ACCESS TO CARE: A STUDY OF MOTHERS' UTILIZATION OF SERVICES IN NEWFOUNDLAND AND LABRADOR

by © Emily Saunders

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Abstract

Mothers play an influential role in defining family dynamics, child development and wellbeing, and accessing services for the family. The prevailing gender norms of intensive mothering places unrealistic demands on motherhood, negatively impacts maternal wellbeing, and contributes to mothers' experience of blame for health issues of their children. Despite integral role of mothers and the documented negative impacts of intensive motherhood ideology, there is a dearth of literature on the typical Canadian maternal experience and consideration of the family context on access to services for mothers living in the community and coping with a wide range of mental health challenges. Access to services is a critical determinant of individual and population health outcomes and understanding health service use is important for planning of resource allocation in the community. Further research is needed on the health and wellbeing of Canadian mothers residing in the community and the factors that impact their access to services for themselves and their children. Utilizing Andersen's (1995) fourth iteration of the Behavioural Model of Health Service Use in conjunction with a feminist lens, this explorative cross-sectional study captured the maternal experience of health and need for services of mothers living in the community in Newfoundland and Labrador (NL) and developed a comprehensive predictive model of mothers' utilization of healthcare services for themselves and their children. Secondary data analysis was completed on a sample of 1082 mothers residing in NL who completed a province wide survey of their socio-demographic characteristics and measures of wellbeing and family life (e.g., OQ-45, PSOC, QCPCS). Univariate analyses were completed to characterize the sample and bivariate analyses were completed to compare the current sample of NL mothers to the Canadian census data available through Statistics Canada to assess for representativeness and generalizability of the motherhood survey. Separate stepwise binomial logistic regressions and binomial linear regressions were completed to build predictive models for engagement with services and quantity of services accessed by mothers in NL in the previous 12 months for themselves and their children. Environment factors, population characteristics (i.e., predisposing, enabling resources, need) and health behaviour variables supported by the literature to be potentially related to health service utilization for adults and children were included in the multivariate analyses. The significant predictors of maternal use of adult services explained 22.5% of variance while the significant predictors of maternal use of a range of adult services conditional on initial access accounted for 21.8% of the variance. The significant predictors of maternal access of at least one child service accounted for 38.1% of the variance and the significant predictors of maternal use of a range of child services conditional on initial access accounted for 17.9% of the variance. These findings can allow for the provincial health system to better support access to care for mothers and children at risk for needing but not accessing services and provide support for an integrative approach to providing services for families. These results are discussed in terms of their clinical relevance to health policy.

Keywords: access to healthcare, healthcare service utilization, intensive mothering, maternal mental health

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Introduction

The everyday demands of parenthood can, at times, be challenging and stressful for any parent. Families in which parents experience mental illness face complex issues, as the parents must cope with the typical difficulties of parenting and the additional challenges related to mental illness. These challenges include coping with the stigma associated with mental illness, fears of being perceived as an inadequate parent, concerns regarding the impact of mental illness on the family, and threat of custody loss in addition to the every-day stressors of parenting and managing mental health (Blegen et al., 2010; Dolman et al., 2013; Hinden et al., 2006; Nicholson et al., 2001). While not easy to ascertain the lifetime prevalence of parenthood among adults who meet criteria for psychiatric disorders across diagnostic categories, research estimates range from approximately 14% to 40% in Australia, Canada, the Netherlands, U.K. and U.S. (Blegen et al., 2010; Leijdesdorff et al., 2017; Nicholson et al., 2001; Reupert & Maybery, 2016). In families where one or both parents have a mental health disorder, the occurrence of maternal mental illness disproportionately impacts the family, above and beyond the impact of paternal mental illness on the family (Connell et al., 2002; Flouri et al., 2019; Kahn et al., 2004; Oliver-Parra et al., 2020). The underlying mechanism for this observed differential impact is likely multifactorial, including differences in parental responsibilities and parent-child interactions. Previous research examining heterosexual parents observed that mothers typically spend more time with their children, are often the primary caregiver for children, and the interactions of mother-child are predominantly characterized by mother's caregiving and managerial role while father-child interactions are predominantly characterized by play activities (Garbarski, 2014, John et al., 2013; Oliver-Parra et al., 2020; Parke, 1995; Pinquart, 2018; Tummala-Narra, 2009).

Maternal health and wellness have important implications for child attachment and development, spouse self-efficacy and dyadic adjustment, and overall wellbeing of the family

(Allin & Stabile, 2012; Alhusen et al., 2012; Berryhill et al., 2016; Drapeau et al., 2009; Garbarski, 2014; Kahn et al., 2004; Leahy-Warren et al., 2012; Oliver-Parra et al., 2020; Riley et al., 2008; Tummala-Narra, 2009). Despite the integral role that mothers play in defining child development and the prevalence of maternal mental illness, there is limited research on: 1) the typical maternal experience; 2) how women coping with common mental health disorders (e.g., depression, anxiety) and motherhood navigate their roles and responsibilities; and 3) the impact of mental health disorders on mothers' efforts to obtain health services for themselves and their children. The bulk of the existing literature was completed in the U.S. and focused on challenges faced by marginalized women (e.g., poverty and ethnic minority), teenage mothers, mothers coping with severe mental illness (e.g., schizophrenia), prenatal care, and the impact of maternal mental health on child outcomes (Blegen et al., 2010; Dolman et al., 2013; Feijen-de Jong et al., 2011; Nicholson et al., 2001; Stein et al., 2014). The focus of the existing literature is reflected in the types of interventions designed for families coping with maternal mental health disorders. Although many intervention programs have been developed to help family members cope with the impact of maternal mental illness, few programs focus on specifically meeting the parenting needs of mothers coping with these disorders (Bruce et al., 2012; David et al., 2011; Hinden et al., 2006; Reupert & Maybery, 2016). Additionally, the current literature typically examined the life circumstances of women already accessing services, as the women participating in these studies are typically recruited from hospital, clinic, and other treatment settings (Blegen et al., 2010; David et al., 2011; Nicholson et al., 2001). Little is known about the percentage of mothers accessing health services who are experiencing mental illness across the spectrum of diagnostic categories and ranging in severity of symptoms and residing in the community.

Using the data collected through the provincial online survey entitled ‘The Newfoundland Motherhood Project’, the present study sought to: 1) capture mothers’ experience of health, wellbeing, and need for services for themselves and their children in Newfoundland and Labrador (i.e., NL); and 2) create a comprehensive predictive model of mothers’ utilization of health services for themselves and their children.

Healthcare in Canada

Healthcare services that are deemed medically necessary in Canada are publicly funded through taxation and are provided free at the point of use. The federal government administers cash transfers to provinces to assist with funding while the provinces organize and administer services and provide payment to institutions (e.g., hospitals) and providers (e.g., physicians) (Allin & Stabile, 2012). The public health insurance is portable between provinces for Canadian residents; however, there are differences between provinces in the services deemed medically necessary and covered by public insurance. Prescription drugs outside of the hospital, dental care, eye care, mental healthcare, and community and long-term care services are subsidized to varying degrees across the provinces (Allin, 2008). In NL, publicly funded health and community services are organized and administered by four regional public health authorities, Eastern, Central, Western, and Labrador-Grenfell. The services provided include acute hospital services (e.g., surgery, obstetrics, cardiology, etc.), long-term care facilities and personal care homes, and community-based services (e.g., mental health and addiction services, medical clinics, community health nursing services, etc.) (Government of Newfoundland and Labrador, n.d.). The 1984 Canadian Health Act (CHA) serves as the legislative underpinning of the health system and the primary goal of the CHA is to “protect, promote, and restore the physical and mental wellbeing of residents of Canada and to facilitate reasonable access to health services without financial or other barriers" (CHA, 1984, c.6, s.3.). One of the five fundamental principles of the CHA is that provinces must ensure reasonable access to essential healthcare.

Access and Utilization of Healthcare Services

Research on healthcare distinguishes between need for healthcare, use of healthcare, health behaviour, illness behaviour, and access to healthcare. Healthcare need is broadly defined as the healthcare required to deal with a particular health problem while healthcare use is defined as the process of seeking and applying professional healthcare for the purpose of prevention and/or treatment (Allan & Ammi, 2021; Ngwakongwi, 2017). Health behaviour has been defined as activities undertaken for the purpose of preventing illness by a person who perceives themselves to be healthy while illness behaviour is defined as activities undertaken for the purpose of identifying and treating illness by a person who feels ill (Kasl & Cobb, 1966). Health services and providers are a fundamental determinant of health (Advisory Committee on Population Health, 1999; Racher & Vollman, 2002). Health services include hospitals, emergency services, mental health programs, home care, and much more and access to these services impacts life span and quality of life.

Multiple definitions and classifications of access to healthcare exist, which has shaped the focus of research and subsequent healthcare policy and program development. Historically, healthcare access was defined as the availability of required health services; however, this definition ignored the myriad of factors that impact access to services, including financial, informational, social, cultural, organizational, and environmental contexts (Racher & Vollman, 2002). Since the 1970's the conceptualization of access to healthcare has been broadened to include availability and use of services (Donabedian, 1972), availability and consumer willingness to seek care (Mechanic, 1972), degree of fit between consumers and the healthcare system (Penchansky & Thomas, 1981), and access as a measure of those who need care and are receiving it (Aday & Andersen, 1981). Consistent with these broader definitions of access, review of the existing literature suggests that the concept of healthcare access is typically measured by healthcare service utilization (HSU) and/or subjective unmet healthcare needs (SUN) (Allan & Ammi, 2021; Ngwakongwi, 2017; Racher & Vollman, 2002; Ricketts & Goldsmith, 2005; Sibley & Glazier, 2009; Sibley & Weiner, 2011). HSU is a measure of actual services received while SUN is the "difference between healthcare services deemed necessary to deal with a particular health problem and the actual services received" (Sanmartin et al., 2002). Measures of HSU captures the use of available services while measures of SUN captures whether the provided care met individuals needs and barriers to obtaining care (Allan & Ammi, 2021).

Multiple theoretical frameworks and models have been developed to conceptualize and measure factors that impact healthcare service access and use. These frameworks focus on institutional factors (e.g., structure of healthcare system), societal and community factors (e.g., social structure and prevailing norms), and individual factors (e.g., demographics and personal health beliefs). Over the past five decades conceptual frameworks for understanding HSU have included sociological models, socio-psychological models, socio-cognitive models, socio-demographic models, organizational/institutional models, economic models, Penchansky and Thomas's theory of fit, and socio-behavioural models. These models have been applied to the study of different dimensions of access to healthcare, including potential and realized access, equitable and inequitable access, effective and efficient access, initiated and continued access, and spatial and aspatial access. The focus of this literature review is limited to conceptual frameworks as well as dimensions of healthcare access and use to identify guiding principles for this study, rather than on empirical studies that have implemented these frameworks and dimensions. A summary of the overarching conceptual frameworks is provided below and in Table 1. For a complete review of the conceptual frameworks see Appendix A.

Sociological Models

Early studies implemented sociological models that focused on the "sick role" within the context of societal norms and systems to understand patterns of HSU. Sociologist Talcott Parsons introduced the "Sick Role Theory" in 1951, which postulated that illness constituted a social deviance from normal functioning, leading to people taking on the socially prescribed sick role when ill and engaging in health seeking behaviour to return to their normal societal roles. Edward Suchman's (1965) publication "Stages of Illness and Medical Care" expanded on Parsons' Sick Role Theory by outlining the decision-making process for HSU. Sociologist Kai Erikson (1957) applied Parson's theory of the sick role to the field of mental health, noting that the process of qualifying for the sick role differs between physical and mental health. Specifically, the author highlighted that in the context of physical illness, a physician certifies that an individual is genuinely ill and society accepts the legitimacy of the physician's designation. However, in the context of mental health, the average person struggles to recognize and understand mental illness, leading to doubts about the legitimacy of mental illness and refusal to accept an individual with mental illness as eligible for the sick role, even when certified by a psychiatrist or mental healthcare provider (Erikson, 1957). In line with this, lack of recognition of mental health symptomatology, perceptions of mental health symptoms as normal stress, and attitudes of blame (e.g., people with mental illness are responsible for their symptoms) are some of the many factors associated with delay or failing to seek treatment for mental illness (Clement et al., 2015; Corrigan & Wassel, 2008; Jorm, 2012; Klineberg et al., 2010).

Criticisms of these sociological theories included failure to address the variation in people's HSU behaviour, resources required for access to healthcare and social determinants of health, and the role of the healthcare systems (Burnham, 2014; Yang & Hwang, 2016). Additionally, critics argued that this framework was difficult to quantify and use as an instrument to predict groups at risk of illness or improve treatment, and by the 1990's this approach was rarely used in literature examining HSU (Burnham, 2014).

Socio-Psychological Models

Socio-psychological models incorporate psychological factors and processes to understand access and use of healthcare services. These models emphasize the role of individual factors in HSU and often focus on three interdependent concepts: motivation (i.e., understanding a person's needs to understand behaviour), perception (i.e., behaviour as a function of attitudes about self and others), and learning (i.e., learned behaviours) (McKinlay, 1972). For example, focusing primarily on the role of motivation, Rosenstock (1960) postulated that health seeking behaviour is determined by the extent to which a person sees a health problem as having a high likelihood of occurring, serious consequences if it occurs, and believes services available will be helpful; behaviour occurs as the resolution of conflicts between motives and courses of action, where the motive that has the highest value for the individual will dominate; and health-based motives can lead to behaviour unrelated to health and conversely HSU is not always a result of health-related motives. Utilizing the concept of perception, Stoeckle and colleagues (1963) included three categories of psychological determinants in a model of HSU: a patients' attitudes, beliefs, and knowledge of their symptoms; their attitudes and expectations of the care providers and health services; and their criteria for health, sickness, and necessity of medical care. Similarly, Mechanic and Volkart's (1960) help-seeking framework addressed how perceptions of symptomatology impact HSU. The authors suggested that, in people with low tendency to adopt the sick role, only the more uncommon or severe illnesses that impact daily functioning are likely to lead to HSU (Mechanic, 1968; Mechanic & Volkart 1960). Overall, socio-psychological models address variations in people's HSU behaviour and provide direct explanations for HSU; however, critics note that these models do not address the societal and institutional context in which health and illness behaviour occurs (Anderson, 1973; Gibson, 1972; Yang & Hwang, 2016).

Socio-Cognitive Models

Socio-cognitive frameworks assume that a rational decision-making process based on an understanding of relevant information determines health behaviour and expand on the factors included in the socio-psychological frameworks (Henshaw & Freedman-Doan, 2009). These theories were developed to explain the mechanisms of action for behaviour change and have been applied to health behaviours, including preventative and treatment-based HSU. A systematic review on existing theories of health behaviour and health behaviour change identified 83 theories and models utilizing the socio-cognitive framework (Michie, et al., 2014). These models contend that people are unlikely to engage in health behaviours unless they are in a state of readiness, which is determined by four interrelated factors: (a) perceived vulnerability to contracting an illness (i.e., perceived susceptibility); (b) belief that the illness will have serious negative consequences and interfere with daily functioning (i.e., perceived severity); (c) belief that health behaviour will be effective (i.e., perceived benefits); and (d) perceive health services to be available with minimal barriers (i.e., perceived barriers) (Henshaw & Freedman-Doan, 2009; Kegeles, 1963; Rosenstock, 1966). Additionally, “cues to action”, which are defined as reminders of the perceived severity and can be external (e.g., educational material) or internal (e.g., symptoms), need to be present to prompt health behaviours such as HSU. The level of readiness (perceived susceptibility and severity) informs the motivation to act while the perception of benefits and barriers informs the path of action and the cues to action are the catalyst for the process (Henshaw & Freedman-Doan, 2009; Rosenstock, 1966). The necessary intensity of a cue varies based on level of readiness, with low readiness (i.e., little perceived susceptibility and severity) requiring more intense cues and high readiness (i.e., high perceived susceptibility and severity) requiring less intense cues (Henshaw & Freedman-Doan, 2009; Rosenstock, 1966).

One of the most cited models within this framework is Rosenstock’s (1966, 1974) “Health Belief Model” (HBM), which has been applied to understanding and predicting engaging in preventative health services, patient response to symptoms, as well as medical compliance and it is still used as a framework in today’s literature (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). Proponents for the HBM argue that this model provides a parsimonious explanation of a variety of constructs within one framework, has been shown to have predictive utility, and has led to clinical interventions to increase HSU (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). Critics of the HBM note that, while the model acknowledges that demographic (e.g., sex, ethnicity, and SES), socio-psychological (e.g., personality and peer attitudes) and structural (e.g., knowledge of a disease) variables impact the primary factors, these variables are not directly incorporated into the model (Yang & Hwang, 2016).

The “Theory of Planned Behaviour” (TPB) and the “Self-Regulation Model” (SRM) are two additional socio-cognitive models of health behaviour that have significant overlap with the HBM and have been applied to understanding HSU (Ajzen, 1991; Leventhal et al., 1984). Ajzen’s (1991) TPB hypothesizes that, to the extent that a person has the required resources and opportunities (e.g., time, money, etc.), an individual’s intention to engage in a behaviour predicts the likelihood of the given behaviour. The author further hypothesizes that intention to perform a behaviour will increase when the person has a favourable attitude, greater perceived behavioural control, and subjective norms promote the behaviour. The SRM assumes that people are active problem solvers and health related behaviours are an attempt to close perceived gaps between current health and a future health goal (Leventhal et al., 1984; Lobban et al., 2003). The model proposes a dynamic process in which an individual’s cognitive and emotional representation of their current illness predicts their coping strategies (e.g., accessing services, taking medication, etc.), and the outcome of that strategy is then evaluated and integrated back into their representation of their illness and influences future coping behaviours (Leventhal et al., 1984; Lobban et al., 2003).

Critics argue that socio-cognitive models do not address the emotional components of health behaviours or system-level determinants of HSU, such as the influence of healthcare institutions and policy (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). Additionally, while these frameworks have demonstrated strong predictive utility for short-term physical HSU (e.g., initiating treatment), there is less evidence to support its utility for predicting mental health service utilization and long-term engagement with HSU (Henshaw & Freedman-Doan, 2009).

Socio-Demographic Models

Socio-demographic models expand on socio-psychological and socio-cognitive models by including community and societal level factors to understand HSU. Socio-demographic factors that have been shown to influence the use of healthcare services include age, education, occupation, religion, ethnicity, socio-economic status, geographical location (e.g., urban rural continuum), and neighbourhood (Allan & Ammi, 2021; Allin et al., 2010; Andersen, 1995; McKinlay, 1972; Mohnen et al., 2019; Sibley & Weiner, 2011; Zola, 1966). These factors are often referred to as social determinants of health (SDH) and encapsulate non-medical influences on health outcomes (Braveman et al., 2011). Many frameworks for understanding the influence of each specific factor exist as well as broader models that examine how multiple social determinants directly and indirectly shape health-related behaviours, including HSU. For example, Zola (1966) proposed that most people constantly have health symptoms and the symptoms that are acted upon (e.g., through HSU) are those defined by their particular ethnic or cultural group as requiring action and after a cue to action occurs. This theory has been supported by studies examining differences in location of bodily complaints (e.g., ear, throat, abdomen), number of symptoms reported, and degree of pain reported between different cultural groups attending hospital for care (Zborowski, 1952; Zola, 1966). Suchman (1964, 1966) examined differences in HSU in individuals belonging to "cosmopolitan" and "parochial" sub-cultures and proposed that HSU is influenced by both the structure of the group to which an individual belongs to and the value system that group adheres to. Hosseini and colleagues (2017) completed a narrative review of SDH conceptual models and recorded 21 models published between 1990 and 2014. Recent ecological approaches to understanding health emphasize the impact of physical and social environments on health outcomes, including HSU. Within ecological approaches, variations in health between neighbourhoods have been studied and have led to the development of new models for HSU, such as the “Neighbourhood and Healthcare Utilization Model” (Mohnen et al., 2019). This model proposes that physical and social neighbourhood characteristics can have facilitating and inhibiting effects on HSU through the supply available, healthcare need, and healthcare demand (irrespective of need).

Critics of the socio-demographic frameworks note that, due to the number of relevant socio-demographic variables and complexity of pathways, most studies can only speak to a few discrete factors rather than accounting for all the relevant variables (Braveman et al., 2011). Additionally, these models provide limited explanations for differences in HSU within sub-groups (McKinlay, 1972). That said, socio-demographic variables have a clear impact on the access to and use of healthcare services and are often integrated into other frameworks that conceptualize HSU.

Organizational/Institutional Models

Organizational and institutional frameworks of HSU emphasize the role of the healthcare system in determining health service access and use. While multiple models exist within this framework, all the models suggest that HSU is the result of the organizational characteristics of the healthcare system, such as variations in the location, payment system (e.g., insurance or private), and quantity of healthcare providers and facilities (McKinlay, 1972; Yang & Hwang, 2016). These models attempt to address disparities in HSU through interventions addressing structural barriers. For example, these models propose that the removal of financial barriers through national health insurance is a necessary step to provide equal access to quality and quantity of healthcare (Gibson, 1972; Yang & Hwang, 2016). Critics argue that, while the structure of the healthcare system has a clear role in the access and use of healthcare services, it is not able to provide a complete conceptualization of HSU (McKinlay, 1972; Yang & Hwang, 2016). Moreover, given the national health insurance policy used in Canada, this framework has less relevance for studies examining individual and community differences in HSU within Canada.

Economic Models

Another approach to understanding demand for, and use of, healthcare services is to apply economic principles and theories. The principal-agent framework is one economic theory that has frequently been applied to models of healthcare utilization to measure the performance of healthcare systems and address institutional barriers to access (Curtis & MacMinn, 2008; Brinkerhoff & Bossert, 2014; Sekwat, 2000). The principal-agent relationship exists when the principal engages the agent to perform a service on their behalf in exchange for compensation. In principal-agent relationships, the principal requires the service of the agent to solve a problem and delegates decision making authority to the agent due to information asymmetry (i.e., the agent has more information about the topic at hand) (Sekwat, 2000). In healthcare, the principal-agent relationship exists between the patient and provider. Due to the information asymmetry (i.e., the provider has more knowledge about the medical issue and treatment), the patient (i.e., the principal) relies on the healthcare provider (i.e., the agent) to determine what is wrong and assist them in making optimal healthcare utilization choices (Curtis & MacMinn, 2008). Ideally, the provider offers the same amount of healthcare the patient would choose if they had the same depth of information, however this is not always the case due to economic, cultural, and political differences between the provider and patient (Curtis & MacMinn, 2008).

The principle-agent framework allows researchers to examine if inequities in HSU are occurring at the contact stage, which is assumed to be primarily determined by the patient, or the number of visits (conditional on accessing the system) stage, which is assumed to be primarily determined by the provider. This model also allows researchers to differentiate between initial and continued access, localize issues with HSU (i.e., patient level vs provider level), and provides insights into the balance between costs and effects. While these factors have been observed to impact HSU, this framework has not been widely implemented, likely because it does not provide a complete conceptualization of HSU as it does not account for specific individual and community determinants of HSU or larger system factors.

Access as Fit

Penchansky and Thomas (1981) developed a framework for understanding access to healthcare that focuses on the interaction of key elements which determines HSU. The model asserts that HSU primarily depends on the degree of fit between the individual's needs and the system's ability to meet those needs and measures fit across five dimensions: (1) availability, (2) accessibility, (3) accommodation, (4) affordability, and (5) acceptability (Penchansky & Thomas, 1981). Critics of this model highlighted that the terms used were not clearly defined and were used interchangeably (Frenk, 1992; Ricketts & Goldsmith, 2005). Frenk (1992) revised the model to more clearly define terms and reduce overlap in concepts. Taylor & Ricketts (1994) applied the framework of fit to the development of a metric for underservice, demonstrating the interactive relationships between resources, needs, and demands as well as the clinical utility of the model. Critics of the framework maintain that the terms remain unclear and there is limited clinical utility (Ngwakongwi, 2017).

Socio-Behavioural Models

Socio-behavioural models of HSU highlight the role of the healthcare system and social networks in addition to individual and community factors in determining HSU. While several socio-behavioural frameworks exists, the "Behavioural Model of Health Service use" (also commonly referred to as "The Behavioural Health Model" and "Andersen's Health Behaviour Model"; Andersen, 1968) has received significant empirical support and is the most commonly used framework in research examining healthcare service access and use (Allan & Ammi, 2021; Ngwakongwi, 2017; Pong et al., 2011; Racher & Vollman, 2002; Ricketts & Goldsmith, 2005; Sibley & Weiner, 2011; Williams et al., 2019; Yang & Hwang, 2016). A systematic review examined use of this model in research between 1975 and 1995 and identified 139 studies that implemented this model as the theoretical basis of their investigation (Phillips et al., 1998). Another systematic review examining the application of this model in studies published on PubMed between 1998 and 2011 identified 16 studies that used this model to examine HSU in general healthcare (Babitsch et al., 2012). Most recently, Lederle and colleagues (2021) completed a scoping review on the suitability of the application of Andersen's model in health service research and documented 1879 studies published between 1968 and 2020 that utilized this model as the theoretical background, of which 77 studies employed a qualitative design. The present study will utilize Andersen's conceptual framework given the breadth and flexibility of dimensions of HSU and relevant factors measured, and the significant empirical support for this model (e.g., Babitsch et al., 2012; Lederle et al., 2021; Phillips et al., 1998; Williams et al., 2019; Yang & Hwang, 2016).

Andersen's Behavioural Model of Health Service Use

When initially developing the framework, Andersen and colleagues sought to address criticisms that previous HSU frameworks focused on one of two major dimensions, population characteristics or health system characteristics, rather than include both of these determinants dynamically (Ngwakongwi, 2017; Ricketts & Goldsmith, 2005). Andersen's (1995) "Phase 4 Model" is the fourth iteration of the behavioural health model. See Figure 1 for visual representation of this model. This iteration portrays multiple influences on HSU and subsequent health status, and includes feedback loops in which the outcomes affect the determinants. This model proposes that health outcomes (defined as perceived health status, evaluated health status, and consumer satisfaction) are determined by: (a) environmental characteristics (i.e., healthcare system and external environment); (b) population characteristics (i.e., predisposing characteristics, enabling resources, and need); and (c) health behaviour (i.e., personal health practices and use of health services). Within the environmental domain, the healthcare system refers to the national health policy, resources, and healthcare organizations while the external environment refers to the economic climate, politics, societal norms, and physical factors (Andersen, 1995). The population characteristics includes three factors placed in a sequential order (i.e., predisposing factors to use health services contribute to enabling resources to use health services, which contribute to an individual's needs). Predisposing factors are characteristics of the individual, such as age, sex, ethnicity, social status, education, and beliefs. Enabling resources are system or structural conditions that enable or inhibit use of available services such as personal and family resources (e.g., health insurance, living arrangements, transportation, family health habits) and community resources (e.g., social supports, distance to health facility, number of providers). Individual needs are the complexity and severity of the health condition that leads to needing health services and can be viewed from the perspective of the individual seeking care or healthcare provider (Andersen, 1995; Pong et al., 2011; Ricketts & Goldsmith, 2005; Williams et al., 2019). Personal health practices and HSU are treated as mediating variables of health status and satisfaction rather than the final outcome variables.

Andersen's (1995) Phase 4 Model integrates many of the individual, community, and societal factors discussed in socio-psychological, socio-cognitive, and socio-demographic models, which allows researchers to focus on specific factors that may be more relevant for HSU in a particular situation while grounding the data within a broader context. The model has contributed to clarity on measures of HSU and the development of outcome measures assessing utilization and satisfaction (Ngwakongwi, 2017; Ricketts & Goldsmith, 2005). Specifically, HSU can be characterized in terms of type of services (e.g., emergency care, mental health, home care, etc.), site where care is rendered (e.g., home, clinic, inpatient hospital, etc.), purpose of care (e.g., preventative or stabilizing), time interval (e.g., mean number of visits in a given time interval), and continuity of care (Ngwakongwi, 2017). This model has been applied extensively in the literature to understanding HSU for diverse illnesses (e.g., spinal cord injury, heart disease, diabetes, mental illness), settings (e.g., emergency department, outpatient services, primary care, community mental health, rural, urban), and populations (e.g., geriatric, adult, children, homeless, community, immigrants) (Babitsch et al., 2012; Lederle et al., 2021; Pong et al., 2011; Sibley & Weiner, 2011; Stein et al., 2007; Williams et al., 2019; Yang & Hwang, 2016).

Andersen and colleagues also delineated different dimensions of access, including potential and realized access, equitable and inequitable access, effective and efficient access, and initiated and continued access (Racher & Vollman, 2002). Potential access has been defined as the availability of healthcare services relative to need for services while realized access has been defined as actual use of these services to fulfill needs (Aday and Andersen 1981; Racher & Vollman, 2002). Equitable access occurs when demographic and need variables determine variance in HSU, while inequitable access occurs when structure, predisposing factors, and enabling resources primarily account for the variance in HSU (Andersen 1995; Racher & Vollman, 2002). Effective access refers to use of services leading to improved health status or satisfaction with services, and efficient access occurs when health status or satisfaction with services increases in relation to the quantity of health services accessed (Andersen, 1995; Racher & Vollman, 2002). A third dimension of healthcare access is initiated and continued access to healthcare. This dimension was first proposed by Donabedian (1972), who suggested that different factors may impact initial contact and ongoing access and that the same factors may impact these two outcomes differently. Aday and Andersen (1981) captured this dimension in their framework by including time interval of contact with the health system, number of contacts, and continuity of services for a particular illness episode within the operationalization of HSU. Andersen (1995) further addressed this dimension by including the feedback loop in the fourth iteration of the model in order to measure ongoing access and access over time.

While not explicitly included in any iteration of Andersen's model, a fifth dimension of access included in many frameworks of HSU is spatial and aspatial access. Donabedian (1972) first labelled this dimension as socio-organizational and geographic factors, with socio-organizational factors referring to characteristics of the healthcare service (e.g., cost and specialization of provider) that contributes to differential access. Geographical factors referred to physical space of, or distance to, healthcare services. Other models differentiated between location accessibility (e.g., physical proximity of facilities relative to consumers' residence) and effective accessibility (e.g., financially accessible) (Racher & Vollman, 2002).

Healthcare service utilization is the interaction of individual health needs and healthcare systems designed to meet those needs and is impacted by a myriad of societal and community, organizational/institutional, and individual factors. Andersen's framework is a multilevel model that incorporates contextual and individual determinants of HSU and allows for the dynamic bi-directional impact of these factors on HSU through the inclusion of a feedback loop. Additionally, while providing a theoretical framework to assess HSU, Andersen's model allows for flexible decision making in regard to variables examined based on the research question, purpose of the study, and data availability (Phillips et al., 1998). This model has been extensively applied to the study and systematic reviews of HSU for a variety of health conditions, types of services, and populations (Allan & Ammi, 2021; Babitsch et al., 2012; Lasser et al., 2006; Lederle et al., 2021; Phillips et al., 1998; Pong et al., 2011; Quan et al., 2006; Sibley & Weiner, 2011; Williams et al., 2019). Despite the widespread use of this model to understand HSU, there is a paucity of research applying this model to understand factors related to Canadian mothers' HSU.

Determinants of Healthcare access and Utilization

Consistent with Andersen's theoretical framework for HSU, research suggests that access to healthcare is a multidimensional concept impacted by the interaction of individual, social, environmental, and structural factors. Some of these factors that have been observed to be determinants of HSU include age, sex, education, SES, ethnicity, and geography. These sociodemographic variables are included as predisposing characteristics within Andersen's model. Previous research has consistently observed that HSU is typically higher among females compared to males (e.g., use of primary care and emergency treatment) (McKinlay, 1972; Pong et al., 2011). In an examination of the Canadian Community Health Survey (CCHS) data from 1978 to 2003, Curtis and MacMinn (2008) observed that females were 40% more likely to see a physician compared to males across all age categories. Similarly, research conducted in Canada has shown that a greater proportion of women than men visit their family doctor multiple times in a 12-month period and being female is an independent risk factor for hospitalization (Pong et al., 2011). This relationship has been observed for use of mental health services as well. For example, in a systematic review of population-based studies on factors associated with HSU for common mental health disorders, Roberts and colleagues (2018) observed that the female gender was frequently associated with increased treatment seeking. Additionally, studies have identified that single mothers and their children experience health disadvantages (Curtis, 2001; Curtis & Phipps, 2004; Owens, 2008; Whitehead et al., 2000). For example, Lipman and colleagues (1997) utilized the Ontario Health Survey Supplement and found that lone mothers were significantly more likely to be dissatisfied with multiple areas of their lives, have more mental health problems, and use more mental health services compared to mothers in two-parent families. This relationship persisted after statistically adjusting for income, education, the presence of young children, and maternal age. Similarly, Bernstein (2001), examined data from the Commonwealth Fund 1998 Survey of Women's Health and observed that single mothers reported worse overall perceived health status than non-mothers, regardless of income. Multiple theories for sex-based differences in HSU exist, including sex specific conditions (e.g., reproductive care), longer life span among women, differences in health perceptions and symptom reporting, greater likelihood of women seeking preventative care, and physician referral practice patterns (Bertakis et al., 2000; Nabalamba & Millar, 2007; Owens, 2008). Increases in use of healthcare with age has been hypothesized to be due to increased risk for the development of chronic diseases (cardiovascular, cancer, stroke, etc.) and morbidity (Atella et al., 2019; McKinlay, 1972).

Research examining the relationship between age and HSU is mixed. Differences in the type of HSU examined (e.g., global HSU, preventative care, specialist care) and the intersection of other demographic factors (e.g., gender, ethnicity, geography, need) likely contribute to the varied results observed in the literature. For example, comparing CCHS data from 1978 to 2003, Curtis and MacMinn (2008) observed that individuals 75 years and older were more likely to visit medical doctors in each 12-month period examined compared to those 40 – 45 years, however younger and older adults were more likely to be hospitalized than middle aged adults. Blackwell and colleagues (2009) observed an intersection of gender and age in both the US and Canada, with women aged 18 to 44 being more likely to contact a doctor than older women whereas men aged 65 years and older were more likely to contact a doctor than younger men. Similarly, utilizing CCHS data from 2005, Nabalamba and Millar (2007) observed that the significantly higher likelihood of individuals aged 25 – 34 utilizing health services was no longer evident when women who were pregnant at the time were removed from the analysis. Additionally, the authors observed that Canadians 75 years and older had lower odds of specialist care however higher odds of accessing general practitioners (GPs) compared to individuals 65-69 years-old, however hypothesized that this difference may no longer be evident if severity of chronic condition was controlled for in the analysis (Nabalamba & Millar, 2007). No clear association between age and mental health service use has been identified in the literature. For example, a systematic review examining the predictors of HSU for adults with mental disorders in the UK observed that most age ranges older than 31 were associated with increased HSU, preventing the author from drawing any conclusions regarding the impact of age on HSU (Twomey, et al., 2015). Conversely, in a systematic review of 52 studies examining factors associated with HSU for common mental health disorders, Roberts and colleagues (2018) described the relationship between age and HSU as hill-shaped, with middle age respondents being the most likely to seek treatment. Fleury et al., (2014) observed that, age was not associated with HSU when examining predictors of HSU for mental health reasons among 2,434 participants aged 15 to 65 in southwestern Montreal.

