Paving the Way to Mental Well-Being: Innovations in Help-Seeking Interventions for Asian Canadians

by

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M.Sc., University of Victoria, 2018
B.Sc., University of Toronto, 2016

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We acknowledge and respect the lək̓ʷəŋən peoples on whose territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

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Abstract

This dissertation addressed a notable gap in the literature concerning the underutilization of mental health services among Asian Canadians. Paper 1 focused on the development of the Asian Mental Health Program (AMHP), a digital intervention aimed at increasing the use of mental health resources. Through a community-based participatory approach, the program was tailored to address the distinct needs and experiences of this population, tackling the cultural factors and barriers to help-seeking faced by Asian Canadians. Paper 2 presents findings from a pilot study evaluating the feasibility and acceptability of the AMHP. The study examined participants' engagement, user experience, and preliminary outcomes. The results indicated a high level of acceptability and usability of the AMHP among Asian Canadians, supporting its potential to enhance mental health service utilization within this population. In Paper 3, I addressed the lack of a brief, validated measure of motivation to seek mental health services. We developed and preliminarily validated the Motivation for Mental Health Help-Seeking Scale (MOTIV-MH) to offer a concise and psychometrically sound tool for assessing motivation in the context of help-seeking for Asian Canadians. This contribution enhances our understanding of the role of motivation in promoting mental health service utilization. This dissertation fills gaps in the literature by developing culturally responsive help-seeking interventions and providing a brief, validated measure, offering tangible solutions to enhance Asian Canadians' access to and utilization of mental health services. The findings represent a promising step towards reducing mental health disparities and promoting equitable and culturally responsive care for Asian Canadians.

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Acknowledgments

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Chapter 1 : General Introduction

It is estimated that one in eight people worldwide lives with a mental disorder. Yet, only approximately one-third of them receive treatment (Moitra et al., 2022; World Health Organization, 2022). Despite the high prevalence, most mental disorders are treatable, and interventions often lead to symptom reduction and improved psychological and social functioning (World Health Organization, 2011). Recognizing the global impact of mental illness, the World Health Organization (WHO) has developed the Mental Health Gap Action Programme to address the disparity between mental health needs and service utilization (World Health Organization, 2016). The WHO aims to scale up mental health services, particularly in low- and middle-income countries, which often face significant challenges in accessing adequate care. However, it is important to note that gaps in mental health services also exist within affluent nations. In Canada and the United States, disparities in access to services have been well-documented, especially among minority populations, including individuals from Asian countries (Abe-Kim et al., 2007; Alegrıa et al., 2008; Tiwari & Wang, 2008). This highlights the need to scale up mental health programs within these countries, with a specific focus on addressing the needs of underserved populations.

Asian Canadians represent the largest and fastest-growing ethnic minority group in Canada, comprising approximately 17.7% of the population (Census, 2016). Previous studies have shown a 'healthy immigrant effect' among certain Asian populations, indicating lower rates of depressive symptoms (Tiwari & Wang, 2008; Wu et al., 2003), mental distress (Pahwa et al., 2012), and suicidal thoughts (Clarke et al., 2008; Pan & Carpiano, 2013) compared to their White Canadian counterparts. However, within the group of individuals who self-reported fair or poor mental health in the Canadian Community Health Survey in Ontario, only 19.8% of those in

the Chinese group, as opposed to 50.8% in the White group, reported seeking help (Chiu et al., 2018). This underutilization of mental health care is particularly concerning given the increase in racism targeting individuals perceived to be Chinese or Asian in Canada during the COVID-19 pandemic (Misra et al., 2020; Devakumar et al., 2020). Statistics Canada's examination of the impact of COVID-19 on Canadians revealed that recent immigrants more frequently reported fair or poor mental health and symptoms consistent with anxiety disorders compared to White Canadians (StatsCan, 2020). Despite efforts to enhance mental health literacy in North America, utilization statistics demonstrate that existing approaches are not effectively encouraging minorities to seek help during psychological distress (Yang et al., 2020). The majority of mental health disparity research has centered on Asian Americans. These findings underscore the urgent need for research on the needs of Asian Canadians and for the development of effective programs that support the mental health of minority populations in Canada.

In this dissertation, I aim to improve help-seeking behavior in Asian communities through the development and pilot testing of a digital help-seeking intervention. Additionally, I aim to develop and evaluate the psychometric properties of a concise tool designed to assess motivation for seeking help for mental health issues. Having an accurate tool can assist clinicians and researchers in identifying when targeted interventions are needed for individuals who may require help but experience low motivation. The studies in this dissertation collectively address the underutilization of mental health services by promoting help-seeking behavior and prioritizing the development of culturally responsive interventions and measures. It is important to note that this dissertation consists of three standalone manuscripts intended for publication, which may result in some overlapping content across the chapters.

Help-Seeking

Help-seeking can be understood as a social process in which individuals bring their internal thoughts and feelings into the social realm by sharing them with others (Rickwood et al., 2005). This process encompasses several key elements. Firstly, it begins with the *recognition* of a problem that may require assistance. To address this, public health approaches often implement mental health literacy programs aimed at developing awareness about mental health. However, while the generic public health approach assumes uniform health information needs, the way information is received can vary among diverse populations (Hall & Yee, 2012; Na et al., 2016). Once an individual becomes *aware* of a mental health issue, they must possess the *ability* to express their need for support, be *willing* to disclose their experiences, and have *access* to various sources of assistance.

Sources of help can be categorized as formal or informal (Rickwood & Thomas, 2012). Formal sources typically include mental health professionals, general practitioners, counselors, or traditional healers, as classified by most researchers (Brown et al., 2014). On the other hand, informal sources of help encompass self-help through educational materials or participation in programs such as support groups. Additionally, it includes support derived from informal social relationships like friends, family, and partners. When evaluating programs aimed at increasing help-seeking behavior, researchers often measure one or more of three outcomes: help-seeking attitudes (beliefs and willingness to seek help), help-seeking intentions (the decision or plan to seek help), and help-seeking behaviors (observable actions of seeking help or utilization of mental health services).

Barriers for Help Seeking

Several factors influence help-seeking patterns among Asians in North America, and significant attention has been devoted to understanding the barriers involved. These barriers can

be broadly categorized into system-level structural factors and individual attitudinal factors (Sareen et al., 2007). Cultural barriers are present at both the structural and individual levels (Mok et al., 2014).

Structural Barriers. System-level structural barriers encompass objective factors associated with health services, such as financial costs and service availability (Sareen et al., 2007). These barriers to help-seeking include the limited availability of resources, time constraints, lack of knowledge about treatment options, and high costs of care (Czyz et al., 2013; Gulliver et al., 2010; Fung & Wong, 2007). For Asian Canadians, additional considerations regarding access to care involve the availability of services in a language in which the individual is proficient, or the availability of interpretation services (Bowen, 2005; Government of Canada, 2006; McKenzie et al., 2016; Quan & Costigan, 2020), as well as access to services that are culturally acceptable (Hall et al., 2019; Hwang, 2016).

Attitudinal Barriers. Attitudinal barriers, such as self-stigma and willingness to disclose experiences of distress, contribute to the observed help-seeking patterns (Kim & Zane, 2016; Nam et al., 2013; Wang et al., 2019). Stigma has been extensively studied as a barrier to help-seeking (Clement et al., 2015). In a systematic review by Clement et al. (2015), the median association between stigma and help-seeking was found to have a small effect (d = -0.27). However, subgroup analysis revealed that the negative association was substantial for Asian Americans (d = -1.20). The review's quantitative analysis, which included participant data points from 26,313 individuals, identified various stigma-related barriers, including concerns about disclosure and confidentiality, fears of employment-related discrimination, negative social judgment, and other stigma-related factors. Notably, internalized stigma about mental illness and

stigma associated with seeking or receiving mental health treatment were significantly associated with decreased help-seeking.

