Assertive Community Treatment Team Members' Mental Models of Primary Care

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Abstract

People with serious mental illnesses (SMIs) (e.g., schizophrenia, major depressive disorder, bipolar disorder) receive inadequate medical care, which is associated with high rates of avoidable morbidity and premature mortality. Assertive Community Treatment (ACT) is an evidence-based service delivery model that provides intensive mental and social health support to clients with SMI. It has been suggested that ACT should provide primary care services to address client physical health, however, initiatives towards this and their implications are not well understood. I used a case study approach and semi-structured interviews to explore five ACT teams in the Ottawa region to discover team members' mental models of primary care, relationships with external primary care providers, and the perceived impact COVID-19 has had on these mental models. I used Shared Mental Model (SMM) theory to frame data collection and a thematic analysis. The results showed that ACT team members similarly perceived primary care as important for the holistic health of their clients. They described ACT's psychosocial scope and how they support clients' access to external primary care services and their work to mitigate barriers. Teams did not share mental models about the basic primary care services they provided or which roles delivered them, due to differences in context and team members' comfort. Team members also did not share beliefs about the future of ACT and primary care integration. Finally, the COVID-19 pandemic changed and challenged primary care delivery, with beliefs becoming more negative overall. This thesis provides insight into how primary care could be delivered to ACT clients and where challenges and improvements can be addressed.

Keywords: Assertive Community Treatment, Primary Care, COVID-19, Interprofessional Teams, Serious Mental Illness, Shared Mental Models

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List of Abbreviations

Assertive Community Treatment (ACT)

Serious mental illness (SMI)

Shared mental models (SMMs)

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Chapter 1: Introduction

In Canada, the prevalence of serious mental illness (SMI) is estimated to be 5% for major depression, 1% for bipolar disorder, and 1% for schizophrenia (1). People with SMI often live with complex and chronic physical health conditions. Primary care, which features comprehensive, continuous, and coordinated general health services in the community, is associated with improved physical health outcomes and lower overall health system costs (compared to when people use acute care as their main access to the health system) (2,3). Primary care can prevent, detect, treat, and promote mental and physical health conditions simultaneously, and can provide further access to other parts of the health system as needed (3-5). People with SMI have a high need for and foreseeable benefit from accessing primary care, however, they often face barriers to receiving quality primary care to support their physical health (6) and have a higher risk of avoidable morbidity and premature mortality (4–11).

Assertive Community Treatment (ACT) is an interdisciplinary team-based program that provides intensive mental health and social support for people with SMI who have not responded to other mental health supports (7,12). ACT is highly effective in helping patients with SMI achieve community integration, stable housing, reduced hospitalization, and symptom management (12). ACT supports the mental and social health of clients through services such as crisis intervention, symptom management, psychotherapy, and helps clients with activities of daily living, interpersonal relationships, and occupation and leisure goals. Traditionally, ACT does not provide extensive medical care to support physical health (7,13).

Primary care is a cost-effective and efficient way to support a comprehensive range of health care needs. Researchers have suggested that existing evidence-based mental health care delivery models (such as ACT) could support integrated care and primary care delivery and integrated care delivery systems are discussed in Canadian legislation (14,15). ACT teams have a unique relationship with primary care. Team members may themselves provide primary care (e.g., general physical assessments of clients at intake; documenting, prescribing, administering, and monitoring medications) (7,13,16) or collaborate with external primary care providers (e.g., driving clients to family physician appointments, inviting primary care providers to ACT team meetings, colocation of ACT within a primary care clinic) (7,17,18). The processes and implications of internal and external primary care delivery to ACT clients are understudied and vary by team (13,17). Knowing how ACT team members perceive and experience primary care delivery can provide insight into the appropriateness and feasibility of incorporating or

increasing primary care services for ACT's clients. ACT team members' perspectives, which have been understudied in the ACT literature (19), can help us understand the effectiveness of existing efforts, organizational capacity, and challenges that ACT teams face in supporting primary care delivery within teams and collaborating with external primary care providers.

Furthermore, the COVID-19 pandemic has vastly transformed health and social care systems, and crises such as pandemics are known to disproportionately impact people with SMI (20,21). The pandemic impacted access to health care services when in-person services were disrupted, delayed, and/or moved online. Some services important to people with SMI could not be accessed if they were not classified as "essential services" or if clients faced barriers to virtual access (20,21). ACT teams had to classify some or all of their services as essential and prioritize patients' needs (20,22,23). Lastly, health care workers were exposed to stressful conditions and suffered from burnout during the pandemic (20).

This thesis aims to increase our understanding of how primary care is provided to ACT clients and how ACT team members perceive and experience primary care delivery and collaborative relationships. Below, I present a literature review on the health profile and inequities faced by people with SMI (i.e., ACT clients), the history and characteristics of ACT, major findings and critiques of ACT, and ACT as situated within Ontario, Canada. I also review the benefits of primary care and the relationship between ACT and primary care. I then provide a brief overview of the impact of the COVID-19 pandemic on mental health and mental health services. Lastly, I present my objectives and research questions and the theoretical framework I used to inform data collection and analysis.

Literature Review

Serious Mental Illness

Over 6.7 million people in Canada live with various mental health conditions (24). There are different typologies and terms to denote the most serious of these. In this thesis, I use the abbreviation "SMI" to represent "*serious* mental illness", but in the literature "SMI" can also stand for "*severe* mental illness" (e.g., Bond et al., 2001). Both serious and severe mental illness refer to typologies of highly impairing mental illnesses (i.e., schizophrenia, bipolar disorder, and major depressive disorder; sometimes including psychosis and schizoaffective disorder) (4,6). This study's criteria for what constitutes SMI aligns with the acceptance criteria for ACT services in Ontario, Canada. The priority client groups of ACT services include people with schizophrenia, other psychotic disorders, and bipolar disorder, which impair one's ability to live in the community (i.e., require hospitalization) and create long-term psychiatric disability (7).

People with SMI typically also live with other complex health conditions. This population is at higher risk of morbidity (e.g., cardiovascular disease, metabolic syndrome) and premature mortality, in comparison to people without SMI (4,6,9). This is partially due to adverse side effects from medication and lifestyle factors associated with SMI (e.g., smoking) (5,6,8). However, it is also a result of the physical health care needs of people with SMI being neglected within the health system (9,10).

Stigma against SMI and low capacity of primary care providers to care for patients with SMI are provider-level barriers to medical care for this population (6,9,10). People with SMI are stigmatized in society, meaning that they are categorized and labeled as separate from the general population (10). If a health care provider has inadequate knowledge and pre-existing negative attitudes about a patient with SMI, treatment and diagnosis could be affected – putting the patient's safety and care experience at risk (10) (e.g., a primary care provider may hold a false, negative belief that people with SMI are incapable of adhering to treatment and suggest a less optimal treatment route). Studies have shown that if providers are educated on SMI and interact with this population, their stigma may diminish, leading to better care (10,11).

Assertive Community Treatment

ACT is an interdisciplinary community mental health service delivery model which serves people with SMI (7,12). Interdisciplinary teams consist of registered nurses and registered practical nurses (RNs/RPNs), a team coordinator, a social worker, an occupational therapist, a substance abuse specialist, a vocational specialist, a peer specialist, a psychiatrist, other clinical staff, and a program/administrative assistant (7,12,25,26). Full-sized ACT teams in urban Ontario are required to have one full-time staff member for every ten clients (7,13,27). Clients are viewed as partners and work with their team to inform their care (7).

A full range of individualized ACT services are available 24/7 and a majority of ACT services are mobile and delivered in the community (7,12,27). Services provided by ACT teams include the following:

> "service coordination; crisis assessment and intervention; symptom assessment and management; individual counselling and psychotherapy; medication prescription, administration, monitoring and documentation; substance abuse treatment; work-related services; activities of daily living services; social, interpersonal relationship and leisure-time activity services; support services or direct assistance to ensure that clients obtain the basic necessities of daily life; and education, support, and

> consultation to clients' families and other major supports." (Ministry of Health and Long Term Care, 2005, p. 11)

ACT is arguably one of the most studied mental health service delivery models, with hundreds of published studies (12). Many quantitative studies have looked at ACT client service use outcomes (e.g., impact of ACT on ambulatory care rates, length of hospital stays, re-admittance to ACT post-discharge), compared outcomes to other case management models, the economic impacts of ACT, and ACT team fidelity with the ACT Standards. Qualitative studies have explored client experiences and satisfaction, team member experiences (e.g., approaches to care, staff turnover), dual mental health diagnosis in ACT clients, relationships between ACT and police/court systems, homelessness organizations, and other health care providers, and methods of ACT service delivery (e.g., *via* internet, client engagement strategies). Although ACT's client population is known to have a higher risk of premature morbidity and mortality from physical health issues and neglect, there is little research on physical health services, health system collaboration, and health outcomes in the ACT literature. Few studies have looked at general health services provided by ACT teams (e.g., Guérin et al., 2019; Weinstein et al., 2011), ACT provider perspectives on physical health care delivery and collaboration (e.g., Meyer-Kalos, 2017; Reardon et al., 2022), and models of primary care and ACT integration (e.g., Henwood et al., 2018; Tse et al., 2022; Weinstein et al., 2013).

There are also some critiques of the ACT model in the literature. Early critiques pointed to the model's gaps and limitations (e.g., neglect of medical and dental health, failure to address client trauma) (12). Recent critiques are wary of the plethora of competing case management services, the strong association of fidelity to the ACT Standards with ACT's success, and how ACT's success is influenced by the characteristics of the wider health system context (14,28). Deeper concerns surround the methodological limitations of published ACT research and its claims (i.e., mostly randomized controlled trials that provide evidence of positive outcomes but do not provide qualitative insight into which factors are most impactful and why), the political mechanisms and potential conflicts of interest behind ACT's rapid spread, and ACT's ability to keep up with shifting norms (i.e., flexibility to support client preferences and support client recovery long-term/post-ACT through client integration into the community and the discontinuation of ACT once the client is ready) (28). ACT changed the mental health sector since its establishment in the early 1970s and has been malleable and responsive to local health system demands. However, fidelity to the original ACT model is what has been associated with ACT's positive outcomes (19,28). Many things have changed since the era of deinstitutionalization in which ACT was created, and

critics say that ACT must evolve to compete with other service delivery models and to comprehensively care for clients' health (28). Otherwise, it is speculated that ACT may become a triumph of the past (28).

ACT in Ontario. There are five ACT teams in the Ottawa, Ontario region which composed the sample for this case study. The province of Ontario has limited case management resources and psychiatric inpatient beds, coupled with the rise of homelessness (29). Most Ontario ACT teams are at or near client capacity; thus, there is a need for more ACT teams in the region (29). Ontario ACT teams often deviate from the original American ACT model and Standards (30) to adapt to contextual factors and meet the unique needs of their population (29). Ontario ACT teams are sponsored by hospital and community agencies (7,16,26) and follow the Ontario ACT Program Standards created in 2005 (adapted from the original United States 1998 ACT Standards), and updated in 2016, 2019, and 2021 (29). Ontario ACT teams have experienced considerable change since their implementation in the 1990s and have improved their performance and accountability over the years (27,29). When first implemented, Ontario ACT teams were accountable to the Ontario Ministry of Health (the Ministry) (7,16,26,27). The Ministry rolled out ACT teams in the context of mental health reform when the province was beginning to strengthen the community mental health system, and published the first provincial ACT Standards document (27). After a review of criticisms about ACT's shortfalls (e.g., low client caseload, inappropriate clientele, interdisciplinary staffing issues), the Ministry took corrective action (*via* revised Standards and funding support) in the early 2000s (27). Later, accountability for ACT teams shifted to the regional health authorities, or Local Health Integration Networks (LHINs) (before the elimination of the LHINs was announced in 2018) (29). Ontario ACT teams can now voluntarily undergo accreditation from the Ontario Association for ACT and FACT (29).

The 2021 Ontario ACT Program Standards (Version 3.2) (referred to here as 'the Standards') minimally – but increasingly (compared to past versions of the Standards) – addresses client physical health. The Standards require that clients' history (e.g., medical information) be reviewed before enrolment and a physical assessment be performed once clients join ACT (with annual reassessment) (29). The Standards say,

> "The purpose of the physical assessment is to thoroughly evaluate the client's physical health status and identify any medical conditions present to ensure appropriate treatment, follow-up, and support are provided. Due to the potential urgency of some physical conditions, the physical health assessment should be done prior to or immediately at the start of service." (p. 38)

The Standards also promote the duty of ACT teams to focus on clients' unique needs and preferences regarding all areas of treatment, creatively engage clients in treatment and recognize their right to refuse treatment, use best clinical judgement in decision-making by interdisciplinary team members, use community contacts for most of the services required, and understand and apply the principles of psychosocial rehabilitation and the recovery model. The Standards (2021) emphasize that staff organization and communication is essential to providing coordinated care. Staff meet daily and have scheduled meetings and/or service planning sessions.

The 2021 version of the Standards expands on the descriptions of roles and responsibilities for each team member. Regarding primary care, it describes that psychiatrists and RNs/RPNs collaborate to assess client physical health, refer clients to family physicians or specialists where appropriate, and educate clients about their prescription medications. RNs/RPNs also "Develop, revise, maintain and supervise team psychopharmacologic and medical treatment and medication policies under the direction of the psychiatrist" (p. 26). The Standards recommend that RNs/RPNs assist clients in finding a family physician if they do not have one and collaborate with the family physician to coordinate treatment and prevention. Social workers interview clients and people in the clients' lives to assess physical impairments (and other aspects of health). Peer specialists, who have lived experience with SMI, support clients' autonomy within team decision-making and guide clients to participate in decisions for their care. Occupational therapists assist clients with Activities of Daily Living (e.g., attending medical appointments) and conduct functional assessments. Addiction specialists counsel clients and interview them to discover their own goals and motivations. Other team members support client access to medical benefits and assist them in acquiring medical and dental care.

There are fewer than 40 research articles on Ontario ACT teams and they span multiple topics (e.g., fidelity, client discharge transitioning, housing and homelessness, client experience and characteristics, recovery-orientation assessment). George et al. (2009) described the processes of ACT team start-up, feedback, and reform during the 1990s when Ontario implemented ACT teams system wide. They posited that ACT teams in Ontario were still lacking systematic infrastructure (e.g., funding, oversight, leadership) and feedback mechanisms to provide technical assistance, monitor performance, and provide accreditation. These findings were consistent with international reports of barriers to ACT implementation.

In a three-year study, Krupa et al. (2004) conducted semi-structured interviews with four ACT teams in Ontario to understand the challenges and pressures faced by ACT service providers. They used ACT's Standards to guide interview questions. Participants' experiences were situated "within the context

of larger ACT structures and the community mental health system" to suggest how the broader environment influences daily practice (p. 126). They found that ACT service providers experienced eight tensions with service delivery, including little control over budgets, working over-time to provide 24-hour coverage with limited staff, and balancing hospital politics in the climate of mental health reform. ACT service providers had difficulty communicating and negotiating responsibilities with hospitals because ACT's responsibilities were ambiguous at the time (i.e., during mental health reform). ACT staff also needed to understand how other systems operated to facilitate communications; their relationship with different hospitals varied substantially, and poor communication and follow-up about shared patients was of concern.

Gehrs and Holz (2003) studied how Ontario ACT teams challenged the traditional mental health scope of practice by adopting additional medical responsibilities. The authors discovered that non-nurse team members did not know whether they were allowed to administer oral medication. A revised document of guidelines emerged as the end-product of the study to inform and guide the policies and practices of ACT teams. The authors concluded that interdisciplinary non-nurse team members can administer medication to clients, although they should be seen as having secondary competence to nurses and take on this role in low-risk situations.