While financial barriers to access have been removed for many health services in Canada, not all services are provided free of cost and previous research has shown persistent inequalities in access to healthcare services in Canada based on SES and educational attainment. One study examined disparities in access to care and health status in Canada and the U.S. using the 2002 Joint Canada US Survey of Health and reported that individuals in the highest household income bracket (>$70,000) were more likely to have a regular physician and have visited a physician in the past 12 months compared to the lowest household income bracket ($0 - $19,999) (Lasser et al., 2006). Using the same dataset, Blackwell and colleagues (2009) observed that Canadian and US adults with less education were less likely to have contacted a doctor than well-educated adults. Van Doorslaer and colleagues (2006) examined equity in utilization of physician services in 21 developed countries and reported that a pro-rich bias occurred in Canada, with wealthy individuals being more likely to visit a physician than lower income individuals. Curtis and MacMinn (2008) also found a pro-rich and pro-education bias for visiting a physician in Canada, with wealthier and more educated individuals being more likely to have an initial visit to a physician. However, the authors noted that those with lower SES and less education had a higher average number of physician visits once contact was made. Multiple studies examining HSU within Canada have also observed a pro-rich bias for access to specialist care, even after adjusting for health status (Allin, 2008; Curtis & MacMinn, 2008; Jimenez-Rubio, et al., 2008). Using the 2003 CCHS, Allin (2008) reported that the highest level of pro-rich inequity for specialist care within Canada was observed in NL, Saskatchewan, and Nova Scotia and the highest level of pro-rich inequity for dental care occurred in NL and New Brunswick. Conversely, Allin (2008) reported that individuals of low SES have a significantly higher probability of being admitted to hospital and to stay longer. The author suggests that this finding may be due to lack of access to primary care leading to a greater reliance on emergency hospitalization for lower income individuals. Consistent with these findings, Pong and colleagues (2011) observed that having lower income and less than a secondary education were independent risk factors for hospitalization when examining data from the 2000-2001 CCHS, Health Services Access Survey (HSAS), and physician claim files. Similarly, in a national retrospective cohort study of Canadian adults, low household income and education attainment were among the identified risk factors for avoidable hospitalization (Wallar et al., 2020).

Research has also established a relationship between SES and HSU among children. Using hospital data for children born in Toronto, Ontario between 1993 and 2001, Agha and colleagues (2007) identified that children born in low-income families had higher rates of avoidable hospitalizations compared to children born in high-income families. These rates were consistent across many conditions, remained stable over time, and persisted up to nine years of age. This finding was consistent with a longitudinal study following 457 children diagnosed with asthma in Quebec which showed that children with fathers in the economically least advantaged occupations were more likely to be hospitalized, even after adjusting for asthma severity (Amre et al., 2002). Guttmann and colleagues (2010) examined inequalities in HSU among children in Ontario using health administrative data. After controlling for variations in supply, the authors identified that children residing in areas with lower income had increased odds of inadequate preventative care, primary care, and avoidable hospitalizations compared to children residing in high income areas in Ontario. Using data on children aged 1-15 years between 1994/95 to 2008/09 from the National Longitudinal Survey of children and Youth (NLSCY), Allin and Stabile (2012) observed that children’s use of healthcare services and overall health differed according to family income and maternal education. Specifically, families with higher maternal education attainment and higher income used both preventative and curative child healthcare while families with lower maternal education attainment and income used more curative child healthcare and had poorer overall health in children with long-term conditions (e.g., asthma, bronchitis, mental health problems).

Healthcare service utilization has also been shown to differ based on geographical location. While there is no universally adopted definition of rural communities in the literature, many previous studies completed in Canada have utilized the Statistics Canada definition of “Rural and Small Town (RST)” and/or “Metropolitan Influenced Zones (MIZ)” to categorize and describe the rurality of communities. The term RST refers to populations living outside the census metropolitan area (CMA) and census agglomerations (CA) while MIZ refers to the percentage of the population in a community that commutes to work in a CMA and/or CA and is divided into four categories ranging from Strong MIZ to No MIZ (du Plessis et al., 2002; Pong et al., 2011). Previous research examining the relationship between geographical location and access to services in Canada have observed that individuals living in geographically isolated communities or communities with small populations across Canada typically have lower referral rates to specialists and proportionally fewer providers and services (Chan & Austin, 2003; Pong et al., 2011; Sibley & Weiner, 2011). In a cross-sectional study of the 10 provinces of Canada using data from the CCHS conducted in 2003, Sibley and Weiner (2011) observed that individuals living in the most rural areas of Canada (i.e., No MIZ communities) were least likely to have received a flu shot, use specialist physician services, or have a regular medical doctor. Pong and colleagues (2011) also compared patterns of health service utilization between rural and urban dwelling Canadians using data from the 2000-2001 CCHS and HSAS as well as physician claim files. The authors reported that urban areas (i.e., CMA and CA communities) had more family physicians and specialists per capita than rural areas and a higher proportion of visits to a dentist or community-based care, while a greater proportion of rural residents reported receiving care in emergency departments or outpatient clinics. They also observed that a significantly greater proportion of Canadians living in the most rural areas (i.e., No MIZ communities) endorsed difficulties accessing immediate health services due to lack of availability in the area, lack of availability at the time of day, or transportation problems, and that the risk of hospitalization was greater for rural residents than urban residents. Additionally, among Canadians reporting no regular family doctor, 13.2% of urban residents and between 35% - 61% of rural residents indicated this was due to lack of availability and place of resident had an independent effect on not having a family doctor for the most rural areas.

Geographical location can shape healthcare service utilization through the tangible availability of resources as well as through community attitudes, beliefs, and supports. For example, research has demonstrated that women living in communities with supportive community attitudes towards mammography make greater use of this preventative service compared to women living in communities with less supportive attitudes (Andersen et al., 1999). Research that examined determinants of HSU in Rural Australia suggested that rural dwellers value self-reliance, prefer informal support networks, and view health as the absence of disease which contributes to these residents prioritizing curative treatment rather than preventative care (Dixon & Welch, 2000; Humphreys et al., 1997). Molinari and colleagues (1998) observed that women's perception of the social quality of their community was positively associated with their perceived health status and functioning. Similarly, Kitchen and colleagues (2012) examined the relationship between sense of community belonging and self-perceived health across Canada using the 2007-2008 CCHS data. While controlling for geography and SES, the authors identified a significant relationship between sense of belonging to a local community and health status. Sense of community belonging increased with rurality across the Canadian provinces, and NL had the highest proportion of residents expressing very strong or somewhat strong belonging to their local community.

Culture and ethnicity are also well-established determinants of HSU. Research completed in the U.S. and the U.K. have observed that members of ethnic minorities (e.g., black, Hispanic, Asian) perceived more barriers to accessing healthcare and were less likely to access healthcare compared to Caucasian individuals (Fiscella et al., 2002; Haas et al., 2004; Wilson et al., 2012; Yu et al., 2001). Research examining racial disparities in HSU in Canada using data from the 2001 cycle of the CCHS, reported that members of visible minority were less likely to be admitted to hospital, tested for prostate-specific antigen, administered a mammogram, or given a Pap test than Caucasian individuals, even after statistically adjusting for sociodemographic and health characteristics (Quan et al., 2006). Studies have also consistently observed that immigrants living in the U.S. were less likely to have a regular doctor and use health services when compared to American born individuals (Derose et al., 2011; Yang & Hwang, 2016). Consistent with this, Curtis and MacMinn (2008) observed that newer immigrants to Canada were less likely to have utilized healthcare services and had fewer visits on average than Canadian born individuals. Ganann and colleagues (2012) utilized The Ontario Mother and Infant Study III (TOMIS III) to examine postpartum health status, service use, unmet healthcare needs, and barriers to service use among immigrant and Canadian born women following childbirth. The authors observed that immigrant women were significantly more likely to experience poorer postpartum health, rate community health services as fair or poor, and were less likely to receive care for mental health compared to Canadian born women 6 weeks following postpartum discharge from hospital. Literature on racial and ethnic disparities in HSU suggest multiple factors contribute to these outcomes such as physicians' attitudes towards minority patients, language differences, transportation issues, and knowledge of the healthcare system (Quan et al., 2006).

Mothering Ideology – The Mommy Mystique

Consistent with the contention that Andersen's theoretical framework is best applied when informed by specific theories relevant to the population of study, consideration of prevailing gender ideologies and the particular experiences of mothers is needed to develop a fulsome understanding of mother's access to services for themselves and their children (Anderson et al., 2018; Henderson et al., 2016; Jackson & Mannix, 2004; Lederle et al., 2021; Tummala-Narra, 2009). While motherhood is experienced on the individual level, the expectations and ideology of the 'good mother' are defined at the cultural level. Hays' (1996) coined the term 'intensive mothering' to describe the hegemonic ideology of motherhood in western society in which maternal expectations are child-centered, expert guided, emotionally absorbing, and labor intensive (p. 46). According to Hays, mothers are expected to be primarily responsible for their children's development, and to prioritize their children's wellbeing and needs over their own individual needs and convenience (1996, p. 115). All mothers are subject to the pressure to be a 'good mother' and it is these expectations that mothers use to evaluate themselves.

The unrealistically high requirements for being a 'good mother' set women up for personal failure. Qualitative studies completed in the U.S. involving interviews and focus groups with mothers have documented the negative consequences that these unattainable standards have on mothers' mental health and wellbeing. Warner (2005) reported that mothers felt consumed with stress, anger, and guilt for not meeting these cultural ideals. Newman and Henderson (2014) demonstrated that even women coming from a privileged status felt the need to seek out support groups to cope with their frustrations of the strictures of intensive motherhood and their failures to achieve this unrealistic ideal. Motherhood has been associated with increased levels of perceived stress, guilt, depression, and anxiety (Arendell et al., 2000; Johnston & Swanson, 2006; Liss et al., 2013; Rizzo et al., 2013). A survey study of 283 American mothers observed that mothers who experienced pressure to be 'perfect' mothers had lower self-efficacy and higher levels of stress while mothers who experienced guilt for not meeting perceived parenting expectations experienced lower self-efficacy, higher stress, and higher levels of anxiety (Henderson et al., 2016). Studies examining the psychological wellbeing of new mothers and mothers with young children have observed that these women experience guilt, anxiety, and reduced self-esteem and self-efficacy in their abilities to manage their role, especially when they feared negative evaluation of their parenting skills, held the belief that women are the primary parent, and viewed parenting as challenging (Liss et al., 2013; Rizzo et al., 2012; Wilkins, 2006). The dominant discourse of motherhood sets unrealistic standards of perfectionism for mothers which, when not attained, can result in feelings of inadequacy and negatively affect mothers' mental health.

In line with the dominant ideology of 'intensive mothering', it is expected that mothers take responsibility for monitoring the health of their children, accessing healthcare services for their children, and making decisions regarding the healthcare of their children (Arendell, 2000; Pinquart, 2018; Tummala-Narra, 2009). As a result, mothers are typically held responsible and disproportionately blamed compared to fathers for the health and wellbeing of their children (i.e., mother-blame; Jackson & Mannix, 2004). One setting in which women often experience mother-blame is in formal healthcare, where mothers frequently interact with and are subject to the scrutiny of healthcare providers (Ballantyne et al., 2014; Jackson & Mannix, 2004; Klasen & Goodman, 2000; Reardon et al., 2017; Sayal et al., 2006). Despite mothers' experience of mother-blame in formal healthcare settings and the negative impact the dominant ideology of motherhood can have on women's mental health, little is known about whether this impacts their use of healthcare services for both themselves and their children.

Child Wellbeing

Consistent with the prevailing norms of 'intensive mothering', the wellbeing of children can impact maternal health and the experience of motherhood. Studies on neonatal and child health outcomes have observed that higher levels of maternal SES, education, social support, and maternal-child attachment are highly correlated with improved health practices of mothers (e.g., substance use, nutrition, obtaining health information) and child health outcomes (e.g., birth weight) (Alhusen et al., 2012; Lindgren, 2001; Webb et al., 2005). Research on the relationship between maternal-child attachment and health outcomes have suggested that prenatal attachment impacts women's adaptation to the role of motherhood, including facilitating motivation for positive health behaviours and serving as a protective factor against perinatal depression (Brandon et al., 2009; Lindgren et al., 2001). Previous research also illuminates a positive relationship between maternal prenatal care and HSU for young children (Butz et al., 1993; Kogan et al., 1998; Wiecha & Gann, 1994). These findings suggest that demographic variables, child health, and maternal health are also closely linked to maternal wellbeing, indicating the importance of examining these variables to understand the motherhood experience.

Distinct from other kinds of situational stress, parenting stress is the psychological distress experienced by parents trying to meet parenting role demands (Abidin, 1995; Deater-

Deckard, 2004). High levels of parenting stress have been associated with adverse outcomes (e.g., depression, anxiety, maladaptive behaviours) in children and parents (Farmer & Lee, 2011; Fonseca et al., 2011; Semke et al., 2010). Most parents experience parenting stress to some degree, with sources of parenting stress including child characteristics, parent characteristics, and child-parent interactions (Pinquart, 2018). Parenting stress typically increases in parents of children with pediatric health conditions (Deater-Deckard, 2004; Eronen et al., 2007; Golfenshtein et al., 2016). A meta-analysis of 547 studies regarding parenting stress in families with a child with a chronic physical condition observed significantly higher maternal stress than parental stress (Pinquart, 2018). Protective factors for parenting stress in these studies included marriage or cohabitation, positive marital quality, and social support (Pinquart, 2018). Similarly, mothers of children with developmental disabilities report significantly higher stress, poorer mental health and physical health, and experience challenges accessing services for their children as compared to mothers of children without developmental disabilities (Bourke-Taylor et al., 2021; Golfenshtein et al., 2016; Marquis et al., 2020; Miodrag et al., 2015; Pinquart, 2018; Ryan & Quinlan, 2018). In line with the dominant ideology of 'intensive mothering', the higher level of parental stress experienced by mothers has been hypothesized to be due to mothers more often being the primary caregiver of their children's health (Drapeau et al., 2009; Garbarski, 2014; Pinquart, 2018; Tummala-Narra, 2009).

Another source of parenting stress can stem from accessing services for children. A qualitative study of experiences accessing services with health and education providers among 24 parents of children with disabilities in Ireland identified five themes: 1) feelings of "us versus them" with providers (e.g., battle with professionals, need for parents to adopt advocacy role); 2) lack of child/family centredness resources (e.g., depersonalized system, unmet needs); 3) lack of resources; 4) uncertain access to a complex system (e.g., access was confusing and unpredictable); and 5) need for an identified worker to support access (Ryan & Quinlan, 2018). This literature suggests that parents experience challenges accessing health services for their children and the stress of this can have negative impacts on parents' health, especially mothers.

Experience of Mothers with Mental Illness

Studies conducted in the U.S. suggest that the majority of American adults who meet criteria for mental illness during the course of their lifetime are parents and the majority of parents identified as having a mental illness are women (Biebel et al., 2006; David et al., 2011; Dolman et al., 2013; Leijdesdorff et al., 2017; Mowbray et al., 2001; Nicholson et al., 2001; Reupert & Maybery, 2016). Mental illness is incompatible with the requirements of being a 'good mother' in western society. In acknowledging the need for assistance in their parenting role and prioritizing their own health needs, women fall short of the idealized standards of the 'good mother' (Davies & Allen, 2007). Mothers experiencing mental health problems report feeling that others do not consider them to be 'good enough' to be mothers, that their parental competency is often scrutinized, and fear being viewed as a 'bad mother' (Blegen, et al., 2010; Edwards & Timmons, 2005; Montgomery et al., 2011).

In addition to the stressors all parents face, mothers with mental illness experience challenges unique to their dual identity as someone experiencing a mental illness and motherhood. A systematic review of 19 qualitative and quantitative studies published between 1998 and 2009 that explored challenges experienced by mothers with mental health issues identified three themes, including: 1) vulnerability of mothers with mental health issues (e.g., poverty, abuse, separation, physical health); 2) fear of being perceived as not a good enough mother; and 3) concerns that their children would develop mental health issues (Blegen et al., 2010). Blegen and colleagues (2010) noted a limitation of most studies was that, while they reflected mothers' situations and experiences, the topic was approached from the medical perspective rather than the mothers' own voice. Similarly, Dolman et al., (2013) synthesized seven themes in a systematic review of 23 qualitative studies published between 1995 to 2012 that explored the experience of women coping with the dual identity of motherhood and serious mental illness. Those themes were: 1) isolation; 2) stigma; 3) guilt; 4) centrality of motherhood; 5) fear of custody loss; 6) concern over the impact of mental illness on children; and 7) managing dual identities. Throughout the studies, many women expressed having limited supportive social and family relationships due to their illness as well as feeling isolated in their role as a mother and in coping with mental illness (Dolman et al., 2013; Montgomery et al., 2006; Khalifeh et. al., 2009). In over three-quarters of the studies reviewed, women reported that stigma associated with being a mother who has a mental illness prevented them from discussing their problems openly, making social contacts, and made them more reluctant to seek help (Ackerson, 2003; Diaz-Caneja & Johnson, 2004; Engqvist et al., 2007). In interviews conducted with 20 women, Jackson and Mannix (2004) observed that women frequently cited feeling stigmatized in their contact with healthcare providers and that this impeded their willingness to seek and persist with supportive interventions. In conjunction with the stigma they felt from society, many mothers also described experiencing self-stigma and guilt because they perceived themselves as bad mothers for being unable to adhere to societal ideals of a 'good mom'.

Despite the hardships connected to parenthood, women experiencing mental illness consistently highlighted the importance and centrality of their role as a mother to their identity. Women described that being a mother gave them purpose and maintaining contact with their children was a priority (Edwards & Timmons, 2005; Montgomery, et al., 2011). In line with the value placed on motherhood, women self-reported that fear of custody loss negatively impacted their willingness to seek help and communication with healthcare professionals (Ackerson, 2003; Montgomery et al., 2006; Khalifeh et al, 2009). To avoid negative evaluation of their parenting and prevent custody loss, mothers report that they mask their symptoms and downplay their distress (Blegen et al, 2010; Davies & Allen, 2007; Montgomery et al., 2006).

Maternal Mental Health and Utilization of Healthcare Services

The need for effective interventions to support mothers experiencing mental illness and their families has been well established. Untreated parental mental illness is associated with a higher risk of infant mortality, a higher likelihood of children being taken into care, and children having increased risk of behavioural problems and experiencing mental illness (David et al., 2011; Leijdesdorff et al., 2017; Leschied et al., 2005; Mowbray et al., 2001; Webb et al., 2005). Depressed mothers have been observed to provide lower levels of warmth and emotional attunement as well as poorer quality stimulation to their infants, and children of mothers with depression are at increased risk for insecure attachment styles, difficulties with emotion regulation, and general psychopathology (Goodman et al., 2011; Riley et al., 2008; Slomian et al., 2019). Maternal depression is also associated with conflictual and distant marital relationships that create a tense family environment (Bruce et al., 2012; Hanington et al., 2012; Riley et al., 2008). Maternal mental illness is also associated with economic burden due to decreased work productivity and increased healthcare costs (Bruce et al., 2012; Mental Health Commision of Canada, 2016).

There has been a recent focus on developing evidence-based interventions and services for mothers coping with mental illness to improve outcomes and help families manage maternal illness (David et al., 2011; Hinden et al., 2006; Leonard et al., 2018). Unfortunately, the extent to which these services are available within countries and globally remains unclear. For example, the availability of mental healthcare for women who reside in deprived and rural areas in North America are poorly understood (Alderdice & Newham, 2016; Bruce et al., 2012). One study conducted in the U.S. observed that women from low-income areas experienced higher levels of perinatal mental illness but were less likely to receive professional mental healthcare (Orengo-Aguayo & Segre, 2015). Another study examining prescription rates of antidepressants among women of childbearing age (15-45 years) in Northern Ireland found that more women living in rural areas redeemed antidepressant prescriptions (Wemakor et al., 2014).

In addition to the scarcity of research on the availability of services, little is known about whether mothers are accessing the healthcare services that are available to them, and the factors that impact their decision to access services for themselves and their children. In interviews with 379 women, Mowbray et al., (2001) observed that almost half of mothers with serious mental illness reported receiving minimal or no services related to parenting despite a perceived need for services, such as parenting skill training and support. Some evidence suggests that mothers experiencing mental illness following childbirth do receive more healthcare services. Using questionnaires completed by 594 women in British Columbia at 1, 4, and 8 weeks postpartum, Dennis (2004) observed that women with depressive symptomatology had more contacts with a health professional as well as higher utilization of family physician and public health nursing services in their first month postpartum compared to mothers without depressive symptomatology. The author also observed that women who endorsed depressive symptomatology were significantly more likely than mothers without depressive symptomatology to perceive the care they received from family physicians as unhelpful. Similarly, Webster et al., (2001) examined HSU and satisfaction with services among 574 women 16 weeks after childbirth in Australia. One in five women scored above clinical cut-off scores on the Edinburgh Postnatal Depression Scale and were more likely to have contact with services (e.g., psychiatrist, social worker, group therapy, paediatrician, or GP), but were less satisfied with services than mothers without clinically relevant symptoms of depression.

Research regarding HSU among children of mothers coping with mental illness is also mixed. Using longitudinal data on Canadian children aged 1-15 years and parents, Allin and Stabile (2012) identified that mothers who reported their health to be poor or to experience depression in previous surveys were more likely to describe their child's current health as poor. A longitudinal study examined the developmental trajectories of children in Australia and observed that children of mothers who reported experiencing three or more stressful life events were less likely to be fully immunized with standard vaccines (Australian Institute of Family Studies., 2016). A cross sectional study including 655 Canadian mothers experiencing postpartum depressive or anxiety sympotms observed no association between mental health symtpoms and HSU for infants less than 6 months of age (Anderson et al., 2008). Conversely, Olfson et al., (2003) found that children were more likely to access medical and mental healthcare if their parents experienced depression . The depressed parent was the mother among 77% of the children who had a depressed parent and was accessing healthcare services. In a systematic review of associations between parent and child mental health with paediatric HSU, Lavigne and Meyers (2019) observed that with the exception of maternal depression, parental mental health problems were associated with more child outpatient visits in 13 studies.

Maternal Sense of Competence

Self-confidence and satisfaction with personal characteristics and skills can influence psychosocial wellbeing. Parental sense of competence is a parent's perceived ability to effectively manage their parenting tasks (de Haan et al., 2009). The term is often used synonymously with parental self-efficacy, which has been defined as a parents sense of confidence in their ability to parent (Coleman & Karraker, 2003). Both terms are based on Bandura's basic principle of self-efficacy, which he defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977). Parents with a high sense of parental competence are able to pursue goal directed activities, persevere in the face of obstacles, and are resiliant to adversity (Gilmore & Cuskelly, 2009). Parental sense of competence impacts parenting satisfaction, parenting skills, and the quality of care parents provide to their children (Coleman & Karraker, 2003; Ponomartchouk & Bouchard, 2015).

Low maternal sense of competence has been linked to increased parenting stress, decreased maternal role satisfaction, and maternal mental illness such as depression (Berryhill et al., 2016; Ngai et al, 2010; Ponomartchouk & Bouchard, 2015). Parental sense of competence has been shown to be inversely correlated with maternal depression, suggesting that self-confidence in one's capabilities as a mother is a protective factor against post-partum depression (Kohlhoff & Barnett, 2013). Children with mothers who have low maternal competence report higher anxiety and depression, and lower socio-emotional adjustment compared to chidlren of mothers with high maternal competence (Côté at al., 2009; Izzo et al., 2000). Maternal sense of competence has also been shown to impact mothers' parenting skills. Specifically, high maternal sense of competence is positively associated with active maternal coping orientations and specific parenting tendencies, such as effort to learn about parenting and parental efforts to educate children on injury prevention (de Haan et al., 2009; Ponomartchouk & Bouchard, 2015; Spoth & Conroy, 1993). No study to date has included maternal sense of competency into a predictive model of maternal HSU.

Social Support

Social support from family, friends, and healthcare providers is associated with increased parental sense of competence and psychosocial wellbeing. Social support includes instrumental support (i.e., practical aid such as childcare), informational support (e.g., psychoeducation and parenting advice), emotional support (e.g., empathy), and affirmational support (e.g., validation and feedback) (Doucet et al., 2012; Leahy-Warren et al., 2012). One of the first studies to establish the protective role of social support among parents observed that mothers who endorsed high levels of social support were better able to form secure attachments with their children and endorsed a higher sense of competence in their parenting abilities (Cutrona & Troutman, 1986). Social support has also been observed to be a protective factor in the transition to parenthood, especially first-time parents (Ahlborg et al., 2013). In a self-report survey examining family functioning during the transition to parenthood in 114 couples, social support was found to be a significant predictor of parenting competency and satisfaction (Knauth, 2000).

Social support is an important resource for women coping with a range of stressors following childbirth (Angley et al., 2015; Cutrona & Troutman, 1986; Doucet et al., 2012; Gariepy et al., 2016; Leahy-Warren et al., 2012; Ngai & Chan; 2011; Ponomartchouk & Bouchard, 2015). An early study on the impact of social support among mothers and individuals with mental health diagnoses living in the community observed a significant positive association between social support and psychosocial wellbeing in these populations (Turner, 1981). In a study of 23 well-educated, middle – to upper-class women living in a large Canadian City, the authors observed that mothers who were satisfied with their spousal support during pregnancy reported lower levels of stress, anxiety, and depression, better marital adjustments, and a positive attitude towards pregnancy (Tietjen & Bradley, 1985). Ngai and Chan (2011) reported that both resourcefulness and social support mediated the effect of stress on maternal role competence, satisfaction, and postnatal depression. The literature suggests that social support increases women's self-confidence and satisfaction in their maternal role, which results in better parental sense of competence and overall wellbeing (Angley et al., 2015; Ngai & Chan, 2011). A systematic review of 67 articles involving a sample of 64,449 pregnant women reported that low social support was significantly associated with risk for mothers developing depression, anxiety, and self-harming during pregnancy (Bedaso et al., 2021). Social support can also buffer the effects of stress associated with caring for children with developmental disabilities. A meta-analysis of 21 studies with a pooled sample of 2273 parents, step-parents, and grandparents of children diagnosed with Autism Spectrum Disorder (ASD) observed that positive social support was significantly associated with better mental health (i.e., lowered depressive symptoms) of caregivers (Schiller et al., 2021). The literature suggests that social networks support parents' wellbeing by buffering the stress of parenting, reducing feelings of helplessness and isolation, and improving positive interactions (Bronfenbrenner, 1986; Gariepy et al., 2016; Schiller et al., 2021).

There has been minimal research exploring the impact of social support on mothers' HSU and their perception of support from healthcare providers. A qualitative study that explored stressors and resources among 379 mothers coping with mental illness found that only 44.3% of the women who had received mental health services in the past 3 months listed a mental health provider as a source of support and only 20.1% listed their provider as a helpful source for parenting support and advice (Mowbray et al., 2001). Social supports that focus on deficits and potential inadequacies of parents with mental illness can contribute to a view of the helping relationship as adversarial rather than a source of support (Nicholson et al., 2001).

Familial Relationship Satisfaction

Mothers exist within a family system and there is evidence to suggest that the quality of relationships within that system are associated with maternal mental health and overall wellbeing. Andersen's initial model for HSU focused on families as the unit of analysis, and proposed that medical care was a function of family characteristics (Andersen, 1995). Andersen and colleagues subsequently shifted to the individual as the unit of analysis due to difficulty empirically measuring family-level factors while taking into account the heterogeneity of family members; however, they maintained that the quality of familial social relationships serves as an enabling factor that can impede or facilitate HSU (Andersen, 1995).

In line with Andersen's model, a systematic review of risk factors for depressive symptoms during pregnancy identified nine studies that addressed the impact of intimate partner support. Lack of partner support showed one of the strongest associations with depressive symptoms in bivariate and multivariate analyses (Lancaster et al., 2010). Similarly, a Norwegian cross-sectional study involving 51,558 pregnant women observed that partner relationship dissatisfaction had the strongest effect on maternal emotional distress among the 36 predictor variables evaluated, and accounted for 6.3% of the total variance (Røsand et al., 2011). Further the authors indicated that partner relationship satisfaction had a protective effect against risk factors for mental illness, such as frequent relocating, family income, irregular working hours, and work stress.

Mothering in Newfoundland and Labrador: Regional Characteristics

NL is one of the least populated provinces in Canada with a population of 510,550 as of 2021 (Statistics Canada, 2023). In comparison to the national population growth rate of 5.2% from 2016 to 2021, NL experienced a 1.8% population decline during this period (Government of Newfoundland and Labrador, 2022). According to Statistics Canada, as of 2021, 68.57% of census families were married couples, 15.67% were common-law couples, and 15.76% were lone-parent families within NL. Among married and common-law couples in NL in 2021, 82.19% had children (Statistics Canada, 2022).

Within the labour force, NL has a high percentage of mobile and interprovincial employment (i.e., IPE). Mobile work is when there is a significant distance between the place where one works and lives, often resulting in absence from the home for an extended period of time (Feldhaus & Schlegel, 2013). IPE is a specific form of mobile work in which an individual works in one province while maintaining residence in another province (Morissette & Qiu, 2015). NL and the Yukon have the highest population percentage of IPEs in Canada, with 9.9% of residents of NL working interprovincially in 2011 (Morissette & Qiu, 2015). Data from Statistics Canada between 2005 and 2014 indicate that the largest number of IPEs within NL came from the Avalon Peninsula, the majority of IPEs were married or living common-law and between the ages of 25 to 39, and in 2014 there was an average ratio of 3.5 males to female IPEs (Hewitt et al., 2018). While the study did not document the percentage of IPEs that were parents, the large volume of mobile workers within NL, of which the majority are male and in relationships, suggest many mothers in NL experience characteristics of lone-parent families while their partners are away, which can impact their maternal experience, mental health and wellbeing, and ability to access services for both themselves and their children. This is in line with documented outcomes associated with having a spouse who is a mobile worker, such as feelings of isolation, reduced social support, increased stress, and relationship strain (Newhook et al., 2011).

Within NL, 53% of the population lives in urban areas while 47% lives in rural areas (Statistics Canada, 2022). Significant differences exist between urban and rural populations within NL, such as in employment and age of the population. A 2016 population analysis found 8% of individuals living outside of the primary metropolitan city, St. John's, were unemployed compared to 4% of individuals living within St. John's. Within employment, a higher percentage of the rural population in NL are employed in the manual labor force, compared to more academic and tertiary industry jobs found in urban areas (Harris Centre Memorial University, 2016). In examining the population by age, it was observed that 34% of individuals living in areas outside of St. John's were over 60-year-old and 19% were age 20-39, whereas only 22% of those within the urban center were 60-years-old and 30% were age 20-39 (Harris Centre Memorial University, 2016).

Regional differences within NL also exist in access to healthcare, access to parenting information, and attitudes towards mental health. Mathews and Edwards (2004) examined rural-urban differences in adult Newfoundlanders who did not have regular doctors and observed that while only 15% of Newfoundlanders did not have a regular doctor, 74% of those without a doctor were living in a rural area. They also observed significant rural-urban differences in the characteristics of people without regular doctors. Specifically, rural residents without a regular doctor were typically female, older, and reported poorer health, while urban and semi-urban residents without a doctor were typically male, well-off financially, and healthy. A more recent survey observed that the percentage of NL residents without a regular doctor has increased to 19% as of 2021 (NLMA, 2021). Consistent with previous research, the survey identified that the number of residents without a regular doctor is higher in rural areas of NL and in individuals with lower incomes (NLMA, 2021). Some literature also suggests that there are rural-urban differences in agreement with healthcare professionals regarding treatment and stigma associated with mental illness in Canada (Caxaj et al., 2016; Jones et al., 2011). A study examining differences between rural and urban populations in treatment agreement and stigma against depression in Alberta found that urban respondents were more likely to agree with healthcare providers about depression treatment and had lower stigma against depression than rural participants (Jones et al., 2011). Consistent with these observations, a 2013 study examining women's decision to formula feed their infants within NL observed that relatives such as grandmothers were heavily involved in the decision process for mothers living in rural areas while the decision of mothers living in urban centers were significantly shaped by information received from healthcare providers (Bonia et al., 2013). When examining mothers' psychosocial wellbeing and utilization of services within NL, it is important to consider regional variability of information and health attitudes and the different challenges mothers may face based on their geographical location.

Use of Self-report Measures to Examine Healthcare Utilization and Unmet Needs

Methods for measuring healthcare demand, use of services, and unmet needs fall into two categories: 1) direct patient-based measurement approach (e.g., interview instruments, self-report questionnaires, diaries); and 2) indirect record-based approach (e.g., registers, electronic, medical records, hospital records, case notes, national epidemiological surveys) (Ngwakongnwi, 2017; Woolderink, et al., 2015). The decision regarding which approach to use is typically informed by a consideration of the strengths and weaknesses within the context of the research question and available resources. Studies examining unmet healthcare needs typically utilize patient self-report surveys as there is limited clinician or service-based data on this topic, and because individuals may be the best assessors of their own needs (Allan & Ammi, 2021; Sibley &

Glazier, 2009). Moreover, patient-based approaches are more commonly used than record-based approaches in research examining use of services as well. For example, a review of the methodology implemented in studies within the UK Health Technology Assessment program observed that instruments relying on patient recall were used more frequently than instruments relying on healthcare providers and study researchers (Ridyard & Hughes, 2010).

