanning outside. I found it really relaxing um, and I always felt really good afterwards but I mean it wasn't exactly the best thing to do. That was always kind of like in the back of my mind that it's not good to do it.”

Participant 15 talked about how she would also relax and sun tan while listening to music outdoors: “Oh I listen to music. I can't read because it's too bright but I'll listen to music. I count the songs and like turn over every 15 minutes and then like yeah...”

Participant 6 also described how she would read outside in the sun if she had the time: “If I'm not busy I try and stay out for a few hours like with a book or something. So I guess an hour or two I'd say.”

A few of the women interviewed thought the concept of sun tanning was excessive. Participant 3 described that many people sit out in the sun purposely just to tan:

“Outdoor tanning, yes, but to an extent. Like I understand if you are outside tanning because you're at the beach but purposely lying in your backyard to tan. I

think that's a little excessive... Because obviously when you're tanning outside you want the tan and when you want the tan, it's obviously going to take you like an hour per day to get dark and then you know you post the picture of you on Facebook and you say, "oh I'm black!"... because it's like a goal, it's like you achieve something by lying out in the sun"

She also talks about how although it may feel relaxing or nice, many of her peers do it simply to build a tan: "I think it starts as feeling nice but it's actually to tan. Like why are you in your bathing suit in June? It's not even that warm... with tanning oil."

#### iv) **Sun safety at work**

Some of the participants discussed sun safety procedures that were prevalent at their workplace, especially if they worked outdoors. Participant 2, for example worked at a summer camp where she had to remind children that to reapply their sunscreen throughout the day while doing it herself:

"Well during the summer I wear sunscreen. I actually had an outdoor job this summer so I had it on every day. Um, I had a hat on most days when I didn't lose it and stuff... I worked at Camp Autonomy. It was with the YMCA... Yeah (sun safety) wasn't like heavily enforced but we definitely like we would have breaks throughout the day where we would say ok now's the time to drink lots of water and put sunscreen on. We would try to direct kids and make sure they were doing that."

Participant 9 also worked as a lifeguard at an outdoor pool frequently visited by children during the summer. However, while she and other lifeguards would remind the children to put on their sunscreen before swimming, they would not do it themselves:

P: Uh yeah, the kids do. It's kind of our job to remind them. Put your sunscreen on a half hour before you come to the pool.

M: Oh ok, so you tell them to wear sunscreen but you don't do it yourself

P: Yeah (laughs). They don't know that (laughs).

She explained that she and other lifeguards never put on sunscreen in order to achieve the "stereotypical lifeguard" look:

"We don't wear sunscreen. I don't know why it's just like the stereotypical lifeguard. You know tan, the beach blonde hair kind of thing, just like beach bum. So we're all working on our tans all summer and these kids are trying to stay out of the sun. (laughs). It's kind of ironic yeah (laughs)."

She also went on to explain that she and her colleagues were often too busy to take care of themselves because they were too busy taking care of the children:

“Yeah, I never really thought of it because you're so busy you don't have time to take care of yourself as much. When you're taking care of 10 kids at a time, you're like ok...I don't really come first yeah right so I didn't think of that but lots of time in the sun. That was like 3 summers I did that and then I went to another camp where I was lifeguard and I was always outside.”

Another one of the participants who worked at a park in the summer described how she wore sunscreen and covered her skin by wearing t-shirts and pants while doing her job as it was part of the park's safety rules. Participant 14 said:

“Yeah, I do. I wear sunscreen. I have my face lotion that I put on daily that has SPF 30 I think it is. Um, and then when I work over the summer I wear pants just because of park safety and then t-shirts and a hat and sunglasses.”

The responses from the participants gave a glimpse into the varying sun safety practices enforced at different workplaces. While the park at which participant 14 worked at during the summer ensured that its employees were dressed appropriately in t-shirts, hats and sunglasses, others like the pool at which participant 9 worked discouraged sun safety and instead embraced a tanning culture among its employees.

#### v) **Sun safety during physical activity**

When discussing sun safety practices during physical activity outdoors, many of the women described how they would wear sunscreen. Participant 3 said: “If you're playing sports, obviously I'm going to put like some on my arms, on my face, on my legs, just so that I don't burn.” Participant 4 talked about how she applied sunscreen on her face when she went running outside but she never avoided running during peak sunny hours in the day.