Primary Care for ACT Clients

Primary care is designed to be a patient's first point of contact with the health system when seeking mental and physical health care in the community (3). The other main features of primary care are comprehensiveness of services, continuous care, and coordinated care (3). Primary care can address prevention, detection, treatment, and promotion of mental and physical health conditions simultaneously, and can provide further access to other parts of the health system as needed (3-5). Quality primary care has been associated with many benefits, including reduction in health system costs and health inequities, and overall improvement in health (3). However, stigma in primary care is associated with avoidable morbidity and premature mortality for patients with SMI (6).

The pressure to incorporate physical and mental health care is apparent within fragmented health systems (14) – like Canada's – where mental and physical health care are largely separate, despite being intertwined in reality (31). The appropriateness and feasibility of integrating primary care within Canadian ACT teams has not been widely researched; this thesis explores primary care in ACT within the Canadian context. Although primary care is meant to be comprehensive, this thesis will focus on primary care services targeting physical health, since ACT itself provides intensive mental health services to clients. ACT may provide clients with some primary care services directly or collaborate with external

primary care providers (e.g., family physicians, nurse practitioners, and others) to support clients' access to medical care (13). However, effective inter-organizational collaboration can be challenging (13,18,32). Research on the degree to which ACT can provide primary care with or without integration (e.g., colocation, split-time practitioners) with external primary care providers is needed (13,14,18). Currently, there are fewer than 20 research articles on ACT and primary care (which are discussed and summarized below).

Weinstein et al. (2011) looked at the role-evolution of ACT nurses in delivering medical care. Nurses were trained using Guided Care, a model for nurse and primary care partnerships in providing comprehensive and coordinated care for adult patients with complex needs. The study examined an integration initiative between an ACT team and a Pennsylvanian medical center, where a family physician was embedded on the ACT team and joined ACT meetings, collaborated with the ACT team, and provided follow-up care one day per week and was available remotely. They reported that communication and collaboration between care providers was seen as a persistent challenge. The authors suggested guidelines and infrastructure that could support the integration of behavioural health and primary care within the ACT model, with ACT nurses playing a key role in primary care. They found that ACT nurses may be delivering primary care without official guidelines or recognition. They expressed an urgent need for exploratory research to be conducted on different types of integration (e.g., community partnerships, embeddedness) with attention to feasibility and sustainability.

Weinstein et al. (2013) evaluated medical health services for formerly homeless individuals with SMI in supportive housing programs (some of whom were enrolled in ACT or other case management services) (32). They explored the model of providing medical care to this population by integrating a family physician on-site (two half-days per week) who provided primary care and referrals and collaborated with the supportive housing programs' team psychiatrist and nurses. The study aimed to assess client health characteristics, assess how the supportive housing programs documented health care quality indicators (e.g., monitoring and recording blood pressure), and describe how clients received primary care from a family physician embedded into the ACT/case management team. ACT and case management team members were able to schedule client appointments with the embedded family physician, re-schedule missed appointments, facilitate transport to the appointment, or accommodate clients with home visits, as well as attend monthly meetings with the embedded family physician and the teams' lead, nurse, and psychiatrist. The study found that clients had multiple complex conditions and that it was possible to monitor specific health indicators within supportive housing, although it was harder when the monitoring required numerous steps (e.g., a fasting blood sample). The authors

suggested that even if a family physician could not be embedded in a case management team, screening could still be done with collaboration with an external family physician. However, they acknowledged the previous literature which highlights that information continuity with external service providers is challenging (13,32).

Meyer-Kalos et al. (2017) conducted focus groups with ACT practitioners who participated in "10 by 10", a project in Minnesota to address the comorbidity of people with SMI and increase this population's lifespan by 10 years between 2011-2021. They aimed to discover practitioners' perceived barriers to integrating physical health care within ACT teams, the strategies they have employed to support integration, and their recommendations for improvement. ACT providers faced barriers engaging symptomatic clients, delegating and defining duties within teams, and ACT staff turnover. Clients faced barriers to accessing external care (e.g., commuting to the clinic) and finding care that was aligned with their preferences (e.g., supportive clinic environment). External providers sometimes did not understand the role of ACT, have compassion for client circumstances (e.g., would stop scheduling appointments with a client who missed multiple previous appointments), or communicate/share information with ACT. ACT team members employed strategies to improve physical health care integration and collaboration, including establishing relationships with open-minded providers and primary care clinics to increase collaboration, inviting medical resident physicians to attend ACT meetings and consultations, sharing client information with all team members in meetings, utilizing ACT nursing skills, and facilitating communication and payment between external providers and clients. The authors recommended that both ACT teams and primary care providers be trained where they lack pertinent knowledge on physical or mental health, respectively. It was also recommended that primary care collaborators understand and value ACT's mission, respect that physical health goals need to be personally meaningful to ACT clients, and have sufficient incentive to collaborate.

Henwood et al. (2018) investigated pilot programs integrating primary care within five American ACT teams. The integrated pilot programs employed co-location, split-time, and embedded approaches. The researchers conducted site visits which entailed semi-structured interviews, observations, document analysis, and shadowing/touring the ACT program. The co-location of ACT within two primary care health centers was advantageous, as ACT team members gained familiarity with scheduling different kinds of primary care appointments. However, depending on the demands of the primary care center (e.g., having their own high proportion of complex patients outside of the ACT collaboration), the primary care providers could not always accommodate ACT's clients. Another two teams had a primary care provider (medical doctor or nurse practitioner) split their time between an ACT location and their own community

clinic, and they found that ongoing communication when the primary care provider was away from the ACT location improved their ability to accommodate ACT's clients in future appointments. There were mixed results for screening rates of blood pressure, blood glucose, and cholesterol levels associated with the co-location and split-time approaches. The final approach one team employed included a full-time primary care nurse practitioner embedded in the ACT team; the nurse practitioner was too removed from the primary care health center (e.g., could not go into the clinic to draw blood) and was not as familiar with ACT's ways of scheduling. Screening rates reported by this approach were the lowest of all the approaches. The authors posited that effective communication may be even more important in determining the success of integration than what type of integration is employed.

A systematic review by Vanderlip et al. (2017) examined the effect of ACT on access to primary care service use, cost reduction, and improved health outcomes as reported by ten studies. A significant reduction in emergency department service utilization was reported, where assessed. Primary care usage was reported to increase, suggesting ACT enabled greater access. Overall, no increases in medical care costs were reported, but this still warrants more research. Quality of life was not a focus of most studies, but when it was assessed, slight increases were reported. The researchers concluded that there is not enough available data on the physical health of ACT clients. They encouraged dedicated research on the integration of primary care with pre-existing mental health care programs (e.g., ACT).

Tse et al. (2021) evaluated a pilot intervention of integrating a primary care nurse practitioner on five ACT teams. They explored the experiences of ACT staff, ACT clients, and external nurse practitioners, and assessed the impact of integration on medical screening rates for hemoglobin A1C and cholesterol levels with a cardiometabolic data registry (33). Nurse practitioners were assigned to an ACT team either for two days per month over a six-month period, or a total of two times in a six-month period (however, nurses were to build an ongoing relationship with the ACT team, despite the limited number of visits). In focus groups, the authors identified that ACT clients trusted the nurse practitioner because they were integrated with ACT, there was easier access for ACT staff and clients to health information, medical expertise, and consultation, and that nurse practitioner field visits were inefficient (i.e., delivering services in the community) due to lack of experience or inability to deliver certain services outside of a clinic setting. The authors suggested that the relationship between ACT and the nurse practitioner was more important than the amount of time they spent with the team. The study also found that the screening rates for hemoglobin A1c and cholesterol for ACT clients significantly increased six months post-integration in comparison to a control team who was not assigned a nurse practitioner.

Reardon et al. (2022) conducted interviews with ACT team members from three ACT teams in a large southeastern state in the United States to describe how they perceived physical health service delivery for clients and what they needed for improvement (34). The teams described little physical health service delivery beyond "monitoring health markers, tracking and coordinating physical health care, engaging clients with physical health care outside of ACT, and encouraging self-management of physical health care" (p. 5). Barriers to improving physical health service delivery were reported at the client-level (e.g., refusal) and system-level (e.g., lack of accommodation for SMI in external health settings). ACT team members shared a need for more medical staff on the ACT team, medical training for all team members, internal quality management (e.g., tracking client physical health service interactions), and better external primary care collaboration.

Lastly, Guérin et al. (2019) conducted a mixed-method study in an ACT team in Ottawa, Canada to quantitatively monitor the impact of a physical activity program (i.e., on client weight, waist circumference, blood pressure) and identify key characteristics of the program through qualitative interviews with ACT team members and clients (35). The study found a significant reduction in weight and waist circumference. Staff and clients reported many benefits of the physical activity program. Key characteristics of the program included recognizing the benefits and impact the program can have in many areas of client care, supporting client comfort, motivating and engaging clients, building rapport, "planting the seed" of physical exercise (p. 1295), preparing clients to engage in the activities, being adaptable and flexible with workout plans and times, respecting client abilities and interests, and supporting client autonomy. The delivery of this program by ACT staff was beneficial because staff had knowledge about individual clients and how to support and engage clients with SMI.

In summary, some academic articles on ACT teams in Ontario (i.e., George et al., 2009; Krupa et al., 2004) provide the history of ACT growth and evolution in the region and an overview of the challenges these ACT teams have encountered. These studies reveal longstanding challenges with external collaboration, ambiguous responsibility (at the individual and team levels), poor accountability infrastructure, staff turnover, and budgetary constraints. Ontario ACT Standards have been revised since their initial implementation; however, they reveal that ACT teams do not have primary care providers and they do not extensively or clearly discuss the importance of primary care for ACT client care or physical health service delivery and responsibilities. Primary care and ACT studies in Ontario have been focused on a narrow set of services (i.e., Gehrs and Holz (2003) studied oral-medication administration by all ACT team member roles and Guérin et al. (2019) studied a physical activity program delivered by an ACT team). Furthermore, there is some literature on primary care integration with ACT. Studies measure

various outcomes of ACT and primary care integration (e.g., service use, screening rates), barriers to primary care and challenges of integration or collaboration, and strategies for meeting clients' physical health needs and recommendations for integration and collaboration. Many of these studies look at integration initiatives with specific models (e.g., ACT nurse role expansion, primary care practitioner embedded on the team, physical colocation of an ACT team within a primary care clinic) and are conducted in the United States. There is a need to look at if and how ACT teams deliver comprehensive primary care services and involvement from all ACT team roles and to look at the acceptability and feasibility of primary care delivery from the perspective of ACT team members. Research is also needed on how Canadian ACT teams collaborate with external primary care providers and what the processes and challenges are in this context. Furthermore, there is a need to understand how the COVID-19 pandemic has impacted where ACT and primary care intersect and how COVID-19 has impacted primary care delivery to ACT clients and collaboration between ACT teams and primary care providers (the literature in this area is reviewed below, in the following sub-section).

This thesis explores ACT's provision of primary care services and collaboration with external primary care providers. In this thesis, I define primary care services as general care services concerning clients' physical health, to prevent, detect, or treat physical health issues. Examples include screening for common health indicators and medical conditions (e.g., cardiovascular disease), monitoring pre-existing medical conditions (e.g., diabetes mellitus), administering medication, and health promotion (2,18,36). External primary care services may be provided by external providers such as family physicians, nurse practitioners, health promoters, dietitians, and others. Although primary care is meant to be comprehensive, this thesis will focus on primary care services targeting physical health, since ACT itself provides intensive mental health services to clients.

COVID-19 Impact on Mental Health and Mental Health Services

The COVID-19 pandemic vastly transformed health and social services. Both service providers and their clients were vulnerable to the consequences of these transformations (20,21). Health care providers experienced risk, uncertainty, and pressure (20). Marginalized populations who used community services (e.g., people with SMI) and were disproportionately affected by the pandemic faced reduced access to health care services (20,21). The rapid and large-scale transformation of all parts of the health system is anticipated to last beyond the pandemic (20,21), and system-wide adaptations may not be appropriate for all providers or patient populations (37).

Only four academic journal articles to date have looked at ACT during the COVID-19 pandemic. One of the studies (Ben-Zeev et al., 2020) finished data collection before the declaration of the pandemic

and associated the importance and relevance of their findings to the pandemic ad-hoc. Ben-Zeev et al. (2020) conducted a randomized controlled trial implementing a texting intervention within ACT teams in the United States (38). ACT team members could use cell phones to provide clients with reminders, cognitive help, relaxation, affirmation, and real-time support, among other things. The researchers found this intervention to be feasible, acceptable, and safe. However, patient participants already had a mobile phone, which may bias the results. The authors suggested that evidence-based texting interventions could support the continuity of mental health care as the pandemic restricted in-person interactions.

In another COVID-19 and ACT study, Guan et al. (2021) looked at how to minimize service disruption caused by the pandemic for people with SMI in Toronto, Ontario. This descriptive paper addressed the pandemic response in community psychiatry, which at that point was not widely written about (the literature has grown since, as some authors have built on the original article). Guan et al. (2021) described the impact of COVID-19 on an urban ACT and Intensive Case Management team and their resulting response and transformation. The halting of non-essential health services in March 2020 was ambiguous for community psychiatry, and boundaries had to be made to define essential and non-essential services. Teams adapted in several ways, such as by rotating staff schedules, switching daily conferences from in-person to virtual, acquiring personal protective equipment and controlling for infection (e.g., sanitizing), increasing prescription dispensing quantities, and striving to keep clients engaged. The authors concluded that ongoing issues should be anticipated and that a closer look at the long-term effectiveness of responses should be taken.

The other two papers on COVID-19 and ACT follow Guan et al.'s (2021) paper. Law et al. (2021) described the uncertainty of the pandemic environment, the unexpected duration of the pandemic, resilience of clients, and considerations for ACT and remote/virtual service delivery (highlighting concerns of access to technology and internet and the need for rapport between clients and providers) (22). Couser et al. (2021) described their own experience as an American ACT team challenged by the pandemic (using the same layout as Guan et al.'s (2021) paper to organize theirs), drawing comparison to Guan et al. (2021) and incorporating updated literature (23). The ACT team assessed and minimized risk when defining and delivering essential services, educated clients on COVID-19 and protective measures over time, promoted regular physical activity and monitored clients' sleep (using Fitbit technology), and supported staff wellbeing through informal polling, discussions, and interviews. This paper also discussed the difficulties ACT teams faced navigating virtual service delivery (e.g., reimbursement).

COVID-19 is pertinent to my thesis because it was ongoing during data collection and impacted the wellbeing of health care workers and their ways of delivering services and collaborating with other

service providers (20). My thesis identifies areas of primary care provision and collaboration that were transformed by the pandemic, and whether these changes should be maintained beyond the pandemic.

In addition to the topics of ACT, primary care, and the COVID-19 pandemic, mental models are another central concept to my thesis. Mental models are an individual's psychological representations of how the world works in a specific domain (39). I use Shared Mental Model theory to frame my study which associates sharedness (i.e., similarity) of team members' mental models with successful teamwork toward a given task (i.e., primary care service delivery and collaboration) (39). Identifying mental model content, similarity (and differences), and change during the COVID-19 pandemic can provide important insight into ACT team member perspectives, strengths/challenges delivering and collaborating with primary care, and where to improve delivery and teamwork.

Objectives and Research Questions

This thesis explores the mental models of ACT team members regarding the provision of primary care within their ACT team and their collaboration with external primary care providers. I aimed to discover if shared mental models exist among ACT team members and assess the convergence or divergence of mental models within and across ACT teams. COVID-19 was considered as a potential impact on mental models. The guiding research questions are:

1. What are ACT team members' mental models regarding the provision of primary care within their team or in collaboration with external providers?
    a. How do these mental models converge or diverge?
    b. How are mental models perceived to be impacted by the COVID-19 pandemic?