Retrospective self-report interviews and questionnaires are commonly used to collect data on use of multiple health and social services due to the arduous nature of collecting data prospectively or accessing and analyzing medical records from different agencies (Patel et al., 2005). Woolderink and colleagues (2015) interviewed 29 experts in the field of HSU research on the best approach to service use measurement of child mental health and reported that most participants endorsed direct data collection from patients as the preferred methodology. Participants reported that the direct approach provided the strongest level of evidence, was the most comprehensive in nature as it allowed for data collection on range of services and topics, and was the most practical method. Challenges of indirect approaches that contributed to this conclusion included: 1) ethical considerations making it difficult to access records (e.g., informed consent and privacy issues); 2) issues with completeness and validity of data; 3) systematically missing data; 4) impracticalities of collecting data from multiple sites (e.g., GP, hospital, community mental health); and 5) differences in how and what data are recorded across services. However, participants noted advantages of the indirect approach, including: 1) unaffected by social desirability on responses; 2) reliability when database is completed well; 3) data is already collected; and 4) reduced patient burden. Additionally, concerns with the direct approach included recall bias (e.g., time, frequencies, and type of services), decision to use a proxy respondent for youth, variability in the method of delivery (e.g., internet delivered vs in-person), and variability in the reliability and validity of self-report instruments. The authors identified that these issues could be addressed with the use of semi-structured interviews, questionnaire design, and short recall periods. Finally, experts discussed overarching issues in service utilization research, which were categorized into five themes: (1) absence of a gold standard for measuring service use; (2) constraints on study design and methodological approach due to lack of time and resources; (3) gaps between theory and practice; (4) undetermined scope of services to include in studies; and (5) lack of typology for services.

Research on the concordance between self-report recall data and service records suggest high agreement for contacts with GPs and emergency room visits (Byford et al., 2007; Patel et al., 2005). Further, Byford and colleagues (2007) reported that patient self-reports provide a better estimate of individuals' use of other healthcare services (e.g., community mental health, specialists, and inpatient psychiatry) compared to GP records, which tend to underestimate service use. Another benefit of self-report methodology is that it allows for collection of additional variables that impact service use, such as perceived health status, service need, and satisfaction with services (Ngwakongnwi, 2017). Taken together, the literature suggests that self-report surveys provide a reliable and valid method for examining HSU.

This Dissertation

The present study is an explorative provincial cross-sectional survey study with two main research objectives. First, to create a portrait of mothers' experience of health, wellbeing, and need for healthcare service for themselves and their children. Factors such as self-perceived health status, health behaviours (e.g., sleep, exercise), experience of adverse events, social support, mental health, need for and access to services, and demographic characteristics will be examined. The second objective is to create a comprehensive predictive model of mothers' utilization of healthcare services for themselves and their children based on Andersen’s (1995) theoretical framework for HSU. Access to healthcare, defined in this study as HSU, is a critical determinant of individual and population health outcomes and understanding HSU is important for planning of resource allocation in the community. Consistent with Andersen’s theoretical framework, contextual and individual environment factors, population characteristics (i.e., predisposing, enabling resources, need) and health behaviours are expected to influence mother’s use of healthcare services for themselves and their children.

Methods

Ethics Approval

Ethics approval for the data collection and recruitment was obtained within the context of another project conducted within the Family Resilience Laboratory at Memorial University of Newfoundland. Ethics approval for secondary use of the data set for this project was obtained from the Interdisciplinary Committee on Ethics in Human Research (ICEHR: 20190723).

Participants

A sample of 1,450 mothers who live in NL took part in the study, and 1,082 completed at least 90% of the questionnaire. Participants provided electronic consent prior to completing the questionnaire. Mothers were included in the study if they lived in NL, consented to participate, and filled out an online questionnaire about their maternal experience. Mothers included in the study could be of any marital status, sexual orientation, gender orientation, age, and have biological, step and/or adopted children. Mothers could have children of any age, however the study primarily focused on mothers with children under the age of 18 years, as many of the survey questions were more applicable for mothers with children who lived in the family home. Mothers from urban and rural areas across NL, and mothers with biological, adopted and step-children were recruited to obtain a diverse and representative sample. The survey was launched on February 1, 2017 and was closed on October 5, 2017 following a two-week period with no new participants. The sample size recruitment goal for this study was determined based on the sample size achieved in a national survey on motherhood (Gosselin & Gosselin, 2016).

Design and Procedure

This study was a cross-sectional quantitative survey design with participants recruited using a non-probability convenience sample. Participants were recruited through advertisement on social media, radio interviews and posters, and information packages placed in day-care centers, community centers and healthcare centers in locations across NL. Targeted recruitment efforts were made to over-sample under-represented groups (e.g., adoptive mothers and mothers living in Labrador) to ensure the sample was inclusive of diverse family structures and mothers across the province. Recruitment posts were shared on personal Facebook pages and in 35 different Facebook groups by members of the Memorial University Family Resilience Lab. On Facebook, recruitment posts were primarily shared in NL "buy and sell groups" within communities across the province to target a variety of individuals and minimize recruitment biases associated with posting in Facebook groups specifically for mothers. Recruitment materials emphasized that mothers of any age, relationship status, sexual orientation, and type of children were eligible to participate in order to recruit a diverse and representative sample. Ninety day-care centers, community centers and healthcare centers in locations across NL were contacted via phone, and asked to display posters advertising the study. Information packages about the study and posters were mailed out to these centers and follow-up phone calls were made. Additionally, the study was advertised on the provincial news radio station's (VOCM) website, radio interviews about the study aired on three local stations in May 2017 (CBC

Gander, CBC Labrador, and CBC Corner Brook), and local newspapers featured an article about the study in June 2017.

Participants were asked to complete an online survey housed on Qualtrics entitled ‘Newfoundland Survey on Parenthood’. Consent was obtained electronically and individualized survey links remained active for seven days. While no one availed of it, participants were given the option to complete the survey over the phone with a lab member who would enter the responses into Qualtrics. The survey contained characteristics that increased face validity and made it easy for participants to use in an attempt to reduce attrition, including a complex skip logic, progress bar, clear language, large text, and the official Memorial University logo.

This survey was modeled after a previous survey titled ‘Canadian Survey on Parenthood’ and was adapted to suit the study of NL mothers. The survey consisted of 68 multi-item questions and scales regarding maternal and family experience, including validated self-report measures and questions regarding maternal and child demographic variables. The survey used skip-logic, such that only relevant questions pertaining to the participant’s specific marital and maternal situation appeared (e.g., mothers with no adopted children did not receive items pertaining to adopted children). Mothers were asked to complete child-parent scales once for each type of child (i.e., biological, step, and adopted) that applied to their parenting situation. Mothers completed the child scales based on their experience with the child who had the next birthday (e.g., a mother with a biological and adopted child completed the scales twice, being prompted each time to respond according to their experience with the biological child who has the next birthday and adopted child who has the next birthday). This method was chosen to reduce completion time, maximize participation, and randomize the response while still getting an accurate depiction of parent-child relationships. Participants were exposed to a minimum of

100 items and a maximum of 205. Participants with no children under the age of 18 and no partner were exposed to less questions than participants with biological, step, and adopted children and multiple partners. On average, the survey took 20-30 minutes to complete.

Measures

Demographics. Demographic questions related to maternal, child, and family experiences were included in the study to develop an understanding of the individual characteristics of participants and allow for control of extraneous variables. Specifically, 23 socio-demographic questions regarding maternal age, income, education, occupation, geographic location, and the family structure were included. There were 11 socio-demographics questions regarding maternal, family, and child physical health, mental health, family and community social support (e.g., "*How often do you see, talk to, or email the following people?*" and "*In general, how satisfied are you with the social support you are receiving?*"), the experience of adverse events during the previous year (e.g., *"In the last 12 months, have any of the following happened to you or your current partner?"*), and satisfaction with healthcare services (e.g., *"overall how satisfied are you with the availability of family health services in your community?"*). Lastly, there were 21 socio-demographic questions related to type of children in the family (i.e., biological, step, adopted), custody arrangement, parenting situation, and child specific questions. Skip-logic was used, such that mothers were only asked demographic questions that pertained to their particular circumstances. These questions were modeled after a Canadian survey examining maternal experiences in stepfamilies, entitled 'Canadian Survey on Parenthood' (Gosselin & Gosselin, 2016) and from an Australian longitudinal study, entitled 'Growing Up in Australia', which examined the nature and impacts of early family composition, relationships, and dynamics on the adult outcome domains (Australian Institute of Family Studies, 2016).

Service Utilization and Need. To measure service utilization and need for adults and children in the previous 12 months, participants were asked to select from a list the adult and child services accessed in the past 12 months as well as the services needed but perceived to be unavailable in the past 12 months. Specifically, for adult services, participants were asked "*In the last 12 months has anyone in your family used any of these services?"* and *"In the last 12 months have there been any of the services listed that anyone in the family has needed but could not get?"*. Services listed included *"Parenting education courses or programs", "Relationship Counselling", "Drug or alcohol services"* and *"Adult mental health services".* To examine child services, participants were asked *"In the last 12 months have you used any of these services for your child?"* and *"In the last 12 months have there been any of the following services listed that the child needed but could not get?"*. Services listed included *"Hospital emergency ward"*, *"General practitioner/family doctor"*, *"Speech therapy"*, and *"Other psychiatric or behavioural specialists".*

Outcome Questionnaire - 45. The Outcome Questionnaire (OQ-45; Lambert et al., 1996) was used to measure three main areas of mental health: subjective discomfort, interpersonal relationships, and social functioning. The symptom distress scale consists of 25 items (e.g., "*I feel no interest in things*") assessing symptoms characteristic of mental health disorders (e.g., depressive and anxiety symptoms). The interpersonal relationships scale consists of 11 items (e.g., "*I am concerned about family troubles*") assessing difficulties with family, friend, and marital relationships. The social functioning scale consists of 9 items (e.g., "*I find my work/school satisfying*") assessing problems in employment, education, and leisure activities. Within each subscale, 3 items assess for the presence of positive mental states (e.g., "*I feel loved and wanted*"). All 45 items are rated on a five-point scale, with response options ranging from never (1) to almost always (5). Negatively keyed items were reverse scored, and a total score was computed by summing the item responses. Total scores on the subjective discomfort scale range from 0 – 100, with higher scores indicating more symptoms and scores 36 and above indicating symptoms of clinical significance. Total scores on the interpersonal relationships scale range from 0 – 44, with higher scores indicating more difficulties in relationships and scores 15 and above indicating clinically significant difficulties. Total scores on the social functioning scale range from 0 – 36, with higher scores indicating greater impairment in social roles and scores 12 and above indicating clinically significant impairment. Possible total scores on the OQ-45 range from 0 – 180, with higher scores indicating higher levels of distress and scores 63 and above indicating clinically significant distress (Lambert et al., 1996). Possible total scores on the scale has been validated in clinical, community, and undergraduate samples and has high reliability and construct validity (Lambert et al., 1996). The OQ-45 has an internal consistency of .93 (Lambert et al., 2010). In this study the scale had strong internal reliability with a Cronbach's alpha of .94.

Parental Sense of Competence Scale. The Parental Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978) was used to measure two dimensions of parental self-esteem and competence: satisfaction and efficacy. The satisfaction subscale assessed the degree to which a parent felt frustrated, anxious, or motivated in their role as a parent and the efficacy subscale assessed the degree to which the parent felt competent, capable of problem solving, and familiar with parenting duties. The scale consists of 17 items (e.g., "*Being a parent makes me tense and anxious*") rated on a six-point scale, with response options ranging from strongly disagree (1) to strongly agree (6). Negatively keyed items were reverse scored and a total score was computed by summing the item responses. Total scores on the PSOC range from 17 – 102, with higher scores indicating a larger sense of parental self-esteem and competence. The scale has good internal consistency, with a Cronbach's alpha of .79, and is a valid measure compared to other measures of family functioning and control (Ohan et al., 2000). The PSOC scale is the most commonly used measure of parental self-efficacy and has been validated in samples including Australian parents and Canadian mothers (Gilmore, & Cuskelly, 2009; Ohan et al., 2000; Rogers & Matthews, 2004). In this study the total scale had an internal Cronbach's alpha of .53, the efficacy subscale had a Cronbach's alpha of .67, and the satisfaction subscale had a Cronbach's alpha of .78.

Child-Parent Relationship Scale: Short Form. The Child-Parent Relationship Scale (CPRS; Pianta, 1998) was used to measure two dimensions of the relationship between the mother and child: conflict and closeness. The conflict subscale assessed the degree to which a parent felt negativity and hostility in the parent-child relationship and the closeness scale assessed the degree to which a parent felt warmth and affection in the parent-child relationship. The scale consists of 15 items (e.g., *"This child and I always seem to be struggling with each other"*) rated on a six-point scale, with response options ranging from definitely does not apply (1) to definitely applies (6). The conflict subscale consists of eight items and total scores on this scale range from 8 – 48, with higher scores indicating greater perceived conflict in the parent-child relationship. The closeness subscale consists of seven items and total scores on this scale range from 7 – 42, with higher scores indicating a stronger perceived relationship between the parent and child. There are no formal cut-off scores for the conflict and closeness scales and these scales have a low correlation ($r = .16$), indicating that they reliably measure distinct factors of the parent-child relationship. This scale has strong internal consistency, with a Cronbach's alpha of .84 for the parental conflict subscale and a Cronbach's alpha of .69 for the parental closeness subscales (Driscoll & Pianta, 2011). Participants were asked to complete this scale once per each type of child that applied to their parenting situation (i.e., biological, step, and/or adopted). In this study the total scale had an internal Cronbach's alpha of .53, the biological CPRS conflict subscale had a Cronbach's alpha of .91 and the closeness subscale had a Cronbach's alpha of .63.

Quality of Co-Parental Communication Scale. The Quality of Co-Parental Communication Scale (QCPCS; Ahrons, 1981) was used to measure mother's perception of the quality of communication related to child rearing issues with their parenting partners. This scale measures two dimensions of co-parental communication: conflict and support. The conflict subscale assessed the degree to which a parent felt negativity and hostility in communicating with a co-parent and the support scale assessed the degree to which a parent felt there was parental alignment and positive communication with the co-parent on child rearing issues. The scale consists of 10 items (e.g., *"When you and your co-parent discuss parenting issues, how often does an argument result?"*) rated on a five-point scale, with response options ranging from never (1) to always (5). The conflict subscale consists of four items and total scores on this scale range from 4 – 20, with higher scores indicating greater perceived disagreement between co-parents. The support subscale consists of six items and total scores on this scale range from 6 – 30, with higher scores indicating greater perceived support and agreement between co-parents. The scale has good internal consistency, with a Cronbach's alpha of .88 for parents and .84 for stepparents, and has high inter-rater reliability between co-parents (Schrodt & Braithwaite, 2011). In the present study, the Cronbach's alpha was .45 for the total scale, .83 for the conflict subscale, and .84 for the conflict scale. Participants were asked to complete this scale once for each co-parenting situation (i.e., current partner and/or former partner).

Kansas Family Life Satisfaction Scale. Maternal family life satisfaction was measured using the Kansas Family Life Satisfaction Scale (Schumm et al., 1986). This scale consists of four items assessing satisfaction within family life. For the purpose of this study, only the three items of the scale pertaining to maternal experience were included. The three items (e.g., "*How satisfied are you with your partner*") were rated on a 7-point scale, with response options ranging from extremely dissatisfied (1) to extremely satisfied (7). The scale has adequate internal consistency, reliability, and validity (Schumm et al., 1986). In the present study, the total scale had a Cronbach's alpha of .61.

Data Cleaning and Handling of Missing Data

A total of 1,450 mothers started the questionnaire and their responses were exported to SPSS and examined for missing data. Casewise deletion was used to omit participants with significant missing data from the primary database, defined as cases where less than 50% of the survey was completed. Given the sample size of the primary database, this strategy ensured unbiased estimates and conservative results (Donner, 1982; Kang, 2013). Visual inspection of missing data from the primary database showed that participants with more than 50% of missing data did not complete the survey and missing data was due to attrition rather than skipping questions throughout the survey. Additional cases were deleted by the primary investigator when there was missing data for more than 10% of demographic items (e.g., "*Of all the children in your care who are under age 18, please indicate all categories of children that apply to your parental situation*") due to the relevance of demographic data for statistical analyses and the large sample size. The final dataset used for all data analyses consisted of a total of 1,082 mothers who completed at least 90% of the survey.

Patterns of missing data were evaluated in the final dataset. Items not shown to participants due to skip-logic were coded as “not applicable” and represented numerically with “888”. Items shown to participants and left blank were coded as “missing” and represented numerically by “999”. Little’s test of Missing Completely at Random (MCAR) was non-significant, indicating data among the 1,082 participants included in the final sample were missing completely at random, $x^2 = 999.784$, DF = 2264, $p = 1.00$. Missing data were imputed using expectation maximization within the missing values analysis package in SPSS. See Table 2 for frequency of missing data per item. In this sample, the number of mothers who reported having step-children, adopted children, a combination of biological, adopted, and step-children, and children above the age of 18 were grouped together due to the small number of mothers who endorsed each of these family structures (see Table 3). Additionally, only co-parental communication (QCPCS) with current partners and child-parent relationship (CPRS) with biological children were included in all statistical analyses due to lack of power for other types of relationships (e.g., QCPCS with former partner).

Statistical Analysis

Statistical analyses were conducted using IBM SPSS version 27 (Armonk, NY: IBM Corp). The cleaned database was screened for accuracy, outliers, and normal distribution of variables. Non-normally distributed variables were log-transformed to create a new normalized variable to be used for statistical testing. Descriptive statistics were performed to characterize the sample. Frequency and counts were used to summarize discrete variables. Means and standard deviations were calculated to summarize continuous variables.

Representativeness of the Current Sample to Mothers Across NL

Bivariate analyses were completed to compare the current sample of NL mothers to the Canadian census data available through Statistics Canada to assess for representativeness and generalizability of the motherhood survey. Data on the mean age of mothers in NL was available from the 2013 Canadian Census and data from the 2016 Canadian Census on the marital status of women in NL and median household income was available (Statistics Canada, 2017a, 2017b).

Predicting Mothers' Utilization of Services for Themselves and Their children

Andersen's theoretical framework delineates multiple dimensions of access to care, including initiated and continued access. Consistent with this characterization of access, previous literature has shown different factors impact adults initial use of healthcare compared to their continuous use of healthcare services once they have accessed the healthcare system (Curtis & MacMinn, 2008). As such, separate statistical models were performed to evaluate predictors of service initiation and continuous service use. Specifically, stepwise binomial logistic regressions and binomial linear regressions were completed to build predictive models for initiation and continuous use of services, respectively. Variables supported by the literature to be potentially related to health service utilization for adults and children were included in the multivariate analyses.

Predicting Mothers' Adult Service Initiation

To determine the unique contribution of environment factors, population characteristics (i.e., predisposing characteristics, enabling resources, need), and health behaviours in predicting the likelihood of mothers accessing at least one adult health service in NL in the previous 12 months, a stepwise binomial logistic regression was performed. The criterion variable was access to adult services coded in a binary manner (0 = none, 1 = at least one). Variables included in STEP1 were forced entered into the regression to statistically adjust for these variables as covariates. Variables included in subsequent blocks were entered using a forward stepwise approach.

Based on Andersen's theoretical framework for understanding access to services, the following blocks were chosen for the regression: 1) Environment and predisposing characteristics as measured by population centre, geographical location (i.e., urban or rural), maternal age, maternal education attainment, maternal occupation status (i.e., working or not working), household income, marital status, type of child (i.e., only biological or other), and availability of adult services operationalized as a perceived need for adult services that were unable to be accessed in the previous 12 months; 2) enabling resources as measured by satisfaction with social support, frequency of contact with social support, mobile relationships, KFLS total score, biological CPRS-closeness, biological CPRS-conflict, current partner QCPCS-support, current partner QCPCS-conflict, PSCS-satisfaction, PSCS-efficacy, and satisfaction with availability of adult services; 3) need characteristics as measured by self-reported mental health diagnosis, child's perceived overall health status, mother's perceived overall health status, and OQ total score; and 4) health behaviours as measured by total child services accessed in the previous 12 months, weekly produce consumption, weekly exercise frequency, and sleep quality. Prior to conducting the analysis, assumptions were checked to ensure the data met the criteria for the analysis. Non-normally distributed variables were log-transformed to create a new normalized variable to be used for statistical testing. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1, or significant outliers.

Predicting Mothers' Child Service Initiation

A stepwise binomial logistic regression was also performed to determine the unique contribution of environment factors, population characteristics (i.e., predisposing characteristics, enabling resources, need), and health behaviours in predicting the likelihood of mothers accessing at least one child health service in NL in the previous 12 months. This stepwise binomial logistic regression model was a replicate of the model used to predict access to at least one adult service with two exceptions:1) the criterion variable was access to child services coded in a binary manner (0 = none, 1 = any); 2) the variable measuring total child services accessed in the previous 12 months was not included in STEP4; and 3) no variable measuring availability of adult or child services in the previous 12 months was included in STEP1. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1, or significant outliers.

Predicting Mothers' Continuous Utilization of Adult Services

To determine the unique contribution of environment factors, population characteristics, and health behaviours in predicting the likelihood of mothers continued use of a range of services for themselves in NL in the previous 12 months, a linear regression was performed. In this analysis only mothers who had accessed at least one service in the previous 12 months were included to better understand the likelihood of mothers accessing a range of services once they initiated access to the healthcare system within the previous 12-months. Variables included in STEP1 were forced entered into the regression to statistically adjust for the variables as co-variates. Variables included in subsequent blocks were entered using a forward stepwise approach.

This linear regression model was a replicate of the logistic regression model used to predict initiation of adult services with one exception: 1) the outcome variable access to adult services was coded in a continuous manner. All other aspects of this analysis remained the same to the logistic regression performed to assess the likelihood of mothers accessing at least one adult service in NL in the previous 12 months. Linearity was assessed by partial regression plots.

There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.916 for adult services accessed. Homoscedasticity was assessed by unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1.

Predicting Mothers' Continuous Utilization of Child Services

A linear regression was also performed to determine the unique contribution of environment factors, population characteristics, and health behaviours in predicting the likelihood of mothers continued use of a range of services for their children in NL in the previous 12 months. This linear regression model was a replicate of the logistic regression model used to predict initiation of child services with one exception: 1) the outcome variable was access to child services coded in a continuous manner. All other aspects of this analysis remained the same to the logistic regression performed to assess the likelihood of mothers accessing at least one child service in NL in the previous 12 months. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.718 for child services accessed. Homoscedasticity was assessed by unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1.

Results

Demographic Characteristics

The age of mothers in the present study ranged from 18 to 55+, with a mean age of 34.66 (SD = 8.06). The majority of participants were under the age of 40 (75%), Caucasian (95.2%), heterosexual (94.9%), married for the first time (63.7%), and had only biological children (88.2%). The median household income interval reported was between $75, 000 and $89, 999 CAD and the majority of mothers reported being currently employed (68.2%). Of the mothers currently working, 43.3% reported employment as a professional and 35.8% as an office employee. Almost half (40.9%) of the sample identified being in a mobile relationship. The majority of mothers were living in the Avalon region (63.2%), while 15.1% lived in Central NL, 14.3% in Western NL, 4.1% in Southern NL, and 3.3% in Labrador at the time of survey completion. Just over one third (37.6%) of mothers were living in the provincial capital region (i.e., St. John's and surrounding metropolitan area). This geographical spread of participants closely resembles the actual population dispersion on the island, with Statistics Canada reporting that in 2016, 57.8% of the population resided in an urban area and just under 40% of the province's population lived in the St. John's Census Metropolitan Area. See Table 2 for more information on socio-demographic information.

Representativeness of the Current Sample to Mothers Across NL

To assess for representativeness and generalizability of the Motherhood survey, descriptive and univariate comparisons between the current sample and Canada census data were made. A direct comparison between ethnicity characteristics reported in the 2016 Canada census data and the present survey is not possible due to the census data allowing for individuals to provide multiple responses on ethnicity whereas the Motherhood survey allowed for a single response, however descriptively the order of frequency can be compared. On the 2016 Canadian Census, the majority of women in NL reported having Caucasian (North America or European) origins, followed by Native North American and Asian as the next most frequent which is consistent with the order of frequency found on the NL motherhood survey in which the majority of women endorsed Caucasian origins (95.2%) followed by Native American (2.7%), Asian (.3%), and other origins (1.9%). The average age of mothers in NL who completed the 2013 Canadian census was 28.90 years. A one sample t-test, $t(1081) = 27.584$, $p < .001$, $d = .839$ indicated that the average age of mothers in the Motherhood survey (M = 35.66, SD = 8.059) was significantly older than the average age of mothers in the Canadian census by a mean of 6.76 years.

A chi-square goodness of fit test was used to determine whether the participants of the Motherhood survey had the same proportion of married, cohabitating, single never married, separated or divorced, and widowed women as reported in the 2016 census data of women in NL. The chi-square goodness of fit test indicated that the participants in the Motherhood survey had a different distribution of marital status compared to the NL census data, χ^2 (4, $N = 1082$) = 381.582, $p < .001$. The Motherhood survey had a significantly higher proportion of married (63.7%) and cohabiting (17.7%) mothers and a significantly lower proportion of single, never married (7.5%), separated or divorced (5.5%), and widowed (.5%) mothers compared to the 2016 census data, in which 50.25% of women were married, 10.15% were cohabiting, 21.83% were single, never married, 7.62% were divorced, and 10.15% were widowed. Lastly, the 2016 Canadian census reported the median household income in NL was 83, 589 (Statistics Canada, 2017b), which is within the same range as the median household income identified in the present study (75, 000 and 89, 999).

Family Structure

The majority of participants reported having only biological children (88.2%), while 4.7% reported both biological and stepchildren, 1.2% only adopted children, 0.4% both biological and adopted children, and 0.3% only stepchildren. Regarding marital status, the majority (81.4%) of mothers reported being married for the first time (63.7%) or cohabitating with their partner (17.7%). A small percentage (5.5%) of the sample reported being separated or divorced, with 1.8% of women remarried after divorce, and 3.0% of women cohabitating after divorce. An additional 7.5% of the sample reported being single, never married. In regard to sexual orientation, 0.6% of women identified as homosexual, 3.8% bisexual, 0.1% asexual and 0.6% belonging to another sexual group other than heterosexual. See Table 3 for more information on family structure variables.

Health and Wellbeing Indicators

The majority (89.8%) of mothers described their overall health as good (28.3%), very good (44.9%), or excellent (16.6%), while 9% described their health as fair and 1.2% as poor. Additionally, the majority (94.2%) of mothers described their child's health as good (8.5%), very good (29%) or excellent (56.7%), while 4% endorsed fair, and 0.9% endorsed poor. Regarding sleep quality over the past month, 27.9% described their sleep as very bad or fairly bad, 36.8% as okay, and 35.3% as very good or fairly good. The majority of respondents (76.2%) reported incorporating fresh fruits and vegetables into their diets more than three times per week. Participants reported engaging in 30 minutes of moderate to vigorous exercise 3.57 days per week on average, with 22% of the sample reporting exercise less than once per week, 26.6% reporting one or two days per week, 33.6% reporting three or four days per week, 13.4% reporting five or six days per week, and 4.3% reporting exercising 7 days per week. The majority (83.2%) of mothers endorsed feeling either moderately (27%), somewhat (32.4%), or completely (23.8%) satisfied with their perceived level of social support. Additionally, social support had a significant negative correlation ($r = -.388$, $p < .001$) with wellbeing (OQ-45), indicating that those with a higher social support satisfaction reported less overall distress as measured by the OQ-45.

Participants were asked about their experience of significant or adverse events in the past 12 months within health (e.g., *"You or your partner suffered a serious illness, injury, or assault")*, interpersonal (e.g., *"Started living with a new partner"*), occupational (e.g., *Increased* *work hours")*, financial (e.g., *"Had a major financial crisis"*), and legal (e.g., *"Had problems with the police or court appearance"*) domains. When asked about health and interpersonal events, 28.2% of the sample reported pregnancy or giving birth and 19.9% reported that they, their partner, or a close relative experienced a serious illness, injury, or assault. Additionally, 29.7% experienced the death of a parent, partner, child, or close relative or friend, and 4.7% reported living with someone with an alcohol or drug issue. When asked about employment and finances, 14.5% described feeling they would soon lose their job, 10.9% reported losing their job, 15.5% reported unsuccessfully seeking employment for at least one month, and 18.6% reported experiencing a major financial crisis. See Table 4 for more information on health and wellbeing related variables.

Mental Health

One third (32.1%) of the sample self-reported a previous mental health diagnosis, which included comorbid anxiety disorders and depression (33.9%), depression (25.8%), anxiety (23.5%), and other (16.8%). See Table 7 for more information on self-reports of mental health diagnosis. The mean score on the OQ-45 was 54.46, with 30.2% of mothers obtaining a score above the clinical cut-off (total score of 63) for psychological distress. On the subscales of the OQ-45, 31.1% of the sample scored above the clinical cut off for symptom distress, 33.9% for interpersonal relationships, and 36.6% for social role performance. There was a strong, negative correlation between mother's perception of their personal health and their total OQ-45 scores ($r_s(1080) = -.450$, $p < .001$), suggesting that mothers with a negative perception of their health indicted higher psychological distress on the OQ-45.

Parenting

The mean score for maternal satisfaction on the parenting sense of competence measure was 36.60 and the mean score for efficacy was 36.24. Scores ranging from 36.38 to 41.00 for maternal satisfaction and 21.53 to 30.50 for maternal efficacy have been suggested as normative in a study validating this scale within a Canadian community sample of mothers with children aged 5-12 (Ohan et al., 2000). On a scale assessing mothers' family life satisfaction (KFLS), the mean score was 5.73, indicating low levels of satisfaction with familial relationships within this sample (scores can range from 3 to 21). Consistent with this, on a scale assessing mothers' perceived quality of relationships with their biological children (CPRS), the mean score for child-parent closeness was 16.00, indicating relatively low levels of closeness overall (scores can range from 7 to 42) while the mean score for child-parent conflict was 31.64, indicating high-average levels of conflict overall (scores can range from 8 to 48). On a scale assessing mothers' perceived quality of communication (QCPCS), the mean score for support was 9.01 and the mean score for conflict was 25.32 with current partners while the mean score for support was 11.88 and the mean score for conflict was 19.00 with former partners that mothers were co-parenting with. Taken together, these scores suggest mothers perceived low levels of supportive communication and high levels of conflicting conversation with co-parents, with this pattern appearing more pronounced with current partners. The mean and range scores for the family scales can be found in Table 5.

Service Need and Utilization

When asked about service utilization for their children, mothers most frequently reported accessing their family doctor (84.2%), dental services (56.2%), and the hospital emergency department (45.8%). The services mothers' most frequently reported needing but being unable to access for their children were youth health information from phone or internet services (38.5%), psychiatric or behavioural services (27.3%), and other medical specialists (26.2%). In regard to service utilization for themselves, mothers most frequently reported using parenting information from phone or internet services (18%), counselling (16.1%), and parenting support groups (11.6%). Regarding mental health services, 11.3% of mothers reported accessing adult mental health services, 16.1% of mothers reported accessing other counselling, and 1.5% reported accessing drug and alcohol services. Parenting services accessed included parenting education courses (10.0%) and support groups (11.6%), relationship counselling (4.1%), and other family support services (4.9%). The services mothers' most frequently reported needing but being unable to access were adult mental health services (35.3%), other counselling services (28.7%), and relationship counselling services (21.3%).

When asked about satisfaction with the availability of psychological, counselling, or other mental health services, 37.7% of mothers reported feeling extremely or somewhat dissatisfied, 39.6% reported feeling neutral, and 22.6% reported feeling extremely or somewhat satisfied. Conversely, only 20.2% of mothers reported feeling extremely or somewhat dissatisfied, 6.1% neutral, and 73.8% extremely or somewhat satisfied with the availability of physician services. In regard to other health services, 20.2% reported feeling extremely or somewhat dissatisfied, 37.2% neutral, and 42.6% extremely or somewhat satisfied. See Table 6 for more information on service utilization, needs, and satisfaction with availability variables.

Predicting Mothers' Adult Service Initiation

The results of the binomial logistic regression analysis of mothers' initiation of adult services are reported in Table 8. In this sample, 50.6% (n = 547) of mothers endorsed accessing at least one service in the previous 12-months and 49.4% (n = 534) endorsed accessing none. The first block of the binomial logistic regression contained sociodemographic covariates, was statistically significant X^2 (9) = 87.351, $p < .001$, and explained 10.6% (Nagelkerke R^2) of the variance in maternal access of adult healthcare services in the previous 12 months. In total, 61% of the cases were correctly classified with sensitivity of 54.30%, specificity of 67.7%, positive predictive value of 62.88% and negative predictive value of 59.53%. Four of the nine predisposing factors were statistically significant predictors: maternal age, maternal education attainment, perceived availability of services, and marital status. As mothers' age decreased the likelihood of accessing at least one service increased ($p = .016$) while increasing maternal educational attainment was associated with an increased likelihood ($p < .001$). When services were perceived to be available, there was 3.884 higher odds of mothers accessing at least one service ($p < .001$). While statistically significant in the regression ($p = .03$), a one-way ANOVA follow up test revealed that adult service utilization did not differ across marital status ($p = .22$).

Five of the eleven indicators of enabling resources that were entered in STEP2 were significant predictors ($p < .05$) included in the model, X^2 (14) = 128.542, $p < .001$. The addition of supportive communication with co-parent (QCPCS-Support), conflictual communication with co-parent (QCPCS-Conflict), lack of closeness in the mother-child relationship (CPRS-Closeness), satisfaction with availability of adult services, and decreased family life satisfaction (KFLS) explained an additional 4.7% of unique variance in maternal access of adult healthcare services in the previous 12 months for a total of 15.3% of variance accounted for, and correct classification of 63.30% of cases. Sensitivity was 58.90%, specificity 67.70%, positive predictive value 64.73%, and negative predictive value was 62.02%. Increases in both close and conflictual communication with current partners as measured by the QCPC-support ($p = .018$) and QCPC-conflict ($p < .001$) were associated with increased likelihood of accessing any services. Decreases in closeness within parent-child relationships as measured by the CPRS-closeness ($p <$

.001) and decreases in family life satisfaction as measured by the KFLS (*p* = .026) were associated with increased likelihood of accessing services. Finally, increased satisfaction with availability of services was associated with increased likelihood of accessing services (*p* = .023).

Three of the four indicators of health need that were entered in STEP3 were significant predictors ($p < .05$) included in the model, X^2 (17) = 169.094, $p < .001$. Self-reported mental health diagnosis, child's overall health status, and mothers' mental health symptomatology (OQ total score) explained an additional 4.4% of unique variance in maternal use of adult healthcare services in the previous 12 months for a total of 19.7% of variance accounted for, and correct classification of 66.6% of cases. Sensitivity was 62.60%, specificity 70.50%, positive predictive value 68.17%, and negative predictive value 65.20%. Decreases in mothers' ratings of their children's overall health was associated with increased likelihood of mothers accessing adult services (*p* = .040). Additionally, increases in mental health symptomatology as measured by the OQ were associated with increased likelihood of accessing services (*p* = .028) and mothers who self-reported having a mental health diagnosis had 2.258 higher odds of accessing services than mothers who self-reported not having a mental health diagnosis ($p < .001$).