Family Context. Family relationships play a crucial role in the help-seeking process (Abe-Kim et al., 2002; Lee et al., 2009). While Asian countries may significantly differ in their values and beliefs, they share cultural values such as collectivism, emotional self-control, conformity to norms, the enhancement of family reputation, and filial piety (Kim et al., 1999). The inherent view of interdependence within immediate communities further underscores the importance of the family context in the help-seeking process (Oyserman et al., 2002). Despite the significant role that families play in the lives of many Asian individuals, limited attention in help-seeking interventions has been given to addressing families as a source of support or a potential deterrent in accessing mental health services.

Research suggests that Asians take into consideration the impact of help-seeking not only on themselves but also on their families. For Vietnamese American adolescents, the value placed on family obligation weakens the association between family stress and formal help-seeking, indicating that prioritizing family obligation may discourage youth from seeking formal support (Guo et al., 2015). Attempts to 'save face,' as defined by Yamashiro & Masuoka (1997), imply that individuals hide, ignore, or attribute psychological challenges to a source associated with less severe social stigma to preserve self-esteem in social contexts. Denial of one's mental health problems is common in Asian cultures to prevent bringing shame upon one's family and reduces help-seeking behavior (Augsberger et al., 2015; Chu & Sue, 2011; Kung, 2003). Additionally, somaticizing mental distress — attributing it to physical symptoms — is prevalent, as physical distress is more socially acceptable than mental distress (Maffini & Wong, 2014; Tang & Masicampo, 2018). The fear of bringing shame to oneself and the family (Tang & Masicampo,

2018) underscores the importance of reducing stigma within the family system to promote help-seeking behavior.

Addressing Barriers. Psychological research is well-positioned to address attitudinal and potential family barriers that hinder help-seeking behavior. Within Asian communities, certain values such as emotional self-control and conformity to norms may impede individuals from sharing their personal distress with their social network and seeking help (Kim et al., 2016). Interventions targeting stigma and beliefs related to emotional self-control have the potential to enhance help-seeking behavior. Furthermore, negative attitudes towards help-seeking can arise from a lack of information about professional services. Asians have been found to express greater concerns regarding confidentiality compared to non-Asians (Gilbert et al., 2007). Effective mental health programs can address these concerns by providing accurate information that alleviates fears related to confidentiality. Specifically for Asian populations, it is crucial for programs to emphasize clients' rights to confidentiality and privacy, thereby fostering engagement. Enhancing mental health literacy at the family level can also be beneficial, enabling families to serve as allies rather than barriers in the help-seeking process. For instance, a study with Asian young adults experiencing suicidal ideation revealed that fewer family members of Asian young adults provided advice to seek professional help compared to White young adults. This, in turn, was associated with lower rates of seeking professional help for suicidal ideation among Asian participants compared to White participants (Wong et al., 2014). Mental health programs can address concerns, misconceptions, or negative attitudes held by parents, partners, or other close individuals and promote support in recognizing and addressing their family members' struggles and help-seeking needs.

Help-Seeking Interventions

Compelling evidence supports the effectiveness of interventions aimed at promoting help-seeking for mental health problems in the cultural majority population in English-speaking countries (Xu et al., 2018). However, most of these studies only include a small sample of Asian participants. In a comprehensive meta-analysis that examined 98 studies, Xu et al. (2018) found that help-seeking interventions demonstrated efficacy when delivered to individuals with mental health problems or those at risk. However, the interventions did not yield significant effects among the general public who were not experiencing mental health challenges. The analysis revealed a small but statistically significant effect of help-seeking interventions on attitudes toward formal help-seeking. It is important to note that the duration of follow-up in many of the included studies was relatively short, with less than half of the studies assessing participants beyond one month post-intervention. Moreover, only a quarter of the studies followed participants for one to five months post-intervention, which may have limited the assessment of the long-term maintenance of improved attitudes. In fact, the few studies that assessed changes in attitudes toward formal help-seeking after six months showed no significant effect. This highlights the limited evidence on the long-term effectiveness of such interventions. To effectively encourage Asian Canadians experiencing distress to consider seeking mental health services, it is crucial to develop culturally responsive programs that not only measure sustained positive attitudes but also allow sufficient time for individuals to engage in help-seeking behavior (Have et al., 2010).

The current evidence base does not support the superiority of any specific intervention strategy; most interventions combine multiple approaches (Xu et al., 2018; Morgan et al., 2018). Among the various approaches, education (including personal and family psychoeducation),

cognitive-behavioral strategies, contact-based interventions, and motivational enhancement have been extensively researched.

Mental Health Literacy. Most help-seeking interventions include psychoeducation as a fundamental component to enhance mental health literacy (Evans-Lack et al., 2022). The concept of mental health literacy, originally introduced by Jorm et al. (1997), underscores the significance of individuals acquiring knowledge about mental health and mental disorders to prevent, recognize, manage, or seek help for mental illness. Various psychoeducation programs, including online platforms dedicated to mental health, have been developed to improve mental health literacy. However, the efficacy of many of these programs remains largely unevaluated. A systematic review conducted by Brijnath et al. (2016) specifically focused on web-based mental health literacy interventions, identifying only ten randomized controlled trials and four quasi-experimental studies. This highlights the need for further research in this area.

Cognitive Behavioral Strategies. Many help-seeking interventions incorporate cognitive strategies to combat stigma and facilitate help-seeking behavior. Approximately one-third of the help-seeking intervention studies employed cognitive strategies, such as challenging unhelpful assumptions or developing behavioral skills, such as setting specific goals (Xu et al., 2018). In the context of help-seeking, a cognitive-behavioral therapy (CBT) approach could focus on reframing thoughts about help-seeking as a strength rather than a weakness (Chapter 2 of this dissertation) or developing an action plan for high-risk situations. Cognitive-behavioral therapy (CBT), known for its strong evidence base in changing thoughts and behavior (Deacon et al., 2011; Hope et al., 2010; Overholser, 2011), is a commonly utilized approach in these interventions.

Contact-Based Strategies. Contact-based interventions provide an opportunity for interpersonal interaction between individuals with lived experience of mental illness and those who may hold stigmatizing beliefs, aiming to challenge misperceptions and stereotypes (Corrigan et al., 2020). These interventions can include direct contact (i.e., in-person interaction) or indirect contact, such as filmed social contact or narratives from people with lived experience of mental health challenges (Thornicroft et al., 2016). Social contact is shown to improve mental health knowledge and attitudes in the short term; however, the benefits of one-time contact-based interventions tend to diminish after several weeks and are not consistently maintained one month post-intervention (Jorm, 2020; Morgan et al., 2018).

Motivational Enhancement. Motivational enhancement strategies, derived from the evidence-based approach of motivational interviewing (Rubak et al., 2005; Miller & Rollnick, 2012), are frequently integrated into help-seeking interventions (Evans-Lacko et al., 2022). These strategies are commonly employed in the context of substance use to assist clients in recognizing the challenges of their current situation and the potential benefits of seeking help (Holt et al., 2017). Motivational interviewing, a method widely utilized in various health domains and with marginalized populations, has demonstrated effectiveness in promoting behavior change (Lundahl et al., 2013). This approach involves engaging clients to identify their strengths and aspirations, eliciting their intrinsic motivations for change, and fostering autonomy and client-centered decision-making (Rollnick et al., 2010). In this approach, a participant might, for example, be asked to consider the pros and cons of engaging in a behavior versus not engaging in a behavior to help them make a decision about whether to make a change.

Digital Interventions

Digital interventions have the potential to increase access to psychological interventions and overcome barriers to help-seeking that may prevent individuals from participating in traditional in-person interventions. By delivering interventions via digital platforms, individuals facing challenges such as time constraints, transportation, or costs can receive support without these impediments. Moreover, digital interventions can help address stigma-related barriers to help-seeking. Individuals who might be reluctant to participate in traditional mental health interventions due to the fear of stigma can access information and support privately (Gee et al., 2020; Michie et al., 2017). A diversity of digital interventions targets different users, from members of the public to healthcare providers, health system managers, and data services (World Health Organization, 2019). The primary user targeted by the digital intervention developed in this dissertation will be clients or members of the public who are potential or current users of health services and their family members. A digital health intervention targeting clients provides an opportunity to engage in targeted client communication to address the health system challenge of the lack of mental health service use among Asian Canadians.