To answer these research questions, I designed a case study with all five ACT teams in Ottawa, Ontario (this includes a Step-Down from ACT team). Early in Winter 2021, my supervisor and I reached out to the Executive Director of a local Community Health Centre to begin talking to local primary care and mental health care experts on the impact of the COVID-19 pandemic on cross-system collaboration. We were connected to two representatives of the ACT team at the Carlington Community Health Center who were interested in sharing their experiences on the topic, hearing my research proposal, and providing information to inform the research questions. In Spring 2021, my supervisor and I met with the two representatives and understood that there was a need for improvement in the relationship between ACT and primary care, specifically in the context of the pandemic. The representatives shared that the pandemic resulted in a shift of responsibility and work from primary care providers to ACT team

members. Later that spring, my supervisor and I were invited to present the proposed thesis study at an "ACT Central Intake Meeting" where ACT team leaders from all ACT teams in Ottawa meet monthly. We sought feedback, gauged levels of interest in the thesis study, and asked about additional research needs. The meeting confirmed interest in research regarding primary care and the impact of the pandemic, resonance of my thesis topic, and capacity to participate, and allowed me to improve the relevance of the proposed research/research questions. I was invited to return to the ACT Central Intake Meeting for Fall 2021, when I recruited teams and subsequently began inviting participants.

Theoretical Framework: Shared Mental Model Theory

Mental models are rooted in the psychology field and have been defined as an individual's psychological representations of how the world works in a specific domain (39). Mental models can be explored to uncover the knowledge and beliefs about a specific domain and explain behaviour (40). Shared mental models (SMMs) are mental models that overlap and are common amongst two or more people (39,41). SMM theory posits that the convergence of team members' mental models informs the success of the team's outcomes (39). The application of SMM theory for performance evaluation is rooted in military, engineering, and information technology research (39). In the management literature, SMMs have been examined to identify where to improve common aims and understanding in teams (42). SMMs have been studied in health care settings such as hospital care, cancer care, and interprofessional teams in general; exploring SMMs can reveal how health care teams operate in the uncertain and complex context of health systems. The use of SMM theory in health care research is growing as care is increasingly delivered by teams and the utility of SMMs for performance is acknowledged (39,41-43). To date, SMMs have not been studied in mental health teams or ACT teams specifically. Applying SMM theory to these contexts can be beneficial for learning about taskwork and teamwork in these settings and enhancing performance of their interprofessional teams (43).

Taskwork and teamwork are two mental model categories. Each mental model has a knowledge domain pertaining to the participant's understanding and awareness of information about the topic and a beliefs domain, pertaining to the participant's opinions or feelings toward the topic (39,41,42). The taskwork category contains the work goals and performance requirements to succeed (39,42). It addresses what the task is, who it is performed for, how it is done, and why it is done (42). Taskwork *knowledge* captures the targets of the task, the goals, the long-term vision, the methods, and the evaluation of performance (42). Taskwork *beliefs* address the consequences of the task, the appropriateness of the strategy, the readiness of the team to perform the task, and the acceptability of decision-making (42). The teamwork category looks at interpersonal relationships between team

members and the skills of each member (39,42). Teamwork *knowledge* includes the accountabilities, contributions, and competency of actors, and the communication and interdependence between actors (42). Teamwork *beliefs* entail the perceived appropriateness of roles, personal identification with the task, importance of external primary care provider involvement, and recognition of shared responsibility and contribution (42).

The assessment of SMMs in health care has become more common. Mental models are elicited by determining mental model content, structural representation of the relationships among content, and representing where individual mental models emerge as SMMs (44). Both quantitative and qualitative techniques can be used to assess mental models (39,44). Elicitation techniques include qualitative and quantitative concept mapping and card sorting, quantitative paired comparison rating, and other qualitative techniques such as coding documents, video recording of team actions, and cognitive interviewing (39,44). A qualitative design offers the advantages of participant voice, richness, and flexibility in data collection (39,44). In data collection and analysis, I used semi-structured interviews to identify SMMs and thematic maps to analyze SMMs within and between teams (44). Furthermore, by using a case study design (45), I extended SMM theory into the ACT literature. Using SMMs as a lens allowed me to collect rich data on how interdisciplinary ACT team members within and across teams perceive and experience the provision of primary care by looking at their taskwork and teamwork mental models (39). Lastly, a SMM lens also enabled me to see how the pandemic was perceived to have impacted the stability of team members' mental models (39). This gave me insight into where sharedness can be developed within mental models, to improve the provision of primary care under real-world constraints.

Chapter 2: Methods

In this chapter, I present my study design, sampling strategy, data collection, and data analysis (with sub-sections on member checking, my reflexivity statement, and quality assurance).

Study Design

I employed qualitative research methods to answer my research questions. This is the most appropriate approach given the nascent state of the literature on provider perceptions and experiences and the context-reliant practices of ACT teams in providing and collaborating with primary care, as well as the evolving state of knowledge surrounding the ongoing effects of the pandemic (46,47). I designed an exploratory, holistic multiple case study to permit in-depth exploration of the core concepts of the research questions and a collection of rich empirical data (48). The bounded case of this research includes ACT teams in the Ottawa, Ontario region, wherein the unit of analysis is the ACT team (49). I did not sample cases for similarity or difference (49). Bounding the cases within the Ottawa region enabled me to relay findings relevant to these ACT teams and also limit contextual variation as mental health services and resources vary across regions (49,50).

Sampling Strategy

This study used a sample of team members from all five ACT teams in the Ottawa, Ontario region. ACT teams must have one full-time equivalent staff for every 7-10 patients (there are higher staffing demands for urban ACT teams, who have more clients than rural teams) and are recommended to have approximately 9-13 staff members (7). I aimed to recruit five team members from each team to capture a range of provider types. Teams include a team coordinator, registered nurses, a peer specialist, a social worker, an occupational therapist, a substance abuse specialist, a vocational specialist, a psychiatrist, and an administrative assistant (7). Although I had a sample size in mind, I wanted to recruit participants from all five ACT teams who could provide useful and rich insights, rather than to recruit a firm number of participants (50).

Access to the sample was gained through the members of the Ottawa ACT Central Intake meeting. After ACT leaders consented to their team's participation, an ACT administrative employee sent out a recruitment email to their team. The email outlined the purpose of the study, the demands of participation (i.e., virtual interviews), and the inclusion criteria for participation (to be included in the study, participants had to working with their ACT team for a minimum of three months to ensure they had sufficient time to develop mental models and would be able answer interview questions). ACT team

members who wished to participate were provided with an informed consent form detailing the purpose, methods, confidentiality, benefits, and risks of the study.

Data Collection

I conducted individual semi-structured virtual interviews on Zoom lasting 45-60 minutes. This time frame allowed for in-depth and rich discussion, while not being long enough to fatigue participants. Interviews were conducted until thematic saturation was reached within each team during data collection, meaning that the themes generated during analysis are deeply understood (51); I followed up two to three times per team to recruit enough participants until this was achieved. Interviews were recorded using the audio recording function in Zoom once participant consent was given. I used a semi-structured interview guide which gave room for flexibility to explore unexpected or particularly interesting topics introduced by participants. While conducting the interview, I engaged the participant with probes and encouragement (52) (see Appendix A for the final interview guide).

The flexibility inherent in semi-structured interviewing allowed for my study aims of discovery and exploration (50). It also allowed for an in-depth look into context-specific factors that distinguished different ACT teams, as I probed to learn about the services available within teams and the dynamics between team members. I was able to see how individual ACT team members perceive and experience primary care provision or collaboration with external primary care providers, which unveiled how members within and between teams converge or diverge in their mental models. Having flexibility in the interview guide also allowed me to address participants with different professions and leadership roles within the ACT teams in unique ways as surprising topics arose.

The interview guide was created using SMM theory. The SMM framework is vast, and I had to decide what categories and content domains to include (40). I tried to incorporate teamwork and taskwork content in both knowledge and belief domains without diluting meaning and richness of data. Interview questions were also informed by a review of the literature, discussions during thesis proposal development, earlier conversations with ACT team members, my research questions and objectives, and iterative improvement during data collection (53). Thus, I carefully wrote (and iteratively improved) interview questions to elicit knowledge and beliefs about taskwork and teamwork which were most relevant to the thesis and was flexible in eliciting responses in different SMM theory areas in the context of each participant and case over time. For example, the prompt, “How do you/others provide or assist in primary care delivery?” elicits what the participant knows about responsibilities and contributions of team members within the teamwork domain. The question, “Do you think ACT meets the primary care needs of its clients?” elicits the participant’s beliefs on the readiness of the team to successfully deliver

the taskwork. However, other open-ended interview questions and participant's responses themselves sometimes elicited overlapping mental model content and categories. This was valuable to the exploratory nature of my thesis and allowed me to collect rich data covering a wide range of SMM theory areas most pertinent to the participants and cases of my thesis.

Interview data was complemented by a review of the most recent issue of the ACT Standards for Ontario (2021). I had originally planned to collect documents (e.g., reports and quality improvement plans) pertaining to primary care and ACT teams for document analysis. However, during data collection, I learned there were no such documents. I was able to access the most recent version of the ACT Standards for Ontario and reviewed it for primary care teamwork and taskwork knowledge (i.e., mention of physical health care and related guidelines for collaboration and internal primary care provision roles).

Data Analysis

I reviewed the ACT Standards document to deepen my understanding of the cases and find any knowledge content regarding primary care (e.g., primary care goals, role responsibilities), as this is a key guideline document for ACT teams. The majority of analysis consisted of conducting thematic analysis as described by Braun and Clarke (2006) on interview transcripts, to identify teamwork and taskwork mental models and develop themes of primary care provision and collaboration. Thematic analysis is a rigorous yet flexible approach to qualitative data analysis relevant to the health care and psychology fields (54). Data analysis was iterative began in unison with data collection (45). For example, after each interview I summarized notes from the interview and jotted ideas for future interviews within that case or for other participants across cases.

I used NVivo, a computer software for qualitative data analysis, to code interview transcripts. Interview audio recordings were transcribed automatically by a professional transcription service, and I checked each transcript for verbatim accuracy and to familiarize myself with the data (54). I took an iterative approach to coding, which allowed me to ensure the fit and relevance of the codes to my data and informed subsequent decisions for data collection (e.g., regarding whether data saturation has been reached) and analysis (e.g., confirmed that my inferences were supported by the data, level of thematic saturation achieved) (45,54).

I began coding by creating an initial list of deductive codes (i.e., codes informed by the literature on ACT and primary care, SMM theory, and my research questions) and iteratively created and added inductive codes to the list during early-stage data analysis (i.e., codes that arose from the data and participants themselves) (45,54). I revised the codes and created a codebook where I defined codes and subcodes guided by the SMM framework (see Appendix B for the codebook). I engaged my supervisor for

feedback on the development of the codebook and we coded the same first two transcripts independently and met to discuss our similarities and differences in coding to improve my subsequent analysis. After I finalized the codebook for the data set with my supervisor, I re-coded the first two transcripts and then coded the remainder. Once coding was complete, I developed matrices for each case to categorize my final codes, summarize data items, and reference quotes to support the future production of my report (45,55).

In each team's matrix, I summarized data within codes and subcodes, noted points of disagreement, inserted quotes to support my inferences, and summarized the case and the knowledge and beliefs I identified. I used these matrices to develop a thematic map for each case, to represent SMM content and illustrate mental models within each team. I collated codes into themes after developing a deep understanding of the content of each code and how the codes related to each other. Codes are labels that describe and organize data segments; in thematic analysis, codes are collated into broader themes which represent meaningful patterns (i.e., pertinent to the research questions) within the data set (54). I reviewed and refined my themes by checking their fit with each code and then their relation to other themes and their fit with the data set. My thematic maps revealed where mental models converged and diverged across participants and across different teams, and which themes were most relevant to each individual team. I compared the themes to my research questions to learn what pertinent story they told about the data. Themes were refined during the process of thematic mapping and later during the write-up of the results, as data analysis was iterative, and I gained even deeper understanding of the themes overtime. Themes were also refined based on feedback from my supervisor during the presentation of my thematic maps and overview of each case. Before I began writing my results, I presented the aggregated results for member checking (see sub-section below for more detail). After receiving member checking feedback, I wrote-up the results (referencing my matrices, notes, and thematic maps) and used quotes from my matrices to support a compelling presentation of how the data answered the research questions. My supervisor provided me with detailed and constructive feedback to improve and refine my results as I wrote them.

Member Checking

I conducted member checking by presenting aggregated results at the Community Mental Health Program's Cross-Training session in Spring 2022 to confirm my analysis resonated with the perspectives of ACT team members. The Community Mental Health Program operates from the Royal Ottawa Hospital. The Community Mental Health Program's Cross-Training session usually includes about 50 interprofessional team members from the region's ACT teams who are invited to meet and learn about

interdisciplinary topics. Some participants present at the cross-training session were part of my data collection and many were not. I engaged participants in discussion about my findings, obtained their feedback, and heard their questions.

During the presentation, I engaged the audience with three questions, using a website called Mentimeter. This included asking: 1) what comes to mind when they think of client health, 2) to rank team roles from most to least medical, and 3) if they thought there should be a family physician or a nurse practitioner on ACT teams to provide primary care (responses can be found in Appendix C). At the end of the presentation, I asked the audience what from the results did/did not resonate with them, if anything was surprising, and if they felt anything was missing. I also asked for open thoughts and feedback and encouraged members to ask questions. A few participants shared that the results resonated well, and they thought it represented the teams and their experiences effectively. No one said they felt otherwise, nor did anyone say there were surprised by any results or expecting to see anything different.

Reflexivity Statement

My current beliefs and prior experiences impacted how I approached and carried out my thesis research (56). Firstly, I maintained a constructionist epistemological stance wherein I believe that the participants whom I interviewed create their own knowledge and create knowledge together with their teams (46,57). Further, my approach to the research topic, question, and framework were shaped by personal interests (e.g., mental health, primary care, social justice) and pre-existing values about them (e.g., efficient primary care and well-supported mental health programs are important parts of the health system, services provided within the health system should be comprehensive for all and should target the needs of marginalized patient populations), my graduate program (i.e., health systems), my environment (i.e., pandemic context), and my education background (e.g., I chose to employ SMM theory because of my background in psychology). I was constrained by feasibility considerations of being a Master's student. However, I also benefited from Canadian Institutes of Health Research funding for this thesis, which allowed me to focus primarily on my thesis research and develop my skills as a researcher in general.

Secondly, data collection was impacted by my level of experience and the pandemic context. I began an internship as part of my graduate program before I began data collection for my thesis which increased my confidence as a new researcher and gave me experience conducting research on a larger scale than I had previously experienced. Nonetheless, I was still a graduate student conducting my first independent project under professional supervision. I was most attuned to ethical considerations and

rigor of the research because I was hypervigilant of the possibility that I could neglect these important areas as a naïve researcher. The pandemic impacted data collection through me as the researcher and through the participants. During the beginning of the pandemic, I was an essential worker (working part-time at a pharmacy), and I related to ACT participants who were also essential workers within the health care system. However, my role was very different than that of an ACT worker, so I may have been relating on aspects that were not quite relatable, under the guise of the sharedness of a pandemic reality. Because of the pandemic, I collected my data virtually and I had a different experience connecting with participants online than I probably would have in person.

Lastly, my data analysis was impacted by my choice in method, the process, and my perspective. I decided to conduct thematic analysis as described by Braun and Clarke (2006). I believe this is a rigorous and creative method, however, I was also influenced to use it from my previous experience following their method and the knowledge that it is often applied within psychology research. The nature of iterative data analysis for qualitative research also impacted my approach to data analysis, as my perspective evolved over time as I interacted with new data as it was collected. I also made decisions for the analysis (e.g., what constitutes as a "theme") which impact the results and could have been done differently by another analyst with a different perspective (54).