Total child services accessed in the previous 12 months, weekly produce consumption, weekly exercise frequency, and sleep quality were entered into the final step, and explained 2.8% (Nagelkerke R^2) of unique variance in maternal use of adult healthcare services in the previous 12 months. Specifically, an increase in child service utilization ($p < .001$) and weekly produce consumption (*p* = .034) was associated with increased likelihood of accessing services. The logistic regression model was significant, X^2 (19) = 194.718, $p < .001$, and the final model explained a total of 22.5% of variance in maternal use of adult healthcare services in the previous

12 months with 66.60% of cases correctly classified. Sensitivity was 64.30%, specificity 68.80%, positive predictive value 67.52%, and negative predictive value 65.70%.

Overall, population centre, geographical location (i.e., urban or rural), maternal age, household income, maternal education attainment, maternal occupation status (i.e., working or not working), marital status, type of child (i.e., only biological or other), perceived availability of adult services, communication with current partner, lack of closeness in the mother-child relationship, family life satisfaction, satisfaction with availability of adult services, personal health ratings, ratings of child's health, and accessing services for children accounted for 22.5% of the variance in maternal initiation of adult health services.

Predicting Mothers' Child Service Initiation

The results of the binomial logistic regression analysis of mothers' initiation of services for their children are reported in Table 9. In this sample, 95.7% (n = 1036) of mothers endorsed accessing at least one service for their child in the previous 12 months and 4.3% (n = 46) of mothers did not. The first block of the binomial logistic regression contained sociodemographic covariates, was statistically significant X^2 (8) = 98.023, $p < .001$, and explained 29.4% (Nagelkerke R^2) of the variance in maternal access to child services in the previous 12 months. In total, 96.5% of the cases were correctly classified with sensitivity of 99.80%, specificity of 23.90%, positive predictive value of 96.64% and negative predictive value of 84.62%. Four of the eight environmental and predisposing factors were significant predictors: population centre, geographical location, maternal age, and type of child (refer to Table 9). As the size of the community mothers were living in increased so did the likelihood of accessing child services (p = .027) and mothers living in urban locations had 7.093 higher odds of accessing at least one child service compared to mothers living in rural areas (p = .016). Increase in mother's age was associated with decreased likelihood of accessing at least one child service (*p* < .001). Finally, mothers with only biological children were less likely to access child services than women with other types of children (i.e., step-children, adopted children, combination of biological, adopted, and step-children).

One of the eleven indicators of enabling resources that were entered in STEP2 was included in the model, X^2 (9) = 103.387, $p < .001$. Maternal frequency of contact with social supports (e.g., parents, partner's parents, other family members, friends, and neighbours) explained an additional 1.6% of the unique variance in maternal use of at least one child service in the previous 12 months for a total of 31% of variance accounted for. In total, 96.5% of the cases were correctly classified with sensitivity of 99.70% specificity of 26.10%, positive predictive value of 96.73%, and negative predictive value of 80.00%. Decreases in mothers' frequency of contact with social supports was associated with increased likelihood of mothers accessing at least one child service ($p = .024$).

Two of the four indicators of need characteristics that were entered in STEP3 were included in the model, X^2 (11) = 122.934, $p < .001$. The addition of child's overall health ratings and maternal mental health diagnosis explained an additional 5.5% of the unique variance in maternal use of at least one child service in the previous 12 months for a total of 36.5% of variance accounted for, and correct classification of 96.3% of cases. Sensitivity was 99.40%, specificity 28.30%, positive predictive value 96.82%, and negative predictive value 68.42%. Decreases in mothers' ratings of their children's overall health was associated with increased likelihood of mothers accessing at least one child service ($p = .008$) and mothers who self-reported a mental health diagnosis had 4.698-fold higher odds of accessing at least one service for their children than mothers who did not ($p = .004$).

In the final block one of the four indicators of health behaviours was included in the model and explained an additional 1.6% of the unique variance in maternal access to at least one child service in the previous 12 months. Specifically, as the frequency of maternal weekly exercise decreased, the likelihood of accessing at least one service increased (*p* = .018). The final logistic regression model was statistically significant X^2 (12) = 128.662, *p* < .001, and explained 38.3% of the variance in maternal access of at least one child service in the previous 12 months with 96.3% of cases correctly classified. Sensitivity was 99.40%, specificity 28.30%, positive predictive value 96.82%, and negative predictive value 68.42%.

Overall, population centre, geographical location (i.e., urban or rural), maternal age, household income, maternal education attainment, maternal occupation status (i.e., working or not working), marital status, type of child (i.e., only biological or other), maternal frequency of contact with social support, maternal mental health diagnosis, ratings of child's health, and maternal weekly exercise frequency accounted for 38.3% of the variance in maternal initiation of child health services.

Predicting Mothers Continuous Utilization of Adult Services

The results of the binomial linear regression analysis of mothers' continuous use of a range of adult services are reported in Table 10. Only mothers who reported accessing at least one service (n = 548) were included as the purpose of this analysis was to evaluate quantity of services accessed rather than presence/absence. The first block included covariates and was statistically significant, *F*(9, 536) = 9.466, *p* < .001, accounting for 13.7% of the unique variance in maternal use of adult health services, with a moderate to large effect size (R^2_{adjusted} = .123). Three of the nine environmental and predisposing predictor variables were statistically significant: maternal age, household income, and perceived availability of services. As mothers' age (β = -0.085, p = .05) and household income (β = -.178, p = .002) decreased, their likelihood of accessing a range of services increased, while mothers who felt that additional services were needed reported accessing fewer services than mothers who reported that required services were available (β = .263, p < .001).

In block two only one of the eleven variables entered into the regression was found to be statistically significant and included in the overall model. Specifically, the addition of family life satisfaction as measured by the KFLS was significant, F(1, 535) = 11.378, p = .001, and accounted for an additional 1.8% of the unique variance in maternal continuous use of adult health services with a moderate to large effect size (R^2_{adjusted} = .139). Increases in family life satisfaction was associated with decreases in continuous adult service utilization (β = -.159, p < .001)

Two of the four health need variables entered into the third block of the regression were found to be statistically significant and included in the overall model. Specifically, the addition of mothers' personal health ratings and child health ratings were statistically significant F (2, 533) = 9.199, p < .001, and accounted for an additional 2.8% of the unique variance in maternal continuous use of adult health services with a moderate to large effect size (R^2_{adjusted} = .165). Decreases in mother's overall ratings of their own health (β = -.146, p = .001) and their child's health (β = -.106, p = .014) were associated with an increase in the number of self-reported adult services utilized.

In the final block, of the four health practice variables included in the regression, only total services accessed for children had an independent effect, F(1, 532) = 23.957, p < .001 and accounted for an additional 3.5% of the unique variance in maternal continuous use of adult health services with a moderate to large effect size (R^2_{adjusted} = .199). As service use for children increased, the likelihood of mothers utilizing a range of adult services increased as well (*β* = .206, *p* < .001).

Overall, population centre, geographical location (i.e., urban or rural), maternal age, household income, maternal education attainment, maternal occupation status (i.e., working or not working), marital status, type of child (i.e., only biological or other), perceived availability of adult services, family life satisfaction, personal health ratings, ratings of child's health, and accessing services for children accounted for 21.8% of the variance in maternal use of a range of adult health services.

Predicting Mothers' Continuous Utilization of Child Services

The results of the binomial linear regression analysis of mothers' continuous use of a range of child services are reported in Table 11. Only mothers who reported accessing at least one child service (n = 1,036) were included as the purpose of this analysis was to evaluate quantity of services accessed rather than presence/absence.

The first block included covariates and was not statistically significant, F (8, 1008) = 0.528, *p* = .836. Of the eleven variables included in block two, PSCS-satisfaction, QCPC-support, and KFLS were included in the model, F (3, 1005) = 8.155, *p* < .001, accounting for an additional 2.4% of unique variance in maternal continuous use of child services with a small effect size (R^2_{adjusted} = .017). Increases in mother's sense of parenting satisfaction (PSCS-satisfaction; *β* = -.106, *p* = .001) as well as mother's family life satisfaction (KFLS; *β* = -.081, *p* = .031) were associated with decreases in continuous use of child services, while increases in supportive communication with current partners (QCPC-support) was associated with increases in utilization (*β* = .097, *p* = .004).

Of the four health need variables included in the third block, mothers' ratings of their child's overall health and mothers self-reporting a mental health diagnosis were included in the model, F(2, 1003) = 87.240, $p < .001$, and accounted for an additional 14.4% of unique variance in maternal continuous use of child services with a moderate to large effect size ($R^2_{\text{adjusted}} = .161$). Mothers who reported poorer ratings of their child's health ($\beta = -.362$, $p < .001$), or having a mental health diagnosis ($\beta = .162$, $p < .001$) were more likely to continue using a range of child services.

In the final block, only one of the three health practice variables entered into the regression was found to be statistically significant and included in the overall model. The addition of maternal sleep quality, F (1, 1002) = 8.550, $p = .004$, accounted for an additional 0.7% of the unique variance in maternal continuous use of child services with a moderate to large effect size ($R^2_{\text{adjusted}} = .167$). As maternal sleep quality improved, the likelihood of mothers continued use of a range of child services decreased ($\beta = -.089$, $p = .003$).

Overall, population centre, geographical location (i.e., urban or rural), maternal age, household income, maternal education attainment, maternal occupation status (i.e., working or not working), maternal marital status, type of child (i.e., only biological or other), parenting satisfaction, supportive communication with current partner, family life satisfaction, child's health, mothers having a mental health diagnosis, and maternal sleep quality accounted for 17.9% of the variance in maternal continued use of child services.

Discussion

This was an explorative provincial cross-sectional survey study of maternal HSU among a sample of 1,082 mothers. This sample is the largest known survey of demographic information and service use of mothers in Canada. The survey's specificity to NL allows for better understanding of this geographically and culturally unique group. The demographic profile, including women's overall health, mental health, and service use and need for themselves and their children will be outlined below. Mother's patterns of HSU for themselves and their children will then be summarized within Andersen's Behavioural Health Model which supports a parsimonious understanding of multiple determinants of HSU at an individual and contextual level.

Demographic Profile of Health and Service Need (Research Question 1)

Surveys allowed us to characterize general health and wellbeing, mental health, demographic characteristics, and perceived availability and need for services among mothers in NL.

Health. Physical exercise, sleep quality, and produce consumption were included in this survey because these personal health practices are associated with a range of positive physical and mental health outcomes, such as greater life expectancy, increased life satisfaction, emotion regulation, decreased risk of chronic diseases (e.g., heart disease, stroke), and decreased risk of depression (Francis et al., 2019; Haruna et al., 2013; Prendergast et al., 2016; Wickham et al., 2020). Prior research has also indicated the possibility of a synergistic relationship between these three health behaviours and wellbeing (Prendergast et al., 2016).

In the present study, approximately one third of respondents described their sleep quality as very good or fairly good, indicating that the majority of mothers do not experience high-quality sleep. A recent cross-sectional study on the differential associations between sleep, physical activity, and diet factors observed that sleep quality was the strongest predictor of depressive symptoms and wellbeing among 1,111 young adults (Wickham et al., 2020). The authors noted that sleep quantity and physical activity were the next most significant predictors.

The Canadian 24-Hour Movement Guidelines for Adults (2021) recommends 150 minutes of moderate to vigorous exercise per week for adults aged 18 to 64. Just under one fifth of mothers reported engaging in 30 minutes of moderate to vigorous exercise five or more days per week in this study, which is consistent with findings from the Canadian Health Measures Survey that observed only 16% of Canadian adults met the recommended targets for physical activity in 2016 and 2017 (Statistics Canada, 2019a). Regarding nutrition, the Heart and Stroke Foundation (2013) recommends adult females consume seven to eight servings of fruits and vegetables per day. The majority of mothers (76.2%) in the present study indicated having a diet that incorporated fresh fruits and vegetables more than three times a week. While daily consumption was not assessed in this survey, findings from the 2017 CCHS indicated that just under a third (28.6%) of Canadians consumed fruits and vegetables five times a day, however less than one fifth (18.3%) of respondents in NL consumed fruits and vegetables five times a day (Statistics Canada, 2019b). Fresh produce consumption may be related to financial access, personal preference, or education about healthy diet.

Regarding significant health events, just under one third of the sample reported experiencing pregnancy or giving birth in the past 12-months and approximately one fifth of participants reported that they, their partner, or a close relative experienced a serious illness, injury, or assault in the past 12-months. Despite these stressful events and poor sleep, three out of every five participants described their overall health as excellent or very good and approximately four out of every five mothers described their child’s overall health as excellent or very good. These results suggest that most participants viewed themselves and their children as relatively healthy overall. These results are consistent with the average Canadian’s perception of their health, as the 2016 Canadian Health Report observed that 60% of Canadians rated their overall health as very good or excellent (Public Health Agency of Canada, 2016). Additionally, personal health was significantly correlated with OQ-45 total scores, suggesting a close relationship between physical and mental wellbeing and that mothers with a positive perception of their overall health experienced lower overall distress.

Mental Health and Psychosocial Wellbeing. Mental health disorders are one of the world's leading causes of disability with mental health disorders negatively impacting quality of life, self-esteem, SES, and life expectancy (Fleury et al., 2014; Rahman et al., 2013). Maternal mental health has significant implications for a woman's physical health and on-going wellbeing as well as the health of her family (Alderdice & Newman, 2016; Alhusen et al., 2012; Berryhill et al., 2016; Kahn et al., 2004; Leahy-Warren etal., 2012). One third of the mothers in the sample self-reported a previous mental health diagnosis. Similarly, one third of mothers obtained a score above the clinical cut-off for psychological distress on the OQ-45, indicating they were experiencing clinically significant distress which was impacting their functioning. In comparison, in 2018 approximately one in five Canadians over 12 years of age reported experiencing a mental health challenge, of which just under half (43.8%) reported that their mental health need went unmet (Statistics Canada, 2019d). This suggests that the mental health needs of Canadian mothers living in the community may be higher than the national average and require increased service availability commensurate with the level of need.

The protective effects of social support on mental health and parenting are well documented (Bedaso et al., 2021; Bronfenbrenner, 1986; Schiller et al., 2021; Turner, 1981). Consistent with the literature, there was a significant negative correlation between social support and total scores on the OQ-45 in this sample, indicating that those with higher social support satisfaction reported less overall distress. In this sample the majority of mothers identified having positive social support. The high degree of social support satisfaction observed may, in part, reflect the high sense of community belongingness unique to communities in NL. Compared to other provinces in Canada, a higher percentage of Newfoundlanders endorse a strong sense of belonging to their community and province (Statistics Canada, 2015; Statistics Canada, 2019c). According to the 2017 Vital Signs report, in the urban centres of St. John's and Corner Brook, 87% to 88% of people described their neighbourhood as a place where people help each other and in more rural areas such as Bay Roberts and Grand-Falls-Windsor, 100% of the sample described their neighbourhood this way and a large majority endorsed knowing most of their neighbours (Harris Center Memorial University, 2017). Socio-demographic models of HSU have proposed that perceptions of the social quality of the community and sense of community belongingness impact health beliefs, self-perception of health and wellbeing, and HSU (Andersen, 1995; Kitchen et al., 2012; Suchman, 1964; Suchman, 1966). Andersen's theoretical framework acknowledges the importance of social support through the inclusion of social support as an enabling variable that can facilitate or impede HSU.

Maternal role satisfaction and quality of familial relationships have been identified as factors contributing to maternal mental health (Kohlhoff & Barnett, 2013; Ponomartchouk & Bouchard, 2015; Røsand et al., 2011; Sierau et al., 2013). While the majority of mothers indicated feeling satisfied with their overall social support, measures of family relationships indicated that, on average, mothers felt dissatisfied in their relationships with their children and partner, experienced low levels of closeness and high levels of conflict with their children, and perceived low levels of supportive communication and high levels of conflicting conversation with co-parents. Despite dissatisfaction in the quality of their familial relationships, maternal role satisfaction fell within the same range as the previously reported Canadian community sample while feelings of maternal efficacy was higher than what was reported in the earlier study (Ohan et al., 2000). In line with the dominant ideology of ‘intensive mothering’, it is possible mothers expect their roles to be emotionally absorbing and labor intensive and so poor-quality familial relationships do not significantly impact their maternal role attainment, however, may have contributed to their overall mental health. The global positive social support experienced by the majority of mothers in this sample may also be contributing to mothers’ feelings of satisfaction and efficacy in their role, as social support has been observed to buffer the effects of situational stress and support overall maternal life satisfaction (Bronfenbrenner, 1986; Tietjen & Bradley, 1985; Schiller et al., 2021). It is also important to consider that this sample of mothers may not necessarily be new mothers and may have significant experience in their role as mother, further contributing to their sense of satisfaction and efficacy in their role.

Service Availability. Individuals living in small or geographically isolated communities across Canada typically have lower referral rates to specialists, access to proportionally fewer providers and services, and experience greater barriers to attending healthcare appointments (Caxaj, 2016; Chan & Austin, 2003; Marcin et al., 2016; Pong et al., 2011; Reardon et al., 2017). While 75.5% of mothers in this survey resided in an urban area, only one third of mothers reported living in the provincial capital (i.e., St. John’s and surrounding metropolitan area), which is defined by Statistics Canada as the sole large urban population centre in NL with just under 40% (205, 955) of the province’s population in 2016 (Statistics Canada, 2017b). Geographical location impacts service utilization through the tangible availability of resources. In NL, all tertiary medical services are located in St. John’s as well as the greatest number of public providers for secondary services (e.g., general surgery, obstetrics, psychiatry, ophthalmology, occupational therapy, speech language therapy, audiology) (NLMA, n.d.).

Consistent with the results of the 2017 CCHS indicating that 84.9% of residents in NL had a primary healthcare provider, in the present study, almost three out of four participants reported being satisfied with the availability of physician services (CIHI, 2020). Conversely, just under half of the sample endorsed feeling satisfied with the availability of other health services. According to a report by the Fraser Institute, the median wait time between a referral from a GP to receipt of medical treatment by a specialist in NL in 2019 was 23.4 weeks, which is 120% longer than in 1993, when the median wait time was 10.6 weeks (Barua & Moir, 2019). The same report indicated that, across Canada, the median wait time from referral to specialist treatment in 2019 was 20.9 weeks, with the shortest median wait times occurring for medical oncology (4.4 weeks) and the longest wait time occurring for orthopedic surgery (39.1 weeks) (Barua & Moir, 2019).

In contrast to views on availability of GPs and health services, only one fifth of mothers endorsed feeling satisfied with the availability of mental health services, with the three adult services most frequently reported for unmet needs being mental health, counselling, and relationship counselling services. The unmet needs and dissatisfaction with mental health services observed in this study is consistent with the well-documented mental health service needs in Canada and the even greater gaps in access to care observed in NL. The CCHS reported that 17.8% of Canadians needed help for their mental health in 2018 with only 21% of those individuals reporting that their needs were partially met and 21% reporting their needs were fully unmet (Statistics Canada, 2019d). Further, the need for counselling/therapy was the most likely to be unmet (34.1%). Unreasonable wait times for mental healthcare in NL has been an ongoing issue for over a decade. A 2009 report by the Fraser Institute indicated NL had the longest median wait time for initiation of psychotherapy, pharmacotherapy, cognitive behaviour therapy, and couple/marital therapy after an initial appointment with a psychiatrist, and these wait times exceeded clinically reasonable wait times (Esmail, 2009). In 2019 NL continued to report the longest median wait times across Canada for pharmacotherapy and was also observed to have the longest median wait time for access to a sleep disorders program and assertive community treatment programs following an initial appointment with a psychiatrist (Barua & Moir, 2019). In line with this, NL held the second longest median wait time in the country between a referral from a general practitioner to receipt of treatment for psychiatry with a median wait time of 50.5 weeks which was almost double the national average of 24.4 weeks (Barua & Moir, 2019). The number of people waiting for mental health and addictions counselling services between September 2014 and September 2016 in NL increased by 56%, with approximately 3,000 people throughout the province waiting for counselling at the end of September 2016 (All-Party Committee on Mental Health and Addictions, 2017). Between 2019 to 2020, the median wait time in NL for a community counselling appointment following referral was 48 days, which was 23 days longer than the national median wait time of 25 days (CIHI, 2021).

In 2012-2013, there were 14 psychiatrists, 38 psychologists, 6 occupational therapists, and 70 psychiatric/mental health nurses working in Mental Health and Addiction public sector per 100,000 population in NL (Newfoundland and Labrador Centre for Health Information, 2015). The Canadian Psychiatric Association (CPA) recommends a psychiatrist to population ratio of one psychiatrist per population of 8,400 adults, based on a study done by the Royal College of Physicians and Surgeons of Canada and the Canadian Medical Association in the 1990s (Canadian Psychiatrist Association, n.d.). It would appear that St. John’s has an adequate number of psychiatrists for the adult population based on the CPA recommendations; however, the rest of NL does not meet these standards. According to the Newfoundland and Labrador

Medical Association (NLMA), there were 64 psychiatrists practicing full time in NL in 2010, with only 16 of those psychiatrists practicing outside of St. John's and no full-time practicing psychiatrists in Labrador or on the Northern Peninsula of NL (NLMA, n.d.). Of the 16 psychiatrists practicing outside of St. John's the NLMA reported that six were located in Eastern NL (three in Carbonear, two in Burin, one in Clarenville), six were located in Central NL (four in Grand Falls-Windsor, two in Gander), and four in Western NL (two in Corner Brook, two in Stephenville). Additionally, the CPA recommends a ratio of 1 child psychiatrist for every 3,800 youth while the ratio of youth psychiatrists to population in NL in 2010 was one psychiatrist per 16,000 youth (NLMA, n.d.). In line with this, psychiatric/behavioural services were one of the most frequently reported needed but inaccessible child and youth services in this study.

Summary

It is important to better understand the overall health and wellbeing of mothers and their children, as well as service needs in order to place their utilization of healthcare services into context. The results of this study indicate that most participants experience strong social support in their communities, engage in positive health behaviours (e.g., vegetable consumption, exercise, sleep), and view themselves and their children as relatively healthy overall. In comparison to research across Canada indicating 1 in 5 people experience a mental health challenge, approximately one third of the sample reported experiencing mental health challenges and indicated that mental health services were the most inaccessible. The duration of untreated mental illness is associated with worse outcomes in serious mental illness (e.g., psychosis, bipolar disorder) and common mental illnesses (e.g., depression, anxiety) (Altamura et al., 2013; Clement et al., 2015; Ghio et al., 2014). Additionally, untreated mental illness is associated with overuse of primary care services, loss of wages and workplace productivity, and poorer physical health (Bruce et al., 2012; Henshaw & Freedman-Doan, 2009; Mental Health Commission of Canada, 2016). Previous research suggests that a high percentage of individuals report initially looking to their primary care physician for mental health support (Henshaw & Freedman-Doan, 2009; Urbanoski et al., 2007). Given the prevalence of mental health needs of mothers in the community and dissatisfaction with the availability of mental health services in the community coupled with the higher sense of satisfaction with availability of GPs, healthcare policies directed towards integrating mental healthcare into primary care settings may facilitate improved access to services.

Predicting Mothers' Access to Adult Services (Research Question 2a)

The second objective of this dissertation was to identify predictors of mothers' initial and continued access to social and healthcare services for themselves and their children.

Predictors of Mothers' Adult Service Initiation

Four environmental and predisposing variables (i.e., perceived availability of adult services, maternal age, maternal education attainment, and marital status), five enabling variables (i.e., family life satisfaction, KFLS; closeness within the mother biological-child relationship, CPRS-closeness; quality of co-parental communication with current partner, QCPC-support and QCPC-conflict; and satisfaction with the availability of healthcare services), three need variables (i.e., self-reported mental health diagnosis; maternal mental health, OQ-45 total score; and child's perceived health status), and two health behaviour variables (i.e., weekly produce consumption, total services accessed for children) were significant predictors of maternal initial use of healthcare services in NL.

Environmental and Predisposing Characteristics. Environmental characteristics refer to healthcare system (e.g., resources) and external environment (e.g., societal norms) while predisposing characteristics encompass demographic variables that impact need for and access of services (Blackwell et al., 2009; Fleury et al., 2014).

Consistent with previous research, the likelihood of mothers initiating access to at least one service increased when services were perceived to be available. Availability of services has been defined as the relationship between the volume of resources (e.g., providers, facilities, programs) and the volume of clients (Racher & Vollman, 2002). This variable can occur at a contextual level (e.g., physician-population ratio, wait-times, distance between service and residence) and an individual level (e.g., individual awareness of services available for health need and awareness of how to access service). Previous research has cited lack of tangible service availability as a barrier to healthcare in Canada, especially mental healthcare (CIHI, 2019; Canadian Mental Health Association, 2018; Government of Ontario, 2020; Moroz et al., 2020). Lack of available providers, rising population to provider ratios, long wait times, and geographical challenges in accessing healthcare facilities have contributed to a shortage of available services in Canada (Narayan & Narayan, 2022). In 2006, Canada ranked 26th in the ratio of physicians per capita of 28 developed nations that have universal access to healthcare and this shortage was predicted to worsen over the following decade (Esmail, 2011). The importance of sufficient availability of services is supported by research in Canada that has observed a positive relationship between increases in physicians per capita and population self-reported general health, mental health, and influenza immunization (Esmail, 2011; Narayan & Narayan, 2022; Sarma & Peddigrew, 2008). Further, there is evidence to suggest that lack of awareness of where to access services for a need or how to access needed services are also barriers to HSU (e.g., Fleury et al., 2014; Gulliver et al., 2010; Statistics Canada, 2019d; Urbanoski et al., 2007); however, empirical investigations on the link between perceived service availability and HSU in Canada is limited. For example, in one systematic review on the use and implementation of Andersen's theoretical framework between 1998 to 2011, only one of the 16 studies included examined the relationship between availability of services and HSU (Babitsch et al., 2012). A 2018 systematic review of factors associated with HSU for common mental health disorders observed a lack of published evidence on health system factors, noting only two of the 52 studies included examined the effect of perceived availability or accessibility of services (Roberts et al., 2018). Similarly, in a systematic review of 44 studies of parents' perception of barriers and facilitators to youth mental health treatment, only two of the studies that included perceived availability of services were completed in Canada (Reardon et al., 2017).

Increased education was associated with increased HSU which is consistent with existing literature (Babisch et al., 2012; Blackwell et al., 2009; Curtis & MacMinn, 2008; Glazier et al., 2009; Hajizadeh, 2016; Parslow et al., 2002; van Doorslaer et al., 2006; Wallar et al., 2020; Zajacova & Lawrence, 2018). In a systematic review on the application of Andersen's model, Babisch and colleagues (2012) identified 11 studies that examined the effects of education on HSU, of which six studies indicated education was significantly associated with utilization of HSU. In these six studies, populations and settings examined included young adults accessing general practitioner services, adults of low-income status, immigrants accessing mental health services, adults accessing psychiatric treatment, adults accessing general practitioners and hospitals, and African American men accessing routine care (Andersen et al., 2002; Blackwell et al., 2009; Chen et al., 2008; Dhingra et al., 2010; Hammond et al., 2010; Parslow et al., 2002). The findings of the present study suggest the relationship between education and HSU applies to HSU for mothers living in the community as well. Education has been described as an indicator of SES and it is possible that the positive relationship between education and HSU reflects greater financial resources to overcome barriers to access to care (e.g., transportation, costs of missed work, childcare) (UK Department of Health and Social Care, 2018; Veugelers et al., 2001; Veugelers & Yip, 2003; Yang & Hwang, 2016; Zajacova & Lawrence, 2018). One of the goals of the Canadian Health Act and other publicly funded healthcare systems is to eliminate financial barriers to access and reduce inequity through the delivery of service based on need rather than ability to pay. Research examining the relationship between SES and types of HSU in Canada have observed that higher income and education attainment are associated with a greater likelihood of specialist care while lower income and education attainment are associated with more use of hospital services (Allin 2008; Dunlop et al., 2000; Finkelstein, 2001; Veugelers & Yip, 2003). Previous research has also suggested that education facilitates HSU by positively impacting knowledge and beliefs about health, engagement in positive health behaviours, and knowledge on the healthcare system and how to access it (Cutler & Lleras-Muney, 2010; Glazier et al., 2009; Greenaway et al., 2012; Montez et al., 2019). For example, using large datasets (e.g., National Health Interview Survey, Survey on Smoking, National Childhood Development Study), Cutler and Llera-Munney (2010) observed that individuals with more education engaged in more preventative health behaviours, such as participation in medical screenings (e.g., mammograms) and vaccination programs. Other research has observed that women with more education experience greater feelings of autonomy and self-confidence to make health-related decisions while individuals with less education more frequently hold beliefs about mental health that act as barriers to HSU (e.g., wishing to solve the problem by themselves, belief that emotional problems will go away) (Greenway et al., 2012; Saldivia et al., 2004).

The likelihood of initiating access to at least one service decreased as mother's age increased in the present study. Previous research examining the relationship between age and

HSU is mixed. For example, in Babitsch and colleagues' (2012) systematic review on the use of Andersen's framework in research, 13 of the 15 studies examining the effects of age observed significant associations, however the direction of the associations differed. Observed differences in results on the relationship between age and HSU have been, in part, attributed to the type of service examined (e.g., GP, hospital, specialist) and the intersection of other population characteristics (e.g., gender) (Babitsch et al., 2012; Blackwell et all., 2009; Curtis & MacMinn, 2008). For example, Blackwell and colleagues (2009) observed that in both Canada and the U.S., men aged 65 years and older were more likely to contact a doctor than younger men, whereas women aged 18 to 44 were more likely to contact a doctor than older women. The authors also noted a valley-shaped pattern in women's use of hospital services, with women aged 45 to 64 having lower odds of being hospitalized than women in younger and older age ranges (Blackwell et al., 2009). Similarly, utilizing CCHS data from 2005, Nabalamba and Millar (2007) observed that individuals aged 25-34 had higher odds of HSU with a GP than individuals aged 18 – 24, however this difference was no longer evident when women who were pregnant at the time were removed from the analysis. It is possible that the findings of this study are in part due to the health events endorsed in this study. As previously reported, almost a third of the sample reported experiencing pregnancy or giving birth while only one fifth of participants reported experiencing other health events (e.g., serious illness, injury) in the past 12-months. It is possible the higher likelihood of younger mothers accessing at least one service in this study was in part due to the higher prevalence of childbirth than other medical events. It is also possible that younger age was associated with more positive attitudes towards help-seeking behaviour or more tangible support to facilitate HSU. Previous research utilizing the same database as this study observed that younger maternal age was predictive of higher sense of parental efficacy and hypothesized reasons for this included that younger mothers in NL may be more accepting of help and have more support from older relatives compared to older mothers (Bedford, 2020). In line with this, it is possible that younger mother's attitudes towards help promotes HSU and that tangible support from older relatives removes childcare barriers, allowing them to attend appointments. Research focusing specifically on mothers and the relationship between age and HSU is limited and the bulk of the existing research has been completed outside of Canada or focused on perinatal service use (Ali et al., 2018; Feijen-de Jong, 2011; Tsawe et al., 2015). Future research is needed to evaluate whether HSU among mothers varies by need, attitudes towards healthcare, tangible support received by mothers, and age.

Andersen (1995) posited that inequitable access to services occurs when service utilization occurs predominately on the basis of social structure, health beliefs, and income rather than need. In this study, environmental and predisposing variables accounted for the largest proportion of variance in women's access to at least one service. While the observation that younger women were more likely to access services may reflect service use based on need (e.g., childbirth), mothers who were more educated were more likely to utilize at least one service, which may reflect SES, health beliefs, and attitudes. Similarly, mothers who perceived services to be available were more likely to utilize at least one service, which may reflect knowledge on where and how to access the healthcare system and tangible availability of services rather than a need variable. Taken together, it appears that disparities in access to care remain on-going for mothers in NL.

Enabling Resources. Enabling resources are structural conditions that enable or inhibit use of available health service including personal, familial, and community resources. Among enabling resources examined in this study, low satisfaction with family life, poor quality of relationships with co-parents and children, and satisfaction with the availability of services predicted mothers HSU.

Family units are a social network that can act as a source of support or stress for mothers. In line with this, lower scores on family life satisfaction and parent-child closeness were associated with an increased likelihood of mothers' accessing services in the present study. Studies that have adopted Anderson's model to examine predictors of mental healthcare service utilization in North America have observed that individuals who reported insufficient emotional support and poorer quality of life were more likely to utilize mental healthcare (Dhingra et al., 2010; Fleury et al., 2014). The literature suggests that mother's relationship quality and satisfaction with her partner and child are closely related (Cuijlits et al., 2019; Kinsey et al. 2014; Michałek-Kwiecień et al., 2022; Sierau et al., 2013). For example, quality of partnership in parenting with co-parents has also been observed to influence mothers parenting style more than other sources of support (Ponomartchouk & Bouchard, 2015). Additionally, perceptions of closeness to children have been observed to be associated with perceptions of closeness with partners (Michałek-Kwiecień et al., 2022). Given that mothers exist within a family unit and that the dominant ideology of 'intensive mothering' places family wellbeing as a responsibility of mothers, it is possible that family life satisfaction and perceptions of familial relationships may uniquely impact mothers' quality of life and their self-perceived need for social and health services. This would be consistent with literature suggesting that mothers experience higher levels of parenting stress relative to fathers due to mothers more often being the primary caregiver of their children's wellbeing (Drapeau et al., 2009; Garbarski, 2014; Pinquart, 2018).

In the present study, the likelihood of initiating access to at least one service increased as mother's satisfaction with the availability of services increased. There is some literature to suggest that patient satisfaction with healthcare experience can be an indicator of quality of care (Hilborn et al., 2000; Manary et al., 2013; Naidu, 2009) and higher satisfaction can positively impact treatment compliance, treatment outcomes, and future patterns of help seeking (Lebow, 1983; Sanders et al., 1998; Sitzia & Woods, 1997). A systematic review of 109 articles published between 1980 and 2014 on determinants of patient satisfaction observed nine primary determinants in patient satisfaction, one of which was access, which was defined as accessibility, availability, and financial barriers (Batbaatar et al., 2017). The authors included 27 articles indicating a positive relationship between patient satisfaction and accessibility, which included convenient location of health services, short waiting times, easy admission and discharge process, reduced effort to get to an appointment, and freedom to choose provider or service. Batbaatar and colleagues (2017) also identified 7 articles indicating a positive relationship between patient satisfaction and availability, which included promptness and sufficient number of staff, facilities, and equipment.