Recent statistics from Statistics Canada demonstrate that a significant proportion of Canadians have access to the internet, with a trend of increasing access (Statistics Canada, 2022). This trend indicates that digital platforms, including the internet, are becoming popular ways for individuals to connect and learn, with over two-thirds of Canadians using the internet to search for health-related information (Statistics Canada, 2020). Thus, a digital help-seeking intervention can provide a unique opportunity to reach a wide segment of the Canadian population, which may be particularly beneficial for Asian populations facing additional cultural and language barriers to in-person mental health programs (Lai et al., 2013).

Need for Culturally Responsive Care

The concept of cultural humility was introduced in 1998, emphasizing ongoing curiosity and a recognition of the complex nature of identities (Tervalon & Murray-Garcia, 1998). Health disparity research has emphasized the importance of self-awareness, openness, and a willingness to learn about and from others' cultures to create social change (Lekas et al., 2020). This approach can help clinicians consider how a person's diversity and structural differences, such as socioeconomic status, age, and access to technology, provides advantages or disadvantages for the person (Husain et al., 2022). Failure to practice cultural humility can result in harm, such as clients experiencing microaggressions during therapy, which can negatively affect their mental health (Constantine, 2007; Owen et al., 2014; Nadal et al., 2014). Consequently, there is a growing recognition among the public and various organizations of the need for culturally competent healthcare to meet the needs of an increasingly diverse population in North America (Bell Let's Talk Diversity Fund, 2020; Herman et al., 2004; National Alliance on Mental Illness, 2020). Despite the awareness and guidelines that mental health services need to be inclusive and promote social justice (American Psychological Association, 2017; Canadian Psychological Association, 2017), there is still a lag in the development and practice of culturally responsive care.

While there is a limited amount of research specifically focusing on culturally responsive interventions for help-seeking, a significant body of knowledge exists regarding culturally responsive treatments that can inform program development. In the effort to enhance culturally competent care, a pragmatic approach has been taken, involving modifying evidence-based treatments for different cultural groups through the process of 'cultural adaptation' (Bernal & Domenech Rodríguez, 2012). Meta-analyses examining treatment outcomes have consistently shown the effectiveness of cultural adaptation (Benish et al., 2011; Hall et al., 2016; Huey &

Tilley, 2018; Soto et al., 2018). For instance, Huey and Tilley's (2018) meta-analysis focused on Asian Americans and found large heterogeneity in treatment effects across studies, with effect sizes ranging from r = -0.04 to 2.61. Studies that incorporated cultural tailoring, such as addressing specific fears or leveraging Asian cultural values, demonstrated the largest treatment effects (d = 1.10). Conversely, studies with broader tailoring to minorities in general, or no tailoring at all, exhibited smaller effects (d = 0.25; Huey & Tilley, 2018). These findings highlight the potential effectiveness of evidence-based treatments for Asian Canadians, with cultural adaptations improving treatment outcomes. Moreover, the efficacy of cultural adaptation extends to minimally guided mental health interventions, such as self-help (Shehadeh et al., 2016).

Several models have been proposed for culturally adapting psychotherapy, offering guidance for the adaptation of help-seeking interventions (Samuels et al., 2009). Hwang (2016) has presented an evidence-based approach to culturally adapting psychotherapy specifically for Asian populations, advocating for the integration of top-down and bottom-up strategies. In Hwang's (2016) model, the initial step involves identifying relevant knowledge and theory to inform the adaptation process, using the Psychotherapy Adaptation and Modification Framework (PAMF; Hwang, 2006). The PAMF provides domains to consider, therapeutic principles to guide adaptation, and a rationale for practitioners to understand the benefits of specific modifications. The subsequent step entails incorporating a community-engaged research approach (CEnR) to integrate bottom-up perspectives with theory, empirical evidence, and clinical knowledge, utilizing the Formative Method for Adapting Psychotherapy (FMAP; Hwang, 2009, 2011; Hwang et al., 2015). This approach ensures that the cultural adaptation of evidence-based

treatments is grounded in both community wisdom and accumulated research on treatment efficacy.

Community-Engaged Research

In the past two decades, community-engaged research (CEnR), such as community-based participatory research and patient-oriented research, has emerged as an alternative research paradigm aimed at addressing health disparities (Key et al., 2019; Canadian Institutes of Health Research, 2019; Wallerstein & Duran, 2006). Community-engaged research occurs on a continuum, with more engaged research emphasizing the active involvement and collaboration between researchers and community members in all stages of the research process, including the co-design of the study. This approach values and integrates multiple forms of knowledge, recognizing the expertise and insights of community partners. Key principles of community-engaged research include leveraging community strengths, promoting reciprocal learning among research partners, ensuring mutually beneficial outcomes for both science and the community, and involving partners in the planning and dissemination of research findings (Katigbak et al., 2016). These principles challenge the traditional research paradigm rooted in a positivistic philosophical framework, where participant input is limited, academic knowledge is prioritized, and dissemination of results often occurs without meaningful engagement from participants.

When conducted effectively, community-engaged research facilitates greater engagement and enhances researchers' understanding of the cultural and contextual factors influencing the research issue (Viswanathan et al., 2004). This deeper understanding leads to increased cultural relevance, fosters cultural humility, builds trust in interventions, and improves the likelihood of developing effective interventions that meet community needs (Cargo & Mercer, 2008; Israel et al., 2010). Community-engaged research (CEnR) also lends itself to the development or

adaptation of culturally appropriate measures, enhancing the effectiveness and efficiency of interventions for diverse populations (Domecq et al., 2014). However, a higher level of engagement along the continuum also poses challenges, such as the substantial time and resources required to establish and maintain partnerships, engage in collaborative decision-making, and involve community members throughout the research process (Domecq et al., 2014; Israel et al., 2008). Additionally, successful implementation of CEnR necessitates additional skills in navigating power dynamics and demonstrating cultural competency (Horowitz et al., 2009).

Ethnic minorities, including Asians, are often underrepresented in clinical trials conducted within the traditional research paradigm. Research investigating the reasons behind this underrepresentation among Asians has identified several barriers, such as limited knowledge about research and limited access to research opportunities (Harrigan et al., 2014), limited English proficiency (Chang et al., 2015), concerns about the impact of research participation on immigration status (Chen et al., 2005; Shedlin et al., 2011), and competing responsibilities related to work and caretaking (Han et al., 2007; Loue & Sajatovic, 2008). The utilization of a community-engaged research approach can help address these barriers and enhance the participation of minorities in mental health research (Wallerstein et al., 2006). By actively engaging with community organizations and individuals who belong to the target population, researchers establish credibility, increase visibility, and gain legitimacy (Islam et al., 2014; Shedlin et al., 2011; Ursua et al., 2014). For instance, Katigbak et al. (2016) found that having an advisory board and community champions played a significant role in identifying the most effective approaches to engage the community, convey the study's importance, and change community members' perceptions of the researcher as an outsider.

Brief Motivation Measure

Despite the robust connection between motivation and behavioral change (Miller & Rollnick, 2012), no motivation measure has been developed specifically to assess motivation to seek help. Motivational enhancement has been a key component of many help-seeking interventions (Xu et al., 2018). Presently, a variety of approaches exist for evaluating components that may contribute to motivation, such as attitudes, barriers, and self-efficacy (Fischer & Farina, 1995; Moore et al., 2015). While these measures are valid and reliable, they do not capture multiple facets of motivation and were largely developed for research. Consequently, their complexity and length often make them infeasible for diverse populations and many community settings.