Quality Assurance

To ensure the quality of data analysis, I upheld certain values throughout the process. I used the checklist of criteria developed by Braun and Clarke (2006) to guide my thematic analysis (see Appendix D). I also used quality criteria from other sources relevant to my study design (e.g., authors who have written about qualitative or case study research quality: Clark, 2003; Eisenhardt, 1989; Pratt, 2009). To begin thematic analysis, I checked my transcripts for accuracy before coding (54). I gave each data item similar attention to minimize my bias (54) and made sure not to project my own perceptions as I made inferences, as maintaining the worldview of the participants was important (58). I was transparent and documented my steps throughout my thesis and maintained an audit trail and kept memos as I made inferences (58,59). I conducted the analysis carefully, rigorously, and comprehensively to create quality codes and themes (which my supervisor and I discussed for inter-rater reliability in the early stages of analysis) (45,54). I reviewed the entirety of data items within each code and made matrices to organize my data to enhance my familiarity and understanding, and to ensure codes, sub-themes, and themes were distinct and fit the data items and the data set (54). I considered alternative explanations to my inferences and documented rival explanations to participant perceptions and experiences during analysis (45,49,59), and discussed them with my supervisor. I provided evidence for my claims using quotes

(45,54,58,59) and member checking, to confirm whether the results resonated with participants' experiences and worldview and incorporated their feedback (60). I went beyond description when I interpreted data items to ensure my data analysis was rich and meaningful and made insightful inferences to contribute and connect to extant literature, in line with the objectives of my study (45,54,58,59). When producing the thesis, I organized the results to convey a compelling story (54). I wrote the thesis using language from my guiding framework (SMM theory) and epistemological stance, using an active voice, and acknowledging the influence of thematic analysis (54).

Chapter 3: Results

In this section, I provide a brief overview, describe the demographics of the teams I studied, and then present my thesis results.

Overview

I present six main themes organized into three major categories: (a) Taskwork mental models of primary care and ACT, (b) Teamwork mental models of ACT teamwork and ACT team members' relationships with primary care providers, and (c) The perceived impact of the pandemic on primary care mental models. Themes in each category capture knowledge and belief content from taskwork or teamwork mental models (e.g., mental model content discussed in previous research about SMM theory by Mohammed et al., 2010 and Evans et al., 2014). Categories 'a' and 'b' answer the main research question (RQ 1), category 'c' answers research sub-question 1b, and the convergence and divergence of mental models are discussed throughout the categories to answer research sub-question 1a.

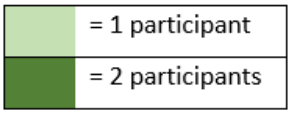
Category 'a' explores taskwork. In this case, the task is defined as delivery of primary care to ACT clients, including knowledge and beliefs about primary care providers and services, primary care goals and client needs, how participants see the future of primary care and ACT, and the impact and acceptance of current primary care delivery for ACT's clients. The major themes include: (1) How ACT team members define and value primary care, (2) Mitigating barriers to primary care, and (3) ACT team members' competing values about primary care and ACT integration. Category 'b' explores teamwork through knowledge and beliefs of team communication and interdependence, team members' abilities and responsibilities for primary care delivery, and the appropriateness and acceptance of their roles. Its major themes include: (4) Teamwork in support of primary care delivery and, (5) Medical hierarchy and interdisciplinary differences. Lastly, category 'c' explores how team members think knowledge and beliefs of taskwork and teamwork have been impacted by the pandemic. It includes the final theme: (6) The impact of the pandemic on primary care mental models.

Team Demographics

Four ACT teams and one Step-Down team participated in this thesis study. Two ACT teams were affiliated with Community Health Centers and two ACT teams and the Step-Down team were affiliated with The Royal Ottawa, a tertiary mental health hospital. The Step-Down team provides less intensive, case management services to clients who have graduated from ACT teams in the region. ACT leaders connected me to ACT teams and the Step-Down team alike for recruitment, however, the differences between ACT teams and the Step-Down team were only clarified during interviews. Despite the

difference, Step-Down still fits into the broader structure of ACT and was included in the data. Throughout the results, I refer to all participants as "ACT team members" and highlight differences in Step-Down responses where applicable. Four to seven team members participated from each of the five teams, for a total of 27 participants. Most of the sample worked full-time (n= 24, 89%, all roles except psychiatrists) and identified as women (n= 19, 70%). The average age of participants was 46 years old. The average time participants had worked on their team was 10 years (ranging from four months to 22 years). Participant roles on the team are listed in Table 1.

Table 1. Participant roles.



ACT Team Participant Roles (As listed in the ACT Standards Document)	Total n/role	ACT Team Case Number 1	2	3	4	5
Total n/team	**= 27**	4	7	5	5	6
Team lead/coordinator	4					
RN/RPN (nursing)	3					
Social worker	3					
Occupational therapist	3					
Substance abuse specialist	0					
Vocational specialist	0					
Peer specialist	2					
Psychiatrist	3					
Program assistant	1					
"Other" roles						
➢ Mental health worker	5					
➢ Recreation therapist	1					
➢ Registered psychotherapist	1					
➢ Director	1					

A. Taskwork Mental Models of Primary Care and ACT

The themes exploring ACT team members' mental models of primary care and ACT include: (1) How ACT team members' define and value primary care, which relays their knowledge of primary care

services and providers, clients' primary care needs and benefits for clients receiving primary care, and primary care goals; (2) Mitigating barriers to primary care, which includes how ACT team members support the task of primary care delivery to their clients; and (3) ACT team members' competing values about primary care and ACT integration, which expresses participant beliefs about the consequences and appropriateness of integrating primary care and ACT.

Theme 1. How ACT team members define and value primary care

Theme 1 captures the broad range of primary care services and providers that ACT team members refer to in the community, and sometimes within ACT. It also describes the psychosocial scope of ACT and the shared preferences of ACT teams to support external primary care delivery. Finally, teams shared the belief that primary care is essential to supporting clients' holistic health and increased needs, going beyond ACT team members' psychosocial scope and skills.

1.1 External primary care providers and services, and ACT's basic internal provision and psychosocial scope

When asked about primary care services and providers, participants often referred to a range of external services and providers in the broader health care system. They mentioned services (e.g., physical health checkups, blood work requisitions) from family physicians and nurse practitioners, but also various physical health care services and chronic disease management from providers in dental care, foot care, eye care, pharmacy, and even physicians who specialized in diabetic or cancer care. A stable primary care provider who understands SMI and collaborative, shared care with ACT was described by many participants as the best scenario for client primary care (although not all clients have access to this or want this). Some clients use walk-in clinics and emergency departments for their primary care as well. Participants from all teams shared the belief that external primary care providers and services are important for ACT clients' wellbeing.

Most participants shared the perception that ACT does not deliver primary care and ACT team members are not primary care providers. Although, participants also shared they often deliver some 'basic' primary care services if they relate to clients' psychosocial needs (e.g., walking and medication-education compliment mental health care, monitoring health markers such as blood pressure is important to mitigate metabolic risk factors). Specific services offered and the amount of primary care engagement in-house was unique to each team. A mental health worker said, "We're constantly keeping tabs on things so that we can be proactive, as opposed to reactive" (Team 5). A team lead shared,

> "There are pieces of psychiatric treatment that have an impact on physical health, such as medications causing some metabolic disturbances, causing weight gain, all those pieces, which then can then lead to diabetes and such. So, we ensure that we monitor blood work at least annually, keep an eye on people's weight and their waist conference and things like that, but we're always eyes and ears on situations as well." (Team 1)

Participants reported that ACT's main function within primary care is to connect clients to external services and providers and support access, not to deliver primary care themselves. Many participants shared that it is a priority within their team for their clients to have a primary care provider. A mental health counselor said,

> "If they need a physical assessment or they need antibiotics or treatment or a test ordered, it's always going to be an external provider. We don't do those things in-house. Because we're a mental health service, right. So, we are there to help make sure that they have access to primary care, but we don't provide it ourselves." (Team 1)

Participants shared the perception of external primary care services as more medical than ACT's psychosocial services, and necessary for clients to receive primary care beyond ACT's scope and expertise. A nurse said, "We do some diabetic teaching, I do small amounts of wound care, if someone's got injection sites that are infected, I would clean them. But if they're really infected, I'm like, "Okay, we have to go to the clinic", that's beyond my scope" (Team 2).

1.2 ACT clients' risk

Participants shared knowledge mental models about their clientele, including that people with SMI have a higher risk for certain medical conditions and often have complex and long-term health care needs. Participants across teams shared the belief that clients need primary care access to address their disproportionate risk for physical health concerns. A team lead said,

> "I think it's become recognized that we need to take care of [client physical health] … A lot of our clients, they have schizophrenia, and so they're more at risk because of the antipsychotics, and other reasons of dying early. We've had people who have died at a younger age than we would like, so, that has an impact on people. And it's like, yeah, we have to really step this up." (Team 4)

A nurse echoed,

> "With our clients that have [SMI], predominantly it's schizophrenia, most of them have that illness, we know that they're going to die 20 to 30 years before the average population just because of their risk factors, right. Many of them are smokers, many of them have diabetes, many of them don't follow up with medical care… So, those are huge risk factors… Hypertension, all those things … The big issue is, the majority of our clients, they're not discharged to the community, they die. And that's quite sad. And I think that's probably related to the fact that they're not getting the adequate physical care that they should be." (Team 3)

1.3 Goal to support holistic health of ACT clients

Many participants shared that the goal of connecting clients to primary care providers is to ensure ACT clients have access to medical services, given the limitations of ACT's scope. Participants from all teams shared that they view client health holistically, as not just psychosocial, but physical health too. An occupational therapist said, "I think [ACT staff] take the clients' physical health very seriously. I mean, [mental and physical health are] often so intertwined, how do you disentangle them?" (Team 4). A team lead shared,

> "It's the whole person that we're dealing with, and sometimes there are better people out there to do that, and we can help them find that, but [physical health is] still on our radar. And we, the ACT team, take that responsibility for the full care of the person. It doesn't all have to be done on our team … We help them get that though. So, the whole person is what we're dealing with. You can't deny our clients have so many physical health complications... This is such a huge piece of what we do." (Team 2)

Acknowledging different facets of health also helps ACT team members identify and advocate for client needs. A social worker said,

> "Sometimes what can look like a psychotic episode can actually be something like a bladder infection, you know, there's something else happening physically in the body, and we're just not trained to think that way … In the population that does not live with SMI, they might be able to express, "Hey, I'm not feeling myself, and I know that

something is happening that's not comfortable in my body", but someone was schizophrenia that might just come up with, "The voices are increasing."" (Team 4)

Theme 2. Mitigating barriers to primary care

Theme 2 reveals barriers to primary care at multiple levels (i.e., client, provider, and system) and how ACT participants described mitigating barriers to support primary care access and delivery for clients.

Table 2. Barriers to primary care for ACT clients and strategies ACT teams use to mitigate barriers.

	Barriers	**Mitigation strategies**
Client level	Refuse primary care. Difficulties communicating needs. Difficulty adhering to treatment.	Client engagement. Opportunistic care. Constant offering to support care.
Provider level	Poor understanding and acceptance of SMI and ACT.	Connect clients with compassionate and collaborative providers. Advocate for client needs.
System level	System overload. Low incentive for external providers to collaborate. Poor coordination and continuity across sub-systems. Family physician waitlists.	System navigation and service coordination. Utilizing diverse care options.

2.1 Barriers to accessing primary care

Participants described many barriers to primary care that clients face, which can be seen in the first column in Table 2. At the client-level, many participants shared that some clients create their own barriers to care, due to symptoms of their mental illness or life circumstances. Client-level barriers include difficulty identifying and communicating health changes, refusing treatment, and difficulty adhering to treatment (which may be due to limited resources, actively experiencing mental illness symptoms (e.g., hallucinations), or lacking insight into their medical needs).

Many participants described external primary care providers as “50/50”, explaining that whether external providers work well with ACT clients or team members is highly variable; some external providers collaborate well with ACT team members and provide ACT clients with high-quality, tailored care, while others do not. This distinction was often attributed to the provider’s personality, education, skill in working with mental illness, stigma, and system-level factors influencing the external providers. Participants shared that some external providers do not understand the complexities of clients’ mental illness or circumstances (e.g., poverty) and propose treatments that are not realistic for the client. Furthermore, they may not understand or accept the role of ACT within shared care. Many participants talked about frustrating experiences when providers ignored the client during liaising and instead spoke only to the ACT team member. A nurse said,

> “If I'm present, [family physicians] will talk to me. And like, minimal eye contact with the client … It's kind of mind-blowing to me sometimes how rude it is. … Generally speaking, it depends on the doctor, most of them are okay [acknowledging SMI], but... Yeah, they ignore it. Like not address it. … A big piece of my role is advocating with the doctors like, “Look, we understand that the antipsychotic they are on puts them at high risk for metabolic syndrome and diabetes and blah, blah, blah, but we need you to set up foot care for our clients, we need you... They need an endocrinologist. We need this.” So, we really go in there. I'm sure I haven't made a ton of friends, but I go in there with a list of, like, “Please. This is what our clients need, and our clients who don't have phones, then you call me, and I'll set it up, and then I'll let her know on the visit, this is the plan. Are you good with this?” We have a lot of clients that cancel. The anxiety piece is huge. So, explaining to doctors, “Look, this client has big anxiety, and so they may cancel a few times before we get there, please don't charge us for it, they don't have the money to pay for it, so it's a waste. And we will do our best to try and give you as much notice as possible”, those are like some of the pieces that we sort of struggle with at times.” (Team 2)

A social worker said,

> “It can help greatly when someone like myself, or a nurse, or when there's someone else in the room there to advocate for the client, but there's also many times where it

> doesn't make a lick of difference if I'm sitting in the room and advocating, I can be cut off and booted out just as quickly as the client." (Team 4)

Regarding system-level barriers, participants explained that the health system is not designed for people with SMI, and external providers are extremely busy in their own practice and not incentivized to collaborate. They also discussed poor follow-up and lack of coordination and continuity within the health system. Finally, many participants discussed the shortage of available family physicians and long wait lists to secure primary care providers, and specific challenges finding family physicians who would accept clients with SMI. A social worker said,

> "Finding [family physicians] can be very challenging for anybody in the community. Finding a [family physician] for someone who has schizophrenia and may not be a clear communicator, is that much more difficult. And then finding a [family physician] for someone who has schizophrenia and may be on a medication like Clozapine, for example, it's impossible. [Family physicians] don't want to touch it, they don't know enough about it, or it's too high a risk. So, what that means for us is, often we'll have clients on our load that really don't need ACT services anymore, maybe they're really stable because of Clozapine, the medication that they're on, and they don't need intensive services anymore, but we can't discharge them because there's nobody in the community that will take over the Clozapine management, which means they stay on our caseload, which means people that really do need intensive services can't get on to our caseload. The waitlist gets that much longer, so it's a really challenging and unfortunate effect." (Team 4)

2.2. ACT's mitigation techniques

The strategies ACT teams use to mitigate primary care barriers for their clients are listed in the second column in Table 2. Participants described mitigating client-level barriers through client engagement (e.g., exploring client goals and motivations). Many ACT team members talked about understanding client motivations and working toward client-centered goals. Some ACT team members described care opportunities, for example when a client unexpectedly expresses interest in primary care services or is agreeable to certain approaches to care (e.g., going to a walk-in clinic). Participants revealed that clients do not always want to receive primary care services. Participants shared that the role of ACT in such circumstances is to remind clients that primary care is available when they want it and discussed

practices of 'leaving the door open' for clients to receive primary care when they are ready. ACT team members shared they respect the client's insight and preferences to decline care unless they are at immediate risk (participants reported keeping tabs on client wellbeing to monitor risk and evaluate when intervention is necessary).