Need Characteristics: Need variables reflect the health status of a person that leads to needing services. One of the goals of a universal healthcare system is to provide equitable access to care on the basis of health needs rather than SES (Finkelstein, 2001). In line with this goal, mother's self-reported mental health status as measured by the OQ-45 and self-reported mental health diagnosis predicted mother's initiation of HSU, with increases in mental health symptomatology associated with increased likelihood of accessing services.

The association between psychological distress and initiation of HSU adds to the limited literature base regarding the impact of maternal mental illness on mothers' HSU. While there is some research to suggest that experiencing symptomatology of mental illness (e.g., depression, emotional distress) is associated with accessing healthcare services in Canadian adults (e.g., Blackwell et al., 2009; Fleury et al., 2014; Sibley & Weiner, 2011; Urbanoski et al., 2007), there is a paucity of research examining whether this relationship remains true for Canadian mothers. The current study included women experiencing a broad range of mental health difficulties rather than serious mental illness and women living in the community rather than women recruited from healthcare institutions. It is possible that the potential benefits of seeking care (e.g., being able to fulfill role of motherhood) outweigh the potential costs of seeking care (e.g., being viewed as a 'bad mother') and act to facilitate accessing HSU among mothers with less severe symptoms of mental illness who are able to live in the community.

Existing studies indicate that parents of children with higher health need have increased likelihood of parental divorce (Swaminathan et al., 2006), mothers not working outside the home (Corman et al., 2005), and lower parental social participation (Seltzer et al., 2001). Adding to this literature, the present study observed that the likelihood of initiating access to at least one adult service increased as mothers' ratings of their children's overall health decreased. This observation is consistent with research documenting a direct link between poor child health status and increased parental stress as well as adverse physical and mental health outcomes (Garbarski, 2014; Kuhlthau et al., 2010; Singer, 2006; Vaughan et al., 2013; Witt et al., 2009). In line with intensive mothering, previous literature suggests mothers are most often the primary caregivers of sick children and are most likely to be impacted by their child's health status (Garbarski, 2014; Pinquart, 2018). Despite this observed link, there is a paucity of research specifically examining the relationship between children's health status and mothers HSU for themselves. The current study provides empirical support for the link between child health status and maternal health need and service utilization. In line with family systems theories and ecological models of human development which highlight the embeddedness of individuals within larger social systems (Bronfenbrenner, 1986; Haefner, 2014), these results speak to the interconnectedness of children and mothers' health and the importance of understanding mothers within the context of family variables.

Health Behaviours. Health behaviours refer to the personal health practices an individual engages in (Lederle et al., 2021). Personal health practices such as refraining from smoking, balanced diet, and psychical exercise have been positively associated with engagement in preventative healthcare screening (e.g., mammograms, pap smears), vaccination, and routine dental care (Bancej et al., 2005; Hofer & Katz, 1996; Qi et al., 2006; Roller-Wirnsberger et al., 2021; Vingilis et al., 2007). Consistent with this, personal health practices of produce consumption and utilization of child services were associated with mothers' access to at least one adult service in this study. Of interest, these variables accounted for the least amount of variance in the model. While this observation may be attributed to their location in the model (i.e., last variables to be entered), it is also possible that environment and population characteristics had a stronger impact on mothers' initial access to services.

A unique proxy of health behaviour included in the present study was mothers' utilization of child services. Despite the recognized positive associations between maternal HSU and children's receipt of healthcare (Butz et al., 1993; Kogan et al., 1998; Minkovitz et al., 2002; Wiecha & Gann, 1994), there is a paucity of research on the reverse relationship. Given that the majority of mothers in this study were under 40-years-old and that younger mothers were more likely to access adult services, it is possible that mothers of this study had younger children, which would require increased involvement with paediatric services and therefore an increased opportunity for access to healthcare services for themselves. Obstetric and pediatric service providers interact with mothers approximately 24 times during the two-year perinatal period, providing many opportunities to screen and address health concerns (Griffen et al., 2021). The American Academy of Pediatrics (AAP), the American College of Obstetrics and Gynecologists (ACOG), and the US Preventative Services Task Force (USPTF) recommend that pediatricians screen women for postpartum health concerns due to the high number of required paediatric visits (Bigby et al., 2020; Griffen et al., 2021; Puryear et al., 2019). The implementation of a standardized process for screening and referring mothers for postpartum depression (PPD) within the Texas Children's Hospital integrated healthcare system led to 102,906 women being screened for PPD over a four-year period (Puryear et al., 2019). The Centers for Medicare & Medicaid Services (CMS) Maternal and Infant Health Initiative (MIHI) identified that high quality pediatric care during a child's first 15 months of age can support maternal health through screening and referrals for mental health, behavioural health, and social needs (Bigby et al., 2020). In a position paper released by the Canadian Paediatric Society in 2019 regarding clinicians support for positive parenting, the authors recommended that paediatric clinicians encourage care for parents and refer parents directly to specialist services and supports when appropriate (Williams, R., et al., 2019). The results of this study illuminate the relationship between child service utilization and mothers' access to services and provide empirical support for the recommendations made by the Canadian Paediatric Society.

Predictors of Mothers' Continuous Utilization of Adult Services

Three predisposing variables (i.e., perceived availability of adult services, maternal age, and household income), one enabling variable (i.e., family life satisfaction, KFLS), two need variables (i.e., personal perceived health status and child's perceived health status), and one health behaviour variable (i.e., total services accessed for children) predicted mothers continued use of a range of services in NL. Only six of the fourteen variables observed to be significant predictors of maternal initial use of healthcare services in the previous 12-months were included in the final linear regression model predicting mothers continued use of a range of services. Variables related to initial and continued use of services included perceived availability of adult services, maternal age, family life satisfaction, child's perceived health status, and total services accessed for children. Consistent with the inclusion of a feedback loop in Andersen's (1995) fourth iteration of the Behavioural Health Model, it is possible that these variables remain necessary determinants for on-going use of services. While not associated with initial HSU, poorer SES (as measured by household income) and increased self-perceived need for services were statistically significant predictors of mothers continued HSU in NL.

The likelihood of mothers continued access to services increased when services were perceived to be available and as mothers' age decreased. While maternal education and marital status were no longer significant predisposing variables, the likelihood of accessing a range of services increased as mothers' household income decreased. The impact of household income on continued access but not initial access to services observed in this study is consistent with previous findings regarding the nuanced relationship between SES and healthcare utilization in Canada. Specifically, Curtis and MacMinn's (2008) synthesis of health-care service use patterns in Canada between 1978 and 2003 indicated that individuals with lower SES had a higher average number of visits with a physician once initial contact was made. Further, utilizing data from the 2003 CCHS, Allin (2008) documented a pro-rich bias for specialist care and a pro-poor bias for hospital care (even after adjusting for health status) and observed that NL was among the provinces with the highest rates of this inequity.

Of interest, personal health status was associated with continued HSU, but not initiation of HSU within the previous 12-months, with decreases in mother's personal health status predicting increased service use. The present study's observation that mothers with lower household income and increased self-perceived need for services were more likely to engage in continued HSU may relate to lack of initial access to primary care, which may lead to poorer health status and higher need for services once services are accessed. This hypothesis is consistent with the well documented socioeconomic gradient in health, whereby poorer individuals experience poorer health and demonstrate a greater reliance on emergency hospitalizations (Finkelstein, 2001; Glazier et al., 2009; Hajizadeh et al., 2016; Veugelers & Yip, 2003). Further supporting this explanation, the "Trends in Income-Related Health Inequalities in Canada" report completed by CIHI (2015), documented income related inequalities across multiple health indicators (e.g., diabetes, self-rated mental health, infant mortality), and noted little progress in reducing income-related inequalities in the health of Canadians in the past decade. Similarly, Hajizadeh and colleagues (2016) evaluated data collected in Canada's Longitudinal National Population Health Survey (NPHS) between 1994/95 to 2010/11, and observed that socioeconomic inequalities in health widened, especially in women, despite improvements in Canadian's overall health and increases in per capita health spending over the past four decades.

Consistent with the model of maternal initial use of healthcare services in NL, decreases in family relationship satisfaction and child health status as well as increases in child service utilization were associated with increased use of a range of services. Despite the dominant discourse of intensive mothering and the attention given to the impacts of mothers' wellbeing on the family, relatively little research has been reported in Canada on how family impacts mothers HSU. The significance of these variables in both models speaks to the importance of understanding mothers within the context of their family and the distinctive role of familial relationships and child wellbeing on mothers' health needs and access to services.

Summary

While previous research has illuminated the relationship between psychosocial factors and service utilization in general, there has been a scarcity of research on which of these established factors apply to the population of mothers. The results of this study suggest that environmental, predisposing, enabling, need, and personal health practice factors each independently predict Canadian mothers' initial and continued HSU, supporting Andersen's (1995) proposition that each component of the Behavioural Health Model contributes to predicting service utilization. The different constellation of variables observed to predict mothers initiated and continued access to services is consistent with previous literature demonstrating that, while some common factors impact both aspects of access, other factors uniquely impact these different dimensions of access (Anderson, 1995; Curtis & MacMinn, 2008; Donabedian, 1972). The greater number of variables included in the model predicting mothers' initial entry into services compared to continued access is congruent with the contention of scholars that initial establishment of contact with the healthcare system is impacted by a wider spectrum of factors beyond need as compared to ongoing service utilization (Bradley et al., 2002; Diehr et al., 1999; von Lengerke et al., 2013). Specifically, the observations of this study suggest there are more environmental, social, and individual barriers to initial access. Once mothers have gained access to services, perceived availability of adult services, younger maternal age, decreases in family life satisfaction, and increased use of child services serve as reinforcing factors for HSU while SES and personal health status become relevant determinants in the decision to continue pursuing access to care.

Unique to the population of mothers, family wellbeing is observed to be a significant determinant of both initial and continued access, highlighting the importance of understanding mothers' wellbeing within the broader context of their familial relationships. Further, in line with previous research suggesting that motherhood may motivate help-seeking behaviour, increases in mothers' mental health symptomatology was associated with increased likelihood of initiating HSU and decreases in overall health were associated with continued HSU (Billhult & Segesten, 2003; Dolman et al., 2013; Wilson et al., 2007). The results of this study also suggest that, despite Canada's healthcare system being publicly funded, access to initial and on-going care remains inequitable for mothers, with the most predictive factor of access to care being environmental and predisposing variables rather than need variables. The relevance of maternal education attainment, household income, and perceived availability of services on HSU is consistent with previous observations of the widening socioeconomic inequalities in access to care for women (Allin & Stabile, 2012; Hajizadeh et al., 2016; Walllar & Rosella, 2020).

In conjunction with previous literature, these findings suggest that interventions addressing barriers to mothers' HSU require a multi-pronged approach that targets the healthcare system, family dynamics, and mothers help seeking attitudes and behaviours. Policy initiatives to increase the overall availability of services, especially services that support mental health, as well as financial barriers to HSU for individuals of lower SES would support equitable access. Education initiatives that improve mothers' knowledge of the benefits of preventative and routine healthcare, services available to support need, and the help-seeking process may increase mothers' self-efficacy in identifying health needs and accessing care. The observed interplay between children and mothers' health needs and service use suggests the provision of coordinated care that assesses the quality of mothers' familial relationships and their children's health will also support efficient and effective HSU, and their service need for their children will allow for the development of more targeted approaches to address family needs and provide integrated care.

Predicting Mothers' Access to Child Services (Research Question 2b)

Given the well documented associations between maternal and child health (Alhusen et al., 2012; Connell et al., 2002; Garbarski, 2014; Kahn et al., 2004; Oliver-Parra et al., 2020) and the hegemonic expectations on mothers to take responsibility for attending to the health of their children (Drapeau et al., 2009; Garbarski, 2014; Jackson & Mannix, 2004; Minkovitz et al., 2002; Pinquart, 2018), this dissertation also examined predictors of mothers' initial and continued access to services for their children.

Predictors of Mothers' Child Service Initiation

Four environmental and predisposing variables (i.e., maternal age, population centre, geographical location, type of child), one enabling variable (i.e., maternal frequency of contact with social supports), two need variables (i.e., child's perceived health status and self-reported maternal mental health diagnosis), and one health behaviour variable (i.e., maternal weekly exercise) were significant predictors of mothers' initial use of healthcare services for their children in NL in the previous 12-months.

Environmental and Predisposing Characteristics. While mothers of only biological children were observed to have higher odds of HSU for their children as compared to other types of family units, this was likely an artifact of sample size, given the majority of the sample (88.4%) reported having only biological children. Consistent with models predicting mothers' access to adult services, the likelihood of mothers' HSU for their children increased as their age decreased. The explanation for this is likely multifactorial and includes age of children, mothers' sense of self-efficacy and attitudes towards help seeking, and mother's service use pattern. In line with the explanation posited for mothers' adult HSU, it is possible that the higher likelihood of younger mothers accessing at least one service for their child in this study was in part due to younger mothers having younger children who have a high number of required paediatric visits (Bigby et al., 2020). There is also some research to suggest that younger children have a higher frequency of service utilization compared to older children for non-physician services (Cohen & Hesselbart, 1993; Vingilis et al., 2007; Yu et al., 2001) and for all services in children with developmental disabilities (Williams et al., 2019). It is also possible that younger mothers feel less efficacious in their parenting role compared to older mothers and so turn to professional support when concerned about their children’s wellbeing. In a qualitative study of mothers’ and healthcare providers perspective of barriers and facilitators to neo-natal care in Canada, mothers identified informational support and reassurance seeking from experts as a facilitator of appointment attendance (Ballantyne et al., 2014). Additionally, it has been hypothesized that younger mothers have more positive help-seeking attitudes, which may facilitate HSU (Bedford, 2020). Finally, given that younger mothers were more likely to access adult services, it is possible that adult service utilization facilitates access to child services. For example, Dreyer and colleagues (2018) evaluated the relationship between parental health seeking behaviours for themselves and their children and observed that parental health-seeking behaviours were positively associated with child HSU. The authors suggested a bidirectional and multifactorial explanation for this relationship which included increased parental perception of vulnerability of their child, increased recognition of health need for their child, and parental patterns of behaviour (Dreyer et al., 2018).

In contrast to the models predicting mothers’ access to adult services, the rurality of the community was a predictor of mothers’ initial access to child services in NL, with the likelihood of child HSU increasing as the size of the community increased and for families living in more urban areas. This observation is consistent with previous research demonstrating that rural children have more difficulty accessing healthcare than their urban counterparts and have higher unmet needs for medical, dental, and mental health (Buss et al., 2022; Hutten-Czapski, 2001; Martin et al., 2012; Skinner & Slifkin, 2007; Zayed et al., 2016). The impact of rurality on access to healthcare is especially important to understand within NL given 47% of the population lives outside the census metropolitan area (CMA) and census agglomeration (CA) area (Statistics Canada, 2017b). Documented system-related barriers to accessing child health services for those living outside of urban centres include shortage of providers, wait times, lack of coordination of clinical services, insufficient funding, and far distances to care centres (Boydell et al., 2006; Bratu et al., 2008, Buss et al., 2022; Marcin et al., 2016; Radez et al., 2021; Zayed et al., 2016). Other barriers identified in the literature include the need for further training of primary care physicians (PCP) working in rural areas due to the limited specialist services available as well as transportation barriers (e.g., costs, absence of public transportation), (Boydell et al., 2006; Hutten-Czapski, 2001; Reardon et al., 2017; Skinner & Slifkin, 2007; Zayed et al., 2016). For example, Pong and colleagues (2011) observed that significantly greater proportions of Canadians aged 12 years and older living in the most rural areas reported difficulties accessing health services due to lack of availability in the area, lack of availability at the time of day, or transportation problems. These barriers are often compounded by socioeconomic and attitudinal barriers, further impacting access to care in rural areas (Marcin et al., 2016; Skinner & Slifkin, 2007; Zayed et al., 2016). Children with suboptimal access to care owing to these barriers have been observed to be more likely to utilize emergency departments for care rather than general practitioners or subspecialist (Brownell et al., 2002; Guttman et al., 2010; Hilty et al., 2009; Ray et al., 2014). In a study on the relationship between PCP supply for children and healthcare access and use in Ontario, Guttmann and colleagues (2010) observed that higher PCP supply was associated with greater self-reported access to care, reduced use of emergency departments for non-urgent concerns, and less hospitalizations for acute infectious conditions. In NL there has been a longstanding GP shortage, with approximately 268 GP's working in the community to provide primary care to 508,925 residents (Canadian Paediatric Society, 2004; NLMA, 2010). Even when children are able to access care with a GP, their mental health difficulties may go unrecognized; studies on GP's provision of services to children suggest GP's struggle to recognize children experiencing mental health disorders, contributing to an under-detection resulting in mental health concerns not being addressed (Sayal & Taylor, 2004; Tatlow-Golden et al., 2016; Zayed et al., 2016). Increases in the number of providers, building in further support and education for rural providers, integrated health teams, and telemedicine are some of evidence-based approaches for supporting access to care in rural areas (Caxaj, 2016; Hilty et al., 2009; Marcin et al., 2016; Pignatiello et al., 2011; Zayed et al., 2016).

Enabling Resources. Maternal contact with social support was the only enabling resource to predict child HSU, with decreases in mothers' frequency of contact with social supports increasing the likelihood of mothers accessing at least one child service. This observation is consistent with the robust literature documenting the protective effects of social support on maternal wellbeing, maternal sense of competence, and family functioning (Angley et al., 2015; Bedaso et al., 2021; Bronfenbrenner, 1986; Ponomartchouk & Bouchard, 2015; Schiller et al., 2021; Turner, 1981). According to Belsky's (1984) process model of parenting, social support provides mothers with emotional support, instrumental assistance (e.g., information, assistance with tasks), and social expectations to guide behaviour. Consistent with this theory, previous literature has observed that social support helps families cope with physical and emotional stressors experienced in everyday life by buffering parental stress, increasing women's self-efficacy as a parent, and reducing feelings of helplessness by providing a sense of belonging, encouragement, information, and material resources (Angley et al., 2015; Gariepy et al., 2016; Leahy-Warren et al., 2012; Ngai & Chan, 2011; Schiller et al., 2021; Turner, 1981).

Need Characteristics. Mothers were more likely to access child services when they perceived their child's overall health to be worse and when they self-reported having a mental health diagnosis. The relationship observed between child health ratings and service utilization aligns with the 'Gateway Provider Model' (Stiffman et al., 2004) of youth access to services, which posits that youth access to physical and mental health services is significantly influenced by parents, teachers, and other adults' assessment of children's health status and awareness of services (Costello et al., 1998; Stiffman et al., 2004). If mothers are primarily expected to take responsibility for attending to the health of their children and accessing services for their children, they would be key gatekeepers to treatment access. This is consistent with earlier research indicating that parents' perception of their children's symptoms and overall health status affect use of physician services, with the number of visits increasing as perceived health status decreased (Freeborn et al., 1977; Janicke et al., 2001; Salber et al., 1976). Similarly, studies on parental recognition of child mental health problems suggest that parents who recognize a problem to exist and the negative impact on the family are more likely to seek and access services for their children than those who do not perceive a problem to exist (Angold et al., 1998; Sayal et al., 2006; Teagle, 2002). In a more recent systematic review of parents' perceptions of barriers and facilitators to accessing mental healthcare for their children, parental recognition of the existence of their child's mental health difficulty, the severity of the difficulty, and the impact of the difficulty were all associated with access to services (Reardon et al., 2017). Reardon and colleagues observed that many parents reported difficulties identifying a child's mental health problem, the severity of the problem, and the impact of the problem as barriers to seeking help and suggested public policy interventions that increase parents' knowledge of youth mental health would support access to care.

Mothers who self-reported a mental health diagnosis were more likely to initiate HSU for their children. This relationship is likely due to a combination of factors, including increased maternal recognition of health need, underlying pattern of maternal HSU, and reduced use of preventative services. For example, previous literature has observed that parents who seek healthcare for themselves (Dreyer et al., 2018; Minkovitz et al., 2002) as well as parents with elevated levels of anxiety (Cook et al., 2015) are more likely to seek healthcare for their children. While previous research on the impacts of maternal mental illness on HSU for their children has been mixed, most studies have observed that mothers with mental health symptomatology (e.g., depression, anxiety) utilize emergency departments, inpatient care, and specialty services for their children at higher rates than mothers without these symptoms (Brooks et al., 2015; Clayton et al., 2013; Dreyer et al., 2018; Lavigne & Meyers, 2019; Olfson et al., 2003; Sills et al., 2007). These findings speak to the wider impact of maternal mental health on outcomes for children as welll as the potential benefits of increasing access to services for mothers experiencing mental health difficulties.

Health Behaviours. Frequency of maternal weekly exercise predicted child HSU, with the likelihood of accessing at least one service increasing as the frequency of maternal weekly exercise decreased. This observation was in contrast with the maternal model of this study, which observed that increases in health behaviour predicted mothers' access to care for themselves, as well as previous research observations that engagement in personal health practices has been positively associated with engagement in preventative and routine healthcare utilization (Bancej et al., 2005; Hofer & Katz, 1996; Phillips & Hopman, 2006; Roller-Wirnsberger et al., 2021; Vingilis et al., 2007). While studies have examined the relationship between personal health practices and personal access to care, very few studies have examined how maternal general health behaviours affect use of child services, with no studies examining the relationship between maternal protective health lifestyle factors and child HSU in Canada. The inverse relationship observed between mothers' exercise frequency and child HSU may reflect the documented impacts of poor child health status on maternal wellbeing. The increased demands on parents of children in poor health has been associated with parental role strain and stress, with mothers' health being particularly negatively impacted by caregiver demands, likely owing to mothers often being the primary caregiver (Garbarski, 2014; Kuhlthau et al., 2010; Pinquart, 2018; Singer, 2006; Vaughan et al., 2013). The strain of caring for sick children may manifest in poor personal health behaviours as a means of coping and due to constraints in time, energy, and financial resources (Garbarski, 2014; Hogan et al., 2012).

Predictors of Mothers' Continuous Utilization of Child Services

Six variables were included in the linear regression model predicting mothers continued use of a range of child services. Specifically, three enabling variables (i.e., parenting satisfaction, PSCS-satisfaction; supportive co-parenting communication, QCPC-support; and family life satisfaction, KFLS), two need variables (i.e., child's perceived health status and self-reported maternal mental health diagnosis), and one health behaviour variable (i.e., maternal sleep quality) predicted mothers continued use of a range of services for their children. Of interest, no environmental and predisposing variables significantly predicted access when enabling, need, and health behaviours were included in the model which is in contrast to the model of initiation of child services in the previous 12-months.

Role satisfaction and familial relationship quality have been observed to be predictive of maternal wellbeing and self-efficacy (Angley et al., 2015; Michałek-Kwiecień et al., 2022; Ngai & Chan, 2010) as well as to maternal access to services in the present study. As such, it is not surprising that low satisfaction with parenting and family life as well as supportive communication with co-parents contributes to continued use of child services. Bronfenbrenner's (1979) ecological model for family life posits that child development is impacted by family resources (e.g., socioeconomic characteristics), environments (e.g., school, work, neighborhood), and processes (e.g., parenting style, relationship quality). Similarly, Belsky's (1984) process model of parenting highlights that parenting behaviour is influenced by intrafamilial and extrafamilial factors. Consistent with these models, co-parent relationship quality and support has been identified as one of the strongest predictors of the quality of mothers' parenting experience. For example, a 2018 study of 2100 Dutch parents of children aged 2 to 17 years observed that parental experience for both mothers and fathers was significantly associated with parental communication and quality of intra and extra-familial relationships (Van Holland De Graaf, et al., 2018). Similarly, a study of 176 new mothers observed that mothers' perception of their parenting alliance with their partner predicted mothers' parenting competence (Ponomartchouk & Bouchard, 2015).

In Williams and colleagues' (2019) scoping review of Canadian children's access to developmental interventions, the author noted that no studies examined the relationship between personal health practices as factors on utilization of Canadian children's use of developmental interventions services. Consistent with the model for initial access to child services, the likelihood of continued use of a range of child services increased as maternal sleep quality decreased. As previously discussed, the inverse relationship observed between mothers' personal health behaviours and child HSU may reflect the impacts of poor child health status on maternal wellbeing and provides further support for the bi-directional relationship between child and maternal health.

Summary

Few studies have considered the influence of maternal context on children's HSU despite the research demonstrating that mothers are typically the predominate caregiver of children and significantly impact their children's health (Garbarski, 2014; Hardie & Lansdale, 2013; Jackson & Mannix, 2004; Minkovitz et al., 2002; Pinquart, 2018). Previous scoping and systematic reviews on research examining access to child services has identified significant limitations in the measurement of family variables, a paucity of studies examining community populations with a range of mental health concerns, and limited literature examining the impact of environmental factors (e.g., region), predisposing characteristics, and need factors (Reardon et al., 2017; Williams et al., 2019). The results of the present study demonstrate the relevance of these as well as enabling and personal health practice factors for understanding child HSU as well as linking multiple maternal factors to understand children's access to services. Each of these categories of maternal variables collectively predicted mothers initial use of child services while enabling, need, and personal health practices predicted continued use of services. Specifically, region of residence, maternal age, maternal social support, maternal and child health status, and maternal personal health practices were observed to impact children's initial access to care. While these results suggest ongoing environmental and social disparities in initial access to child HSU, the absence of environmental and predisposing variables from the continued access model suggest access to child services is more equitable. Specifically, once mothers have accessed the healthcare system maternal and child health status as well as maternal personal health practices serve as reinforcing factors for child HSU while maternal role satisfaction, maternal relationship quality, and co-parental communication become relevant determinants in the decision to continue pursuing access to care.

These findings are consistent with ecological models of family life and ‘gatekeeper’ models of child access to services. The observed relationship between mothers’ socioemotional wellbeing and child HSU provides support for clinical recommendations to provide holistic assessments of family need and integrated care to families (Dreyer et al., 2018; Viner & Hargreaves, 2018). Integrated services for mothers and children can simultaneously address inequity in access to care and interrelated needs. Clinical interventions addressing family relationships, quality of family communication, and mothers’ health will support children’s access to care. Policies directed at increasing availability of children services in rural NL will further reduce social inequities in access to services.

Application of Andersen’s Theoretical Framework to Mothers Service Utilization

Andersen’s (1995) fourth iteration of the Behavioural Model of Health Service Use was utilized as the theoretical framework of this study to create a comprehensive predictive model of mothers’ HSU for themselves and their children. Despite the widespread use of this model to understand HSU (Babitsch et al., 2012; Lederle et al., 2021; Phillips et al., 1998; Racher & Vollman, 2002) and the growing awareness of the need for gender-based HSU research (Anderson et al., 2018; Every Women Every Child, 2015; UK Department of Health and Social Care, 2018), there is a dearth of research on the constellation of factors associated with mothers use of the broad swath of health services for themselves and their children in Canada. The present study reflects the perspective of Canadian mothers living in the community to provide a fuller account of environment, predisposing, enabling, need, and personal health factors related to women's service utilization for themselves and their children and inform strategies for improving mother's access to services in NL.

Andersen's model was not developed for any specific care setting or illness and the primary focus of the model is on factors that impact a person's access to healthcare which makes it an ideal model for research examining access to healthcare more generally (Lederle et al., 2021). This fits well with the goals of this exploratory study, which aimed to identify factors impacting access to a broad range of care settings. While Andersen's model does not elucidate how an individual's decision to utilize services is made, it does identify the types of barriers and facilitators of service utilization (MacKian, et al., 2004; Vingilis et al., 2007). This model has also contributed to a measurable concept of equitable and inequitable access, which supports the translation of research into relevant health policy to improve access to care (Andersen, 1995; Ngwakongwi, 2017; Racher & Vollman, 2002). These strengths of the model align with the broader goal of this study of identifying factors that impact mothers' access to care to guide clinical recommendations to promote equitable access.

Access to healthcare cannot be understood without taking into account the structure and resources of the healthcare system being accessed (Mackian et al., 2004; Racher & Vollman, 2002; Ricketts & Goldsmith, 2005). Within the system, the process by which people seek social and health services is multifaceted with differences occurring between populations. Mothers' needs and access to services are best understood when prevailing gender norms and family context is taken into account (Anderson et al., 2018; Henderson et al., 2016; Jackson & Mannix, 2004; Newman & Henderson, 2014). Contextual factors impacting mothers' wellbeing and service utilization for themselves and their children include their region of residence, quality of their intrafamilial and extrafamilial relationships, quality of communication with co-parents, wellbeing of their children, and use of services for their children (Alderdice & Newham, 2016; Angley et al., 2015; Berryhilll et al., 2016; Blegen et al., 2010; Dreyer et al., 2018; Lavigne & Meyers, 2019). Relevant individual factors include mothers' SES, mental and physical health, perception of services, and health beliefs (Batbaatar et al., 2017; Billhult & Segesten, 2003; Cutler & Lleras-Muney, 2010; Dennis, 2004; Dolman et al., 2013; Garbarski, 2014; Hardie & Landale, 2013). Andersen's model allows for concurrent exploration of these factors through the inclusion of individual characteristics, social determinants of health, and structural factors (i.e., health system) within one model. This allows for consideration of individual and ecological factors that impact social and health service utilization and how these factors collectively shape access. Additionally, the model provides a consistent manner in which to code and classify these multiple factors and for comparison with other studies.

Andersen's framework provides a cogent understanding of relevant principles to HSU that can be supplemented with knowledge of the population being studied to determine the most relevant variables to include (von Lengerke et al., 2013). There can be differing classification of variables between studies due to categories within the model being based on broader principles rather than specific criteria (von Lengerke et al., 2013). For example, region (i.e., urban-rural) has been classified as an environmental variable and an enabling factor in past research and similarly indicators of SES have been classified as a predisposing and enabling variable (Babitsch et al., 2012; Racher & Vollman, 2002). While this can create difficulties in comparing studies and collating results to form a broader picture, it also is reflective of the dual role certain variables can play in HSU (Babitsch et al., 2012). To support relevant variable selection and classification, this framework is best used for understanding HSU in conjunction with specific theories relevant to the population of study rather than a standalone framework. In this study, specific theories used to support variable selection and understanding of the constellation of factors identified by the model included Hays' (1996) intensive mothering, maternal role attainment (Mercer 1985), Bronfenbrenner's (1979) ecological model, Belsky's (1984) process model of parenting, and the gateway provider model (Stiffman et al., 2004). The use of Andersen's model in conjunction with specific theories on motherhood, parenting, and child development allowed for a good starting point for predicting Canadian mothers use of services for themselves and their children. These identified determinants of HSU highlight that SES, geographical factors, inter and extrafamilial relationships and wellbeing, experiences within the health system, and health need coalesce to determine Canadian mothers HSU.

Clinical Implications

The relationship between maternal wellbeing and child outcomes as well as family functioning highlights the importance of targeting maternal access to services to meet health needs of mothers and their children. Motherhood is associated with gendered expectations which are upheld by societal structures (e.g., laws, policies, healthcare) and have a negative impact on health and wellbeing (Anderson et al., 2018; Blegen et al., 2010; Henderson et al., 2016; Rizzo & Schiffrin, 2013). As such, it is important to contextualize mothers' access to services within the dominant prevailing gender ideologies. Grounded in a feminist lens, the aim of this study was to create a portrait of mothers living in the community of NL to improve understanding of Canadian mothers functioning and needs as well as to create a model of mothers' access to services for themselves and their children to support identification of areas of strengths to capitalize on and areas for improvement to facilitate access.

In 2018 approximately one in five Canadians over 12 years of age reported experiencing a mental health challenge, of which just under half (43.8%) reported that their mental health need went unmet (Statistics Canada, 2019d). In comparison, in the present study approximately one third of the mothers indicated experiencing mental health challenges and adult mental health services were identified as the most used and most inaccessible services. These results suggest that the mental health needs of Canadian mothers living in the community may be higher than the national average and require increased service availability commensurate with the level of need. Community and outpatient mental health resources should collect data on parents accessing care to further understand the mental health needs of Canadian mothers living in the community and those availing of services.

Mothers experiencing mental health challenges were more likely to access services for themselves and their children relatives to those who did not report clinically-relevant levels of psychological distress. This suggests that Canadian mothers residing in the community have positive attitudes towards help-seeking for mental health needs and are willing to utilize resources made available to them. That said, healthcare professionals should continue to undergo training to recognize entrenched biases towards mother blaming and maintain efforts not to communicate unwarranted value judgements to mothers seeking care given prevailing stigma towards mental illness and research demonstrating the experience of mother-blame when accessing health resources (Abbey et al., 2011; Blegen et al., 2010; Henderson et al., 2016; Jackson & Mannix, 2004). This is especially important given the observation that satisfaction with healthcare providers impacts mothers access to services (Anderson et al., 1995; Batbtatar et al., 2017; Lederle et al., 2021).

Given research indicating that societal beliefs of intensive motherhood ideology are harmful to women’s mental health, and contribute to feelings of shame, guilt and negative self-appraisal (Blegen et al., 2010; Henderson et al., 2016; Rizzo & Schiffrin, 2013), therapeutic interventions with mothers can benefit from recognizing women's internal and external realities of motherhood and challenges associated with the multiple roles women have (Maclean et al., 2004; Tummala-Narra, 2009). Pressures and expectations associated with family structure, work, interpersonal relationships, and intensive mothering ideologies can contribute to the experience of role conflict for mothers and impact their health (Maclean et al., 2004; Tummala-Narra, 2009). Therapeutic interventions that explore women's ideas of motherhood, acknowledge and process feelings of guilt and self-judgment, and identify needs as a partner, parent and individual can support mothers' mental health and wellbeing (Dolman et al., 2013; Sonnenburg, & Miller, 2021; Tummala-Narra, 2009). To normalize mothers' experiences, foster resilience, and address internalized unrealistic expectations of motherhood, psychoeducation on intensive motherhood ideology, exploration of meaning applied to motherhood, and consideration of the impact of these beliefs on emotions and behaviours may be beneficial. Therapeutic approaches that incorporate self-compassion and non-judgmental self-acceptance can further reduce distress associated with societal ideals of motherhood and empower women to explore additional values and sources of meaning (Monteriro et al., 2019; Sonnenburg, & Miller, 2021).