To assess the efficacy of help-seeking interventions with Asian populations, it is valuable to have a simple and brief measure for screening motivation to seek professional services. Brief measures are time-efficient and less burdensome for both researchers and participants, facilitating efficient data collection and reducing participant fatigue. This is particularly important in longitudinal studies or resource-limited clinical settings (Bech & Olsen, 2010). While several scales have been developed to assess predictors of help-seeking, such as self-stigma or attitudes towards seeking help (Vogel et al., 2006; Fischer & Farina, 1995), many of these scales contain items with double negatives or require a relatively high reading level. For instance, the commonly used attitude scale items have a Flesch-Kincaid Grade Level reading level mostly ranging from Grade 9 to Grade 11. This may pose challenges for individuals with lower reading levels or limited health literacy, including immigrants (Klare, 2000; Diviani et al., 2015; Gazmararian et al., 2003). Language barriers and difficulties comprehending complex language can discourage participation and contribute to higher attrition rates among immigrant

populations (Choi et al., 2020; Smith et al., 2019). Therefore, using simple language that is easily understood by individuals with diverse literacy levels is crucial to enhance clarity, comprehension, and engagement. This approach promotes inclusivity, reduces the risk of missing data or dropout, and ensures that the perspectives and experiences of immigrant populations are accurately captured and represented in research findings (Jones et al., 2019; Sudore et al., 2020).

Developing brief measures within diverse communities, such as Asian Canadians, and validating them with a diverse participant pool is particularly valuable, as many health measures have predominantly been developed with white populations (George et al., 2014; Yost et al., 2017). Employing a community-engaged research approach to develop or adapt measures with an Asian population will enhance the relevance and acceptability of these measures for the target population (Viswanathan et al., 2004). For instance, measures can be adapted with advisory groups and may involve linguistic translation, cultural modifications, and the inclusion of relevant items for the specific population (Cheng et al., 2010; Liu et al., 2020). The validation of adapted measures ensures their accuracy in capturing the experiences, values, and beliefs of Asian individuals. This enables researchers and clinicians to obtain precise information to provide effective support (Campos et al., 2022; Wang et al., 2022). These approaches not only enhance efficiency but also create opportunities for assessing and providing early intervention for those who might require support.

Overview of Research Objectives

The review of the literature underscores the necessity to engage with the Asian community for the development of effective interventions aimed at encouraging help-seeking for psychological distress and promoting mental health. Aligned with the objective of fostering help-seeking behaviors, there is also a demand for a concise and straightforward measure to assess

motivation for seeking professional services. This tool can be employed in community settings to determine the most suitable strategy based on an individual's motivation. For example, this might involve making a referral or initially enhancing their motivation to seek support by introducing them to help-seeking interventions. In Chapter 2, I developed an intervention to enhance help-seeking for mental health services among Asian Canadians, utilizing a community-engaged research approach. In Chapter 3, I assessed the feasibility of the digital intervention, the Asian Mental Health Program, which was developed in Chapter 2, using a longitudinal study design. Chapter 4 comprises an examination of the initial psychometric properties of the Motivation for Mental Health Help-Seeking Scale (MOTIV-MH) through confirmatory factor analyses, time-varying covariance analyses, and mixed-effects logistic regression.

Chapter 2 : “We Need a Program for Asian People”: Development of an Intervention to Increase Help-Seeking for Mental Health Service Use among Asian Canadians

Abstract

Background: Mental health challenges are a common and undertreated problem worldwide. This study aimed to develop a digital help-seeking intervention for Asian Canadians to address the tendency to delay or avoid seeking treatment of mental health challenges.

Method: Using a community-engaged research methodology, seventeen Asian Canadian participants with lived or family experience of mental health challenges were involved in an iterative intervention design process. The iterative process involved three small focus groups meeting for three rounds of discussions. In the first meeting, the groups discussed barriers and facilitators of seeking mental health support for Asian communities. In the subsequent meetings, participants provided feedback to refine the components of a new intervention and to enhance the usability of the website hosting the program content. The focus group discussions were analyzed using thematic analysis.

Results: Three themes were developed: (1) A Program Designed for Asians, (2) Empowered to Take Charge of My Mental Health, and (3) A Good Learning Experience. The feedback was incorporated into the development of a self-paced digital help-seeking intervention, the Asian Mental Health Program (AMHP). The AMHP consists of 15 modules, each including an animated video on a mental health related topic and optional reflective exercises.

Conclusion: The study provides valuable information on designing and implementing digital interventions that encourage the timely use of professional services for Asian Canadians. The use of a community-engaged research approach increased the acceptability of the program, and the paper provides a model for conducting a pilot study of the program's feasibility.

What is the public significance of this article?

The purpose of this qualitative intervention development study was to examine and identify important elements in designing a digital intervention to increase the use of professional mental health services among Asian Canadians. The results suggest that the content of such a program must acknowledge differences in cultural beliefs about mental illness and focus on empowering individuals to care for their mental health by framing help-seeking as a strength, normalizing struggles, and supporting clients in navigating the mental health care system.

Introduction

Promoting early intervention can reduce the severity of mental health issues and the cost to the healthcare system (Le et al., 2021; McGorry & Mei, 2018). Our understanding of Asian mental health in Canada and the United States is hampered by the limited availability of ethnically disaggregated public mental health data (Fang, 2018; Quan et al., 2023). However, the available data suggest that, rather than seeking professional help, Asians in Canada tend to present with a greater severity of mental illness compared to other groups among those who are hospitalized, indicating a lack of early intervention and a delay in treatment (Chiu et al. 2016). This is especially concerning given the increase in anti-Asian discrimination since the COVID-19 pandemic (Misra et al., 2020). Nationally representative surveys found that COVID-19-related discrimination was associated with psychological distress among Asians living in Canada (Wu et al., 2020; Huynh et al., 2022) and the United States (Liu et al., 2022; Wu et al., 2021).

Low use of mental health services among struggling Asians has been associated with psychological factors, such as a lack of knowledge about mental illness and stigma (Martinez et al., 2020; Shi et al., 2020), as well as structural barriers to access, such as the lack of access to culturally and linguistically inclusive services (Chen et al., 2009; Kim & Lee, 2022; Lai & Surood, 2013). One of the main reasons for the gap in seeking treatment is low mental health literacy, which includes the recognition of symptoms, beliefs about risk factors and causes of mental illness, knowledge about treatment options, self-help strategies, and social support (Jorm, 2012). A culturally responsive model of mental health literacy that respects other models of illness and diverse forms of help, and empowers Asians to seek appropriate care, can encourage early intervention and the promotion of mental health (Na et al., 2016; Xu et al., 2018). Mental health-related stigma disproportionately impacts ethnic minorities and is consistently identified

as another barrier to help-seeking (Clement et al., 2014). Gender roles and stereotypes that associate help-seeking with femininity or weakness tend to make men less likely to access mental health services (Lynch et al., 2018). In addition to psychological barriers, structural barriers also exist in accessing care. In Canada, a lack of public campaigns informing people about where to get help, excessive wait times, and insufficient funding are common structural barriers (Moroz et al., 2020). These barriers are often amplified for immigrants and refugees due to practical challenges from the settlement experience, such as limited health coverage, lack of access to cultural brokers or language interpreters, and the use of tests that are not culturally sensitive (Thomson et al., 2015). An effective help-seeking intervention for Asian Canadians needs to address psychological barriers but also support Asian individuals in navigating structural barriers to access services. A growing body of evidence suggests interventions can mitigate some of these barriers and facilitate help-seeking (Evans-Lacko et al., 2022; Xu et al., 2018).

Help-Seeking Interventions

Effective intervention often includes a combination of strategies that draw on theories about learning, empowerment through knowledge, social contact, and motivation. Most help-seeking interventions include psychoeducation to increase mental health literacy. The concept of mental health literacy was introduced by Jorm et al. (1997) to draw attention to the need for people to know about mental health and mental disorders to prevent, recognize, manage, or seek help for mental illness. Many psychoeducation programs have been developed to improve mental health literacy, such as websites about mental health. However, the efficacy of these resources is rarely evaluated.