A peer specialist described offering support to clients as,

> "Basically, just a constant offering. Constant, like, "Hey, you've got a cut here or whatever, and we really don't want that to get infected, and can we get you to the community health care center, can we get you to a walk-in clinic?" And sometimes they're like, "Yeah, okay, I want to go to a walk-in clinic", because it's causing them pain ... But it's the constant offering. If they refuse, then it's like, "Okay, you refuse this time", but then if it gets to a point where it becomes untenable for them… But even then, we've got clients who are completely blind in one eye because they refuse to get cataract surgery, that kind of thing. And you ask them, "Well, how are you seeing?" "Oh, I'm seeing, fine" ... And you just say, "Well, if you change your mind..." And just keeping at it, just being patient over a long period of time, just hoping that someday they'll change their mind." (Team 5)

A social worker further explained,

> "There's a fellow … He ends up in the hospital [and the hospital staff is] trying to get the family doctor's blood work completed. And the fellow's saying, "Well, maybe next spring." And I think we have to kind of keep that sense of direction and respect. I can say the same thing around, for example, vaccination for COVID-19 … People that have different reasons or motivations, and it may never happen. I may never be able to get a fellow that I worked with vaccinated, because he keeps coming up with stuff that is related to his mental illness or whatever. But trying to keep the dialogue going and touch on it, but it's never the most important thing." (Team 3)

Participants shared that connecting clients with good external providers is essential to mitigating provider-level barriers. Some participants reported that they try to build a network of reliable providers in the community who know how to work with people with SMI to reduce the likelihood of clients

encountering challenges. A participant from one of the teams shared that their team is beginning to compile a list of providers who work well with people with SMI. A mental health counselor said,

> "It's kind of a hodgepodge… For [the client], I'll call six different dentists in her area and try to find one that takes [Ontario Disability Support Program insurance]. But I'm doing that while my colleague across the room already has a connection with a dentist in the area and we just haven't talked about it. So, unless I stand up and say, "Anybody have a dentist?", a lot of us are just repeating the same steps that other colleagues have already done or are already doing, so we're trying to mitigate that a bit." (Team 1)

Participants shared how they develop rapport with external providers. Participants from one team shared that they wrote letters to the family physicians of new clients to establish a relationship and encourage shared care from the beginning. A program assistant said,

> "When we first meet with a client, we have a template letter that we send out to primary health, introducing ourselves to them, letting them know that we are open to collaborating with them... We let them know that we would like them to take primary lead for their physical health and we work on their psychiatric health, and then if there's any concerns, we will be in contact with them … We always make sure, let's say, for example, blood work, we always CC them as well. I know at least twice a year we'll be in contact with primary health, just check in on them. With the client's permission, we'll try to attend, if possible, a meeting just to introduce ourselves to the primary health, so that they have a face to a name." (Team 2)

Liaising is a practice that participants shared is important. ACT team members liaise between clients and external providers to mitigate barriers for the client, advocate for client needs, and understand and support the external provider. Liaising can entail establishing a relationship (e.g., by connecting a client to a family physician), booking primary care appointments for clients, attending clients' primary care appointments with them (e.g., to provide client information, advocate for client needs, support client comprehension), ensuring provider follow-up, supporting further care and coordination between multiple providers, and supporting client treatment adherence.

A mental health counselor described advocacy within liaising, saying,

> "It definitely makes a difference like having an ACT team, we are really good at advocating. Clients that need x-rays, for example, the clinic nearby that does x-rays, don't usually book appointments for x-rays, but when we call and say, "Hey, we're a health team, we have a limited time window to engage with this person. We're going to bring them to you. This person needs an appointment, they cannot wait." The clinic will accommodate that. Whereas if our client went on their own, or just had a meltdown in the waiting room, they'd be asked to leave, and they wouldn't get that treatment. The advocacy piece that we do for them definitely gets them connected to resources that they'd otherwise have no access to." (Team 1)

Another mental health counselor talked about how liaising supports the external provider. They said,

> "Sometimes clients are anxious or have difficulty processing information, so we're there, we're like a living memory for them, so we can review the outcome of the appointment with them again later on, and then it also helps the physician sometimes. Some of our clients have a lot of difficulties, slow information processing, difficulty communicating, they might be experiencing active psychiatric symptoms when they're in the appointment, so sometimes it helps the physician to have us there to kind of mediate some of that." (Team 4)

To mitigate system-level barriers, ACT teams coordinate client care across the health system (e.g., help clients with system navigation, coordinate service requests, and share client information between different providers so providers are informed and clients are not burdened by duplicate services), constantly search for available family physicians, and create options for clients when they do not have a family physician (e.g., utilize walk-in clinics, in-house options, and emergency services).

Theme 3. ACT team members' competing values about primary care and ACT integration

This theme reveals that participants do not share mental models about integrating primary care into ACT teams in the long-term. This topic sparked passion in participants and was perceived as controversial. Participants reported two main visions, although there was no consensus among teams or roles. The first vision was the status quo where clients received their primary care externally and the second vision was adding a primary care provider to the ACT team; visions were rooted in values of client

integration into society and client autonomy or of client primary care access and physical health improvements.

3.1 Status quo

Some participants wanted the status quo where most primary care is delivered externally and ACT teams support access to care in the community. Some participants explained that if primary care services were delivered by ACT teams, clients would lose the opportunity to receive services in the community. When clients receive primary care in the community, such as when they "go to the local pharmacy or to the local doctor's office to receive the injection… [it normalizes SMI integration into the community and instills] more independence [in the client]" (Team lead, Team 3). Participants believing in the status quo shared that integration of primary care in ACT teams could perpetuate stigma and segregation, institutionalization, and becoming reliant on ACT services in the long-term (i.e., not able to recover and graduate from ACT), which would threaten values of client autonomy and recovery/rehabilitation. A mental health counselor said,

> "I could see [having a nurse practitioner on the team] as being an advantage, but I don't think it's worth it. The disadvantage of that is that we're meant to do the rehab piece, and as soon as you start taking resources away from the rehab piece, it crumbles. It takes a constant effort – and a constant conscious effort at that – to make sure that we're not dropping that piece. … I don't think it would be that appropriate at all [for ACT to provide primary care], to be honest with you. We are meant to be a psychosocial rehabilitation service, so we're meant to help people integrate into the community and not to be segregated." (Team 1)

Another social worker also said,

> "I get concerned about people saying they want a nurse practitioner on the ACT team. This is because of my concerns about sustainability … It doesn't actually push the broader system outside to adapt and accommodate people … I would suggest we've given up if we got a nurse practitioner, we've given up on the idea we're going to socially include people into the broader community, and maybe we're setting up a re-creation of the provincial hospital system where you're totally disabled … How will people then get back on track to ever move out of those systems?" (Team 3)

3.2 Integration of primary care into ACT teams

Alternatively, some participants did not feel as strongly about the possible negative consequences and wanted the addition of a primary care provider on ACT teams. These participants thought this vision would lead to improved primary care access and mental-health-informed primary care for clients, without overwhelming current ACT team members. An occupational therapist shared, "It kind of goes against the rehab kind of process, but I think the ACT teams should have access to some kind of primary care, when our clients don't have [family physicians]. Like a nurse practitioner even..." (Team 5). A social worker said,

> "I think if we had a [family physician] on every ACT team, that would be the ultimate dream because you know, there's a shortage of [family physicians], and the [family physicians] that we do have, some are fantastic and some are not. And so, a lot of things get missed ... And I think if there were [family physicians] connected to ACT teams, the care would be... That's the missing piece. That's what we need." (Team 4).

A mental health worker said,

> "I just think it would be lovely if they made room in the budget to have a doctor on our team that can manage our clients' physical health needs, because that is the biggest barrier for us is just even getting them connected for ongoing follow-up care. ... In an ideal world, I would absolutely love to see the implementation of a medical doctor on our team just to oversee our clients and do those referrals and that testing, because our psychiatrists don't do it." (Team 5)

3.3 Current capacity and feedback

Most participants shared the belief that ACT's current structure does not have the capacity to support increased primary care delivery. When asked if the medical duties of existing ACT roles could increase to provide primary care, many participants did not think it is sustainable (due to capacity) or desirable (given ACT's psychosocial focus). A nurse from one team reported, "We used to have it that only nurses [attended] doctor's appointments, and then it became like, "Okay, this is all the nurses are doing"" (Team 2). A mental health counsellor echoed the importance of the psychosocial focus and said, "If [ACT nurses] wanted to do just primary care stuff, they wouldn't have joined an ACT team" (Team 1).

During member-checking when I presented aggregated results to different ACT teams and members, this theme resonated the most and dominated discussion. Some people said having a nurse practitioner on the team or designated to work collaboratively with teams and oversee clients would help support client needs and access to care. Others cautioned that if a nurse practitioner or family physician were on the team, it could put the recovery model of integrating clients into the community at stake. Although integration into the community is ideal, some people noted that it is not always realistic given systemic barriers, and thus clients still need access to primary care.

B. Teamwork Mental Models and ACT Team Members' Relationships with Primary Care Providers

I explored participants' mental models of ACT teamwork in supporting primary care delivery and their relationships within external primary care providers. I looked at their knowledge of the abilities and responsibilities of different ACT roles on the team to support primary care delivery. I also looked at interdependence and communication among team members. I explored their beliefs around supporting primary care and their agreement with teamwork roles and strategies. These themes included: (4) Teamwork in support of primary care delivery and (5) Medical hierarchy and interdisciplinary differences.

Theme 4. Teamwork in support of primary care delivery

Despite different mental models about the integration of primary care into ACT, the ACT teams in my case study did report providing basic primary care services and supporting external primary care delivery. Theme 4 discusses teamwork (which includes frequent communication and sharing expertise and skills across disciplines), which all teams reported supports their ability to deliver basic primary care services, when appropriate, and support external primary care delivery.

4.1 Frequent communication

Participants reported frequent team communication (e.g., ACT teams have daily and weekly meetings and the Step-Down team has weekly and monthly meetings for dedicated topics of discussion) and almost all participants expressed satisfaction in how their team communicates. Frequent communication helps ACT team members exchange ideas so knowledge and beliefs about pertinent information can converge (e.g., current client needs, team member roles and responsibilities for shared client care). A mental health worker explained,

> "We have a team meeting every day from 9 to 10 on the weekdays, and then in those meetings, we review all the visits from the day before, so we'll give a quick rundown of each of our contacts with clients, and then from that, sometimes there is a

> discussion about next steps or what we need to follow up on, and so physical health will come up in there, especially if it's something that needs to be addressed fairly quickly, then the nurse of the day will work on it … Our psychiatrist will work on it. And then on Wednesdays, we have that regular meeting, and then after we do our service planning, so if anything comes up during the week, we add it to our service planning board, and that's just kind of more time to discuss specific client issues. So, for example, today we discussed this client who accidentally took too much of a medication and we decided what are we going to do, and we just talk out the options and that kind of thing." (Team 2)

4.2 ACT team member interdependency

ACT team members shared that each interdisciplinary role must, to an extent, be interchangeable since all members on the team share care for all clients (note: this is not applicable to the Step-Down team, where client care is not shared). Frequent communication supports this by keeping ACT team members informed and on the same page. Participants from all teams also shared that frequent communication allows team members to consult with each other on how to best approach situations and support clients. A team lead said ACT team members are, "A bit of a resource for the other ACT team members and [during meetings] they'll ask for information or clarification or, "What should be done about this? Do we need to follow up?"" (Team 4)

Participants shared how they make decisions together as a team during meetings. Team meetings were reported as conducive to open conversation, where ACT team members can raise concerns regarding client care or their responsibilities. A mental health worker said,

> "When you work within an ACT model, you're very closely knit, just because you're working with each other every single day. So, if the dynamics are correct and they're healthy, you're actually able to challenge these ideas and say, "Hey listen, I notice that we're doing a little bit too much for this person. Can we have a conversation about it?" (Team 5)

ACT team members said they express when they have concerns about clients' physical health to the client and other ACT team members, which inform the team's actions as individual health issues emerge. A mental health counselor said,

> "We have another client who… He uses intravenous drugs and got a very obvious infection starting in his arm. The most we were able to do at that point was, we would ask him if we could see it every week and monitor it and make our recommendations, and then offer a drive to the emergency or the clinic… He didn't take us up on it. Luckily, he ended up healing. … We were genuinely concerned he might lose his arm over it. … The most we could do is, if I saw the infection, I went back to the team and was like, "Hey, I've noticed X, Y, Z, can we get a nurse either this week or on his next visit to just go double-check and tell me… Do we need to Form this person? Or can they go longer without treatment?" We have a woman… A crack pipe exploded in her hands and gave her what looks like fourth-degree burns. She doesn't want to go to emergency… We looked at it, it looked terrible but not infected, so our argument with her was to keep monitoring it. Here's when you should go to emergency… And we talked to each other as a team where like, if it looks like her life is in danger we'll Form her, but otherwise, she's her own decision-maker, so, all we can do is make recommendations." (Team 1)

Participants from all teams talked about the importance of ACT psychiatrists supporting collaboration with external primary care providers (e.g., coordinating treatment and sharing notes with family doctors, arranging conference calls with family doctors regarding client concerns) and the influence of the ACT psychiatrist on the team's morale (e.g., feeling supported in collaborating with primary care providers). Participants from one team mentioned that their psychiatrist(s) were not as ingrained in the team as other ACT team members when it came to teamwork decisions around client primary care, although they wanted the psychiatrist(s) to be more involved in the communication and decision-making around supporting primary care provision and collaboration. A recreation therapist said,

> "I think sometimes it is a little bit frustrating because sometimes we may have serious concerns about a client's physical health and it can sort of feel like it's being dismissed a little bit by the psychiatrist, and sometimes we do sort of feel like if a client doesn't have a family doctor, we would feel a little bit conflicted about how to go about figuring it out, but in the end, it always does get figured out, but sometimes it can be a bit frustrating having the psychiatrist say, "That's not my role."" (Team 5)

A nurse said,

> “I don't think there's enough emphasis put on the importance of [physical health in ACT] ... I know on some of the ACT teams, the psychiatrists there don't want to deal with the medical... Their response is, “That's medical, that's not my job. That's up to the [family physician] to deal with”, and I don't think that's a fair response. I don't think that's best practice. I think we should be looking at collaborative care. But if you've got a [family physician], if you've got a psychiatrist who's not willing to work closely with [family physicians], it's going to impact clients and their medical care, for sure.” (Team 3)

Theme 5. Medical hierarchy and interdisciplinary differences

Theme 5 highlights how participants view ACT roles along a medical hierarchy and accordingly view roles as most or least skilled at and comfortable delivering basic primary care services and supporting external primary care delivery. Participants said that least medical team members gain comfort over time due to cross-training and team support. Two contrasting approaches were reported for how teams observed the medical hierarchy in delegating primary care responsibilities.

5.1 Medical hierarchy

Many participants acknowledged that interdisciplinary ACT team members fall along a medical hierarchy with different levels of medical training. A peer specialist thought, “The primary medical roles … Go sort of in a hierarchy… Psychiatrist, nurses, [occupational therapist], behavioral therapist, maybe addiction worker… Down to … Social worker in there, and then peer specialist somewhere below that, then mental health workers” (Team 5). A team lead said, “There's myself and [the psychiatrist] who are kind of clinical, but then you also have nurses” (Team 1).