P:I like to run so I'm often outdoors and again I will always put sunscreen on my face. Oh and by always I only mean if it is an obvious sunny day. Although I am aware the sun is there when it is cloudy or overcast but I, to be honest I won't put it on if it's not actually sunny.

M: When do you usually run? Do you have certain times or any time during the day?

P: Anything.

M: Like even noon?

P: Yeah, anytime.

Using sunscreen while being physically active was not a priority for all the women however. Participant 5 said that it depended on how hot and sunny it was outside and if she was already burning from before.

"It has to be really hot. Really really sunny for me to feel the need or maybe if I start getting sunburned from a previous day, that's when I realize maybe I should put some protection. But it's really not a habit."

Again, the participants all seemed to have varying sun safety practices when engaging in physical activity. Some were more diligent and others did not prioritize sun safety when being active outdoors in the sun.

## **Conclusion**

This research highlighted the reasons why young women today engage in tanning practices and what prevention practices they undertake when being in the sun. Almost all of the participants admitted to tanning outdoors (intentionally or unintentionally). Although most of the participants interviewed talked about how they knew people in their social circles that tanned, only 3 out of the 15 admitted to indoor tanning themselves. Some of the participants were more likely to engage in harmful tanning behaviours when they were with peers that did the same. Many also explained that they felt the need to tan because they believed tanned skin to be more beautiful and because they did not want to be "pale and pasty". Another phenomenon that came up numerous times during the interviews was the act of getting a base tan before vacations. Several women interviewed mentioned how they and their peers thought getting a base tan would protect them from burns during their trips.

Most of the women interviewed thought that it was healthier to get a tan from being outdoors than by tanning indoors. Some of them described how they enjoyed spending time relaxing outdoors and building a tan.

Out of the 15 women, 9 used sunscreen regularly, 4 used it sometimes and 2 never. When asked about reapplication, there were varying answers as well. Some of the women also discussed how they avoided going outdoors at certain times and wearing clothes, hats and sunglasses to protect themselves from the sun. When discussing sunscreen and the use of SPF products, several women discussed how they found it to be unpleasant, especially when it came in a cream/lotion form. Some of the participants interviewed discussed how they would wear products with a low SPF such as tanning oils and accelerators to build their tan and prevent burns while they were outdoors.

### **Future Research**

More study is needed in understanding why women still continue to engage in harmful tanning behaviours in Canada. Studies also need to be carried out on how to better educate and disseminate health messaging when it comes to sun safety and tanning. Research into sun safety measures such as the various types of sunscreens and their popularity among the public would also provide much insight into which prevention measures are most effective and preferred. Further study in different parts of Canada (urban, rural and coastal regions) would provide a more comprehensive and detailed look at how sun safety is understood and practiced. This knowledge can help develop a multiple intervention program to tackle the rising melanoma rates among young women in Canada.

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## Chapter 4

### Discussion of Findings

#### Overview of Results

The general purpose of the study was to examine the problem of increasing melanoma rates among Canadian women 18-34 years old. The primary guiding objective was to investigate what the types of knowledge young Canadian women have with regard to tanning and sun safety, and how they act on this knowledge. More specifically: 1) What do young Canadian women know about the sun, tanning and the impact of sun exposure? 2) Where do they receive their sun safety information? 3) Do they feel they receive conflicting messages and if so, how do they make sense of these messages? 4) Lastly, in what ways does their sun safety knowledge influence their sun safety practices or lack thereof? This research project aimed to better understand this growing health concern in Canada through a qualitative analysis of 15 (fifteen) women's perceptions and practices related to the sun.

The expected results were as follows: 1) The women would have some basic knowledge of the dangers of tanning and too much sun exposure and would understand the UV index and what it indicates as the Garvin and Eyles (2001) article states. 2) They received their sun safety information primarily from Coalition of physicians, companies and public health agencies like the Canadian Dermatology Association (CDA) and Canadian Cancer Society (CCS) as outlined in Garvin and Eyles. 3) They do feel that they receive conflicting messages about sun safety and tanning from their peers, media and society in general. 4) There is a direct correlation between their sun safety knowledge level and their sun safety practices. If their knowledge is limited, it will show in their practices and if they are more knowledgeable, they will practice sun safety properly.