Education-based and contact-based interventions are the most researched evidence-based approaches for reducing mental illness stigma (Corrigan et al., 2012). Contact-based learning offers an opportunity for interpersonal interaction between individuals with lived experience of mental illness and those holding stigmatizing beliefs, aiming to challenge their misperceptions and stereotypes. While contact-based interventions were previously considered best practice for stigma reduction, recent critiques of the evidence base have pointed to methodological limitations leading to biased results (Jorm, 2020). Additionally, the benefits of one-time contact-based interventions tend to diminish after several weeks (Morgan et al., 2018). The current evidence base does not indicate any intervention strategy as superior among education (personal and family psychoeducation), contact-based interventions, or a combination of both approaches (Morgan et al., 2018).

Cognitive behavioral therapy has a strong evidence base for effectively changing thoughts and behaviors (Garrett et al., 2007). Psychological research that draws on cognitive behavioral therapy principles is well-positioned to address barriers related to knowledge, misinformation, or unhelpful attitudes that get in the way of help-seeking. For example, knowing that Asian individuals are more concerned about confidentiality than non-Asian individuals (Gilbert et al., 2007), mental health programs can include information to assuage these fears.

Motivational enhancement strategies are often applied in the context of substance use to help clients recognize the unworkability of their current situation and the benefits of seeking help (Holt et al., 2017). Motivational interviewing is a method that has demonstrated efficacy in promoting behavior change across various health issues and with marginalized populations (Lundahl et al., 2013). This approach engages clients in clarifying their strengths and aspirations,

eliciting their intrinsic motivations for change, and fostering autonomy and client choice (Rollnick et al., 2010).

Digital Interventions

Digital interventions have the potential to increase access to psychological interventions and overcome barriers to help-seeking that may prevent individuals from participating in traditional in-person interventions. By delivering interventions via digital platforms, individuals who face challenges such as time constraints, transportation, or costs can receive support without these impediments. Moreover, digital interventions can help address stigma-related barriers to help-seeking, as individuals who might be reluctant to participate in traditional mental health interventions due to fear of stigma can access information and support privately (Gee et al., 2020; Michie et al., 2017). Recent statistics from Statistics Canada demonstrate that a significant proportion of Canadians have access to the internet, with a trend of increasing access. This trend indicates that digital platforms, including the internet, are becoming a popular way for individuals to connect and learn, with over two-thirds of Canadians using the internet to search for health-related information (Statistics Canada, 2020). Thus, a digital help-seeking intervention can provide a unique opportunity to reach a wide segment of the Canadian population and may be particularly beneficial for Asian populations who may face additional cultural and language barriers to in-person mental health programs (Lai et al., 2013).

Several digital help-seeking interventions have been developed in the past two decades, with most interventions focused on the general population (Evans-Lacko et al., 2022). To our knowledge, no digital help-seeking intervention has been designed to increase help-seeking behaviors among the general Asian Canadian or Asian American populations. However, cultural tailoring interventions that target different causes related to health disparities are needed to

improve intervention outcomes (Holden et al., 2014; Schueller et al., 2019). Mental health interventions with Asian Americans, when culturally tailored, showed large effects, whereas those without tailoring showed small effects (Huey et al., 2018). Thus, developing and providing digital help-seeking interventions for Asians offers an opportunity to improve mental health and reduce health disparities.

Community-Engaged Research

Best practices for intervention development to improve health and health care require a dynamic iterative process involving stakeholders (O'Cathain et al., 2019). Ethnic minorities, including Asians, are underrepresented in most clinical trials that use a traditional research paradigm. Research examining the lack of research participation among Asians finds that barriers to greater participation include decreased knowledge about research and access to research (Harrigan et al., 2014), limited English proficiency (Chang et al., 2015), viewing research participation as a threat to immigration status (Chen et al., 2005; Shedlin et al., 2011), and juggling competing responsibilities with work and caretaking (Han et al., 2007; Loue & Sajatovic, 2008).

The community-engaged research approach (CEnR) helps address these barriers by reaching out and collaborating with community organizations and individuals who are members of the target population to establish credibility, visibility, and legitimacy (Islam et al., 2014; Shedlin et al., 2011; Ursua et al., 2014). Community-engaged research often improves the recruitment and engagement of minorities in mental health research (Wallerstein et al., 2006). For example, Katigbak et al. (2016) found that having an advisory board and community champions helped them identify the best ways to approach the community, convey the study's importance, and change community members' perceptions of the researcher as an outsider

Culturally responsive services involve adapting evidence-based interventions to consider language, culture, and context, making them compatible with the client's cultural meanings and values. This is particularly crucial for minimally guided interventions, such as online interventions, where there is no therapist available to incorporate cultural dimensions into the intervention (Shehade et al., 2016).

The Present Study

Developing digital help-seeking interventions tailored to Asian Canadians provides an opportunity to improve mental health and reduce health disparities. We followed the six steps proposed by Wight et al. (2015) for quality intervention development. In this study, we report on the first four steps: (1) defining and understanding the problem, (2) identifying modifiable factors, (3) deciding on the mechanism of change, and (4) clarifying the method of delivery. The last steps of testing, adapting, and examining the effectiveness of the program will be addressed in subsequent manuscripts. Drawing from existing research and using an iterative process with stakeholders, our research objectives were twofold:

(1) First, to answer the question: How can we develop an intervention that encourages Asian people to seek professional mental health support, when they could benefit from it?

(2) Second, to introduce the digital help-seeking intervention, the Asian Mental Health Program, that was developed in collaboration with the advisory board.

Methods

Participants

Advisory board members were recruited through word of mouth, by emailing different cultural organizations, and by posting on social media groups that focused on Asian audiences. To uncover barriers to access based on locations, we recruited participants from different

provinces and cities of various sizes. To qualify, individuals had to report a personal or family experience of mental health issues, be 18 years or older, and have Asian heritage. Interested participants were contacted and screened over the phone by the first author. No potential participant was excluded due to not meeting inclusion criteria or an inability to provide informed consent resulting from psychiatric symptoms (e.g., active psychosis).

The advisory board consisted of 17 people, with three of them only able to attend the first focus group. Advisory members varied in age (20s to 50s), cultural backgrounds (East Asian, South Asian, and Southeast Asian), types of mental health challenges (e.g., anxiety, bipolar disorder, and trauma), socio-economic status (students to full-time employed professionals), gender (male, female, non-binary), and length of time in Canada (from Canadian-born to immigrants who arrived one year ago). More demographic information about the fourteen participants who completed the background questionnaire can be found in Table 2.1.

Procedures

The program design was iterative, with ideas being refined, modified, and enhanced through discussions with the advisory group. This paper focuses on the development of the intervention, but advisory members remain engaged in the research for the entirety of the project, from developing the pilot trial to creating knowledge translation products. We conducted focus groups to generate diverse perspectives and discussions. Conscious of the fact that researchers may be perceived as holding power, the first author sought to enhance trust by holding meetings online at times that were most convenient for the group, answering questions openly about their interest in the work, and reimbursing participants for their time. We created three smaller focus groups of 5-6 people each to accommodate time preferences across time zones and to allow for more time for each advisory board member to share during each meeting. The study procedures

were approved by the university's institutional review board. Advisory board members received a small honorarium as a token of appreciation for their contributions.

Advisory board members could choose how engaged they would like to be in the research process (Key et al., 2019). Engagement of advisory board members varied, ranging from providing consultation and input during advisory meetings to more extensive participation, such as creating program content, participating in participant recruitment, and engaging in data analyses. The advisory board will also play a role in disseminating research findings and determining the next steps.

Intervention Development. The first round of focus groups was held in February and March 2021. During these sessions, participants shared barriers to help-seeking, factors that encourage help-seeking, and ideas for empowering people to seek help. The findings from the first round of meetings were analyzed by the first author, who then presented a summary of the topics to guide the second round of focus groups. The second round of focus groups took place in July and August 2021. During this phase, participants discussed their impressions of the main components of the intervention program identified in the initial meetings. They also suggested additional elements that were needed or should be adapted to enhance cultural appropriateness for Asian Canadians, and they deliberated on the most suitable digital platform. Following discussions with the advisory board and the research team's reflections, the decision was made to host the intervention on a website.