Participants viewed more medically trained ACT team members as more comfortable and competent in primary care delivery or support, while least medically trained roles (referring to themselves or others) may be less comfortable. A nurse said, “The doctor and I, we talk quite a bit because we can communicate the same language. But I know that there is a reluctance by other ACT team members to follow up or address medical [concerns], just because it's not their scope of practice, and there's a discomfort there” (Team 3). A psychiatrist said,

> “Everyone has their own scope of practice, right. There is sometimes a bit of discomfort from, say, social workers saying, "Okay, well, this is out of my scope of practice". But then, for the most part, people are willing to say, "Okay, no I'll call the

> [family physician's] office and I'll get that for you"... It's not like we're asking them to do primary care work. We're asking them to advocate for our clients, so it's not really... Most people are on board with that." (Team 3)

Least medically trained ACT team members reported feeling more comfortable the longer they are on the ACT team and when they have the support of their more medically trained colleagues. Participants referred to cross-training (where roles from different disciplines learn from each other) which happens in the team over time and often discussed consulting more medically trained team members for advice. A mental health worker said, "ACT is a forever learning scope" where skills are expanded over time, and "education, learning, communicating, and having teamwork are all key" (Team 5). A team lead shared,

> "Nurses obviously have more training [in physical health], so they can help coach us, and that's the other part of what the team does, is we help each other learn … [And our psychiatrist] understands more than any other person on the team about the extent of some medical stuff that we just really don't have that knowledge base, so [they are] so important to have in that communication and care." (Team 2)

A psychiatrist said, regarding learning over time and consulting more medically trained team members,

> "There are other team members who have enough experience that they can comment on certain things. Most of our team members know what a normal blood sugar is and isn't by this point, right. So, they will comment on that or get involved in the nutritional counseling or things like that, because all our team members are well aware of diabetic recommendations for diets or whatnot, or helping people do the right grocery shopping for that. It is all part of the health picture. ... But of course, the more medical it gets, the more that nursing would be involved, or I would be involved in that." (Team 2)

A social worker said,

> "I know for me and for team members, when there's something physical-related, we often will ask nurses to be part of that. I'm not comfortable being present in much physical conversation outside of very basics, like nutrition, exercise, sleep hygiene…

> But anything that goes further than that, I'm certainly not an expert, and I'm not comfortable being put in positions where I might be looked at as an authority on it. I look to the outside providers, so [family physicians], nurses, nurse practitioners… And then the nurses within our team." (Team 4)

5.2 Approaches to primary care based on medical hierarchy

There are two main approaches teams take to observe the medical hierarchy within primary care delivery and collaboration. All teams shared that ACT team roles have a significant crossover of duties and are "generalist roles," wherein all members have similar duties. However, some teams allocate medical responsibilities toward more medically trained team members (e.g., nurses), specifically assigning them with the primary care tasks. A mental health counselor said, "Each team handles the functioning a little bit differently, so you're going to get different answers depending on what team the people are from. In our team, we have a very large crossover of duties, we don't silo duties" (Team 1).

Different advantages were reported by participants to explain why their team chose to share or divide responsibility for primary care based on roles. In the first approach, where all team members are equally responsible for supporting primary care, allocating primary care tasks to all team members allows the more medically trained ACT team members to practice within a scope of mental health as much as possible. Also, when the least medically trained ACT team members liaise with external providers, they can ensure that accessible language is used during client appointments to support client understanding. A nurse said,

> "It used to be nurses just doing the medical appointments, and then we said, one, it's too much for the nurses to just do this, and actually there's a benefit to having a non-nurse there because they will say, "I don't understand what you mean. Explain this to me, explain this to the client while we're here."" (Team 2)

In the second approach where task responsibility is differentiated by role, teams reported that swapping primary care tasks from least-to-most medically trained roles supports faster and more skilled care. A mental health worker said,

> "If I make a medical appointment for my client, I will put on the communications sheet, "Please send a nurse, do not send me. I can take down details, but this is all Greek to me, in a sense." I get the bare basics of care, but I would much rather my

> clients be supported by somebody specifically on my team who I know is very good with the stuff." (Team 5)

C. Perceived Impact of the Pandemic on Primary Care Mental Models

Mental models are influenced by context, making the pandemic an important aspect to explore. Theme 6 explores how the COVID-19 pandemic was seen to change primary care knowledge and impact primary care beliefs.

Theme 6. Negative impact of the pandemic on primary care mental models

Participants explained that the system-wide prioritization of risk minimization from COVID-19 exposure and the emphasis on following public health protocols transformed primary care delivery. Participants shared that primary care quality, services, and visits diminished considerably and services were delayed. A recreation therapist said, "Something like foot care might have been pushed back a little bit at the very beginning, because we thought it could wait a little bit longer, but if it was a more pressing need, we absolutely helped [the client]" (Team 5). A nurse said,

> "With COVID-19, health care providers, like [family physicians] have been... They're not in the office as much. And if they need to be seen in the office, trying to schedule that can take like... It's not just like, "Okay, you can come in in a couple of days", it's like, "You can come in a couple of weeks," or things like that, that, when you have a bladder infection or things that need to be kind of addressed early, can be a barrier." (Team 2)

Participants explained that virtual delivery became the dominant method for external primary care delivery. A team lead said, "I think our clients are less likely to be seen by their [family physician]. There's a lot more phone calls" (Team 4). A director said, "A lot of appointments and different things like that have closed to in-person [visits] and then have gone completely virtual. So, there is a percentage of our clients that probably haven't had much care and interaction in the same way that they would have before the pandemic" (Team 2).

Many participants found the dominance of virtual care problematic. Participants explained that it does not work for all ACT clients (e.g., due to paranoia, socioeconomic status) or service needs. Where virtual care is not appropriate for clients or their situations, teams advocate for in-person appointments.

However, a recreation therapist said, “getting an in-person appointment has been nearly impossible” (Team 5). A team lead also said,

> “We'd have to use our cell phones to ensure that primary healthcare providers can connect with our clients through our phones ... The whole common sense around it kind of disappears when you're in full PPE [personal protective equipment] in a residence where several people live... Let’s say 100 people live in a residence, you're in full PPE [personal protective equipment] with your telephone, using it, you're touching it and the client’s touching it, and this is kind of the height of the pandemic, right. And then is to have a conversation about somebody’s diabetes, that they’ve had 15 times before. And so, it gets to the point where you're like, “Is this really necessary?” And we've had to kind of put a time-out on some things, where it's like, I get that you're checking off your boxes and saying, yes, you're monitoring somebody's health of what you provide to somebody that has diabetes and whatever, but it doesn't make sense in this situation. So, I think there's effort to meet our clients’ needs, but the virtual piece, there's a huge disconnect for our clients when it comes to virtual access to anything, and that's kind of the way... The direction that all of these things are going in, even to be able to follow restrictions and being able to sit in a restaurant, there's a lot of organizational pieces that our clients are going to be expected to do that they may not be able to manage. Holding on to any identification is a challenge for some of our clients. And then because of the pandemic, a lot of things are going virtual, and a lot of things are getting more technological... Including their benefits through ODSP [Ontario Disability Support Program]. So, it's all going in a direction that's not attainable for our clients. More attainable to our clients with ACT teams because we're here and we are facilitating a lot of those conversations, but realistically, our clients wouldn't be able to manage that without ACT support.” (Team 1)

Many participants from two teams shared that virtual delivery had consequences on ACT’s schedule. A mental health worker said,

> “A lot of doctor's offices are shifting to phone calls only, and this has been... I'm sorry if I get frustrated about this, but this has been one of the biggest frustrations for our

> team right now, is we can set a phone appointment, which is great, but then we're not getting calls from the office for at least like an hour or two hours, because they're running behind. And so, what ends up happening in that situation is saying, “We have this much time budgeted for this, unfortunately, we're no longer able to support you at this meeting, and so we're going to have to cancel and re-book.” That's been super frustrating because I get it, it's a system thing, everybody's overloaded, but in terms of our ability to support people, it's not quite there because we can't sit inside for a prolonged period of time in full PPE [personal protective equipment], we try to limit our visits inside under 30 minutes, maybe under 15, depending on what it is. But that's been one of the biggest barriers for us is that everything's taken this technological shift for a lot of our clients who could be paranoid about their personal health information, they could be paranoid about like who they're talking to over the phone. So, it just compounds things and makes things a lot more difficult to manage.” (Team 5)

Participants talked about how it was hard to connect with some external primary care providers. They also shared that finding family physicians for clients who did not have one is even more difficult (due to the shortage and sudden influx of retirement). A mental health worker said,

> “Now we’re seeing like, I don't know what's happening, but a bunch of family doctors are retiring, and so now we're... It's a tough position because people have had these family doctors for however many years, 20 years, and now they are going to possibly go without any doctor because we're not able to find new ones.” (Team 2)

Many participants talked about how the trend toward virtual care should be reassessed to consider clients with SMI and allow for a degree of COVID-19 exposure risk so that clients do not go without primary care. A nurse said,

> “I think [family physicians] now, they should be stepping up and getting back into doing service and seeing clients, and they're still not... So, that's a bit frustrating. I've had to butt heads a couple of times with some [family physicians] over the last few months saying, "No, no, you’ve got to see them, you can't just do a phone call when the client doesn't have a phone, so you need to see them.”” (Team 3)

The team lead echoed,

> "Why is it that we are the people that are putting ourselves at risk and other people don't? When we're all working in the medical system and it all should be classified as essential, yet we're the people that it's okay for us to go into people's homes and to do all these things and to be at risk, but not other people." (Team 1)

Many participants mentioned they want to see changes to the relationship between ACT and primary care post-pandemic. They emphasized resuming in-person primary care appointments, mitigating risk of transmission without denying clients' access to primary care, and allowing ACT to focus on and address client mental health.

Alternatively, some participants felt that the shift to virtual care improved care for some clients. An occupational therapist said,

> "Funny enough, in some ways it's made it easier because phone calls and phone interviews with clients for just basically giving... "This is how I'm feeling." "Okay, then we're going to give you blood work to get done, you can do that." Or, "We're going to do this, you could do that" … Timewise, it's been much more efficient … For most of our clients, it has actually improved their care, they're able to do their appointments in their home, so *via* phone call, and only see the doctor once every five times instead of... Every time they have to go see them, right. So, that's been positive." (Team 5)

Some participants also discussed how some external primary care providers were helpful in navigating pandemic changes in primary care delivery and supported ACT and their clients during the pandemic. Some changes in collaboration were even thought to be more efficient than before the pandemic. A psychiatrist said,

> "I think the virtual care has made it a bit easier to, just say, have case conferences with [primary care providers] or family members to do the whole collaborative thing, for sure. I think also made it easier for different colleagues to get notes. So, for example, when I'm on call at [name of Hospital] at night, I know that the residents who are at the hospital or if I'm at the hospital, it's easier for us to get notes from [name of Hospital] than it would have been in the past. And then with Connected

> Ontario, it's also made it easier for us all to see each other's blood work and medications that we're prescribing." (Team 3)

Also, a director said,

> "Our team was able to, instead of delivering medication, we were able to get the pharmacy now to deliver all of their medication, which is one of the things that we'll obviously continue to keep because it's a very efficient way of medication management. It takes out of our hands, and it becomes a responsibility of a pharmacy, which is great." (Team 2)

One ACT team said that during the pandemic, they were delivering primary care services that clients previously received from their regular primary care provider (e.g., monitoring blood pressure), so clients had continuous access to primary care services. A mental health counselor explained,

> "As frontline workers, we ended up doing a lot of things that aren't normally in our job description. You know, like I said, it was more around the primary care piece, it was sitting down with a client and doing a little bit more thorough physical assessment, writing out exactly what they said about when a symptom began, what it was like, how long it had been there, and taking photographs of observable conditions and then sending it all off to the doctor and then talking to them and then coordinating. You know, sometimes the client didn't even speak to a physician, and then we just get a prescription, or a test would be ordered, and then we would accompany them to that, so it felt very... The primary care piece was very removed, the minimum was still happening in the background, but the client wasn't seeing their providers … [The experience expanding my scope during the pandemic made me feel] extremely uncomfortable. I felt used and dispensable. People would talk about safety and needing to follow these protocols and the reasons for that, but then you realize that you didn't count... Those protocols didn't apply to me, that I was expected to do not only my own job, which had become exceedingly challenging, but all of these other pieces that fit into other people's jobs as well, and that really hurt." (Team 1)

Every participant from that team brought up burnout. The team lead said,

> "Through the pandemic, we've been asked more and more to do things that are outside of our scope of practice, right. And so, you get into these situations where it's really draining on ACT workers, and it takes up a lot of time and energy and resources to re-direct the care towards the people that need to be doing it … We have to turn that back around on the people that are responsible to do it and say, "No, no, this is actually your job, not our job, and we're asking you to do your job", and it was really wearing on us at times." (Team 1)

Participants also talked about how their teamwork changed during the pandemic. Participants from all teams shared how their team lost informal communication channels as they became busier and worked remotely. A psychiatrist said,

> "One thing we realized was a lot of clinical decision-making happened in the office, on an informal basis. So, something's going on with somebody, there's a group of us in the office, and we would discuss it on the spot and then make decisions. Whereas now you have to phone people, so you can't just phone three people at the same time and expect that they're all going to pick up the phone and you have a conference call. This also has to be arranged. So, now we have a million texts a day with each other to sort these things out, whereas in the past, it would be in the office, and we make a decision." (Team 2)

Another psychiatrist also shared, "It's not the same seeing each other [online] … as in-person, and being able to... bug each other, and joke, and that kind of thing – celebrate each other" (Team 3). Despite the changes in communication caused during the pandemic, many participants shared the belief that their team was extremely supportive and helpful.

In conclusion, ACT team members shared knowledge and beliefs about primary care delivery and ACT's role. They perceived primary care as important for their clients and perceived client health as holistic. They knew clients should be connected to external primary care providers to receive medical care for physical health concerns and that ACT's role is mostly psychosocial, to support clients' access to primary care and mitigate barriers. ACT team members shared knowledge about teamwork for supporting primary care delivery and believed their teams work hard to support client access to primary care. Teams did not share mental models about the basic primary care services they provided or how they were provided (i.e., by which roles), as this varied by team. Teams and ACT team members

themselves also did not share beliefs about future ACT and primary care integration because of differing concerns and values. The COVID-19 pandemic changed and challenged primary care delivery, although some participants reported beneficial aspects. Although many participants faced similar challenges during the pandemic, teams did not share experiences.

Chapter 4: Discussion

Main Themes from the Results

In this thesis, I found six main themes regarding primary care and ACT taskwork and teamwork mental models and the perceived impact of the pandemic on mental models. Participants shared knowledge that their clients have high medical needs, but that the ACT model is not meant to deliver primary care services within its scope and capacity. They also shared knowledge that client health is holistic, and referenced a range of external primary care providers and services which are important to providing medical care. Participants discussed many barriers to primary care access faced by their clients and discussed helping them mitigate barriers to improve access. I found that ACT team members have competing values about future ACT and primary care integration, as they emphasized values differently (i.e., client integration into community, client autonomy; timely access to primary care, providers who understand SMI). Across teams, participants shared strategies for supporting teamwork through frequent communication and consultation. Among roles I found interdisciplinary differences, as participants shared how ACT roles fall along a medical hierarchy and diverged in their comfort supporting primary care. I found that different teams allowed the medical hierarchy to influence team member primary care responsibilities in two different ways. Lastly, my results showed the impact of the pandemic on primary care mental models to reflect changes in task knowledge and show that beliefs have overall become more negative.

Comparison to the Literature

Not many studies have explored how ACT team members perceive and experience primary care delivery and shared care with primary care providers. Guérin et al. (2019) studied a physical activity program delivered by an ACT team and found that staff believed the program benefited client health and autonomy in areas staff felt was within their scope and skillset. My thesis similarly found that ACT team members are happy to provide basic primary care services which are meaningful for the client, support client autonomy, and are within the teams' interests, expertise, and comfort levels. My study found that not all ACT team members feel comfortable with the idea of delivering further primary care services. Weinstein et al. (2013) suggested that any ACT team members can screen clients for medical conditions in collaboration with an external family physician. However, my thesis shows that primary care services, such as screening, might not be accepted within the psychosocial scope of ACT or perceived as appropriate for all team members to perform (i.e., due to the medical hierarchy and individual preferences about ACT and primary care integration and their comfort and skill delivering and supporting primary care delivery).

Although participants in my thesis expressed that they wanted to support clients in optimizing their physical health, many felt medical approaches to primary care are beyond ACT's scope and capacity, and sometimes their own comfort as well. A study by Gehrs and Holz (2003) discovered that non-nurses in ACT teams were uncertain if they were allowed to administer oral medication to clients, although they legally could. The authors suggested non-nurses should deliver medications in low-risk situations, although secondary to nurses. Similarly, my thesis discovered a medical hierarchy among roles and that people in least medically trained roles are sometimes uncomfortable with medical tasks or liaising in medical appointments. ACT team members in a study from Reardon et al. (2022) shared a need for more medically trained team members and medical training for all team members to support internal primary care delivery. However, although training could be a solution to increase comfort, my thesis cautions that it does not address the preference to keep ACT's scope within psychosocial rehabilitation (e.g., if non-nurses do not want to administer medication or deliver other primary care services) or the capacity of their team.