**What do they know about the sun, sun tanning and its risks?**

When the participants were asked to discuss what they thought were the benefits and risks of sun exposure, almost all of them mentioned Vitamin D as a benefit of sun exposure except for one of them who mistook it for Vitamin E instead and another participant was unsure as to whether it was Vitamin C or D that was a health benefit of sun exposure. In sum, most of the women commented their mood while outside in the sun, reinforcing the idea that being in the sun and tanning improved their mood and made them happy. Another benefit of sun exposure mentioned by the women included the colour gained from being out in the sun. When it came to risks, the women identified skin cancer, burns, and visible aging as negative impacts of sun exposure.

The participants revealed a range of opinions as to nature of outdoor tanning versus tanning in a salon. Most indicated that indoor tanning was dangerous while two were sufficiently aware of the dangers of the indoor tanning beds. One of the most important findings of the study is that the vast majority of the participants admitted to not taking the UV index into account before going outdoors, either because they did not understand it or because they felt it would not make a difference to their daily practices and behaviours. This contradicted previous literature that emphasized on the connection Canadians often made with the environment and UV index (Garvin & Eyles, 2001). The research did however confirm that Canadians often fail to make the connection with their health and the environmental nature of the UV index (Garvin & Eyles).

Research findings also showed a range of perceptions within the participants when it came to assessing their own risk of developing melanoma and who they thought were most at risk of melanoma. Most recognized that they had as much of a risk as everyone else and that everyone should be conscientious in practicing sun safety. Several participants linked age with the need to protect themselves from the sun, citing children

and elderly at most risk. One of the participants who were of African descent also discussed how people with darker skin take being out in the sun for granted because of their perceived inability to 'tan' and become darker.

The participants listed a variety of sources from which they received their sun safety information from including family, work, school and especially the role peers and the media play in influencing their attitudes on tanning, what is considered beautiful and sun safety practices.

An environmental scan of some of the sun safety resources available to Canadians and more specifically, the messaging disseminated by three different organizations - the Public Health Agency of Canada (PHAC), the Melanoma Network of Canada (MNC) and the David Cornfield Melanoma Fund (DCMF) revealed several overarching themes of sun safety messaging in Canada. The three organizations chosen gave a snapshot of some of the awareness initiatives that are present in Canadian society and further the understanding of the messages they promote.

Five key themes emerged in this environmental scan. The first is that main messaging is focused on prevention. All three organizations emphasized on the proper use of sunscreen and to avoid being out in the sun when its rays are most harmful. Another major theme that emerged is the link between the environment and weather. The inextricable link Canadians make between the environment and sun safety was something that had been discussed in previous literature. Not only did PHAC and MNC make reference to the UV index but MNC even advocates the Winter Sun Awareness campaign that urges Canadians to protect themselves from UV radiation by wearing sunscreen in the winter. These campaigns take into account the importance Canadian place on the environment and its effects on their health.

Another theme that emerged is that an emphasis is made that anyone can be at risk of developing melanoma even though some are more genetically more likely to do so. This is the case for fair-skinned people with blond or red hair who are more susceptible to burns. Despite this, it is important to keep the messaging inclusive to all Canadians regardless of the amount of melanin in their skin. This is an especially important point to make considering Canada's diverse makeup and popular misconceptions about sun safety among ethnic populations. This message was especially emphasized by the DCMF while MNC and PHAC only allude to it in their messaging.

Perhaps the main theme to emerge from all three sites is the emphasis made on the individual to take responsibility in the adoption of healthy practices in terms of sun safety, prevention and self-detection. All three website encourage the visitors to do regular self-examinations of their skin and moles and to remain vigilant about any other suspicious marks that may appear. The messaging in all three sites fail to recognize the impact an individual's peers and society have on sun safety and tanning practices. The tanned look is one that is desired and considered healthy by many of youth today. Only DCMF makes an effort to recognize this societal pressure facing many young people today to look bronze and attractive. Lastly, both outdoor and indoor tanning practices are discouraged in all three sites and the MNC even tracks developments in the progress of the campaign for a nation-wide indoor tanning legislation to be implemented. DCMF also relies on testimonials from people affected by skin cancer to discourage the public to tan.