The decision to use healthcare services is a complex result of an interplay of multiple static and dynamic factors. The findings of this study suggest that family relationships play a significant role in this decision for mothers with high levels of social support, quality of familial relationships, role satisfaction, and style of communication significantly reducing mothers' need for services. These observations suggest that parenting programs, family therapy, and family services that focus on teaching effective communication (e.g., active listening, empathetic responding), strengthening emotional bonds, and supporting family cohesion may reduce mothers' overall need for services. Another significant factor in mothers HSU for themselves and their children was mothers' mental health and children's health status. While previous research has demonstrated the impacts of maternal wellbeing on child health, there has been less examination on the impacts of children's health on maternal health and even less literature on how this relationship impacts access to services. By uniting children and maternal health into one model for HSU, the results of this study suggest that children and mothers' health and service use is highly interdependent, and that policy efforts to improve access for one may have benefits for the other. Further, the reciprocal relationship observed between mothers' and children's health, and service use suggest the need for health policies that target families as a collective in addition to individuals. Ballantyne and colleagues (2014) observed that neonatal care in Canadian clinics characterized by a family-centred approach facilitated attendance to appointments. The interdependence of mothers and children's health and service utilization observed in this study lend further support to the notion of proving integrative, family-centred care rather than siloed services for adults and children (Dreyer et al., 2018; Hardie & Landale, 2013; Nicholson et al., 2021; Viner & Hargreaves, 2018). To better assess needs and improve treatment pathways, health professionals should routinely ask mothers about family relationships and wellbeing to assess the context of mothers and children's lives and provide appropriate referrals. Viewing health and access to services as a shared family experience rather than an individual experience can provide a more effective lens when developing and implementing health policies and interventions.

Policy directives aimed at addressing structural barriers to care (e.g., availability, maternal education, financial resources) are also needed to improve equitable access to care for mothers and children. In the present study mothers reported that family physicians and emergency departments were the most frequently utilized service for youth. Youth mental health information, psychiatric and behavioural services, and other medical specialist services were the most inaccessible services. This is consistent with other research suggesting that 15% to 40% of children with mental health challenges are seen by general practitioners, who often feel ill equipped and inadequately trained to address these needs (Pignatiello et al., 2011; Zayed et al., 2016). Further, mothers with less education, lower household income, and living in less populated and more rural areas were less likely to access services for themselves and their children. These observations are consistent with previous research indicating a pro-rich bias for access to specialist care in Canada and the limited availability of mental healthcare in rural Canada (Allin, 2008; Curtis & MacMinn, 2008; Jimenez-Rubio, et al., 2008; Olga et al., 2008). Collectively, these observations suggest that socioeconomic barriers to services remains an issue despite the aims of Canada's publicly funded healthcare system to provide access to necessary services across the continuum of care. Inequitable access to care may contribute to the documented widening of socioeconomic disparities in Canadians health, especially among women (Hajizadeh et al., 2016). Policies directed at increasing support for interprofessional primary care (e.g., the Rural Mental Health Interprofessional Training Program), telehealth, and community-based programs (e.g., Assertive Community Treatment) may improve youth access to mental health and specialist care, especially youth living in rural NL (Caxaj, 2016; Hilty et al., 2009; Olga et al., 2008; Pignatiello et al., 2011). More broadly, social policies aimed at increasing maternal education and financial challenges (e.g., cost of taking time off work, travel costs, childcare) may indirectly and directly reduce barriers to access to care (Boydell et al., 2006; Hajizadeh et al., 2016).

Limitations and Future Directions

As with any research, there are several limitations of this study. First, implications of the homogenous composition of the sample are worth noting. While significant efforts to recruit a diverse sample of mothers residing within NL were made, the final sample under-represented mothers from diverse ethnic and socio-economic backgrounds, mothers from Labrador, and mothers of adopted and/or stepchildren. This limitation is consistent with previously documented selection bias of web-based surveys which can result in an over-representation of more privileged social groups and an under-representation of non-traditional families', immigrant parents, and less educated parents' in family research (Hejervang & Goodman, 2011). This documented bias may reflect barriers in time, literacy, internet access, and attitudes towards research (Heiervang & Goodman, 2011; Kılınç & Fırat, 2017). While NL is a predominately Caucasian population with the majority of children residing with biological parents (Statistics Canada, 2017), this overall lack of diversity limits the generalizability of these findings to some sub-groups of the population of mothers.

While there was under-representation of some sub-groups, this sample is one of the largest known collections of demographic, health, and service use information of mothers in Canada, and its specificity to mothers in NL was intended to help better understand this culturally and geographically unique group. While variables assessed were selected based on broad literature of HSU, women, and families, it is possible that the observations of this study may not generalize to mothers living in other provinces given the unique characteristics of NL culture. A replication study within other provinces in Atlantic Canada may be beneficial to determine if similar relationships are observed and test the interpretations made by this study of the relationship between these factors and HSU.

Consistent with the bulk of literature examining healthcare needs and service utilization in North America and developed countries (e.g., Allan & Ammi, 2021; Lasser et al., 2006; Ridyard & Hughes, 2010; Sibley & Glazier, 2009; Quan et al., 2006) a self-report survey was utilized to address the objectives of this study. Documented limitations of self-report survey's include recall bias (e.g., time, frequencies, and type of services) and the influence of social desirability on responses, which may be particularly relevant to this population given cultural expectations and ideology of the 'good mother' (Woolderink et al., 2015). Additionally, from a measurement perspective, initiation of services was operationalized as having accessed one service during the previous 12-months. As this was a proxy variable, it is possible this did not fully represent service initiation. Despite these limits, qualitative and quantitative studies examining use of community surveys to examine HSU have observed that results of this approach are concordant with documentation provided by GP's and emergency rooms, allows for data collection on information not typically documented in service records (e.g., unmet health needs), and is an efficient and cost-effective means for assessing use of multiple health and social services (Byford et al., 2007; Patel et al., 2005; Woolderink et al., 2015). Recognizing that all forms of measurement contain a level of measurement error, self-report surveys have been observed to provide reasonable estimates within health service research, especially when items on surveys are presented with clear definitions, when respondents are motivated, and when respondents are able to attend to the items of the survey (Del Boca & Noll, 2000; Ngwakongnwi, 2017).

The cross-sectional design of this study means that all results are correlational, which precludes the ability to infer directionality or causality. Therefore, it can only be said that there is relationship between maternal socio-demographic factors, maternal mental health, family relationships and communication, and child health, and mothers' access to services for themselves and their children. Additionally, the present study was a secondary data analysis from an online survey designed for another project, which limited variables available for analysis. The items included in the original survey were, in part, informed by the Canadian Survey on Parenthood, a national survey on the experiences of families (Gosselin & Gosselin, 2016). This national survey was significantly longer in length than the present survey and, after 29 months of data collection, the final sample consisted of 300 participants, three of whom reported residing in NL. In an effort to increase participation and address maternal experience specifically, in the present survey mothers were asked to report only on the child with the next birthday rather than all children and many questions related to the family more broadly were not included. While the dataset was comprehensive, inclusion of additional socio-demographic variables, personal health attitudes, and perceptions of healthcare providers would have supported more in-depth understanding of the goals of this project. For example, the present study did not ask mothers at what age they first became a mother, how many children they have, or the age of their children, therefore differences in adult and pediatric HSU cannot be attributed to birthing age, current age of children, or family composition. Additionally, while the majority of mothers responded to survey items on services accessed in the past 12 months just under 20% of mothers responded to items regarding services needed that were unable to be accessed. Owing to the design of the survey, it is not possible to parse out the reason for the lower response rate regarding inaccessible services. It is possible that the majority of respondents did not consider the listed services to be inaccessible or alternatively skipped this item. In future studies, it would be important to assess the age of mother and children to better understand the interaction between child service use and mothers initiated and continued use of healthcare for themselves. In light of literature demonstrating the impacts of having a usual source of care and the type and frequency of services utilized (e.g., GP, emergency department, specialist), it would also be beneficial for future studies to include questions regarding if children's and mothers have a family physician. Lastly, personal attitudes regarding healthcare utilization, such as beliefs in the value of preventative care and mental healthcare, stigma, and perceptions of mother blame by providers could have been beneficial for further illuminating how personal attitudes and societal norms of intensive mothering manifest in healthcare and impact service utilization.

More research utilizing a feminist lens and taking family context into consideration to understand mothers HSU is needed. The importance of family relationships and the interplay between child and mother health status and service use observed demonstrates the utility of understanding these variables to support access to care. In future studies it will be important to include mothers use of services for themselves as predictors of child services given research in the U.S. and UK to support this (Dreyer et al., 2018; Minkovitz et al., 2002). Additionally, while use of child services was conceptualized as a health behaviour when examining predictors of mothers HSU for themselves, it would be interesting for future research to consider use of child services as an enabling variable for mothers' access to services for themselves given theorized mechanisms regarding the relationship between access to child services and access to adult services. Qualitative studies on mothers living in the community and their access to services for themselves and their children may further elucidate how the experience of stigma, social support, family relationships, and mother blame impact access to care in Canada. The observations of this study suggest that implementation of integrative, co-ordinated care for families may be an effective approach for improving access to care. Studies completed in the UK have provided empirical evidence for the benefits of integrated care on meeting healthcare needs (Kerber et al., 2007; Montgomery-Taylor et al., 2016; Viner & Hargraves, 2018). Program development of integrated care models and program evaluation research of this model in Canada are needed further assess how this model can be implemented in Canada and the efficacy of it for improving access to care.

Conclusion

The growing recognition of a need for a gendered understanding of health and access to care coincides with the recognition that addressing women's health needs has wide reaching benefits for child, family, and community wellbeing. Access to services is a critical determinant of individual and population health outcomes and understanding health service use is important for planning of resource allocation in the community and addressing barriers to care. This study has filled an important gap in our knowledge and illuminated factors that impact access to services among Canadian mothers and their children. Results suggest that mothers in NL experienced strong social support in their communities, were functioning well in their family units, and viewed themselves and their children as relatively healthy. That said, access to mental health and related services was identified as an area of continued need that may merit further attention. It is important to note that a wider array of influences predicted mothers' initiation of services compared to continuation which supports the notion that initial establishment of contact with the healthcare system is impacted by a wider spectrum of factors, suggesting greater opportunity for intervention. The impact of family wellbeing as well as the interplay between child and mothers' health on use of services speaks to the importance of integrated healthcare services for families. It is critical to further investigate how prevailing gender ideologies impact mothers, the factors that influence mothers' wellbeing, and how to optimize access to care given the integral role mothers play in defining family dynamics, child development and wellbeing, and accessing services for the family.

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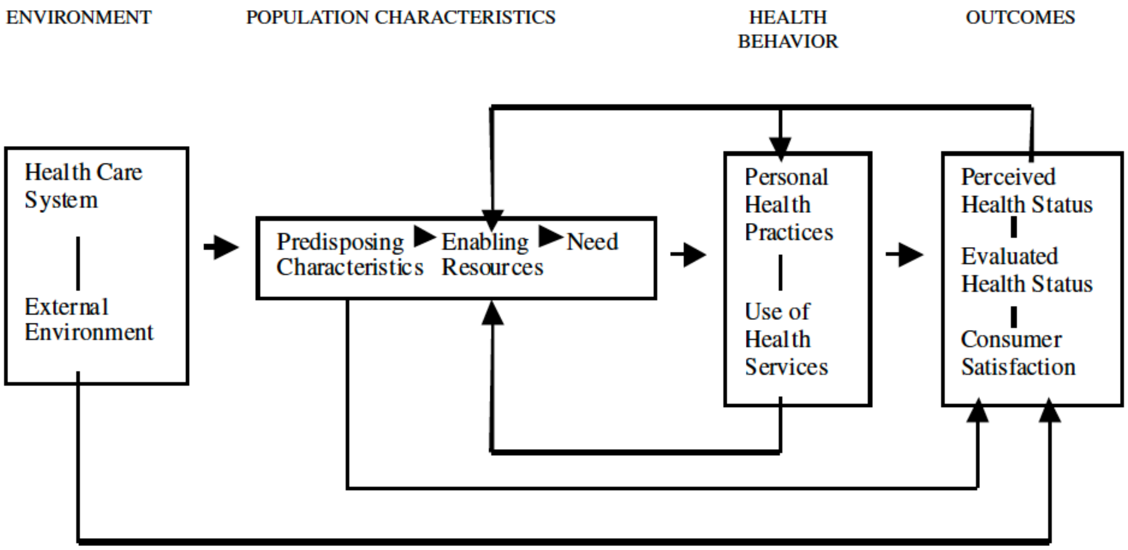
Figures

Figure 1.

Andersen's Health Behaviour Model



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Tables

Table 1. Theoretical frameworks for understanding HSU

Theoretical Framework	Main Tenants	Limitations & Criticisms	Specific Models and Research Within the Framework
Sociological Models	- HSU understanding within the context of societal system norms. - Illness constitutes a social deviance from normal functioning, leading to people taking on the socially prescribed sick role when ill and engaging in health seeking behaviour to return to their normal societal roles.[1, 2]	- Failure to address the variation in people's HSU behaviour.[1,3] - Failure to address resources required for access to healthcare, social determinants of health, and the role of the healthcare system.[1,3] - Framework is difficult to quantify and use as an instrument to predict groups at risk of illness or improve treatment.[1]	- Parson's (1951) 'Sick Role' Theory - Suchman's (1965) 'Stages of Illness and Medical Care'
Socio-Psychological Models	- HSU understood within the context of individual psychological factors.[4] - Three main psychological factors examined are: [4] 1. Motivation (i.e., behaviour is a function of need) 2. Perception (i.e., behaviour is a function of attitudes about self and others) 3. Learning (i.e., behaviour is a function of what is learned)	- Failure to address the societal and institutional context in which health and illness behaviour occurs.[4]	- Rosenstock's (1960) principles of motivation - Stoeckle, Zola, and Davidson's (1963) three categories of psychological determinants of HSU - Mechanic & Volkart's (1960) theory of HSU as a response to 'Illness Recognition' and 'Illness Danger'

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1 Burnham, 2014
2 Parsons, 1951
3 Yang & Hwang, 2016
4 McKinlay, 1972

Socio-Cognitive Models	- Assumes HSU is determined by a rational decision-making process based on an understanding of relevant information.5 - Expands on the factors included in the socio-psychological frameworks.[6] - Proposes that level of readiness informs the motivation to act on health need, the perception of benefits and barriers informs the path of action, and the cues to action are the catalyst for the process.[6] - State of readiness is determined by four interrelated factors: (a) perceived susceptibility; (b) perceived severity; (c) perceived benefits; and (d) perceived barriers.[6]	- Fails to address the emotional components of health behaviours.[5] - Fails to address system-level determinants of HSU, (e.g., the influence of healthcare institutions and policy).[3] - Limited evidence to support its utility for predicting mental health service utilization and long-term engagement with HSU.[5]	- Hochbaum's (1958) model - 'The Behavioural Science Model' (Kegeles, 1963) - Rosenstock's (1966) 'Health Belief Model' - Ajzen's (1991) 'Theory of Planned Behaviour' - Leventhal's (1984) 'Self-Regulation Model' - Flay & Petraitis's (1994) 'Theory of Triadic Influence' - Bandura's (1977) 'Social Cognitive Theory'
Socio-Demographic Models	- HSU understood within the context of community and societal level factors.[6] - Incorporates social determinants of health to understand health need and HSU (e.g., age, education, occupation, religion, ethnicity, socio-economic status, and neighbourhood).[4, 6, 7]	- Many models only focus on a few discrete factors rather than the entire pathway.[6] - Does not account for differences within sub-groups[4] - Best used in conjunction with other frameworks. [4,]	- Zola's (1966) research on culture and health symptoms - Suchman's (1964, 1966) understanding of geographical cultural difference in HSU - The Bullseye Model of Social Determinants of Health (Siddiqi & Babones, 2009)

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5 Henshaw & Freedman-Doan, 2009
6 Braveman et al., 2011
7 Hosseini et al., 2017

			- Conceptual Framework for Action on the Social Determinants of Health (Kelly et al., 2008) - Neighbourhood and Healthcare Utilization Model (Mohnen et al., 2019)
Organizational /Institutional Models	- Emphasizes the role of the healthcare system in determining health service access and use.[3] - Suggests that HSU is the result of the organizational characteristics of the healthcare system, such as variations in the location, payment system, and quantity of healthcare providers and facilities. [3, 4]	- Fails to address individual and cultural determinants of HSU.[3] - Individual differences in HSU cannot be completely accounted for by structural characteristics.[3, 4]	- Derose and colleagues' (2011) framework of public health programs, policies, environmental factors, health system factors (e.g., wait times), and individual factors - Walsh and Elling's (1968) delimitation of structural impacts on HSU - Lefton and Rosengren's (1966) delineation of the relationship between user's and the organization as a critical determinant of HSU
Economic Models	- HSU understood within the context of economic principles.[8, 9] - HSU is conceptualized as the result of two steps: [9] 1. The patient's decision to initiate or not initiate healthcare use	- Fails to address individual and cultural determinants.[3] - Not able to provide a complete conceptualization of HSU.[3]	- Manning and colleagues' (1987) examination of price and income elasticities for health care - Principal-agent framework (Sekwat, 2000)

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8 Brinkerhoff. & Bossert, 2014

9 Curtis & MacMinn, 2008

	- The physician's decision regarding the number of visits needed.		
Access as Fit	- Suggests HSU primarily depends on the degree of fit between the individual's needs and the system's ability to meet those needs[10]	- Terms utilized to conceptualize access are unclear.[10, 11] - Limited clinical utility.[11]	- Penchansky and Thomas's (1981) concept of access - Frenk's (1992) concept and measurement of accessibility
Socio-Behavioural Models	- HSU viewed as the interaction of the healthcare system, social networks, community factors, and individual factors - Integrates the factors identified in other models	- Can be differing classification of the same variables which can create difficulties in comparing studies and collating results.[12] - Specific theories relevant to the population of study needed to support empirical research.[12]	- Crammer's (1999) 'Help-Seeking Model' - Pescosolido's (1991) 'Network Episode Model' - Andersen's 1995 Behavioural Model of Health Service

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[10] Rickett's & Goldsmith, 2005
[11] Ngwakongwi, 2017
[12] von Lengerke et al., 2013

Table 2. Sociodemographic data for the sample who completed the Motherhood survey.

Characteristics	*n*	%
Race/ethnicity	*1082*	
Caucasian	1029	95.2
Native North American	29	2.7
Asian	3	0.3
African	0	0.0
Arab/Middle Eastern	0	0.0
Latino/Hispanic	0	0.0
Other	20	1.8
Age (*M* = 34.66, *SD* = 8.06)	*1082*	
18 - 25	77	7.1
26 - 33	414	38.3
34 - 40	322	29.8
41 - 47	173	16.0
47 - 55	75	6.9
Over 55	21	1.9
Region of NL	*1082*	
Avalon	581	63.2
Central	139	15.1
Western	131	14.3
Southern	38	4.1
Labrador	30	3.3
Missing Data	163	6.6
Population Centre	*1082*	
Provincial capital region	407	37.6
City	172	15.9
Town	238	22.0
Small town	233	21.5
Labrador	32	3.0
Household Income (*M* = 6.57, *SD* = 2.57)	*1082*	
0-14,999 (1)	29	2.7
15,000-29,999 (2)	78	7.2
30,000-44,999 (3)	79	7.3
45,000-59,999 (4)	76	7.0
60,000-74,999 (5)	81	7.5
75,000-89,999 (6)	95	8.8
90,000-99,999 (7)	110	10.2
100,000-149,999 (8)	286	26.4
150,000-199,999 (9)	155	14.3
200,000-249,999 (10)	58	5.4
250,000+ (11)	33	3.0
Missing Data	2	0.2

Education (*M* = 5.30, *SD* = 1.890)	*1082*	
Some High School (1)	13	1.2
High School Diploma (2)	50	4.6
Some College (3)	72	6.7
College Diploma (4)	330	30.5
Some Undergraduate studies (5)	76	7.0
Undergraduate Degree (6)	320	29.6
Some Masters studies (7)	46	4.3
Master’s Degree (8)	142	13.1
Some Doctoral studies (9)	9	0.8
Doctoral Degree (10)	15	1.4
Some Post-Doctoral studies (11)	1	0.1
Post-Doctoral Degree (12)	7	0.6
Missing Data	1	0.1
Currently Working	*1082*	
Yes	738	68.2
No	344	31.8
Current Occupation	*738*	
Professional	320	43.3
Office Employee	264	35.8
Tradesperson	22	3.0
Self Employed	37	5.0
Student	4	0.5
Stay at Home Parent	5	0.7
Other	86	11.7
Mobile Relationship	1082	
Yes	443	40.9
No	639	59.1

Table 3. Family structure for the sample who completed the Motherhood survey.

Characteristics	*n*	%
Marital Status	*1082*	
Married	689	63.7
Cohabiting	192	17.7
Single, never married	81	7.5
Separated/divorced	59	5.5
Remarried after divorce/separation	20	1.8
Cohabiting after divorce/separation	33	3.0
Widowed	5	0.5
Remarried after being widowed	3	0.3
Cohabiting after being widowed	0	0.0
Sexual Orientation	*1082*	
Heterosexual	1028	94.9
Homosexual	6	0.6
Bisexual	41	3.8
Asexual	1	0.1
Transgender/transsexual	2	0.2
Other	4	0.4
Type of Child(ren)	*1082*	
Biological	956	88.2
Stepchild	3	0.3
Adopted child	13	1.2
Biological and step	51	4.7
Biological and adopted	4	0.4
Step and adopted	0	0.0
Biological, step, and adopted	0	0.0
No children under age 18	54	5.0
Missing Data	1	0.9

Table 4. Descriptive statistics of the health and wellbeing variables of the sample who completed the Motherhood survey.

Variables	*n*	%	M (SD)
Weekly Produce Consumption	*1082*		2.70 (0.594)
Never (0)	6	0.6	
Once (1)	60	5.5	
Twice (2)	192	17.7	
More than three times (3)	824	76.2	
Weekly Exercise Frequency	*1082*		3.57 (1.978)
Less than one time (0)	238	22.0	
One time (1)	118	10.9	
Two times (2)	170	15.7	
Three times (3)	223	20.6	
Four times (4)	141	13.0	
Five times (5)	112	10.4	
Six times (6)	33	3.0	
Seven times (7)	47	4.3	
Sleep Quality (past month)	*1082*		3.09 (1.033)
Very bad (1)	69	6.4	
Fairly bad (2)	233	21.5	
Okay (3)	398	36.8	
Fairly good (4)	290	26.8	
Very good (5)	92	8.5	
Personal Health Rating	*1082*		3.67 (0.897)
Poor (1)	13	1.2	
Fair (2)	97	9.0	
Good (3)	306	28.3	
Very Good (4)	486	44.9	
Excellent (5)	180	16.6	
Child Health Rating	*1082*		4.38 (0.872)
Poor (1)	10	0.9	
Fair (2)	43	4.0	
Good (3)	92	8.5	
Very Good (4)	314	29.0	
Excellent (5)	613	56.7	
Missing Data	10	0.9	
Social Support Satisfaction	*1082*		3.58 (1.121)
Completely dissatisfied (1)	55	5.1	
Somewhat dissatisfied (2)	124	11.5	
Moderately satisfied (3)	292	27.0	
Somewhat satisfied (4)	351	32.4	
Completely satisfied (5)	257	23.8	
Missing Data	3	0.2	

Experience of Major Event (past 12 months)	*983*	
Birth of a child or pregnancy	277	28.2
Serious illness, injury, or assault to you/partner	81	8.2
Serious illness, injury, or assault to close relative	115	11.7
Parent, partner, or child has died	38	3.9
Close family friend or relative has died	254	25.8
Separated from spouse/partner	43	4.4
Broken off a steady romantic relationship	28	2.8
Started living with a new partner	15	1.5
Someone new moved into household	52	5.3
Serious problem with family/friend/neighbour	164	16.7
Had a major financial crisis	183	18.6
Crisis or major disappointment at work	193	19.6
Thought you would soon lose your job	143	14.5
Lost your job, not by choice	107	10.9
Sought work unsuccessfully for 1 month or longer	152	15.5
Problems with police or court appearance	17	1.7
Had something you value lost or stolen	30	3.1
Someone in household had alcohol or drug issue	46	4.7
Changed job or returned to work	278	28.3

Table 5. Descriptive results for the psychometric parenting measures of the sample who completed the Motherhood survey.

Scale	n	Mean (SD)	Range
Outcome Questionnaire	1013	54.462 (22.920)	5 - 144
Missing Data	69		
Kansas Family Life Satisfaction Scale	1051	5.726 (1.059)	1 - 7
Missing Data	31		
Parenting Sense of Competence Scale (PSOC)	1063	72.834 (11.153)	36 - 102
PSOC Satisfaction		36.598 (7.394)	9 - 54
PSOC Efficacy		36.235 (5.508)	20 - 48
Missing Data	19		
Quality of Co-Parenting Communication Scale Current Partner	868	34.319 (4.481)	10 - 47
Closeness Subscale		9.005 (2.766)	4 - 20
Conflict Subscale		25.315 (4.590)	4 - 20
Missing Data	13		
Quality of Co-Parenting Communication Scale Former Partner	142	30. 880 (4.756)	10 - 50
Closeness Subscale		11.880 (4.083)	4 - 20
Conflict Subscale		19.000 (5.019)	6 - 30
Missing Data	18		
Child Parent Relationship Scale (Short Form) Biological	1008	47.682 (7.423)	23 - 75
Closeness Subscale		16.040 (6.492)	3 - 40
Conflict Subscale		31.640 (3.620)	16-35
Missing Data	3		
Child Parent Relationship Scale (Short Form) Step-Child	53	45.453 (8.900)	31 - 75
Closeness Subscale		18.029 (8.505)	8 - 40
Conflict Subscale		27.434 (6.090)	11 - 35
Child Parent Relationship Scale (Short Form) Adopted	17	51. 177 (7.552)	37 - 64
Closeness Subscale		20.412 (8.071)	9 - 38
Conflict Subscale		30.765 (4.549)	20 - 35

Table 6. Descriptive statistics of the adult and child service utilization and need for the sample who completed the Motherhood survey.

Variables	*n*	%	Missing Data
Services Accessed for Child(ren) (past 12 months)	*1075*		7
Youth health info from phone/internet	321	29.9	
Hospital emergency ward	492	45.8	
Hospital outpatient clinic	356	33.1	
GP or family doctor	905	84.2	
Disability services	36	3.3	
Speech therapy	96	8.9	
Dental services	604	56.2	
Pediatrician	274	25.5	
Guidance Counsellor	103	9.6	
Other psychiatric/behavioural service	91	8.5	
Other medical specialist	254	23.6	
None of the above	42	3.9	
Services Needed but not Available for Child(ren)	*187*		895
Youth health info from phone/internet	72	38.5	
Hospital emergency ward	8	4.3	
Hospital outpatient clinic	5	2.7	
GP or family doctor	29	15.5	
Disability services	11	5.9	
Speech therapy	22	11.8	
Dental services	23	12.3	
Pediatrician	28	15.0	
Guidance Counsellor	4	2.1	
Other psychiatric/behavioural service	51	27.3	
Other medical specialist	49	26.2	
None of the above	0	0	
Services Accessed for Family (past 12 months)	*1071*		11
Parenting education courses	107	10.0	
Relationship education courses	7	0.7	
Relationship counselling	44	4.1	
Other counselling services	172	16.1	
Parent support group	124	11.6	
Parent information from phone or internet	193	18.0	
Drug or alcohol services	16	1.5	
Problem gambling services	1	0.1	
Adult mental health services	121	11.3	
Migrant or ethnic resource services	0	0.0	
Housing services	23	2.1	
Disability services	24	2.2	
Financial management services	62	5.8	

Charities	31	2.9	
Emergency relief services	2	0.2	
Church or religious group	59	5.5	
Other family support services	53	4.9	
None of the above	542	50.6	
Services Needed but not Available for Family	*150*		932
Parenting education courses	23	15.3	
Relationship education courses	9	6.0	
Relationship counselling	32	21.3	
Other counselling services	43	28.7	
Parent support group	15	10.0	
Parent information from phone or internet	3	2.0	
Drug or alcohol services	7	4.7	
Problem gambling services	2	1.3	
Adult mental health services	53	35.3	
Migrant or ethnic resource services	1	0.7	
Housing services	15	10.0	
Disability services	11	7.3	
Financial management services	15	10.0	
Charities	2	1.3	
Emergency relief services	3	2.0	
Church or religious group	2	1.3	
Other family support services	12	8.0	
None of the above	0	0	
Satisfaction with Availability of Physician Services	*1082*		
Extremely dissatisfied	69	6.4	
Somewhat dissatisfied	149	13.8	
Neutral	66	6.1	
Somewhat satisfied	437	40.4	
Extremely satisfied	361	33.4	
Satisfaction with Availability of Mental Health Services	*1062*		20
Extremely dissatisfied	182	17.1	
Somewhat dissatisfied	219	20.6	
Neutral	421	39.6	
Somewhat satisfied	181	17.0	
Extremely satisfied	59	5.6	
Satisfaction with Availability of Other Health Services	*1066*		16
Extremely dissatisfied	83	7.8	
Somewhat dissatisfied	132	12.4	
Neutral	397	37.2	
Somewhat satisfied	266	25.0	
Extremely satisfied	188	17.6	
Satisfaction with Availability of Support Groups Services	*1063*		19

Extremely dissatisfied	86	8.1
Somewhat dissatisfied	139	13.1
Neutral	487	45.8
Somewhat satisfied	267	25.1
Extremely satisfied	84	7.9

Table 7. Descriptive statistics of the adult mental health for the sample who completed the Motherhood survey.

Variables	*n*	%
Received Diagnosis of Mental Health Disorder	*1082*	
Yes	347	32.1
No	713	65.9
Prefer not to say	20	1.8
Missing	2	0.2
Mental Health Diagnosis	*347*	
Anxiety	81	23.5
Depression	89	25.8
Anxiety and Depression	117	33.9
Other Mental Health Diagnosis	22	6.4
Multiple Diagnosis	36	10.4
Missing Data	3	0.9

* Other mental health diagnoses include PTSD, BPD, BP, ED, ADHD, OCD

* Multiple Diagnosis is defined as 2 or more diagnosis, excluding anxiety and depression

Table 8. Binomial Logistic Regression Analysis of Mothers' Adult Service Initiation

Independent Variables	*B*	SE	Wald	*df*	*p*	Odds Ratio	95% CI for Odds Ratio	
							LL	UP
Step 1								
Population Centre	-.130	.123	1.122	1	.289	.878	.691	1.117
Geographical location (urban/rural)	.176	.308	.326	1	.568	1.192	.652	2.181
Maternal age	-.022	.009	5.810	1	.016	.979	.961	.996
Household income	-.005	.034	.020	1	.889	.995	.932	1.063
Maternal educational attainment	.197	.040	23.937	1	.000	1.217	1.125	1.317
Maternal occupation status	-.258	.146	3.140	1	.076	.772	.580	1.028
Maternal marital status	.184	.085	4.688	1	.033	1.203	1.018	1.421
Type of child (biological, step, adopted)	-.155	.223	.484	1	.487	.856	.553	1.326
Availability of adult services	1.357	.213	40.613	1	.000	3.884	2.559	5.895
Step 2								
Biological CPRS Closeness	-.059	.017	12.124	1	.000	.942	.912	.974
Current Partner QCPC Conflict	.087	.025	12.117	1	.000	1.090	1.039	1.145
Current Partner QCPC Support	.037	.016	5.568	1	.018	1.038	1.006	1.071
Satisfaction with total health service availability	.203	.094	4.642	1	.031	1.225	1.019	1.474
Total KFLS	-.167	.075	4.976	1	.026	.846	.731	.980
Step 3								
Maternal mental health diagnosis	.815	.147	30.714	1	.000	2.258	1.693	3.012
OQ total score	.009	.004	4.830	1	.028	1.009	1.001	1.018
Rating of child's health	-.171	.083	4.214	1	.040	.843	.715	.992
Step 4								
Total child service utilization	.192	.043	20.296	1	.000	1.212	1.115	1.317
Weekly fresh produce	.274	.129	4.513	1	.034	1.316	1.021	1.695

Note: *N* = 1081; *B* = Unstandardized regression coefficient; CPRS = Child-Parent Relationship Scale; KFLS = Kansas Family Life Satisfaction Scale; OQ = Outcome Questionnaire; QCPC = Quality of Co-Parental Communication Scale

Table 9. Binomial Logistic Regression Analysis of Mothers' Child Service Initiation

Independent Variables	*B*	SE	Wald	*df*	*p*	Odds Ratio	95% CI for Odds Ratio	
							LL	UP
Step 1								
Population Centre	-.696	.314	4.918	1	.027	.499	.270	.922
Geographical location (urban or rural)	1.959	.817	5.753	1	.016	7.093	1.431	35.159
Maternal age	-.093	.020	22.010	1	.000	.911	.876	.947
Household income	.141	.085	2.782	1	.095	1.152	.976	1.360
Maternal educational attainment	.014	.103	.020	1	.888	1.015	.829	1.241
Maternal occupation status	.574	.386	2.215	1	.137	1.775	.834	3.780
Maternal marital status	.068	.173	.156	1	.693	1.071	.763	1.502
Type of child (biological, step, or adopted)	-1.591	.409	15.140	1	.000	.204	.091	.454
Step 2								
Maternal frequency of contact with social support	-.693	.306	5.108	1	.024	.500	.274	.912
Step 3								
Maternal mental health diagnosis	1.547	.539	8.232	1	.004	4.698	1.633	13.516
Rating of child's health	-.704	.266	6.984	1	.008	.494	.293	.834
Step 4								
Maternal weekly exercise frequency	-.211	.089	5.605	1	.018	.810	.810	.681

Note. *N* = 1082; *B* = Unstandardized regression coefficient

Table 10. Binomial Linear Regression Analysis of Mothers' Continuous Use of a Range of Adult Services

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	t	*β*	t	*β*	t	*β*	t	*β*	t
Population Centre	-.180	-1.862	-.160	-1.669	-.161	-1.697	-.160	-1.698	-.126	-1.358
Geographical location (urban or rural)	.136	1.413	.123	1.297	.127	1.346	.126	1.340	.089	.967
Maternal age	-.085	-1.9098	-.113	-2.519**	-.097	-2.179*	-.104	-2.335*	-.096	-2.204*
Household income	-.178	-3.169***	-.167	-3.005***	-.135	-2.415*	-.145	-2.605**	-.152	-2.787**
Maternal educational attainment	-.021	-.446	-.024	-.508	-.007	-.156	.004	.089	-.013	-.292
Maternal occupation status	-.015	-.360	-.026	-.613	-.028	-.659	-.031	-.745	-.041	-1.003
Maternal marital status	.013	.274	-.035	-.704	-.015	-.297	-.017	-.345	-.007	-.151
Type of child (biological, step, or adopted)	.024	.568	.020	.476	.024	.572	.009	.208	.018	.438
Availability of adult services	.263	6.230***	.232	5.450***	.223	5.271***	.216	5.120***	.194	4.672***
KFLS total score			-.159	-3.511***	-.126	-2.736**	-.116	-2.538**	-.128	-2.835***
Personal health rating					-.146	-3.397***	-.119	-2.688**	-.104	-2.389**
Child health rating							-.106	-2.477**	-.026	-.574*
Total paediatric service utilization									.206	4.798***

Note: N = 547; *β* = Standardized regression coefficient; KFLS = Kansas Family Life Satisfaction Scale
* $p < .05$. ** $p < .01$. *** $p < .005$

Table 11. Linear Regression Analysis of Mothers' Continuous Use of a Range of Child Services

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	t	*β*	t	*β*	t	*β*	t	*β*	t	*β*	t	*β*	t
Population Centre	-.013	-.171	-.010	-.138	-.019	-.248	-.028	-.375	-.044	-.628	-.033	-.471	-.036	-.519
Geographical location (urban or rural)	.022	.292	.022	.299	.041	.547	.053	.707	.059	.845	.063	.910	.065	.943
Maternal age	-.015	-.435	-.009	-.248	-.001	-.029	-.017	-.479	-.048	-1.464	-.046	-1.426	-.037	-1.132
Household income	-.012	-.286	.002	.043	-.005	-.116	.000	-.010	.010	.257	.013	.341	.018	.473
Maternal educational attainment	.046	1.264	.049	1.361	.046	1.261	.042	1.159	.075	2.215*	.088	2.623**	.090	2.682
Maternal occupation status	.021	.622	.030	.899	.030	.915	.028	.839	.015	.472	.017	.559	.025	.818
Maternal marital status	-.040	-1.082	-.031	-.845	-.012	-.332	-.035	-.924	-.029	-.810	-.035	-.979	-.027	-.765
Type of child (biological, step, or adopted)	.012	.352	.011	.337	.017	.528	.020	.600	-.019	-.617	-.012	-.392	-.006	-.191
PSCS satisfaction			-.106	-3.325***	-.124	-3.828***	-.101	-2.969***	-.054	-1.679***	-.032	-1.008***	-.024	-.762***
QCPC Support					.097	2.897***	.114	3.334***	.112	3.479***	.100	3.143***	.105	3.305***
KFLS total score							-.081	-2.164*	-.027	-.778*	-.024	-.691*	-.012	-.336*
Child health rating									-.362	-11.851***	-.350	-11.585***	-.342	-11.313***
Mental health diagnosis											.162	5.491***	.154	5.208***
Maternal sleep quality													-.089	-2.944***

Note. *N* = 1036; *β* = Standardized regression coefficient; KFLS = Kansas Family Life Satisfaction Scale; PSCS = Parental Sense of Competence Scale; QCPC = Quality of Co-Parental Communication Scale
* *p* < .05. ** *p* < .01. *** *p* < .005

Appendices

Appendix A.