There is research on the barriers that people with SMI face accessing quality primary care services (e.g., Happell et al., 2016, Kaufman et al., 2012; Reardon et al., 2022) (6,34,61). My thesis found that ACT liaises between clients and external primary care providers to help clients access primary care and to support shared care. A systematic review by Vanderlip et al. (2017) found an increase in primary care service use by ACT clients, suggesting ACT enables greater access to primary care for this population with SMI. However, Mejia-Lacheros et al. (2021) instead found that previously homeless participants with SMI who were randomly assigned to an ACT team through a Housing First program (*versus* a control group who were not assigned to an ACT team) had significantly fewer primary care visits over seven years (62). The authors suggested the high intensity support from ACT may have diminished participant desire or need for primary care visits. Based on findings from my thesis, the multitude of barriers may make it difficult to pinpoint what causes inaccessibility for individual clients.

Collaborative, shared care between ACT team members and primary care providers is seen as essential to the functioning of the ACT teams included in my thesis, although it comes with challenges previously discussed in the literature on health care integration. Weinstein et al. (2011) found communication with external providers was a persistent challenge for ACT team members on an American ACT team. Meyer-Kalos et al. (2017) also found that collaboration was challenged by a lack of communication between ACT and primary care providers, as well as by poor role differentiation (e.g., ambiguous responsibilities), client barriers (e.g., engaging clients, commuting to external primary care appointments), and the ACT team's capacity. Like my thesis, they reported the helpfulness of establishing

relationships with open-minded providers and primary care clinics, collaborative consultation, and liaising. Participants in Meyer-Kalos et al.'s study recommended training for both ACT teams and primary care providers where they lacked pertinent knowledge on physical or mental health, respectively, and information for primary care providers to understand and value ACT's mission and respect client goals. They also recommended the creation of system-level incentives to motivate primary care providers to collaborate with ACT. Participants in my thesis also discussed the need to educate and incentivise primary care providers, and how ACT teams advocate for client needs and explain ACT's role and mission to mitigate barriers to care and support collaboration. Knaak et al. (2017) showed in a study about accessibility for clients with mental illness in health care that education and training of health care providers can diminish stigma as well as improve client experiences and the collaborative culture for providers (63).

Research on primary care and ACT integration discusses the benefits and drawbacks of integration models. Henwood et al. (2018) studied different models of primary care and ACT integration and found the following: A full-time nurse practitioner from the community struggled with being too removed from both their primary care setting and the ACT team; co-located primary care providers struggled to accommodate ACT's clients in addition to their regular clients; and external primary care providers who split their time between the community and ACT found ongoing communication with ACT helpful. Communication was even more important in determining the success of integration than what type of integration was employed. Tse et al. (2021) evaluated a pilot integration of nurse practitioners in ACT teams and found that as a result, ACT staff and clients had easier access to health information and medical expertise, client screening rates significantly increased, and ACT clients trusted the nurse practitioner due to their affiliation with ACT.

A major theme in my thesis is the divergence in mental models about the vision of primary care and ACT integration (i.e., primary care delivery by ACT teams, by external providers, or a hybrid approach). The divergence arose due to differences in emphasis on ACT's values. Bond et al. (2004) explained the function of community integration and how evidence-based practices (e.g., ACT) contribute, noting that people with SMI wanted to receive services in the same way the general population does and to manage their own lives and health care (64). Many participants in my thesis wanted to support clients in pursuing this and recognized the importance of community integration for how clients receive primary care services. However, because there are many barriers to accessing quality services in the community (as the health system is not designed well for people with SMI), prioritizing

client integration into community and client autonomy values can mean sacrificing access to timely and mental health-informed, patient-centered care.

My thesis found that during the pandemic, ACT teams delivered more primary care or faced challenges with collaboration and delayed care and had to consider COVID-19 exposure risk and client circumstances when making decisions for primary care delivery. An editorial from Melamed et al. (2020) discussed how mental health service providers were allowed to expand their scope during the pandemic, as they were often the only health care providers available to people living with SMI (65). My thesis results pointed to this expansion of scope and found that it was coupled with feelings of burnout. The literature on ACT and COVID-19 (e.g., Couser et al., 2021; Guan et al., 2021) discusses how the pandemic transformed and challenged ACT, but not specifically how relationships between ACT and primary care providers were impacted. My thesis suggests that ACT team members' relationships with individual primary care providers are unique and cannot be generalized. For example, during the pandemic, some providers closed their doors, yet others stepped up to deliver services to ACT's clients. Like my thesis, Couser et al. (2021) described how ACT teams assessed risk when considering essential services, sought to minimize risk during delivery, and faced difficulties with virtual service delivery during the pandemic. Melamed et al. (2020) also referenced other literature showing how technology improved primary care access during the pandemic. My results emphasize that the barriers which many people with SMI face to accessing technology (i.e., due to socioeconomic conditions and mental health symptoms (e.g., paranoia)) must be considered when planning primary care delivery during the pandemic and onward.

Contribution to the Literature

Much of the research on ACT and primary care has been conducted with American ACT teams (e.g., Henwood et al., 2018; Meyer-Kalos et al., 2017; Weinstein et al., 2011) or focuses on the delivery of specific medical care services (e.g., Gehrs' and Holtz's (2003) study on medication administration in ACT). Henwood et al. (2018) pointed out that context is important when exploring ACT teams, thus suggesting that country-specific studies are merited. My thesis explored ACT and primary care within the Canadian context of a universal health care system. Existing ACT research looks at models of primary care integration used by some American ACT teams, while my thesis looked at how Canadian ACT teams collaborate with external primary care providers with no specific guidelines or model for integration.

Weistein et al. (2011) and Vanderlip et al. (2017) referenced the importance of evaluating acceptance and feasibility of primary care delivery within pre-existing models such as ACT. Weinstein et al. (2011) expressed an urgent need for exploratory research to be conducted on different types of integration and feasibility and sustainability of integration. My thesis explored which primary care

delivery or collaboration practices are feasible and acceptable to ACT team members based on their role and experience. To my knowledge, no other studies on ACT and primary care integration have reported ACT team members to have concerns about integration related to values. My thesis portrays the concerns ACT team members have about primary care and ACT integration.

This is the first study to my knowledge to apply a cognitive framework to ACT and primary care research. Thus, I extended SMM theory into the ACT literature. My thesis could perhaps contribute considerations for the Integrated Mindsets Framework (Evans et al., 2014) which is rooted in Shared Mental Model theory. The Integrated Mindsets Framework is a validated framework which can be applied for various research and practice purposes (e.g., interpretation or evaluation of integration initiatives), however, does not encourage application to research in contexts where integration initiatives are unclear or premature (such as in the case with my thesis). I recommend the framework expand to encourage application to pre-integration contexts. My thesis shows that many of the same mental model content and domain areas can be explored and utilized in this content, and frameworks such as the Integrated Mindsets Framework would be of great value here (for guiding research and further guiding integration plans). Furthermore, my thesis also added to the nascent literature on the impact of the COVID-19 pandemic on ACT teams and their scope of practice and interactions with the wider health system during this time. The consideration of the pandemic's perceived impact on mental models is also novel. Guan et al. (2021) warned that ongoing issues resulting from the pandemic should be anticipated and that a closer look at the long-term effectiveness of ACT's pandemic responses should be taken. My thesis also concluded that many ACT team members were concerned about the shift to virtual primary care delivery for their clients. My findings build on the considerations for ACT and virtual service delivery posed by Law et al. (2021), who expressed concern about access to and maintenance of technology for ACT clients and the importance and benefits of in-person service delivery.

Limitations and Mitigation

This thesis has some limitations. The first limitation concerns the choice of participants. This research is based on interviews with ACT team members regarding their provision of primary care or collaboration with external primary care providers as they serve clients with SMI. External providers are heavily involved in the delivery of primary care, however, I only looked at one side of the relationship. Also, ACT clients served were not consulted on how they experience primary care delivery. This is justified due to the limited scope of a Master's thesis. A wider project on primary care for people with SMI (the PriSMI study) is examining the perspectives of primary care physicians and people with SMI, providing them a space to share their perspective. Furthermore, it was difficult to access health care

workers during a pandemic, but I gained access to many interested ACT team members through the ACT Central Intake meeting. My sample is also more representative of some roles than others on a typical ACT team (to estimate percentage of representation, I calculated the proportion of people who participated in my thesis *versus* the staffing requirements outlined in the Standards and multiplied it by five (as five teams participated in my thesis) per role). For example, team leads and 'other' team roles (estimated at 80% representation), and psychiatrists, occupational therapists, and social workers (estimated 60% representation) are well represented. I estimate representation of peer specialists at 40%, and nursing roles and program assistants at 20%. My sample has no representation for substance abuse specialists or vocational specialists. Furthermore, within the 'other' team roles and psychiatry roles, it is difficult to accurately estimate representation because the Standards say teams can tailor other roles according to their clientele needs (thus, roles vary; I represented mental health counselors, a recreation therapist, a director, a registered psychotherapist, and an unspecified mental health worker as 'other') and some teams have psychiatrists which split their time to fulfill the staffing requirements (thus, one may interpret that there are five psychiatrist per five teams but there can actually be more who combine to fulfill the staffing requirements cumulatively). Thus, my sample does not represent some roles enough and this may skew identified content and sharedness/divergence in mental models from unique perspectives.

There are also limitations pertaining to methods. First, in requesting non-confidential documents for analysis of taskwork and teamwork knowledge content, I found that documents discussing primary care provision and collaboration were not common and thus I could not conduct a document analysis (however, I reviewed the ACT Standards for context). Second, qualitative interviews for SMM research are limited to information participants can verbalize, meaning some knowledge and beliefs may not get communicated and identifying them is subjective to the interpretation of the analyst rather than the participant themselves (44). I was still able to fulfil the thesis' objectives based on interview content and the ACT Standards; employing a qualitative technique was an asset due to its flexibility and ability to yield rich data (39,44). Furthermore, ACT team members confirmed during group member checking that my interpretation of the results resonated with their experience.

Lastly, the findings may not be transferrable. The Canadian context uniquely shapes ACT teams, and they seem to be more progressive than those critiqued in the literature (e.g., Rochefort, 2019). I believe the findings of my study may be transferable to Canadian ACT teams who operate under universal health insurance and have similar degrees of providing primary care and/or collaborating with primary care providers, however, this should be done with caution as only Ottawa-based ACT teams were included.

Practical Implications

The mental models of ACT team members reveal the reality of barriers to primary care access and challenges to collaboration that ACT teams face within shared care. They also show that ACT may not be well-positioned or agreeable to providing additional primary care. Issues in primary care delivery brought upon by the pandemic were also identified and should be addressed. Shared/convergent mental models can indicate opportunities for ACT-wide policy improvements, while divergent mental models may suggest caution is needed as some interventions may not work for all teams.

Policy makers should address barriers to accessing primary care and focus on strengthening primary care services in the community. This thesis identified many provider and system level barriers to primary care access, which are confirmed by the literature. Local interventions and policies can encourage education for primary care providers on caring for clients with SMI. Primary care provider groups have previously requested such training (e.g., Vistorte et al., 2018) and such interventions have been effective in reducing stigma and increasing clinical competence (e.g., Kohrt et al., 2020). Primary care providers should also be educated on working with ACT and be incentivised and supported by systemic resources to collaborate with mental health service providers (e.g., financial compensation, streamline cross-system communication and information sharing). A collaborative initiative can be created to help ACT teams identify primary care providers in the community who are willing to work with clients with SMI and with ACT teams. Additionally, ACT team members can disseminate informative resources about their model and clientele when collaborating with external primary care providers.

When considering delivery of primary care by ACT teams, policy makers should consider ACT's psychosocial mental health service model, the preferences and values of ACT team members, and teams' and their clientele's needs. Some ACT team members are open to adding a primary care role on the team, however, there is no consensus. Clear primary care guidelines can be provided to ACT teams to help prioritize client medical needs and delegate team member responsibilities, although teams should have flexibility in how they adopt the guidelines. For example, when specifying basic primary care service provision, services should be sensitive to ACT clients' needs and individual teams should themselves decide which roles they want to make responsible for delivering basic primary care services (i.e., general approach – delivery from all team members; or medical approach – delivery mostly from more medically trained team members).

The impact of the COVID-19 pandemic on mental models suggests ways to improve primary care provision and collaboration beyond the pandemic, in ways which are beneficial to ACT clients and accepted by ACT team members. Attention should be given to the issues ACT is facing during the

pandemic with limited access to external services, expanding their scope of practice, COVID-19 risk exposure, and challenges with virtual primary care delivery for clients. Also important are the consequences of burnout when ACT expands its scope beyond client psychosocial health. Should another pandemic or similar situation impact the health system in the future, protocols should be put in place to ensure clients with SMI have safe, in-person access to primary care. Finally, as the pandemic progresses, external services could be encouraged to offer in-person services for clients with SMI.

Future Research

Future research on ACT and primary care should continue to explore the values and preferences of ACT team members to have primary care roles added to their team and for the scope of primary care in ACT to be expanded. My thesis found divergent visions and values about integration, however, a further understanding of these concepts specifically was beyond the scope of my research questions. Future research should also explore the capacity of ACT teams to deliver primary care and collaborate with external primary care providers in various geographical locations (i.e., rural and northern communities). The preferences of ACT clients regarding where and how they want to receive primary care services should also be studied. Research to discover the mental models of external primary care providers in their relationships with ACT would complement our understanding of ACT team members' experiences and perceptions. The pandemic impact on ACT and the wider health system should also be researched further, as transformations in both settings are expected to have a lasting impact.

Conclusion

In conclusion, this thesis explored how ACT team members perceive primary care delivery, work as a team to support primary care delivery, and collaborate with external primary care providers. Team members share knowledge and beliefs about external primary care services and providers and perceive ACT teams to have a psychosocial scope where they mitigate barriers to primary care access for their clients. The thesis found that ACT team members share knowledge of teamwork strategies to support primary care delivery and collaboration. This thesis found divergence in how teams deliver basic primary care services and in beliefs ACT team members have about the future of ACT and primary care integration. This thesis also adds to the literature on ACT and COVID-19 and describes how the COVID-19 pandemic impacted ACT and primary care. Divergent mental models and ACT teams in different contexts can be explored further to understand the perspective and needs of ACT team members and develop sharedness in their mental models to enhance performance in supporting primary care delivery.

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Appendices

Appendix A. Interview Guide for ACT Team Members

Time (Min)	Topics and Speaking Points
0:00-0:05	• Introduce self and study (Name, Telfer, thesis on ACT & PC) • I am interested in hearing your perspective and experience providing primary care to your clients (prevention, detection, and treatment of physical health issues) or collaborating with external primary care providers (i.e., family physicians, registered nurses, nurse practitioners, *et cetera*) to address your clients' medical needs
	• Consent form reviewed? • Any questions? • Consent to record? • *Record and confirm consent x2*
0:05-0:20	***ACT and Participant Role*** 1. Can you tell me about your role on the ACT team? • *Position, duration on team, part-time/full-time, example* • For leads: *How many people are in your team?* 2. Does ACT provide primary care services? • What services? • How do you/others provide or assist in primary care delivery? ***Client Needs and Service Patterns*** 3. Can you tell me about primary care for your clients? • What primary care services do your clients need most? • Have client needs changed during the pandemic? 4. Do you think ACT meets the primary care needs of its clients? • Where are they successful? Where are there challenges? • For what reasons? 5. Do you think external providers are meeting your clients' needs? • Where are they successful? Where are there challenges? • For what reasons? 6. How do clients use external primary care services? • Who do clients receive services from? • How are these connections made? • How do you work with them? • What services do clients receive from these external providers?
0:20-0:25	***Direction and Measurement*** 7. How is primary care embedded into the ACT model? • Where does your team measure performance? • Who decides what is appropriate for ACT or its members to provide? • Are there any supporting documents or guides?