Between the second and third round of focus group meetings, the research team collaborated with two advisory board members to create two sample modules based on feedback from previous meetings. The video modules and website were developed using the software PowToon, YouTube, Squarespace, and Canvas. These module were then shared with the rest of

the advisory board for feedback during the third focus group meeting, which was held in January and February 2022. During this meeting, participants discussed their impressions of the sample modules and the general usability of the website. They also shared ideas for enhancing engagement in the program, feedback on the research questionnaire, and feedback on recruitment material.

An additional four advisory board members participated in creating content for the remaining modules of the program. Their involvement included tasks such as writing parts of the module scripts and recording voiceovers for characters. Prior to the pilot study, all advisory board members received the full program and workbook, giving them the opportunity to suggest edits to the material. Many of the advisory board members were also involved in recruiting participants for the pilot study.

All the focus groups were facilitated by the first author and transcribed for analysis. Each focus group session lasted approximately 60 to 90 minutes. While guiding the focus group discussions, the facilitator flexibly adhered to the interview agenda to ensure all relevant topics were covered. However, the discussions were also influenced by what the facilitator judged to be meaningful and valuable for focus group members to discuss. For the list of meeting questions, please refer to Appendix A.

Researchers and Positionality

In accordance with best practices for reporting findings in a qualitative study, we offer descriptions of each author's positionality. The lead author identifies as a cisgender female and a first-generation Asian Canadian with a Chinese and Vietnamese background. She is a doctoral candidate and has family experience with mental illness and the use of mental health services. The second author identifies as a cisgender female and a first-generation Canadian with a

northern European background. She is a registered psychologist with expertise in qualitative methods and addressing cultural dimensions of mental health. The third author identifies as a cisgender female and a Vietnamese immigrant with a background in mental health. She works as a senior case manager with experience providing social services support to clients who identify as Vietnamese and other BIPOC groups, as well as HIV/AIDS and 2SLGBTQ+ communities experiencing substance use, mental health, and housing issues.

Analytical Approach

Thematic analysis is primarily an atheoretical technique used for pattern-based analyses. It is well-suited for focus group analyses and capturing diversity, as it focuses on identifying themes across the dataset rather than individual cases (Braun & Clarke, 2021). A reflexive thematic approach prioritizes community advisory group knowledge along with the researcher's own positionality. This analytic approach allows researchers to consider cultural sensitivities and the community's voice, highlighting what is most relevant. Furthermore, it yields implications that guide practice, as the analysis produces shared, meaning-based statements that are actionable. The first author employed a reflexive approach involving six iterative phases: familiarization, coding, generating initial themes, reviewing and developing themes, refining, defining, and naming themes, and finally, writing up. This inquiry approach was guided by the research objective.

Table 2.1: Socio-Demographic Characteristics of the Advisory Board

Pseudonyms	Cultural Background	Age and Gender	Age of arrival	Home	Mental Health Issues	Mental Health Encounter	Annual Household income
Julie	Chinese	31 Woman	Canadian born	Westcoast	Both	None	$50,000-$74,999
Bayya	Sri Lankan	51 Man	28	Prairies	Family	Very helpful	$150,000 +
Chaturi	Sri Lankan	47 Woman	11	Prairies	Family	Very unhelpful	$150,000 +
Seu-Jun	Korean	29 Woman	11	Central	Both	Very helpful	$0-$24,999
Ivy	Hong Kong Chinese	56 Woman	55	Central	Family	Very helpful	$50,000-$74,999
Emilie	Chinese	25 Woman	Canadian born	Westcoast	Both	Very helpful	$150,000 +
Jenny	Taiwanese	42 Woman	31	Westcoast	Both	Neither helpful or unhelpful	$125,000-$149,999
Jia	Chinese	23 Non-Binary	Canadian born	Central	Personal	Somewhat helpful	$25,000-$49,999
Pat	Chinese	36 Non-Binary	Canadian born	Hong Kong	Personal	Very helpful	$0-$24,999
Sophie	Korean	32 Woman	Canadian born	Westcoast	Both	Somewhat helpful	$150,000 +
Lin	Vietnamese	24 Woman	18	Vietnam	Both	Somewhat helpful	$50,000-$74,999
William	Chinese	31 Man	Canadian born	Central	Both	Very helpful	$50,000-$74,999
Scarlet	Chinese	20s Woman	Canadian born	Central	Both	Somewhat helpful	Prefer not to say
Shelly	Chinese/Vietnamese	29 Woman	Canadian born	Prairies	Both	Somewhat helpful	$25,000-$49,999

Note: the Westcoast region refers to British Columbia; = BC, Prairie Provinces refers to Manitoba, Saskatchewan, Alberta; Central region refers to Quebec and Ontario; Mental Health Encounter refers to perceived helpfulness of past experiences with mental health professionals.

Analytical Process

Data were recorded digitally, transcribed, and verified for accuracy. The lead author first re-listened to focus group interviews to become familiar with the data and maintained a journal for reflecting on her subjectivity and ideas. She initiated coding at a semantic/descriptive level and generated initial themes by organizing codes around a relative core commonality, or a 'central organizing concept,' at the latent level (Braun & Clarke, 2019). As part of a community-engaged approach, one advisory member interested in learning qualitative analysis joined the analytical team to enhance her research skills. For analytic rigor, the themes and codes were reviewed and discussed with two additional researchers experienced in qualitative methods to explore the interpretation of initial themes. When assessing potential themes, we employed guiding questions by Braun and Clarke (2012, pg. 65) to evaluate the themes' function in addressing the research objective. The candidate themes were then reviewed and refined in collaboration with the second (CC) and third authors (MT). We examined the relationship between the data and codes to ensure they formed coherent themes (i.e., internal homogeneity). Next, we reviewed the themes across the dataset to determine whether there was enough meaningful data to support each theme. Finally, we defined and named the themes for the paper.

Results

The results section includes two parts. First, we report on the themes from the qualitative analyses. Afterwards, we report on how we incorporated the themes into the development of a pilot study that was tested for acceptability and feasibility.

Qualitative Themes to Guide the Intervention Development

The data were organized into three themes, each with multiple subthemes. Notably, the discussions of advisory board members (and the resulting themes) focused on both program

content recommendations and user experiences. Thus, the first two themes, (1) *A Program Designed for Asians* and (2) E*mpowered to Take Charge of My Mental Health*, apply more broadly to content, while the third theme, (3) *A Good Learning Experience*, includes specific ideas for enhancing the engagement of Asian participants. The following paragraphs describe each theme and its related subthemes. Pseudonyms were used in the text and Table 2.1 to protect the confidentiality of participants.

Theme 1: A Program Designed for Asians

This concept captured the importance of focusing on the Asian experience rather than creating a generic program. Focusing on the Asian experience helps participants relate to the information and be more willing to consider the option of seeking help. The theme includes two subthemes *"Asian" is a diverse group,* and *Asians and North Americans think differently about mental health.*

"Asian" is a diverse group. This theme highlights the diversity in the Asian group and how different socio-cultural factors shape individual experiences. Advisory board members often evoked the need to acknowledge the diversity of experiences, such as how immigration or cultural norms around family structures may shape mental health. For example, in the following extract, Julie proposed:

> Can we talk about different cultural traditions and norms? That may add to mental health challenges for some groups versus others. For example, in a traditional Chinese family, Elders or seniors are meant to live with their oldest son. People caught in that kind of bubble …their mental health might be impacted differently from others that have different kinds of family norms and traditions.

Some Asian people have been in Canada for many generations while others might have arrived more recently as immigrants or refugees. Shelly described the socio-economic pressures many Asian people in Canada may feel, "I think as we all kinda understand…financial resources are scarce, and time, energy… as refugees or immigrants." There can also be mistrust, especially by older Asian people, who might have experienced more racism, making it more challenging to trust institutions. Aisha shared, "I have to acknowledge, my parents, although they spent a lot of their life here in Canada, they've experienced racism right from the start. So, it's a bit of needing to kind of help them build that trust, but it's hard to build that trust and understanding."