### **Experiences in the Sun**

When discussing their sun and tanning related practices, most of the participants interviewed talked about how they knew people in their social circles that tanned indoors but only 3 out of the 15 admitted to doing it themselves. The participants were more

likely to engage in harmful tanning practices when they were with peers that did the same. Many also explained that they felt the need to tan because they believed tanned skin to be more beautiful and because they did not want to be “pale and pasty” especially during the summer. Another phenomenon that came up numerous times during the interviews was the act of getting a base tan before vacations. Several women interviewed mentioned how they and their peers thought getting a base tan would provide them with a protective layer from burns during their vacations in warmer climates in the south.

Most of the women interviewed thought that it was healthier to get a tan from being outdoors than by tanning indoors. Some of them described how they enjoyed spending time relaxing outdoors and building a tan. Out of the 15 women, 9 used sunscreen regularly, 4 used it sometimes and 2 never. When asked about reapplication, there were varying answers as well. Some of the women also discussed how they avoided going outdoors at certain times and wearing clothes, hats and sunglasses to protect themselves from the sun. When discussing sunscreen and the use of SPF products, several women discussed how they found it to be unpleasant, especially when it came in a cream/lotion form. Some of the participants interviewed discussed how they would wear products with a low SPF such as tanning oils and accelerators to build their tan and prevent burns while they were outdoors.

## **Conclusion**

In this summary of findings, I have touched upon the major themes identified in this research project by the participants interviewed and through an environmental scan of some of the sun safety resources available to Canadians. The overall conclusion to be drawn from this study is that while for the most part the group of women I interviewed was well informed when it comes to sun safety and tanning, they still felt the pressure to

tan from peers, society and the media. There were times when they shared that they were misinformed on the risks of engaging in harmful tanning practices.

Further, the study contributed to finding that the vast majority of the participants admitted to not checking the UV index before going outdoors, either because they did not understand it or because they felt it would not make a difference to their daily practices and behaviours. This contradicted previous literature that emphasized on the connection Canadians often made with the environment and UV index (Garvin & Eyles, 2001). The research did however confirm that Canadians often fail to make the connection with their health and the environmental nature of the UV index (Garvin & Eyles), which was confirmed in the findings of this study. This failed connection reveals a missed opportunity in raising awareness of skin cancer and the dangers of overexposure to harmful UV rays. Canadians find out about the daily UV readings through the weather channel, websites or the newspaper but they are not necessarily able to explicitly make the link between the environmental message and their personal health (Garvin & Eyles). The messaging does not emphasize on the individual's health but frames the issue as more of an environmental issue (Garvin & Eyles). Emphasis is not placed on the individual or consumer decision in the Canadian context, but on the public's ability to tailor their sun exposure based on the scientific climatic readings of UV. The findings of this study show that young women are not able to make this link between the environmental nature of the UV messaging and their health.

### **Limitations**

This study was conducted using a sample of 15 women all of whom are relatively well educated and attend university in an urban setting, University of Ottawa. Although

there was a range of ethnic and social backgrounds represented in this study, the participants do not represent all people who share those characteristics with them.

Using gender based analysis would be an important future direction of research, as it would be interesting to explore knowledge and practices around men who are at risk for melanoma. Previous studies outside of Canada show that men do have different perceptions and reasons for engaging in tanning behavior and the development of melanoma in men is often linked with chronic occupational sun exposure.

### **Future Directions**

Tanning and sun safety is a complex, multi-faceted problem in the Canadian context and the findings of this study illustrate that. The participants discussed how they were influenced not only by their peers and family when it came to their sun safety practices, but also the media and society's perceptions of what is considered beautiful and healthy, especially among women. There is so consistency in sun safety messaging and many participants discussed how they felt they received conflicting messages related to tanning and sun safety. This complex problem that has led to rising melanoma rates among young women in recent decades cannot be fixed through a simplistic solution. It requires a multiple intervention approach that would promote and facilitate a cultural shift as to what is considered beautiful and healthy.

A study by Keeney, McKenna, Fleming and McIlfatrick (2009) that looked at the effectiveness of various sun safety strategies around the world found that a 'one size fits all' approach to cancer prevention is not effective and that tailored campaigns and interventions are more successful. It also found that culturally appropriate strategies and active community involvement in the education or intervention led to significantly more success than those interventions that just aim to change health behaviour in relation to

cancer prevention (Keeney et al., 2009). This concept was also echoed in a study by Wright and Bramwell (2001) which found that health education for skin cancer also needs to be targeted specifically at older people, in a way which encourages them to relate to it, in contrast to current health education which emphasizes primary prevention and thus focuses on and is designed to attract the attention of younger people.