0:25-0:30	***COVID-19 Impact on Service Delivery*** 8. How has the pandemic impacted primary care delivery in ACT/externally? • Can you give me an example from before the pandemic *versus* now?
0:30-0:45	***Change and Support*** 9. How would you like the provision of primary care in ACT to be different? • How would you like your role to be different? • Should different members have different responsibilities? • Should external providers do more/less? • What should be changed after the pandemic? What should be maintained? 10. What support do you need? • *From other team members, external providers*
0:55-1:00	• *Thank participant for their time and insight.* • Is there anything I may have missed that you would like to add? • *Participant Demographics: Gender, year of birth, years on team, part-time/full-time.* • Would it be okay if I contacted you over the course of the study if I have any questions? • Do you have any questions? • *End recording.*

Appendix B. Codebook

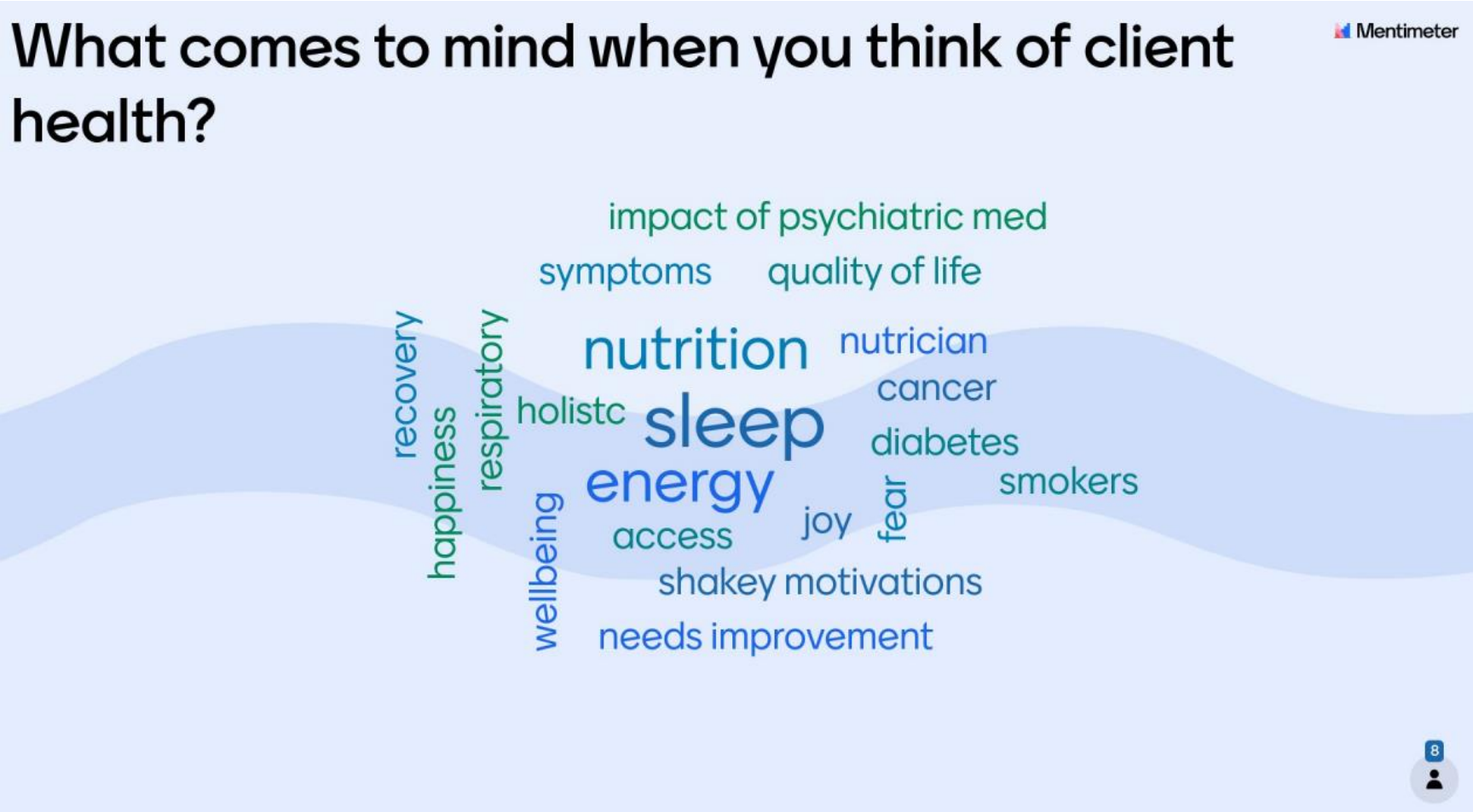
(Legend: I = Inductive code, D = Deductive code, A = Abductive code)

Code	Sub-Code	I/D	Description
ACT Codes			
Ability		A	**Belief code** for both the **team and task mental models**. Captures the readiness of the team to provide primary care access or services, given the absence or presence of supportive resources and staff comfort. Does not include how well teamwork or collaboration is or is not going or how well the team is meeting the clients' primary care needs.
Connection between mental and physical health		I	**Belief** in the holistic nature of balancing mental, physical, and social health in practice or theory, despite systemic separation. Does not reference the separation in and of itself.
Internal PC services offered		D	**Task mental model knowledge code** about what primary care services the ACT team provides internally. May include services such as: Recording client weight, supporting nutrition, monitoring wounds, *et cetera*. Can also include primary care services performed due to specific arrangements with individual primary care providers or settings.
	Liaising	I	An element of collaborating with external providers which involves the ACT staff being present and/or actively involved in clients' external medical care receipt.
Long-term vision		A	**Task mental model belief and knowledge code** about the future direction of the internal and external primary care access and service provision to ACT clients. Can include beliefs and agreement with such hypothetical ideas, such as having a nurse practitioner on the ACT team. Includes the hypothetically ability to do the task.
Scope of practice		A	**Team mental model knowledge code** about how and the extent to which different ACT staff engage should in primary care access or service provision at the individual level. Can include knowledge about the qualification of these staff. Can include expansion in the scope of practice, for example, due to the pandemic or due to coping with a client not having a family physician.
Teamwork		D	**Team mental model knowledge code** capturing the workflow and communication between ACT team members when providing or supporting primary care access or service provision. Includes the **belief** of how well teamwork is or is not going.
	Pandemic impact on teamwork		Changes to how the ACT team members work together or communicate to provide or support primary care access or service provision due to the pandemic. Can include efficient or inefficient new ways of working since the pandemic.
Values		D	**Belief code** for both the **team and task mental models**. Captures participant agreement or disagreement with how primary care access or services are provided to ACT clients, both internally and externally. Agreement or disagreement pertains to how things are done and by whom as it aligns with

			the participant's personal/professional values regarding current access and service provision initiatives. Does not include opinions on how this access or provision should occur and who should be involved, but includes current values such as being patient-centered.
	Dilemma	I	Ethical dilemma rooted in navigating values such as autonomy, neglect, support, and not enabling clients.
Health System Codes			
Client access barriers		A	**Task mental model belief code** referencing the perceived barriers to medical care access and service provision that ACT clients face.
	Practice-level	I	Perceived challenges that ACT clients face at the level of the external practitioner. Can include lack of understanding of mental health or different models of care supporting clients differently.
	Diagnostic overshadowing	I	A specific challenge found in acute care settings where client mental health symptoms overshadow the legitimacy of their physical health symptoms, causing their needs to be dismissed by the service provider.
	Individual-level	A	Barrier to care at the individual level of the client due to their mental illness (e.g., denial of need for care), capacity, or preferences (e.g., do not want care). Includes client's demographic characteristics which are also barriers to care, such as the client's socioeconomic status.
	Client complexity	I	Coded for when the intensity of an ACT client's needs over time or across multiple conditions is a barrier to accessing quality primary care.
	System-level	D	Barriers to client access to primary care that exist at the system level. Can include the separation of acute, primary, and mental health care, the family physician shortage, and historic client neglect.
Client external primary care		A	**Knowledge code** about how ACT clients receive primary care services external to the ACT team. Can include the type of primary care they receive (e.g., don't have a family physician, are part of a Community Health Center, use walk-in clinics).
	Pandemic impact on client	D	Changes to how the ACT clients' access or receive primary care services due to the pandemic. Can include increase in virtual and remote care or inability to receive care.
External collaboration		A	**Knowledge code** pertaining to which external providers ACT teams collaborate with to support primary care access and service provision to meet ACT clients' needs. Can include state of communication and how providers communicate between ACT and external settings, and the providers ACT collaborates with to support primary care access and service provision (e.g., Inner City Health, Connecting Ontario, family physicians splitting time in group homes). Includes the **belief** of how well collaboration is or is not going.
	Barriers to collaboration	D	Captures the circumstances that hinder collaboration between ACT and external partners. Can include the incentive for ACT and external providers to collaborate (e.g., family physicians not compensated

			for following up with ACT) and the difficulty of communicating with a client's doctor at a hospital due to staff rotation. Does not include barriers to collaboration created by the pandemic.
	Impact on client	I	**Task mental model belief code** about the direct impact of collaboration on clients. Use when the client's care is directly affected by the dynamic between collaborators.
	Impact on team	D	**Task mental model belief code** capturing the perception of how collaboration impacts ACT staff or workflow. Includes rigidity and blame that the ACT staff navigate or includes benefits such as complementing expertise. Does not include the impact of the pandemic on how ACT team members collaborate with external providers (e.g., take on more responsibility).
	Pandemic impact on collaboration	D	Includes the ways the pandemic impacted how ACT teams collaborate with external providers to provide primary care access or services.
Other Codes			
Client needs		D	**Knowledge code** that captures the various health conditions and needs of ACT clients. Includes how well the team is meeting the clients' primary care needs. Includes differences in care based on differences in need and includes client-defined needs.
Source of knowledge		D	**Task mental model knowledge code** regarding sources of knowledge pertaining to primary care access and service provision. May contain the goals, targets, recipients, and objective evaluation of the task. Can include general references to best practice, the Standards, or any tools used to guide service.
Participant information		D	This code captures basic information about the individual participant, such as their role and duration on the team.

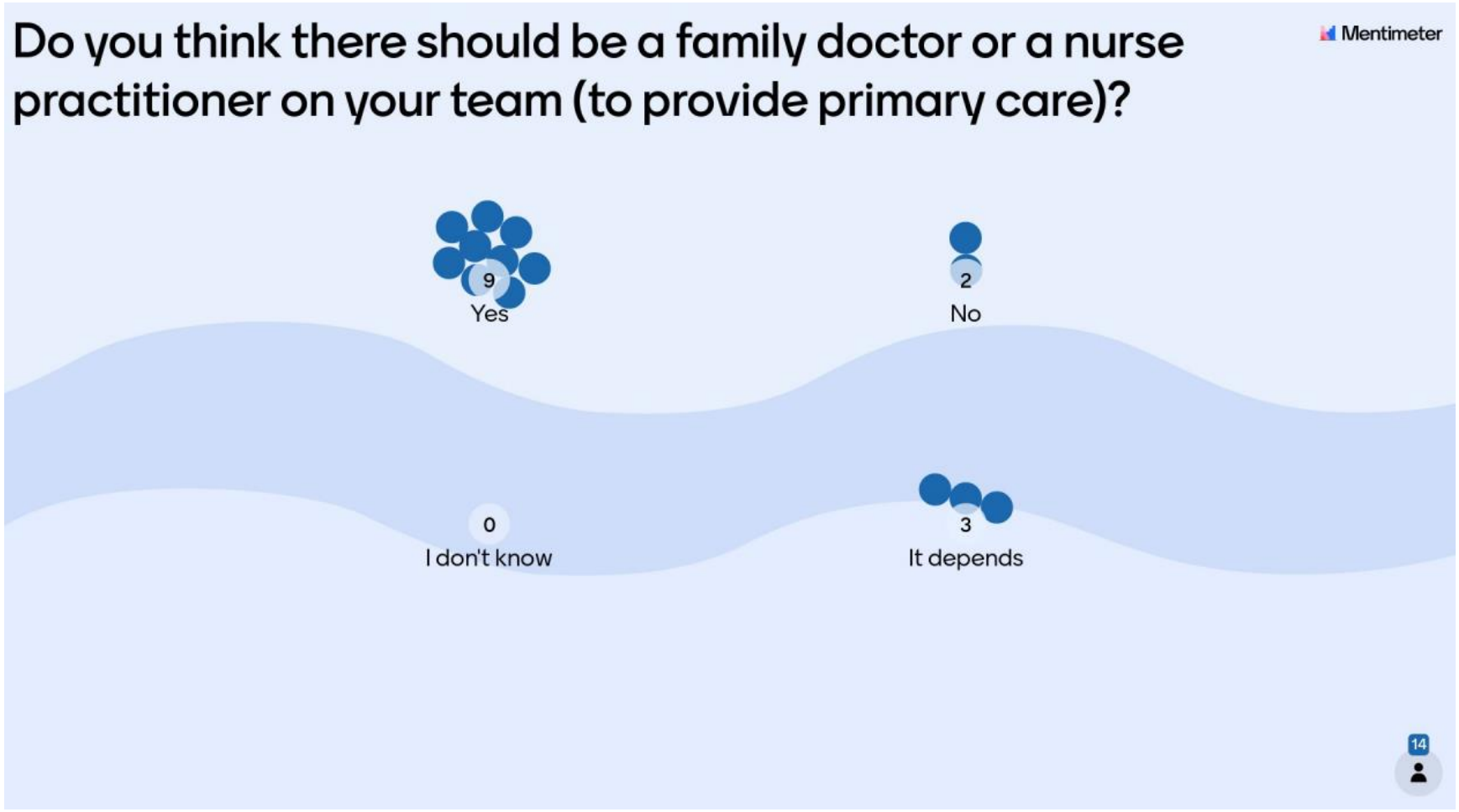
Appendix C. Member-Checking Mentimeter Results



Which ACT team roles are the most to least "medical"?

Mentimeter

11


Do you think there should be a family doctor or a nurse practitioner on your team (to provide primary care)?
Mentimeter
9
Yes
2
No
0
I don't know
3
It depends
14

Appendix D. Thematic Analysis Checklist

"A 15-point checklist of criteria for good thematic analysis", Braun and Clarke (2006), p. 96

Process	No.	Criteria
Transcription	1	The data have been transcribed to an appropriate level of detail, and the transcripts have been checked against the tapes for 'accuracy'.
Coding	2	Each data item has been given equal attention in the coding process.
	3	Themes have not been generated from a few vivid examples (an anecdotal approach), but instead the coding process has been thorough, inclusive and comprehensive.
	4	All relevant extracts for all each theme have been collated.
	5	Themes have been checked against each other and back to the original data set.
	6	Themes are internally coherent, consistent, and distinctive.
Analysis	7	Data have been analysed – interpreted, made sense of – rather than just paraphrased or described.
	8	Analysis and data match each other – the extracts illustrate the analytic claims.
	9	Analysis tells a convincing and well-organized story about the data and topic.
	10	A good balance between analytic narrative and illustrative extracts is provided.
Overall	11	Enough time has been allocated to complete all phases of the analysis adequately, without rushing a phase or giving it a once-over-lightly.
Written report	12	The assumptions about, and specific approach to, thematic analysis are clearly explicated.
	13	There is a good fit between what you claim you do, and what you show you have done – ie, described method and reported analysis are consistent.
	14	The language and concepts used in the report are consistent with the epistemological position of the analysis.
	15	The researcher is positioned as *active* in the research process; themes do not just 'emerge'.