Theoretical Frameworks for Examining Determinants of Healthcare Service Utilization

Sociological Models

Early studies implemented sociological models that focused on the "sick role" within the context of societal norms and systems to understand patterns of HSU. Sociologist Talcott Parsons introduced the "Sick Role Theory" in 1951, which postulated that illness constituted a social deviance from normal functioning, leading to people taking on the socially prescribed sick role when ill and engaging in health seeking behaviour to return to their normal societal roles. Parsons' (1951a, 1951b) identified four central characteristics of the sick role, later labelled as "Parsons' postulates", which included two exemptions from societal obligations and two new responsibilities (Burnham, 2014). The sick person was excused from the obligations of their typical social role (e.g., parent, worker, student, etc.); they were not held responsible for their illness and resulting disability; their new responsibility was to get well in order to return to their typical role as quickly as possible; and they were expected to engage and cooperate with caregivers and doctors in their attempt to get out of the sick role (Burnham, 2014).

Edward Suchman's (1965) publication "Stages of Illness and Medical Care" expanded on Parsons' Sick Role Theory by outlining the decision-making process for HSU. Specifically, the author identified five stages a person went through, beginning with symptom experience, then assumption of the sick role, receiving medical care, carrying out dependent patient responsibilities, and finally recovery (Burnham, 2014; Yang & Hwang, 2016). Sociologist Kai Erikson (1957) applied Parson's theory of the sick role to the field of mental health, noting that the process of qualifying for the sick role differs between physical and mental health. Specifically, the author highlighted that in the context of physical illness, a physician certifies that an individual is genuinely ill and society accepts the legitimacy of the physician's designation. However, in the context of mental health, the average person struggles to recognize and understand mental illness, leading to doubts about the legitimacy of mental illness and refusal to accept an individual with mental illness as eligible for the sick role, even when certified by a psychiatrist or mental healthcare provider (Erikson, 1957). In line with this, lack of recognition of mental health symptomatology, perceptions of mental health symptoms as normal stress, and attitudes of blame (e.g., people with mental illness are responsible for their symptoms) are some of the many factors associated with delay or failing to seek treatment for mental illness (Corrigan & Wassel, 2008; Jorm, 2012; Klineberg et al., 2010). A systematic review of 144 quantitative and qualitative studies comprising a total of 90,189 participants indicated that stigma had a small to medium sized negative effect on help seeking behaviour (Clement et al., 2015). Endorsed negative stereotypes regarding mental illness included perceptions of individuals seeking mental healthcare as having "failed at dealing with life's problems", "are to blame for problems" are "fabricating illness", and "are bad parents" (Clement et al., 2015).

Criticisms of these sociological theories included failure to address the variation in people's HSU behaviour, resources required for access to healthcare and social determinants of health, and the role of the healthcare systems (Burnham, 2014; Yang & Hwang, 2016). Additionally, critics argued that this framework was difficult to quantify and use as an instrument to predict groups at risk of illness or improve treatment, and by the 1990's this approach was rarely used in literature examining HSU (Burnham, 2014).

Socio-Psychological Models

Socio-psychological models incorporate psychological factors and processes to understand access and use of healthcare services. These models emphasize the role of individual factors in HSU and often focus on three interdependent concepts: motivation (i.e., understanding a person's needs to understand behaviour), perception (i.e., behaviour as a function of attitudes about self and others), and learning (i.e., learned behaviours) (McKinlay, 1972). Models centred around the role of motivation emphasize the importance of individuals goas and needs in determining behaviour while models centred around perception emphasize the importance of individuals beliefs in driving behaviour (Mckinlay, 1972). Models centered around learning prioritize object behaviour to examine the inter-related concepts of motives and perception (Mckinlay, 1972). Rosenstock (1960) outlined three primary principles of motivation as a framework for HSU. Principle one is that health seeking behaviour (preventative or treatment) is determined by the extent to which a person sees a health problem as having a high likelihood of occurring, serious consequences if it occurs, and believes services available will be helpful. For example, individuals of low socioeconomic status (SES) may acknowledge having a health concern however not believe effective services are available (McKinlay, 1972). Principle two postulates that behaviour occurs as the resolution of conflicts between motives and courses of action; where motives or courses of action conflict (e.g., economics vs health, comfort vs action, short term vs long term goals, etc.), the motive that has the highest value for the individual will dominate. Principle three states that health-based motives can lead to behaviour unrelated to health and conversely HSU is not always a result of health-related motives.

Utilizing the concept of perception, Stoeckle, Zola, and Davidson's (1963) framework for HSU included three categories of psychological determinants: a patients' attitudes, beliefs, and knowledge of their symptoms; their attitudes and expectations of the care providers and health services; and their criteria for health, sickness, and necessity of medical care. Similarly, Mechanic & Volkart's (1960) and Mechanic's (1968) help-seeking framework addressed how perceptions of symptomatology impact HSU. The authors identified that HSU is one of many responses to illness and that "illness recognition" and "illness danger" impact peoples' perception of the severity of their symptoms and subsequent response to their illness (McKinlay, 1972; Yang & Hwang, 2016). "Illness recognition" is defined as an individual's familiarity with, and perception of the severity of their symptoms while "illness danger" is their perception of the predictability of the outcome and harm that is likely to result from the illness (McKinlay, 1972; Mechanic 1968). This framework suggests that, in people with low tendency to adopt the sick role, only the more uncommon or severe illnesses that impact daily functioning are likely to lead to HSU (Mechanic, 1968; Mechanic & Volkart 1960). Overall, socio-psychological models address variations in people's HSU behaviour and provide direct explanations for HSU; however, critics note that these models do not address the societal and institutional context in which health and illness behaviour occurs (Anderson, 1973; Gibson, 1972; Yang & Hwang, 2016).

Socio-Cognitive Models

Socio-cognitive frameworks assume that a rational decision-making process based on an understanding of relevant information determines health behaviour and expand on the factors included in the socio-psychological frameworks (Henshaw & Freedman-Doan, 2009). These theories were developed to explain the mechanisms of action for behaviour change and have been applied to health behaviours, including preventative and treatment-based HSU. While 83 socio-cognitive theories and models of behaviour change exist, this review is limited to those that have the greatest utility to inform access and use of healthcare services (Michie, et al., 2014). Empirical studies examining use of tuberculosis screening, penicillin prophylaxis for heart disease, influenza, and preventative dental care led to the development of “The Hochbaum Model”, “Theory of Triadic Influence”, and “The Behavioural Science Model” (Flay & Petraitis, 1994; Hochbaum, 1958; Kegeles, 1963). Rosenstock (1966, 1974) expanded on these models with the “Health Belief Model” (HBM), which has been applied to understanding and predicting engaging in preventative health services, patient response to symptoms, as well as medical compliance and it is still used as a framework in today’s literature (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). These models all contend that people are unlikely to engage in health behaviours, such as seeking preventative healthcare services, unless they are in a state of readiness, which is determined by four interrelated factors: (a) perceived vulnerability to contracting an illness (i.e., perceived susceptibility); (b) belief that the illness will have serious negative consequences and interfere with daily functioning (i.e., perceived severity); (c) belief that health behaviour will be effective (i.e., perceived benefits); and (d) perceive health services to be available with minimal barriers (i.e., perceived barriers) (Henshaw & Freedman-Doan, 2009; Kegeles, 1963; Rosenstock, 1966). Additionally, “cues to action”, which are defined as reminders of the perceived severity and can be external (e.g., educational material) or internal (e.g., symptoms), need to be present to prompt health behaviours such as HSU. The level of readiness (perceived susceptibility and severity) informs the motivation to act while the perception of benefits and barriers informs the path of action and the cues to action are the catalyst for the process (Henshaw & Freedman-Doan, 2009; Rosenstock, 1966). The necessary intensity of a cue varies based on level of readiness, with low readiness (i.e., little perceived susceptibility and severity) requiring more intense cues and high readiness (i.e., high perceived susceptibility and severity) requiring less intense cues (Henshaw & Freedman-Doan, 2009; Rosenstock, 1966).

Rosenstock and colleagues (1988) refined the HBM by incorporating perceived self-efficacy as an additional factor influencing health behaviours. Specifically, the authors proposed that a person's expectations about their own capabilities to influence outcomes will also shape behaviour. Proponents for the HBM argue that this model provides a parsimonious explanation of a variety of constructs within one framework, has been shown to have predictive utility, and has led to clinical interventions to increase HSU (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). Critics of the HBM note that, while the model acknowledges that demographic (e.g., sex, ethnicity, and SES), socio-psychological (e.g., personality and peer attitudes) and structural (e.g., knowledge of a disease) variables impact the primary factors, these variables are not directly incorporated into the model (Yang & Hwang, 2016).

The "Theory of Planned Behaviour" (TPB) and the "Self-Regulation Model" (SRM) are two additional socio-cognitive models of health behaviour that have significant overlap with the HBM and have been applied to understanding HSU (Ajzen, 1991; Leventhal et al., 1984). Ajzen's (1991) TPB hypothesizes that, to the extent that a person has the required resources and opportunities (e.g., time, money, etc.), an individual's intention to engage in a behaviour predicts the likelihood of the given behaviour. Intention is operationalized as willingness to exert effort and is determined by three independent factors: (a) attitude toward a behaviour, (b) subjective norms, and (c) perceived behavioural control (Ajzen, 1991). Attitude toward a behaviour refers to a person's appraisal of the usefulness of a given behaviour, subjective norms are the perceived social pressure to perform a behaviour, and perceived behavioural control refers to a person's perceived self-efficacy in ability to perform the behaviour (Ajzen, 1991). The author hypothesizes that intention to perform a behaviour will increase when they have a favourable attitude and subjective norms coupled with greater perceived behavioural control.

The SRM assumes that people are active problem solvers and health related behaviours are an attempt to close perceived gaps between current health and a future health goal (Leventhal et al., 1984; Lobban et al., 2003). The model proposes a dynamic process in which an individual's cognitive and emotional representation of their current illness predicts their coping strategies (e.g., accessing services, taking medication, etc.), and the outcome of that strategy is then evaluated and integrated back into their representation of their illness and influences future coping behaviours (Leventhal et al., 1984; Lobban et al., 2003). An individual's representation of their current illness is proposed to comprise five components: (a) how they label the experienced symptoms (i.e., perceived identity of the illness); (b) the perceived consequences of the illness (e.g., physical, social, etc.); (c) the perceived causes of the illness; (d) expected timeline of the illness; and (e) perceived control or cure of the illness (Henshaw & Freedman-Doan, 2009; Leventhal et al., 1984; Lobban et al., 2003).

Critics argue that socio-cognitive models do not address the emotional components of health behaviours or system-level determinants of HSU, such as the influence of healthcare institutions and policy (Henshaw & Freedman-Doan, 2009; Yang & Hwang, 2016). Additionally, while these frameworks have demonstrated strong predictive utility for short-term physical HSU (e.g., initiating treatment), there is less evidence to support its utility for predicting mental health service utilization and long-term engagement with HSU (Henshaw & Freedman-Doan, 2009).

Socio-Demographic Models

Socio-demographic models expand on socio-psychological and socio-cognitive models by including community and societal level factors to understand HSU. Socio-demographic factors that have been shown to influence the use of healthcare services include age, education, occupation, religion, ethnicity, socio-economic status, geographical location (e.g., urban rural continuum), and neighbourhood (Allan & Ammi, 2021; Allin et al., 2010; Andersen, 1995; McKinlay, 1972; Mohnen et al., 2019; Sibley & Weiner, 2011; Zola, 1966). These factors are often referred to as social determinants of health (SDH) and encapsulate non-medical influences on health outcomes (Braveman et al., 2011). Many frameworks for understanding the influence of each specific factor exist as well as broader models that examine how multiple social determinants directly and indirectly shape health-related behaviours, including HSU.

In the 1960's, research conducted by Zola and colleagues (Stoeckle et al., 1963; Zola, 1963; Zola, 1966) as well as Suchman (1964, 1966) highlighted the impact of culture and social structure on health behaviours. Zola (1966) proposed that most people constantly have health symptoms and the symptoms that are acted upon (e.g., through HSU) are those defined by their particular ethnic or cultural group as requiring action and after a cue to action occurs. This theory has been supported by studies examining differences in location of bodily complaints (e.g., ear, throat, abdomen), number of symptoms reported, and degree of pain reported between different cultural groups attending hospital for care (Zborowski, 1952; Zola, 1966). Suchman (1964, 1966) examined differences in HSU in individuals belonging to "cosmopolitan" and "parochial" sub-cultures and proposed that HSU is influenced by both the structure of the group to which an individual belongs to and the value system that group adheres to. For example, the author observed that members of the cosmopolitan group were more likely to value scientific-based health information and tended to seek health services at an early stage of illness, while members of the parochial group placed more value on community knowledge of health and were more likely to seek health advice from friends and family.

Hosseini and colleagues (2017) completed a narrative review of SDH conceptual models and recorded 21 models published between 1990 and 2014, including “The Bullseye Model of Social Determinants of Health”, “Alberta Social Determinants of Health Framework”, “Conceptual Framework for Action on the Social Determinants of Health”, and NICE’s “Emerging Conceptual Framework for Public Health” (Kelly et al., 2008; O’Hara, 2005; Siddiqi et al., 2009; Solar & Irwin, 2010). The narrative review of the 21 models categorized the variables included across the models into three categories, (a) classic indicators, (b) fixed and demographic indicators, and (c) proxy indicators (Hosseini Shokouh et al., 2017). Classic indicators were defined as the traditional measures of SES and include education, income, and occupation. Fixed and demographic indicators referred to sex, ethnicity, age, body mass index, marital status, and religion. Lastly, proxy indicators included wealth and assets (i.e., financial and physical property such as a house, investments, and pensions), household size (i.e., number of people who live in a residence relative to the number of rooms in the residence), social capital (i.e., how much a community helps each other), social support, utilization and access to healthcare services, health behavior, culture, place of residence (e.g., urban/rural) , and social and family safety (e.g., violence in neighbourhoods) (Hosseini Shokouh et al., 2017). The authors identified that models published before 1995 focused on identifying and determining the relationship between determinants of health, while models developed between 1995 and 2005 attempted to classify these determinants and relationships, and models created after 2005 primarily highlighted the role of SES in health inequalities (Hosseini Shokouh et al., 2017).

Recent ecological approaches to understanding health emphasize the impact of physical and social environments on health outcomes, including HSU. Within ecological approaches, variations in health between neighbourhoods have been studied and have led to the development of new models for HSU, such as the “Neighbourhood and Healthcare Utilization Model” (Mohnen et al., 2019). This model proposes that physical and social neighbourhood characteristics can have facilitating and inhibiting effects on HSU through the supply available, healthcare need, and healthcare demand (irrespective of need). The supply available includes the distance, accessibility, and amount of healthcare facilities and providers available in a neighbourhood. Need is defined as self-perceived physical health, mental health, diseases, and mortality, while healthcare demand reflects the social norms and values of a neighbourhood that motivate people to engage or disengage with healthcare services (Mohnen et al., 2019). Socio-demographic variables have a clear impact on the access to and use of healthcare services and are often integrated into other frameworks that conceptualize HSU.

Organizational/Institutional Models

Organizational and institutional frameworks of HSU emphasize the role of the healthcare system in determining health service access and use. While multiple models exist within this framework, all models suggest that HSU is the result of the organizational characteristics of the healthcare system, such as variations in the location, payment system (e.g., insurance or private), and quantity of healthcare providers and facilities (McKinlay, 1972; Yang & Hwang, 2016). These models attempt to address disparities in HSU through interventions addressing structural barriers. For example, these models propose that the removal of financial barriers through national health insurance is a necessary step to provide equal access to quality and quantity of healthcare (Gibson, 1972; Yang & Hwang, 2016). Derose and colleagues (2011) developed a framework that explicitly incorporates the role of public health programs and policies in addition to environmental factors (e.g., cultural norms), health system factors (e.g., wait times), and individual factors (health beliefs) to understand and address disparities in healthcare access.

Critics argue that, while the structure of the healthcare system has a clear role in the access and use of healthcare services, it is not able to provide a complete conceptualization of HSU (McKinlay, 1972; Yang & Hwang, 2016). Moreover, given the national health insurance policy used in Canada, this framework has less relevance for studies examining individual and community differences in HSU within Canada.

Economic Models

Another approach to understanding demand for, and use of, healthcare services is to apply economic principles and theories. The principal-agent framework is one economic theory that has frequently been applied to models of healthcare utilization to measure the performance of healthcare systems and address institutional barriers to access (Curtis & MacMinn, 2008; Brinkerhoff & Bossert, 2014; Sekwat, 2000). The principal-agent relationship exists when the principal engages the agent to perform a service on their behalf in exchange for compensation. In principal-agent relationships, the principal requires the service of the agent to solve a problem and delegates decision making authority to the agent due to information asymmetry (i.e., the agent has more information about the topic at hand) (Sekwat, 2000). In healthcare, the principal-agent relationship exists between the patient and provider. Due to the information asymmetry (i.e., the provider has more knowledge about the medical issue and treatment), the patient (i.e., the principal) relies on the healthcare provider (i.e., the agent) to determine what is wrong and assist them in making optimal healthcare utilization choices (Curtis & MacMinn, 2008). Ideally, the provider offers the same amount of healthcare the patient would choose if they had the same depth of information, however this is not always the case due to economic, cultural, and political differences between the provider and patient (Curtis & MacMinn, 2008).

Healthcare utilization models that apply the principle-agent framework typically examine healthcare utilization as a two-step process; the first stage is the patient’s decision to initiate or not initiate healthcare use and the second stage is the physician’s decision regarding the number of visits, which is conditional on at least one visit (Curtis & MacMinn, 2008). This two-step model allows researchers to examine if inequities in HSU are occurring at the contact stage, which is assumed to be primarily determined by the patient, or the number of visits (conditional on accessing the system) stage, which is assumed to be primarily determined by the provider. Factors impacting patients’ decision making include their perception of their health status and ability to navigate the system while factors impacting the provider’s decision include their perception of the patient’s health and incentive to treat the individual. Economic based healthcare utilization models allow researchers to differentiate between initial and continued access, localize issues with HSU (i.e., patient level vs provider level), and provide insights into the balance between costs and effects.

Access as Fit

Penchansky and Thomas (1981) developed a framework for understanding access to healthcare that focuses on the interaction of key elements which determines HSU. The model asserts that HSU primarily depends on the degree of fit between the individual’s needs and the system’s ability to meet those needs and measures fit across five dimensions: (1) availability, (2) accessibility, (3) accommodation, (4) affordability, and (5) acceptability (Penchansky & Thomas, 1981). Availability describes the volume and type of existing resources as it relates to the volume of clients and type of needs. Accessibility is defined as the geographic relationship between the users and providers of care. Accommodation is the relationship between the organization of resources within the healthcare system (e.g., clinic hours, waiting time, appointment systems) and the user's ability to engage with the set-up. Affordability is defined as the relationship between costs of services and users' ability to pay for the services as well as users' perception of the value relative to the cost. Finally, acceptability represents the users' attitudes towards the healthcare providers (e.g., age, sex, location, type of facility, religious affiliation) and providers attitudes toward the users of the service (Penchansky & Thomas, 1981).

Frenk (1992) revised the model to more clearly define terms and reduce overlap in concepts. Specifically, the author redefined fit as a process of adjustment between the healthcare system and population, suggested the term utilization power as a substitute for access to reduce confusion between the terms access and accessibility, and defined utilization power as an individual's ability to utilize healthcare given a need or desire. The author also redefined accessibility as the degree to which an individual seeking care actually receives it and availability to refer to the existence of healthcare resources within the context of their productivity (i.e., ability to produce healthcare services). Finally, the concept of resistance was added, which refers to the obstacles (e.g., organizational, financial, and environmental) inherent in the health system that impede a person's ability to obtain care (Frenk, 1992; Ricketts & Goldsmith, 2005). Taylor & Ricketts (1994) applied the framework of fit to the development of a metric for underservice, demonstrating the interactive relationships between resources, needs, and demands as well as the clinical utility of the model. Critics of the framework maintain that the terms remain unclear and there is limited clinical utility (Ngwakongwi, 2017).

Socio-Behavioural Models

Socio-behavioural models of HSU highlight the role of the healthcare system and social networks in addition to individual and community factors in determining HSU. While several socio-behavioural frameworks exists (e.g., "Pescosolido's Network Episode Model" and

"Crammer's Help Seeking Model"), the "Behavioural Model of Health Service use" (also commonly referred to as "The Behavioural Health Model" and "Andersen's Health Behaviour Model"; Andersen, 1968) has received significant empirical support and is the most commonly used framework in research examining healthcare service access and use (Allan & Ammi, 2021; Ngwakongwi, 2017; Pong et al., 2011; Racher & Vollman, 2002; Ricketts & Goldsmith, 2005; Sibley & Weiner, 2011; Williams et al., 2019; Yang & Hwang, 2016). A systematic review examined use of this model in research between 1975 and 1995 and identified 139 studies that implemented this model as the theoretical basis of their investigation (Phillips et al., 1998). Another systematic review examining the application of this model in studies published on PubMed between 1998 and 2011 identified 16 studies that used this model to examine HSU in general healthcare (Babitsch et al., 2012). Most recently, Lederle and colleagues (2021) completed a scoping review on the suitability of the application of Andersen's model in health service research and documented 1879 studies published between 1968 and 2020 that utilized this model as the theoretical background, of which 77 studies employed a qualitative design.

When initially developing the framework, Andersen and colleagues sought to address criticisms that previous HSU frameworks focused on one of two major dimensions, population characteristics or health system characteristics, rather than include both of these determinants dynamically (Ngwakongwi, 2017; Ricketts & Goldsmith, 2005). Andersen's (1995) "Phase 4 Model" is the fourth iteration of the behavioural health model. See Figure 1 for visual representation of this model. This iteration portrays multiple influences on HSU and subsequent health status, and includes feedback loops in which the outcomes affect the determinants. This model proposes that health outcomes (defined as perceived health status, evaluated health status, and consumer satisfaction) are determined by: (a) environmental characteristics (i.e., healthcare system and external environment); (b) population characteristics (i.e., predisposing characteristics, enabling resources, and need); and (c) health behaviour (i.e., personal health practices and use of health services). Within the environmental domain, the healthcare system refers to the national health policy, resources, and healthcare organizations while the external environment refers to the economic climate, politics, societal norms, and physical factors (Andersen, 1995). The population characteristics includes three factors placed in a sequential order (i.e., predisposing factors to use health services contribute to enabling resources to use health services, which contribute to an individual's needs). Predisposing factors are characteristics of the individual, such as age, sex, ethnicity, social status, education, and beliefs. Enabling resources are system or structural conditions that enable or inhibit use of available services such as personal and family resources (e.g., health insurance, living arrangements, transportation, family health habits) and community resources (e.g., social supports, distance to health facility, number of providers). Individual needs are the complexity and severity of the health condition that leads to needing health services and can be viewed from the perspective of the individual seeking care or healthcare provider (Andersen, 1995; Pong et al., 2011; Ricketts & Goldsmith, 2005; Williams et al., 2019). Personal health practices and HSU are treated as mediating variables of health status and satisfaction rather than the final outcome variables.

Andersen's (1995) Phase 4 Model integrates many of the individual, community, and societal factors discussed in socio-psychological, socio-cognitive, and socio-demographic models, which allows researchers to focus on specific factors that may be more relevant for HSU in a particular situation while grounding the data within a broader context. The model has contributed to clarity on measures of HSU and the development of outcome measures assessing utilization and satisfaction (Ngwakongwi, 2017; Ricketts & Goldsmith, 2005). Specifically, HSU can be characterized in terms of type of services (e.g., emergency care, mental health, home care, etc.), site where care is rendered (e.g., home, clinic, inpatient hospital, etc.), purpose of care (e.g., preventative or stabilizing), time interval (e.g., mean number of visits in a given time interval), and continuity of care (Ngwakongwi, 2017). This model has been applied extensively in the literature to understanding HSU for diverse illnesses (e.g., spinal cord injury, heart disease, diabetes, mental illness), settings (e.g., emergency department, outpatient services, primary care, community mental health, rural, urban), and populations (e.g., geriatric, adult, children, homeless, community, immigrants) (Babitsch et al., 2012; Lederle et al., 2021; Pong et al., 2011; Sibley & Weiner, 2011; Stein et al., 2007; Williams et al., 2019; Yang & Hwang, 2016).

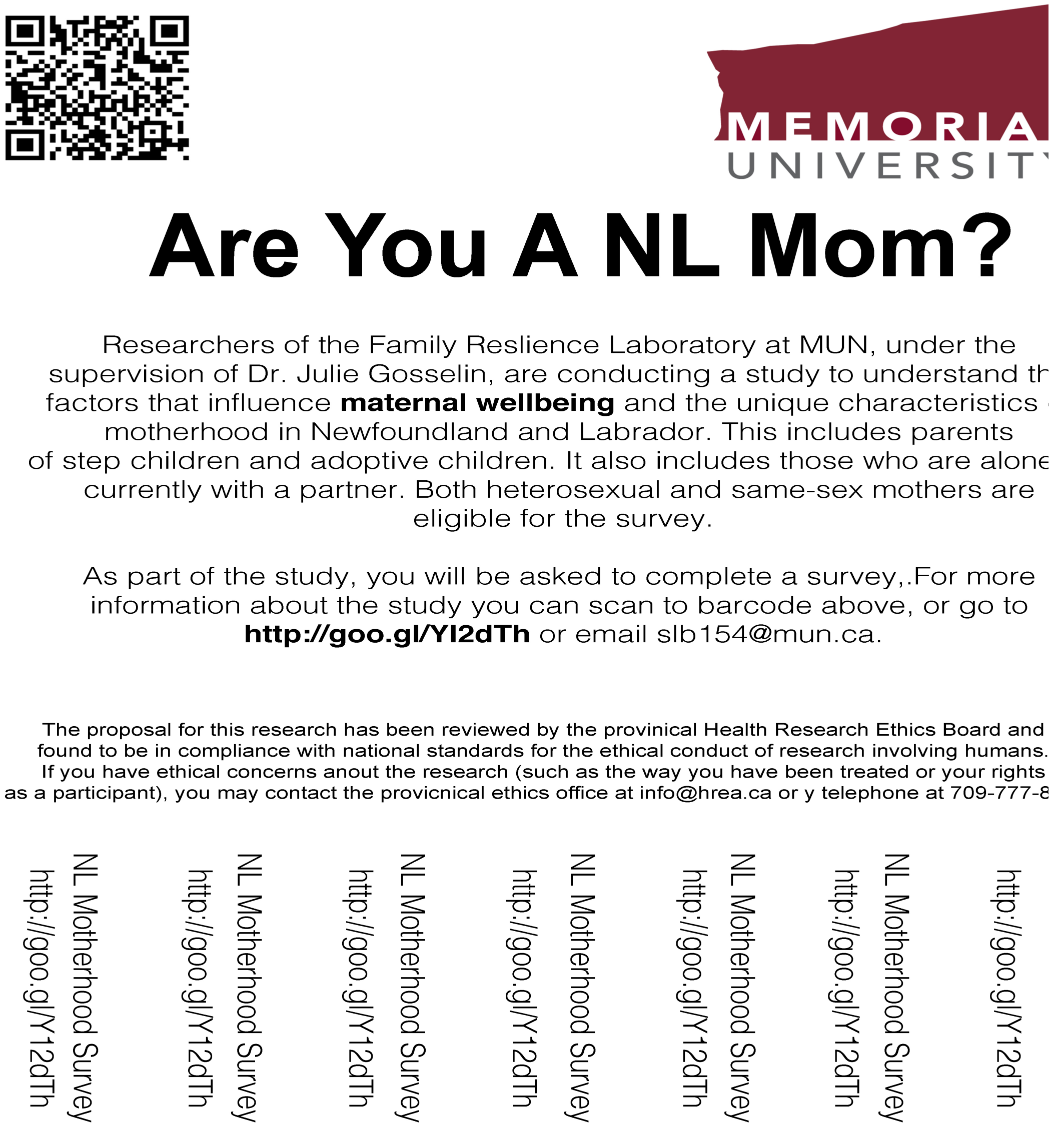
Andersen and colleagues also delineated different dimensions of access, including potential and realized access, equitable and inequitable access, effective and efficient access, and initiated and continued access (Racher & Vollman, 2002). Potential access has been defined as the availability of healthcare services relative to need for services while realized access has been defined as actual use of these services to fulfill needs (Aday and Andersen 1981; Racher & Vollman, 2002). Equitable access occurs when demographic and need variables determine variance in HSU, while inequitable access occurs when structure, predisposing factors, and enabling resources primarily account for the variance in HSU (Andersen 1995; Racher & Vollman, 2002). Effective access refers to use of services leading to improved health status or satisfaction with services, and efficient access occurs when health status or satisfaction with services increases in relation to the quantity of health services accessed (Andersen, 1995; Racher & Vollman, 2002). A third dimension of healthcare access is initiated and continued access to healthcare. This dimension was first proposed by Donabedian (1972), who suggested that different factors may impact initial contact and ongoing access and that the same factors may impact these two outcomes differently. Aday and Andersen (1981) captured this dimension in their framework by including time interval of contact with the health system, number of contacts, and continuity of services for a particular illness episode within the operationalization of HSU. Andersen (1995) further addressed this dimension by including the feedback loop in the fourth iteration of the model in order to measure ongoing access and access over time.

While not explicitly included in any iteration of Andersen's model, a fifth dimension of access included in many frameworks of HSU is spatial and aspatial access. Donabedian (1972) first labelled this dimension as socio-organizational and geographic factors, with socio-organizational factors referring to characteristics of the healthcare service (e.g., cost and specialization of provider) that contributes to differential access. Geographical factors referred to physical space of, or distance to, healthcare services. Other models differentiated between location accessibility (e.g., physical proximity of facilities relative to consumers' residence) and effective accessibility (e.g., financially accessible) (Racher & Vollman, 2002).

Healthcare service utilization is the interaction of individual health needs and healthcare systems designed to meet those needs and is impacted by a myriad of societal and community, organizational/institutional, and individual factors. Andersen's framework is a multilevel model that incorporates contextual and individual determinants of HSU and allows for the dynamic bi-directional impact of these factors on HSU through the inclusion of a feedback loop. Additionally, while providing a theoretical framework to assess HSU, Andersen's model allows for flexible decision making in regard to variables examined based on the research question, purpose of the study, and data availability (Phillips et al., 1998). This model has been extensively applied to the study and systematic reviews of HSU for a variety of health conditions, types of services, and populations (Allan & Ammi, 2021; Babitsch et al., 2012; Lasser et al., 2006;

Lederle et al., 2021; Phillips et al., 1998; Pong et al., 2011; Quan et al., 2006; Sibley & Weiner, 2011; Williams et al., 2019).

Appendix B
Promotional Poster



Are You A NL Mom?

Researchers of the Family Reslience Laboratory at MUN, under the supervision of Dr. Julie Gosselin, are conducting a study to understand t factors that influence **maternal wellbeing** and the unique characteristics motherhood in Newfoundland and Labrador. This includes parents of step children and adoptive children. It also includes those who are alone currently with a partner. Both heterosexual and same-sex mothers are eligible for the survey.

As part of the study, you will be asked to complete a survey,.For more information about the study you can scan to barcode above, or go to **http://goo.gl/YI2dTh** or email slb154@mun.ca.