Asians and North Americans think differently about mental health. Advisory board members often evoked ideas of differences between "Eastern" and "Western" conceptualizations of mental health. Mental health/illness was new or "Western" ideas and programs designed to encourage seeking mental health support must find ways to bridge those ideas with more familiar cultural ideas, such as holistic approaches to health and holistic treatment. For example, Jenny discussed:

> So, in the West, there's a lack of research around acupuncture or ayurvedic. But in the East, there's plenty, right? And they're not in English. So, I'm thinking, all these immigrants coming here, regardless of their age, and generation, but especially the older ones, will relate to that better than Western research.

Advisory board members regularly commented on the need to pay attention to how cultural ways of thinking, such as valuing physical health over mental health, perseverance, religious beliefs, or "karma" might shape Asian people's decision about whether to seek help.

> To my parents and a lot of folks in the South Asian community, religion plays a huge role. My parents will just say – 'Well this is kind of what God wanted. I can just believe in my religion and feel better.' – when it clearly hasn't worked. – Aisha
>
> My mom, she's a Buddhist, so she believes in karma. She will explain everything with karma. She was like, 'everything is going like this because of the karma that you accumulated in a previous life.' I think she was kind of hindering me in a way. That she made me a little bit more afraid to speak out to speak up about it [mental health difficulties]. – Lin

This theme highlights the importance of an intervention program that considers the tensions that Asian individuals may experience due to their preference for Eastern, holistic approaches to health and how their cultural and religious beliefs may influence their use of mental health services. The theme also underscores the need to acknowledge the diversity of experiences among Asian Canadians and to strike a balance between providing general information that applies broadly to this population while recognizing the unique experiences of individuals based on their level of acculturation.

Theme 2: Empowered to Take Charge of My Mental Health

This overarching theme captured the need for an intervention to support Asian people to feel empowered to take care of their mental health by encouraging them to view seeking mental health support as a positive behavior, learn to accept that it is normal to struggle and provide ideas for how to navigate the mental health system. The theme includes three subthemes *Help-Seeking as Strength, Normalize Struggles,* and *Navigating the System.*

Help-Seeking as Strength. Advisory board members often described myths and misperceptions about mental illness as a failure of character or mental illness as only

characterizing those with severe functioning impairment. These beliefs made it difficult for Asian people to seek help. Thus, suggesting there is a need for interventions to reframe help-seeking as preventative or part of wellness and not just for people who experience extreme distress or impairment. Tammy shared her misperceptions that made it challenging to seek help, "Cause when I think 'mental health,' I used to think schizophrenia or clinical depression, but that doesn't necessarily mean mental health". Jenny suggested focusing on how seeking help could foster general well-being "Are we able to re-reframe it and say – 'Hey, this is good for your overall health' – instead of emphasizing just mental health?" Acknowledging the impact of mental health on overall well-being can increase motivation for Asian people who value holistic health. Advisory board members generally evoked the need for information to be framed in ways that suggest help-seeking is a positive behavior rather than viewing help-seeking as a way of addressing a deficit. Bayya described how he discusses help-seeking with others, "So, I share with people the value of mental health. The other thing I'm trying to tell people is, 'I don't see it as a weakness – seeking help for mental health issues. I think it's a strength.'"

Normalize struggles. This subtheme captures focus group discussions regarding the need to normalize the experience of mental health challenges. Many Asian people do not realize how common it is to struggle. Interventions that include stories of Asian people who share their experiences with mental health challenges or mental illness can encourage people to accept the idea of struggling and be more willing to seek help. Jia commented on feeling empowered by stories of Asian people's experiences:

> There were some examples of celebrities [in the pilot material] that deal with mental illness and also cared about their mental health that were Asian, and that was relatable! I thought that was really useful and really helpful. It would be good to also have some

everyday people within the community. Because celebrities are different than the people reached by these programs.

Advisory board members also evoked notions about the family and community being a source of empowerment. Chaturi reflected:

> So, it's not from some other culture but from within their own culture…Having this person [within the culture] say, 'Hey, they got through it.' Maybe that person also speaks to what helped them get through it. Maybe a supportive family was one of the things. You know what I mean? So that it gives more language and opportunity for the family to be helpful, right? Like finding out rather than hiding it and putting it under the rug.

Navigating the system. This subtheme captures the need to support people in navigating the complex landscape of finding the right support. Ivy describes a common sense of confusion, "There are so many practitioners out there. You have psychiatrists, you have psychologists, you have therapists, you have counselors… we don't know where to seek help. Who is the proper one where we can find assistance?" Similarly, Bayya described frustration when there is a lack of clarity or a mismatch between services and expectations:

> If you go with a broken leg to a doctor, you know what to expect they will do. But when you go to see a therapist, it is completely different. Your expectation and what the person is going to deliver may not match. They have multiple techniques and different ways of delivery. I think it's important at the beginning that you set the expectation, so there's no confusion. In my experience and when I talked to my friends that is an issue. So, managing expectations is very important.

Many advisory board members discussed difficulties finding out how to identify appropriate support, especially for Asian people who experience language or systematic barriers.

For instance, Shelly describes a common experience, “My parents don’t speak English at all, and I think maybe…I think a lot of you understand, we don’t get all this information, living in Canada. We don’t know where to go.” Mia noted, “As an international student, we don’t have coverage from the government.” A help-seeking intervention could provide practical tools that make it easier to find support, such as scripts for calling a service provider to find out about services in Asian languages, tips to find low-cost services or ideas for how to bring up issues if a service provider is perceived as unhelpful. Chaturi commented on the difficulties of finding the right fit for her daughter:

> We had some great people to work with, but many of them I just felt didn’t actually listen. And then if there are cultural things and stuff that come into play, that’s going to exacerbate that. Now, she [her daughter] has a hard time thinking, ‘I don’t know that this person can help me. How do I know? Because I’ve trusted so much in the past and they’ve always let me down. So, I don’t wanna stick my neck out again.

Navigating the system can be difficult for many Asian people and the focus group discussions evoked the need for an intervention to help make the process of finding support easier and help Asian Canadians find a service that fits their needs.

Theme 3: A Good Learning Experience

The third theme captures the importance of providing a good learning experience. Attending to the program's usability is necessary to keep Asian people engaged, minimize attrition, and foster interest in learning about mental health and mental health resources.

Easy to Use. This subtheme captures the notion that a successful intervention is delivered in an easy-to-absorb format. Easy to use includes the interface of the program and the accessibility of the content. For example, Pat commented on minimizing the use of jargon:

> "I can already think of examples with older Korean women who … might not be educated in post-secondary and had to get married young. You can't necessarily just say, 'okay, here's how to define stigma.' It's quite an academic approach."

Advisory board members often discussed the importance of simplifying language to make information more accessible. For example, Shelly suggested restructuring sentences, "I would also use more simple English instead of 'being unsure where to go', I would say, 'I don't know where to go' or something like that." The use of metaphors helped make the concepts more accessible. Julie reflected on her reaction to the sample video:

> I love in the first video, how you unpacked mental health as just as important as physical health. We are quick to jump in to see a doctor for physical health, why don't we do the same for mental health? I feel like that resonates a lot, based on different conversations I had with other Asian people, who deal with different mental health issues.

The discussions also addressed the need to attend to the pacing of information. Jia noted, "I think it would be really helpful for people to be able to choose how much of it they take in, at what pace, and to be able review if they want to go back to a certain step."

A Safe Space. This subtheme is about designing an intervention that feels welcoming and safe. It is important to choose a platform where people feel safe. Some people might be afraid or hesitant to use social media, for example, if they have experienced bullying online or if they are afraid their friends can see they their participating. Choosing a platform where people feel safe is an important part of fostering a good learning experience. Jenny reflected, "I find social media can be a double-edged sword. It can be very useful and accessible. And then for people who already struggle, for whatever reason, including bullying, I think that that actually would be uninviting." Some people might be afraid or hesitant to use social media, if they had negative

experiences or if they are concerned others might see they are consuming content about mental health. To foster engagement, it is important that people feel that their participation can be confidential. It should feel like a positive and inclusive space.