A multiple intervention programs consist of multiple components and interconnected intervention strategies. A combination of interventions is used to target multiple levels such as the individual, community, political and multiple sectors like health, education, transportation, housing, business of a socio-ecological system (Green et al., 1996). They are delivered through various channels (e.g., non-governmental organizations, professional associations, coalitions, advocacy groups, media) and settings (e.g., home, school, workplace). Multiple interventions not only tackle the underlying determinants of a problem but their use also results in a lasting and sustainable impact on the issue because they target multiple levels of the system. The community is also often an active participant of the design and evaluation of these interventions.

Recent developments in sun safety legislation within Canada have been encouraging. Eight of the 13 provinces/territories in the country currently either regulate, or have expressed an intention to regulate, access to tanning equipment by minors and oversight of commercial tanning facilities (Health Canada, 2013). The Ontario government recently passed legislation that has banned the sale of tanning services to people under the age of 18 and require operators to request identification from anyone who appears to be under 25 (Spalding, 2013).

Initiatives like the Tan-Free Grad being advocated by the Canadian Cancer Society are challenging teens in Canada to skip indoor tanning and help educate their friends and peers about the health risks associated with tanning beds this grad season.

Initiatives like this discourage youth from engaging in unhealthy sun practices and raise awareness of the dangers that can result from too much harmful UV exposure.

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## Appendix A: Interview Guide

### Understanding sun/tanning safety awareness and practices among Canadian university women

#### Researcher Introduction:

- Short presentation of the project, my background
- About recording the interview, transcription and review

#### Interviewee Introduction (basic facts, test recording):

- What is your name and what program and year are you in at the University of Ottawa?
- How old are you?

The interview guide will be structured to allow for 2 distinct blocks of questions that will allow me to use the data from each block to write a journal article. These questions are starting points for discussion.

#### Block A

The first part of this block of questions is focused on sun practices.

- Do you tan and how? (*Responsibility*)
- For what reasons do you like to tan? (*Responsibility; Body & Image*)
- What do you do when you're in the sun? Do you alter activities based on the sun? (*Responsibility*)
- Do you practice sun protection? How? (*Responsibility*)
- How important was sun protection growing up in your household? (*Responsibility; Assessment of knowledge/messages*)
- Do you practice sun protection when engaging in physical activity outdoors? How? (*Responsibility; Assessment of knowledge/messages*)
- How often do you reapply your sunblock if/when you do use sun protection? (*Responsibility; Assessment of knowledge/messages*)
- Do you look for SPF in products? Is it in your radar? (*Responsibility; Assessment of knowledge/messages*)
- Is there any SPF in your makeup or moisturizer? Is this something that plays a factor when you buy either of these products? (*Responsibility; Assessment of knowledge/messages*)

The second part of this block of questions will focus on knowledge and perceptions:

- When I talk about skin cancer, what comes to mind? (*Assessment of knowledge/messages*)
- What do you think are the benefits and risks of sun exposure? (*Assessment of knowledge/messages*)
- What are your thoughts on outdoor and indoor tanning? (*Assessment of knowledge/messages*)
- Do you think you are at risk of developing melanoma. (*Assessment of knowledge/messages*)
- Who should protect themselves and how? (*Assessment of knowledge/messages*)

## **Block B**

The second block of questions will focus on where they acquire their knowledge - their sources of information on sun/skin safety. Question that will be asked include:

### **SUN KNOWLEDGE**

- How do you and your peers perceive tanning and tanned skin? (*Assessment of knowledge/messages; Body & Image*)
- Do you seek out information on the sun? (*Responsibility; Assessment of knowledge/messages*)
- Where you do find your information on the sun exposure? (*Assessment of knowledge/messages*)
- Do you receive conflicting messages and if so, how do you make sense of these messages? (*Assessment of knowledge/messages*)
- What is your impression of the UV/sun safety information provided? (*Assessment of knowledge/messages*)

### **MELANOMA**

- Do you look up information on melanoma risk?
- What are your thoughts on establishing tanning policies to restrict indoor tanning? (*Assessment of knowledge/messages*)
- (Optional) Do you feel there is a safer means in getting a tan?
- Do you see any issue with the age restriction? Do you think people will make a more informed decision when they are 19?