The proposal for this research has been reviewed by the provinical Health Research Ethics Board and found to be in compliance with national standards for the ethical conduct of research involving humans. If you have ethical concerns anout the research (such as the way you have been treated or your rights as a participant), you may contact the provicnical ethics office at info@hrea.ca or y telephone at 709-777-8

NL Motherhood Survey
http://goo.gl/Y12dTh

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http://goo.gl/Y12dTh

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http://goo.gl/Y12dTh

Appendix C.
Facebook Groups Where Promotional Poster was Shared

1. Adoption Option Newfoundland and Labrador
2. Baie Verte Classifieds
3. Bay Roberts Area Buy and Sell
4. Bay Roberts and Area Children Buy and Sell
5. Bay Roberts Kool Deals
6. Buchans Junction Group
7. Buy and Sell Harbour Grace
8. Carbonear Buy and Sell
9. Carbonear Classifieds
10. Cloth Diapering Parents - Newfoundland & Labrador
11. Corner Brook Mom's Buy and Sell
12. Fogo Island Buys
13. Gander Mommy Network
14. Gander Buy and Sell and Trade
15. Grand Falls - Windsor Moms Swap/Buy
16. Grandfalls Windsor Mom Buy and Sell
17. Harbour Grace and Carbonear Buy and Sell
18. Mommy Board NL
19. New Deer Lake Classifieds
20. New Grandfalls Windsor Buy and Sell
21. NL Moms Buy & Sell
22. Nain Labrador Virtual Flea Market
23. Offensive Moms - NL
24. Paradise, CBS and Surrounding Area Swap / Buy / Give Away
25. Parents helping Parents with Everyday Questions about Parenting – NL
26. Port Aux Basques Buy and Sell
27. Port Aux Basques Classifieds
28. Southlands Mommas
29. St. John's & Area Classifieds
30. St. John's Children's Stuff Swap Trade and Buy
31. Stephenville Classifieds
32. Stephenville Buy and Sell Group
33. "Thrifty Mama's"--New Hr/Whitbourne
34. The Avalon Club - NL Marketplace
35. Your Newfoundland

Appendix D.

Community Centers, Daycare Centers, and Organizations that were contacted regarding the study and asked to promote the survey amongst their patrons.

1. A child's place preschool and daycare
2. ABC Preschool
3. Active Time Preschool and Daycare
4. After School Zone
5. Aquatic Centre *
6. Astros Infant Care Center
7. Bay Arena
8. Bay Roberts Swimming Pool
9. Bayshore Daycare Inc
10. Building Blocks Child Care Center
11. Care-A-Lot Daycare
12. Chatter Box Preschool and Daycare Center
13. Children's Choice Learning Center *
14. Churchill Falls Community Center
15. Community Action Committee for Southwest Newfoundland
16. Community Center – Wabush
17. Community Center – Labrador
18. Corner Brook Arts and Culture Center
19. Creative Beginnings Daycare
20. Creative Learning Child Care Center
21. Daybreak Childcare Center
22. Dr. Heidi Kravitz (Gynaecologist) *
23. Dr. Tim Strand (Gynaecologist)
24. Exploits Valley Community Coalition
25. Family and Child Care Connections
26. First Steps Childcare INC
27. First Steps Family Resource Center
28. Fisher Children's Center *
29. Foster Families Association
30. Frances Little Friends Daycare
31. Fundamental Childcare Center
32. GB Cross Memorial Hospital
33. Gander Arts and Culture Center
34. Gander Community Center
35. Gander Daycare Center
36. Grand-Falls Windsor Community Center *
37. Happy Times Preschool
38. Happy Tots Nursery School
39. Humberwood Centre
40. Jack & Jill Preschool *
41. James Paton Memorial Hospital
42. Karnik Centre

43. Kid Kare
44. Kidcorp Learning Center
45. Kiddie City Inc
46. Killbride Children’s Center
47. Labrador Grenfell Health
48. Labrador Straits Family Resource Centre
49. Labrador West Arts and Culture Center
50. Little Darling’s Daycare *
51. Little Jewel Preschool Program
52. Little People’s Workshop
53. MAX Arts, Athletic, and Wellness
54. Merry Care Daycare
55. Mes Amis Daycare and Preschool
56. New Fun Land
57. New Fun Land IV *
58. New Fun Land X *
59. Nursery Time Preschool and Daycare Center
60. Panda Bear Daycare
61. Paradise Daycare and Preschool
62. Peter Pan Preschool II
63. Pinset Center for the Arts
64. Play N Learn Preschool
65. Play, Learn, & Grow Child Care Centre
66. Precious Peoples Playland
67. Pumpkin House Day Care
68. Rainbow Daycare Center
69. Rec Centre Wabush
70. Robins Nest Child Care Center
71. Rockcliffe Children’s Center
72. Single Parent Association of NL
73. Southern Labrador Family Center
74. Special Additions Child Care Center
75. Stay and Play Daycare *
76. Stephenville Arts and Culture Centre
77. Stephenville High School Infant Centre
78. Stepping Stones Daycare *
79. The Children’s Center
80. Tiny Hands Childcare Center
81. Toybox Preschool
82. Wedgewood OB/GYN
83. Wee Gems Preschool
84. West Rock Community Center *
85. Wilbur Sparkes Recreation Complex
86. YMCA Bay George
87. YMCA After School Program
88. YMCA Children’s Learning Center

89. YMCA Connections – Afterschool and Lunch
90. Young Explores

* Denotes organizations that did not respond or declined participating

Appendix E.
Informed Consent Form (Online)

Title:	Newfoundland and Labrador Survey on Motherhood
Researcher(s):	Dr. Julie Gosselin, R.Psych., Associate Professor, Psychology Department Memorial University, Psychology Department, jgosselin@mun.ca Shannon Bedford, Psy.D Student, Psychology Department Memorial University, (709) 864 – 2161, slb154@mun.ca Sandrine Jean, Ph.D, Assistant Professor, Anthropology Department Memorial University, sjean@mun.ca

You are invited to take part in a research project entitled "Newfoundland and Labrador Survey on Motherhood." This survey is voluntary, and will take approximately 30 minutes of your time.

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the research coordinator, Shannon Bedford, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:
As part of my Psy.D dissertation I am conducting research under the supervision of Dr. Julie Gosselin.

Purpose of Study:
The purpose of the study is to examine the experience of motherhood in Newfoundland and Labrador in different family contexts, more precisely biological, adoptive and step-parent relationships including hetero and homosexual married, single, divorced, widowed, cohabiting and remarried mothers as well as the influence of mobile and distance work on family life.

What You Will Do in this Study:
Participation will consist essentially of completing an online survey and providing socio-demographic information as well as answering questions. There will be an opportunity for

participants to express interest to participate in future research projects surrounding these areas if consent is given at the end of this survey. Desire to participate in future studies will not influence eligibility for the current study.

Length of Time:
The approximate amount of time required to complete the questionnaire is approximately 20-30 minutes, however some individuals may complete the study in a longer or shorter amount of time. Therefore, participation can be expected to take participants 20-30 minutes.
Please note that the survey must be completed all at once. Participants cannot partially complete the questionnaire and return to it later.

Withdrawal from the Study:
- You can stop and/or end participation during the data collection by closing the survey. Any partially completed data will be discarded.
- If you withdraw consent after the data collection is complete, data cannot be removed because it will be anonymous.

Possible Benefits:
- The study will contribute to the scientific/scholarly community and society as a whole. Findings will allow us to have a better understanding of the experience of mothers in Newfoundland and Labrador, which may be used to facilitate change and improvements to maternal and community health and services.

Possible Risks:
- I understand that my participation in this study implies that I will answer questions concerning my personal experience as a mother. While it is possible that this may lead to some emotional discomfort, the researchers have assured me that everything has been done in attempt to diminish these risks.
- Should you require services to help with distress which may be elicited by the study questions, please refer to the following resources:

Mental Health Crisis Line, 24-hour Toll-Free - 1-888-737-4668
Health Line 1-888-709-2929
Paediatric Advice Line 1-888-722-1126

Confidentiality:
- The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure.
- Names will not appear on any document related to an individual's participation in the study. Your participation is anonymous and once the data is uploaded for analysis, it will be aggregated with the rest of the participants' information.

Anonymity:

- Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.
- Every reasonable effort will be made to ensure your anonymity. You will not be identified in publications because your participation remains anonymous and your data will be aggregated with the rest of participants' information for analysis.

Use, Access, Ownership, and Storage of Data:

- The data collected will be kept in a secure manner. Data will be password protected and kept under key, in Dr. Gosselin's research laboratory for a period of five years following the end of the data collection.
- Only Dr. Gosselin, Dr. Sandrine Jean and the project coordinator Shannon Bedford will have access to the raw data during the initial data collection. Secondary data analyses performed by additional research team members are possible once the initial data collection is complete, such as students completing their honours thesis or Master's thesis.
- Data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research.

Third-Party Data Collection and/or Storage:

Data collected from you as part of your participation in this project will be hosted and/or stored electronically by *Qualtrics Survey Software* and is subject to their privacy policy, and to any relevant laws of the country in which their servers are located (Canada). Therefore, anonymity and confidentiality of data may not be guaranteed in the rare instance, for example, that government agencies obtain a court order compelling the provider to grant access to specific data stored on their servers. If you have questions or concerns about how your data will be collected or stored, please contact the researcher and/or visit the provider's website for more information before participating. The privacy and security policy of the third-party hosting data collection and/or storing data can be found at: https://www.qualtrics.com/privacy-statement/.

Reporting of Results:

- The data may be published in subsequent journal articles or as presentations at conferences or both, as well as through student dissertations.
    - Upon publication, these dissertations will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at: http://collections.mun.ca/cdm/search/collection/theses.
- **The data will only be reported** in an aggregated and/or summarized form. No individual's personal data will be presented independently.

Sharing of Results with Participants:

After the study is complete and results are analyzed, participants will have access to the results of the research should they be interested. If you are interested in reading the final research report, please contact the researchers and we can contact you when the study is complete.

Questions:

You are welcome to ask questions before, during, or after your participation in this research. If you would like more information about this study, please contact: Shannon Bedford (Psy.D student) at slb154@mun.ca.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

By completing this questionnaire you agree that:

- You have read the information about the research.
- You have been advised that you may ask questions about this study and receive answers prior to continuing.
- You are satisfied that any questions you had have been addressed.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation from the study by closing your browser window or navigating away from this page, without having to give a reason and that doing so will not affect you now or in the future.

Regarding withdrawal after data collection:

- You understand that this data is being collected anonymously and therefore your data **cannot** be removed once you submit this survey.

By consenting to this online survey, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Please retain a copy of this consent information for your records.

Clicking '*continue' below and submitting this survey constitutes consent and implies your agreement to the above* statements.

Appendix F.

Newfoundland and Labrador Survey on Motherhood

Please be aware that you may skip any question that you do not wish to answer. The survey will alert you that a question has been left blank, however you may still continue throughout the survey without answering a question.

Q1 Please indicate your gender

○ Male
○ Female
○ Transgender/MTF
○ Transgender/FTM
○ Gender neutral
○ I choose not to answer

Q2 Please indicate your ethnic background

○ Caucasian
○ African
○ Asian
○ Arabic
○ Latino
○ Native North American
○ Other, please specify ____________________

Q3 Please indicate your age

Q4 Please indicate your citizenship

○ Canadian born in Canada
○ Canadian born outside of Canada (please indicate your country of origin):
○ Permanent Resident (please indicate your country of origin):
○ Canadian currently living out of the country (please indicate where):
○ Other (please specify):

Q5 Please indicate how long you have lived in Canada

Q124 In what part of Newfoundland and Labrador do you live?

○ In the provincial capital region (e.g. St. John's, Mount Pearl)
○ A city in Newfoundland (e.g. Paradise, Corner Brook)
○ A town in Newfoundland (e.g. Clarenville, Gander, Grand Falls-Windsor)
○ A small town in Newfoundland (e.g. Bay De Verde, Robert's Arm, St. Lawrence)
○ Labrador (please specify)

Q129 In what region of Newfoundland and Labrador do you live?

○ Avalon
○ Central

○ Western
○ Southern
○ Labrador

Q6 Please indicate the average income of your household
○ $0 - $14, 999
○ $15, 000 - $29, 999
○ $30, 000 - $44, 999
○ $45, 000 - $59, 999
○ $60, 000 - $74, 999
○ $75, 000 - $89, 999
○ $90, 000 - $99, 999
○ $100, 000 - $149, 999
○ $150, 000 - $199, 999
○ $200, 000 - $249, 999
○ $250, 000 or more

Q7 At what frequency do you (or your family) have difficulty paying for substantial needs such as food, clothing, housing, ect.
○ Never
○ Rarely
○ Sometimes
○ Often
○ Almost Always
○ I do not know

Q8 Please indicate your highest level of educational attainment
○ Some High School
○ High School Diploma
○ Some College Studies
○ College Diploma
○ Some Undergraduate Studies
○ Undergraduate University Degree
○ Some Masters Studies
○ Masters Degree
○ Some Doctoral Studies
○ Doctoral Degree
○ Some Post-Doctoral Studies
○ Post-Doctoral Degree

Q9 Please indicate if you are currently working
○ Yes

○ No

Q10 Please indicate how many hours a week you are currently working:
_____

Q11 Please select the option that most closely reflects your current or most recent occupation
○ Professional (doctor, lawyer, engineer, scientist, teacher, nurse, etc)
○ Office Employee (manager, director, salesperson, etc)
○ Tradesperson (construction worker, factory worker, manual work, etc)
○ Self Employed
○ Student
○ Stay-at-home parent
○ Other (please specify)

Q12 Please indicate your marital status Please read all options before answering
○ Married
○ Cohabiting (never married)
○ Single (never married)
○ Separated/Divorced
○ Remarried after divorce
○ Cohabiting after divorce/separation
○ Widowed
○ Remarried after being widowed
○ Cohabiting after being widowed

Q13 Please indicate how many years you have been in your current relationship

Q14 Please indicate the marital status of your current partner
○ Married (for the first time)
○ Cohabiting (never married)
○ Remarried after divorce
○ Cohabiting after divorce/separation
○ Remarried after being widowed
○ Cohabiting after being widowed

Q15 Please indicate your sexual orientation
○ Heterosexual
○ Homosexual
○ Bisexual
○ Asexual
○ Transgender

○ Other (please specify): ____________________

Q16 Please indicate the gender of your current or most recent partner

○ Male
○ Female
○ Transgender/MTF
○ Transgender/FTM
○ Gender neutral
○ Choose not to answer

Q92 Have any of your children been conceived through assisted reproductive technology? E.g. fertility drugs, intrauterine insemination (IUI), in vitro fertilization (IVF), etc.

○ Yes
○ No

Q93 Are you currently, or have you ever, considered yourself to be living in a "mobile" relationship? E.g. Either you or your partner is/has commuted long-distances and/or is/has worked away from home for weeks/months/years at a time?

○ Yes
○ No

Q94 Has "mobile" work, in any way, impacted family planning? E.g. Decisions to have/not to have a child or children?

○ Yes
○ No

Q95 Has "mobile" work impacted the conception process itself? This may include, but is not limited to, delayed, suspended, or advanced TTC [trying to conceive]; difficulty matching ovulation periods with mobile work schedules, among others.

○ Yes
○ No

Q72 Of all the children in your care, who are under age 18, please indicate all categories of children that apply to your parental situation.

○ Biological children
○ Step-children
○ Adopted children
○ Biological and step-children
○ Biological and adopted children
○ Step-children and adopted children
○ Biological, step, and adopted children

○ I have no children under the age of 18

Q111 Child & Family Health
We are trying to get a sense of the overall child health needs in your family. For the next few questions, please consider all the children in your household (at least one week per month) and choose the response that represents the greatest level of care. For example, if one child's heath is good and another is poor, please answer poor.

Q109 In general, how would you say your child's current health is?
○ Excellent
○ Very Good
○ Good
○ Fair
○ Poor
○ I do not know

Q110 In the last 12 months, have you used any of these services for your child
☐ Child/youth health and wellbeing information from phone or internet
☐ Hospital emergency ward
☐ Hospital outpatient clinics
☐ General practitioner/family doctor
☐ Disability services
☐ Speech therapy
☐ Dental services
☐ Paediatrician
☐ Guidance counsellor
☐ Other psychiatric or behavioural services
☐ Other medical specialists
☐ None the above

Q112 In the last 12 months, have there been any of the following services listed that the child needed but could not get.
☐ Child/youth health and wellbeing information from phone or internet
☐ Hospital emergency ward
☐ Hospital outpatient clinics
☐ General practitioner/family doctor
☐ Disability services
☐ Speech therapy
☐ Dental services
☐ Paediatrician
☐ Guidance counsellor

☐ Other psychiatric or behavioural services
☐ Other medical specialists
☐ None the above

Q113 In the last 12 months, has anyone in your family used any of these services
☐ Parenting education courses or programs
☐ Relationship education courses
☐ Relationship counselling (family, couple)
☐ Other counselling services
☐ Parent support groups
☐ Parent information from phone or internet
☐ Drug or alcohol services
☐ Problem gambling services
☐ Adult mental health services
☐ Migrant or ethnic resource services
☐ Housing services
☐ Disability services
☐ Financial management services
☐ Charities (e.g. salvation army)
☐ Emergency relief services
☐ Church or religious group
☐ Other family support services
☐ None of the above

Q114 In the last 12 months have there been any of the services listed that anyone in the family has needed but could not get?
☐ Parenting education courses or programs
☐ Relationship education courses
☐ Relationship counselling (family, couple)
☐ Other counselling services
☐ Parent support groups
☐ Parent information from phone or internet
☐ Drug or alcohol services
☐ Problem gambling services
☐ Adult mental health services
☐ Migrant or ethnic resource services
☐ Housing services
☐ Disability services
☐ Financial management services
☐ Charities (e.g. salvation army)
☐ Emergency relief services

- ☐ Church or religious group
- ☐ Other family support services
- ☐ None of the above

Q102 Overall, how satisfied are you with the availability of family health services in your community:

	Extremely satisfied (1)	Somewhat satisfied (2)	Neither satisfied nor dissatisfied (3)	Somewhat dissatisfied (4)	Extremely dissatisfied (5)
Family physician					
Nursing					
Psychological Counselling or other Mental Health Services					
Other allied health professions (e.g. physiotherapy, occupational therapy, dietician, kinesiologist, etc.)					
Support groups or education programs					

Q115 Personal Health and Experiences

Q116 In general, how would you rate your own health?

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Q117 How often in a given week do you include fresh produce (fruits and vegetables) in your daily meals?

○ Once a week
○ 2-3 times
○ More than 3 times
○ Never

Q118 About how many days each week do you do at least 30 minutes of moderate or vigorous physical exercise? For example, walking briskly, riding a bike, gardening, tennis, swimming, running, ect.

○ Less than one
○ 1
○ 2
○ 3
○ 4
○ 5
○ 6
○ 7

Q119 Over the past month, how would you rate your overall sleep quality?

○ Very good
○ Fairly good
○ Okay/adequate
○ Fairly bad
○ Very bad

Q120 In the last 12 months, have any of the following happened to you or your current partner

☐ Birth of a child or pregnancy
☐ You or your partner suffered a serious illness, injury, or assault
☐ A serious injury, illness, or assault has happened to a close relative
☐ A parent, partner, or child has died
☐ A close family friend or another relative has died
☐ You have been separated from a spouse or partner
☐ Broken off a steady romantic relationship
☐ Started living with a new partner
☐ Had someone new (other than partner or child) move into the household. IE. relative, friend, or boarder.
☐ Had a serious problem with family, close friend, or neighbour
☐ Had a major financial crisis
☐ Had a crisis or serious disappointment in work career
☐ Thought you would soon lose your job
☐ Lost your job, not by choice
☐ Sought work unsuccessfully for more than one month
☐ Had problems with the police or court appearance

☐ Had something you value lost or stolen
☐ Someone in your household had an alcohol or drug problem
☐ Changed job or returned to work
☐ Increased work hours
☐ Decreased work hours
☐ Moved house
☐ Been away from home a lot
☐ Had your home or local area affected by bushfire, flooding, or severe storm

Q121 How often do you see, talk to, or email following people Answer for the most frequent contact, e.g., if you talk to your mother everyday but your father once a week, select everyday.

	No contact (1)	Rarely (2)	At least every month (3)	At least every week (4)	Every day (5)	Not applicable (6)
Your parents						
Your partners parents						
Other family members						
Your friends						
Your neighbours						

Q122 In general, how satisfied are you with the social support you are receiving.
○ Completely dissatisfied
○ Somewhat dissatisfied
○ Moderate satisfaction
○ Somewhat satisfied
○ Completely satisfied

Q126 Have you ever received a diagnosis of a mental health disorder?
○ No
○ Yes, please specify ____________________
○ Prefer not to disclose

Q18 For the following questions, please answer with regards to the child with the next birthday who is your BIOLOGICAL CHILD. Please indicate the age of the child with the next birthday.

Q19 Please indicate the gender of the biological child with the next birthday
○ Male

○ Female
○ Transgender/MTM
○ Transgender/FTM
○ Gender neutral
○ I choose not to answer

Q20 Please indicate your relationship with the biological child with the next birthday
○ My biological child conceived in the context of my current relationship
○ My biological child conceived in the context of a former relationship
○ My biological child conceived while single

Q21 Please indicate the custody arrangement of this biological child
○ I have sole custody
○ The child lives primarily with me
○ The child lives with both biological parents
○ The other parent and I have joint custody
○ The child lives primarily with the other parent
○ The other parent has sole custody

Q22 Is the biological child's biological (or adoptive) father or legal mother involved in the child's life?
○ Yes
○ No

Q73 For the following questions,please answer with regards to the child with the next birthday who is your STEP CHILD. Please indicate the age of the child with the next birthday.

Q24 Please indicate the marital status of the biological (or adoptive) father or legal mother of this biological child
○ Married
○ Cohabiting
○ Single (never married)
○ Separated/Divorced
○ Remarried after divorce
○ Cohabiting after separation/divorce
○ Do not know
○ Other, please specify ____________________

Q27 Is the partner of this child's biological (or adoptive) father or legal mother involved in this biological child's life?
○ Yes
○ No

Q76 Please indicate the gender of the step-child with the next birthday
○ Male
○ Female
○ Transgender/MTF
○ Transgender/FTM
○ Gender neutral
○ I choose not to answer

Q77 Please indicate your relationship with the step-child with the next birthday
○ Child is my partner's biological child with a former partner
○ Child is my partner's adopted child with a former partner
○ Other

Q79 Please indicate the custody arrangement of this step-child
○ I have sole custody
○ The child lives primarily with me
○ The child lives with both biological parents
○ The other parent and I have joint custody
○ The child lives primarily with the other parent
○ The other parent has sole custody

Q81 Is the step-child's biological (or adoptive) father or legal mother involved in the child's life?
○ Yes
○ No

Q89 Is the partner of this child's biological (or adoptive) father or legal mother involved in this step-child's life?
○ Yes
○ No

Q74 For the following questions,please answer with regards to the child with the next birthday who is your ADOPTED CHILD. Please indicate the age of the child with the next birthday.

Q75 Please indicate the gender of the adopted child with the next birthday
○ Male
○ Female
○ Transgender/MTM
○ Transgender/FTM
○ Gender neutral
○ I choose not to answer

Q78 Please indicate your relationship with the adopted child with the next birthday
○ I adopted this child in the context of my current relationship
○ I adopted this child in the context of a former relationship
○ I adopted this child while single

Q80 Please indicate the custody arrangement of this adopted child
○ I have sole custody
○ The child lives primarily with me
○ The other parent and I have joint custody
○ The child lives primarily with the other parent
○ The other parent has sole custody

Q82 Is the adopted child's biological (or adoptive) father or legal mother involved in the child's life?
○ Yes
○ No

Q84 Please indicate the marital status of the biological (or adoptive) father or legal mother of this adopted child
○ Married
○ Cohabiting
○ Single (never married)
○ Separated/Divorced
○ Remarried after divorce
○ Cohabiting after separation/divorce
○ Do not know
○ Other, please specify ____________________

Q90 Is the partner of this child's biological (or adoptive) father or legal mother involved in this adopted child's life?
○ Yes
○ No

Q29 CHILD-PARENT RELATIONSHIP SCALE: SHORT FORM Please reflect on the degree to which each of the following statements currently applies to your relationship with the child who IS UNDER 18, A BIOLOGICAL CHILD, AND HAS THE NEXT BIRTHDAY. Using the scale below, select the appropriate number for each item.

	Definitely does not apply (1)	Does not really apply (2)	Neutral/unsure (3)	Sometimes applies (4)	Definitely applies (5)
I share an affectionate, warm relationship with this child					
This child and I always seem to be struggling with each other					
If upset, this child will seek comfort from me					
This child is uncomfortable with physical affection or touch from me					
This child values his or her relationship with me					
When I praise this child, he or she beams with pride					
This child spontaneously Shares information about himself/ herself					
This child easily Becomes angry at me					
It is easy to be in tune with what this child is feeling					
This child remains angry or is resistant after being disciplined					
Dealing with this child drains my energy					
When this child wakes up in a bad mood, I know we are in for a long and difficult day					
This child's feelings towards me can be unpredictable or can change suddenly					
This child is sneaky or manipulative with me					
This child openly shares his or her feelings and experiences with me					

Q103 CHILD-PARENT RELATIONSHIP SCALE: SHORT FORM Please reflect on the degree to which each of the following statements currently applies to your relationship with the child who IS UNDER 18, A STEP-CHILD, AND HAS THE NEXT BIRTHDAY. Using the scale below, select the appropriate number for each item.

	Definitely does not apply (1)	Does not really apply (2)	Neutral/unsure (3)	Sometimes applies (4)	Definitely applies (5)
I share an affectionate, warm relationship with this child					
This child and I always seem to be struggling with each other					
If upset, this child will seek comfort from me					
This child is uncomfortable with physical affection or touch from me					
This child values his or her relationship with me					
When I praise this child, he or she beams with pride					
This child spontaneously Shares information about himself/ herself					
This child easily Becomes angry at me					
It is easy to be in tune with what this child is feeling					
This child remains angry or is resistant after being disciplined					
Dealing with this child drains my energy					
When this child wakes up in a bad mood, I know we are in for a long and difficult day					
This child's feelings towards me can be unpredictable or can change suddenly					
This child is sneaky or manipulative with me					
This child openly shares his or her feelings and					

experiences with me					

Q104 CHILD-PARENT RELATIONSHIP SCALE: SHORT FORM Please reflect on the degree to which each of the following statements currently applies to your relationship with the child who IS UNDER 18, AN ADOPTED CHILD, AND HAS THE NEXT BIRTHDAY. Using the scale below, select the appropriate number for each item.

	Definitely does not apply (1)	Does not really apply (2)	Neutral/unsure (3)	Sometimes applies (4)	Definitely applies (5)
I share an affectionate, warm relationship with this child					
This child and I always seem to be struggling with each other					
If upset, this child will seek comfort from me					
This child is uncomfortable with physical affection or touch from me					
This child values his or her relationship with me					
When I praise this child, he or she beams with pride					
This child spontaneously Shares information about himself/ herself					
This child easily Becomes angry at me					
It is easy to be in tune with what this child is feeling					
This child remains angry or is resistant after being disciplined					
Dealing with this child drains my energy					
When this child wakes up in a bad mood, I know we are in for a long and difficult day					
This child's feelings towards me can be unpredictable or can change suddenly					

This child is sneaky or manipulative with me					
This child openly shares his or her feelings and experiences with me					

Q108 Kansas Family Life Scale
For each of the following three questions please indicate your satisfaction by recording your answer in the space to the right of the item.

	Extremely Dissatisfied (1)	Very Dissatisfied (2)	Somewhat Dissatisfied (3)	Mixed Feelings (4)	Somewhat Satisfied (5)	Very Satisfied (6)	Extremely Satisfied (7)
How satisfied are you with your family life?							
How satisfied are you with your relationship with your partner							
How satisfied are you with your relationship with your child(ren)?							

Q52 Brief Dyadic Adjustment Scale This questionnaire deals with your own perception of you and your partner's life together. Your responses will therefore reflect your personal opinion. Don't be concerned with what your partner's responses may or might be. For each question, please indicate your response by selecting the most appropriate description .

	All of the time (1)	Most of the time (2)	More often than not (3)	Occasionally (4)	Rarely (5)	Never (6)
1. How often do you discuss or have you considered divorce, separation or terminating						

your relationship?						
2. In general, how often do you think that things between you and your partner are going well?						
3. Do you confide in your mate?						

4. The following descriptions represent different degrees of happiness in your relationship. The middle point, "happy" represents the degree of happiness of most relationships. Please select the number, which best describes the degree of happiness, all things considered, of your relationship.

○ Extremely unhappy
○ Fairly unhappy
○ A little unhappy
○ Happy
○ Very happy
○ Extremely happy
○ Perfect

Q54 Quality of Co-Parental Communication. Concerning the children in my care, I communicate with the following people: Please check all that apply to your situation

☐ My current partner
☐ My former partner

Q56 Quality of Co-Parental Communication By completing this form, we will be able to more accurately assess areas in which you experience difficulty in your co-parenting relationship with your child(ren)'s other parent. Please add any details which can clarify either your responses or comments about an item. When answering the following questions, please think about your CURRENT PARTNER:

	Never	Rarely	Sometimes	Usually	Always

	(1)	(2)	(3)	(4)	(5)
1. When you and your co-parent discuss parenting issues, how often does an argument result?					
2. How often is the underlying atmosphere one of hostility or anger?					
3. How often is the conversation stressful or tense?					
4. Do you and your co-parent have basic differences of opinion about issues related to child rearing?					
5. If your co-parent has needed to make a change in visiting/ time-sharing arrangements, do you go ou of your way to accommodate?					
6. Does your co-parent go out of the way to accommodate any changes you need t make?					
7. Do you believe that your co-parent understands and is supportive of your special needs as a custodial (or non-custodial) parent?					
8. When yo need help regarding the children, do you seek it drom your co-parent?					
9. Would you say that your co-parent is a resource to you in raising the children?					
10. Would you say that you are a resource to your co-parent in raising the children?					

Q58 Quality of Co-Parental Communication By completing this form, we will be able to more accurately assess areas in which you experience difficulty in your co-parenting relationship with your child(ren)'s other parent. Please add any details which can clarify either your responses or comments about an item. When answering the following questions, please think about your FORMER PARTNER with whom you have at least one child (if you have more than one former partner with whom you have had children, please refer to the partner with whom you had your eldest child):

	Never (1)	Rarely (2)	Sometimes (3)	Usually (4)	Always (5)
1. When you and your co-parent discuss parenting issues, how often does an argument result?					
2. How often is the underlying atmosphere one of hostility or anger?					
3. How often is the conversation stressful or tense?					
4. Do you and your co-parent have basic differences of opinion about issues related					

to child rearing?					
5. If your co-parent has needed to make a change in visiting/ time-sharing arrangements, do you go ou of your way to accommodate?					
6. Does your co-parent go out of the way to accommodate any changes you need t make?					
7. Do you believe that your co-parent understands and is supportive of your special needs as a custodial (or non-custodial) parent?					
8. When yo need help regarding the children, do you seek it drom your co-parent?					
9. Would you say that your co-parent is a resource to you in raising the children?					
10. Would you say that you are a resource to your co-parent in raising the children?					

Q66 Parenting Sense of Competence Scale Please rate the extent to which you agree or disagree with each of the following statements. Click to write the question text.

	Strongly Disagree (1)	Somewhat Disagree (2)	Disagree (3)	Agree (4)	Somewhat Agree (5)	Strongly Agree (6)
1. The problems of taking care of a child are easy to solve once you know how your actions affect your (step)child(ren), an understanding I have acquired.						
2. Even though being a parent could be rewarding, I am frustrated now while my (step)child(ren) is/are at his/her/their present age.						
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.						
4. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.						

5. My mother was better prepared to be a good mother than I am.						
6. I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good parent.						
7. Being a parent is manageable, and any problems are easily solved.						
8. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.						
9. Sometimes I feel like I'm not getting anything done.						
10. I meet by own personal expectations for expertise in caring for my (step)child(ren).						
11. If anyone can find the answer to what is troubling my (step)child(ren), I am the one.						
12. My talents and interests are in other areas, not being a parent.						
13. Considering how long I've been a mother, I feel thoroughly familiar with this role.						
14. If being a mother were only more interesting, I would be motivated to do a better job as a parent. (14)						
15. I honestly believe I have all the skills necessary to be a good mother to my (step)child(ren).						
16. Being a parent makes me tense and anxious.						
17. Being a good mother is a reward in itself.						

Q71 Outcome Questionnaire Looking back over the last week, including today, help us to understand how you have been feeling. Please read each item carefully and select the circle under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth.

	Never (1)	Rarely (2)	Sometimes (3)	Frequently (4)	Almost Always (5)
1. I get along with others.					
2. I tire easily.					
3. I feel no interest in things.					
4. I feel stressed at work/school.					
5. I blame myself for things					
6. I feel irritated					
7. I feel unhappy in my marriage/relationship					
8. I have thoughts of ending my life.					
9. I feel weak					
10. I feel fearful					
11. After heavy drinking, I need a drink the next morning to get going. (If you do not drink, mark never).					
12. I find my work/school satisfying.					
13. I am a happy person					
14. I work/study to much					
15. I feel worthless					
16. I am concerned about family troubles					
17. I have an unfulfilling sex life.					
18. I feel lonely					
19. I have frequent arguments					
20. I feel loved and wanted					
21. I enjoy my spare time					
22. I have difficulty concentrating					
23. I feel hopless about the future					
24. I like myself					

25. Disturbing thoughts come into my mind that I can't get rid of					
26. I feel annoyed by people who criticize my drinking (if not applicable, mark never)					
27. I have an upset stomach					
28. I am working/studying less than I am used to					
29. My heart pounds too much.					
30. I have trouble getting along with friends and close acquaintances					
31. I am satisfied with my life					
32. I have trouble at work/school because of my drinking or drug use (if not applicable, mark never)					
33. I feel that something bad is going to happen.					
34. I have sore muscles					
35. I feel afraid of open spaces, or of driving, or being on buses, subways, etc.					
36. I feel nervous					
37. I feel my love relationships are full and complete					
38. I feel that I am not doing well at work/school					
39. I have too many disagreements at work/school					
40. I feel something is wrong with my mind					
41. I have trouble falling asleep or staying asleep					
42. I feel blue					
43. I am satisfied with my relationships with others					
44. I feel angry enough at work/school to do something I might regret					

45. I have headaches					