- (Optional) There are special initiatives in certain communities (tanless proms). What are your thoughts on it?

Thank you so much. You have been an excellent participant. I really appreciate you taking the time to talk to me.

Do you have any further comments or questions?

## Appendix B: Information Sheet for Participants

### Understanding sun/tanning safety awareness and practices among Canadian university women

We would like to invite you to participate in this graduate research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

**Study Purpose:** The purpose of the study is to gain a better understanding of how a sub-population, Canadian university women aged 18-29, understands melanoma risks, and how they practice on this knowledge.

**Participation:** Participation will consist essentially of an interview that is 45 to 60 minutes long. Questions about participant's knowledge of melanoma and tanning risks, and how they practice this knowledge will be asked. The interview will take place in a public place on the campus of the University of Ottawa. The interview will be tape recorded and transcribed.

**Risks:** I understand that my participation is to answer questions about my perception of sun safety and melanoma risks. I am free to refuse to answer any question that may create slight discomfort. I understand that I may withdraw from this research at any time.

**Benefits:** Participation in this research will result in better understanding the sun/tanning safety awareness and practices among young Canadian women.

**Confidentiality and anonymity:** The information shared will be kept strictly confidential. The content be used for this project only, and dependent on confidentiality. Anonymity is guaranteed. I therefore will be asked to choose a pseudonym (false name) and it is the latter that will be used for transcription of my interview. If portions of my interview are quoted in the research, the same false name will be used and information leading to my identification will be removed.

It is up to you to decide whether to take part or not. If you decide to take part you are still free to withdraw from the study at any time and without giving a reason.

If you have any questions or require more information about this study, please contact the researcher using the following contact details: Kainat Bashir, <removed>

If this study has harmed you in any way, you can contact University of Ottawa using the details below for further advice and information: Eileen O'Connor, <removed>.

- You may also withdraw any data/information you have already provided up until it is transcribed for use in the final report.
- If you agree to take part you will be asked whether you are happy to be contacted about participation in future studies. Your participation in this study will not be

affected should you choose not to be re-contacted.

- Interviews will be recorded, subject to your permission. Recordings of interviews will be deleted upon transcription.
- If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form.

## Appendix C: Ethical Approval

File Number: H04-12-01

Date (mm/dd/yyyy): 06/05/2012



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

### Ethics Approval Notice Health Sciences and Science REB

#### Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Eileen	O'Connor	Health Sciences / Human Kinetics	Supervisor
Kainat	Bashir	Health Sciences / Human Kinetics	Student Researcher

File Number: H04-12-01

Type of Project: Master's Thesis

Title: Understanding Sun/Tanning Safety Awareness and Practices among Canadian University Women

<u>Approval Date (mm/dd/yyyy)</u>	<u>Expiry Date (mm/dd/yyyy)</u>	<u>Approval Type</u>
06/05/2012	06/04/2013	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:

N/A



**Appendix E: Sun Safety and Melanoma Resources for Participants****Sun Safety and Melanoma Resources  
Sécurité au soleil et le mélanome Ressources**

1. CBC Article: Ontario will ban teens from tanning beds  
<http://www.cbc.ca/news/health/story/2012/09/14/toronto-tanning-beds.html>
2. Health Canada/ Santé Canada  
<http://www.hc-sc.gc.ca/hl-vs/sun-sol/expos/skin-cancer-peau-eng.php>
3. Public Health Agency of Canada/Agence de la santé publique du Canada  
[http://www.phac-aspc.gc.ca/cd-mc/cancer/melanoma\\_skin\\_cancer-cancer\\_peau\\_melanome-eng.php](http://www.phac-aspc.gc.ca/cd-mc/cancer/melanoma_skin_cancer-cancer_peau_melanome-eng.php)
4. Canadian Dermatology Association/ Association canadienne de dermatologie  
<http://www.dermatology.ca>
5. Canadian Cancer Society/ Société canadienne du cancer  
<http://www.cancer.ca>
6. Melanoma Network of Canada  
<http://melanomanetwork.ca>
7. Canadian indoor tanning legislation  
<http://www.cbc.ca/news/interactives/map-canada-tanning/>
8. David Cornfield Melanoma Fund (DCMF)  
<http://dcmf.ca>