Pleasant to Use. This subtheme is related to, but distinct from, the theme Easy to Use. Advisory board members emphasized the value of creating a program that is interesting or even rewarding to use. Advisory board members noted that using multimedia, such as having animated characters, not only makes it easier to absorb information but makes the learning experience more interesting and relatable. William describes the benefits of animation, "I was paying attention, even though it's like 10 minutes." This subtheme also captures notions that making learning rewarding makes for a good experience, such as by providing badges, certificates, or trackers of progress, to help maintain the interest of Asian participants. Shelly shared her experience:

> For example, as people with ADHD, we have a group where we chat about it [motivation]. If it motivates us, it motivates anybody right? Basically, even like having water every time you log in [to the program], your plant starts growing and you're excited about it."

Similarly, Scarlet noted she likes small incentives, "I'm more like a collector, like badges. So, each module you can earn something, and then maybe get like a certificate at the end."

Personalized experience. This subtheme captures the notion of tailoring individual experiences in the program based on each participant's level of interest and prior knowledge to sustain engagement. Offering flexibility will help people get more out of a self-directed intervention. Some people may be interested in more self-reflection and active learning approaches, whereas others might not. Seu-Jun commented:

> I like the journal suggestion, but I realized it probably can only be a suggestion unless they're really up for it. That's why the very easy simple-to-do, write two sentences about what you learned, is probably going to be more inviting for most people.

Flexibility also reduces the chances that people will feel overwhelmed or bored. Jia suggested:

> I thought it would be interesting to have anything you couldn't include in videos as optional because you don't want to go through every example or supporting research as to why it matters in the video and make it super long. I like having more information. If people are really excited to learn more about it, they can go and learn more, and for people who think that they have learned enough, they don't have to look at it.

Incorporating Themes into the Design of the Asian Mental Health Program

The themes from the iterative focus group guided the development of the Asian Mental Health Program from the design of the website to the content of the modules and the optional activities. In the following section, we describe the ways the themes were incorporated into developing the Asian Mental Health Program based on guidelines for best practice guidelines for intervention development (Wight et al., 2015).

Defining and understanding the problem

The focus group discussions highlighted barriers to help-seeking at multiple levels. At the individual level, these factors included: a lack of knowledge about mental health and mental health treatments, stigma related to mental illness, difficulties in understanding the initial steps to access care, and occasionally, negative prior experiences with the mental health system. At the interpersonal level, families sometimes supported help-seeking, while at other times, they did not play a role or were perceived as not supportive. At the societal level, participants often cited

challenges in accessing care due to long waitlists in the public health system and difficulties in finding affordable private treatment options.

Identifying modifiable factors and deciding on mechanism of change

As the goal was to design a digital psychological intervention, the focus was on identifying individual and interpersonal modifiable factors rather than structural factors. Please refer to Table 2.2 for a logic model summarizing the resources used to create the program and the plan for evaluating the Asian Mental Health Program. Table 2.3 provides a summary of the content of each module and the theoretical reasoning behind the learning objectives.

One of the key issues with general resources for mental health is the lack of connection to an Asian audience. Thus, the mechanism of change identified was to establish a connection with the audience. The content was designed to be relatable through the visual representation of characters and stories right from the start of the program. The first module, *'Mental Health and Asian Communities*,' provides the context of why the program is relevant for Asian Canadians and normalizes the experience of struggles with mental health or illness by including examples of Asian celebrities who have sought mental health support for themselves or their families. The videos also feature vignettes with Asian characters undergoing common experiences within the Asian community, such as being an international student or living in a multigenerational household while providing support for elders in the family.

Another common problem was a lack of knowledge about mental health. The mechanisms we chose to change this were psychoeducation and normalization. The early modules in the core series and the psychotherapy series were designed to provide psychoeducation to help the participant identify steps for taking care of their mental health and how they could do so through taking action in different areas of life, such as strengthening their

social support. Module Three, *Warning Signs in Self and Loved Ones*, also provided information on warning signs that might indicate the need to seek professional help.

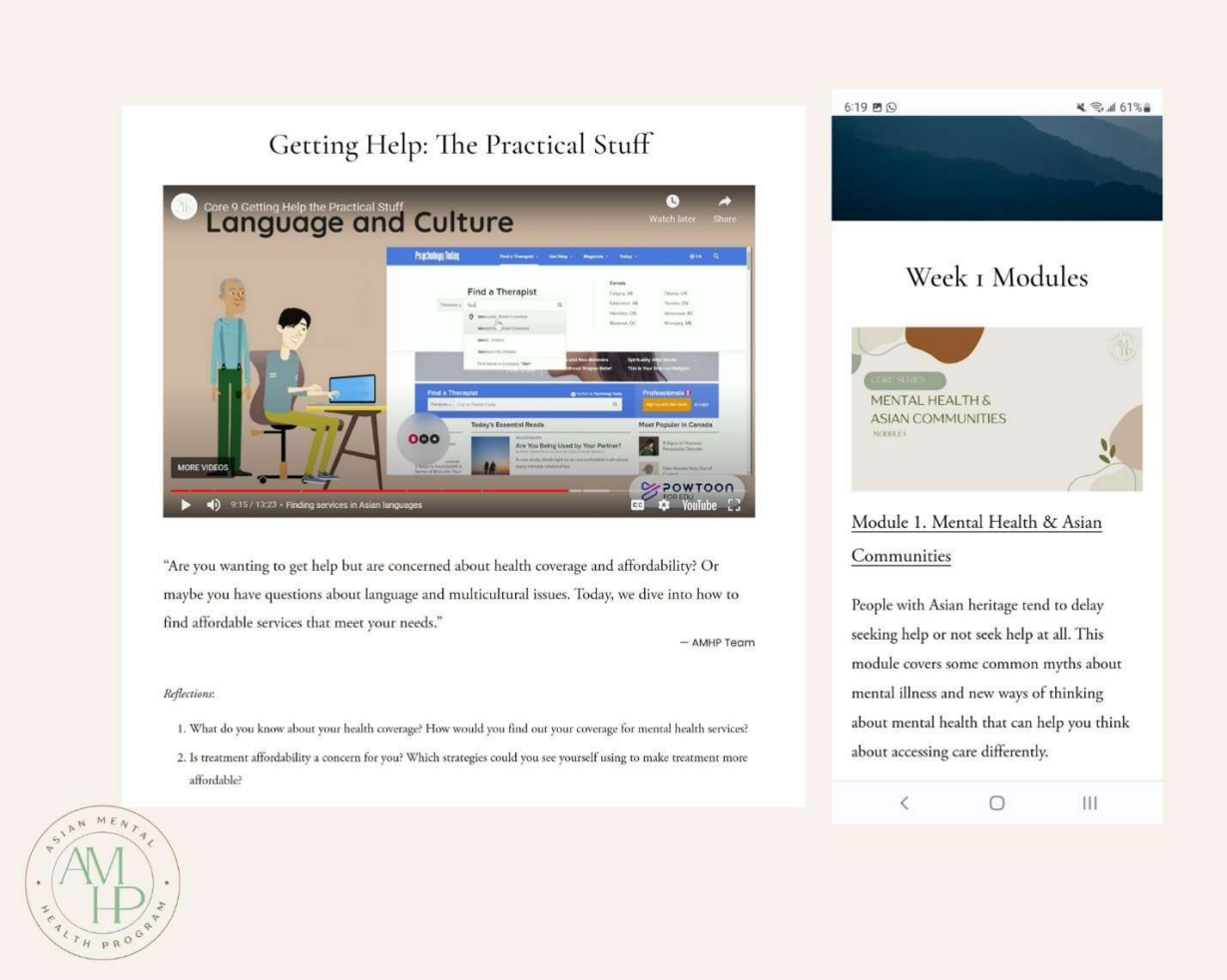
Misperceptions and stigma in the community were also incorporated into the intervention. Participants often cited that many people in the Asian community perceive help-seeking as acceptable only as a last resort for highly distressed individuals, for example, individuals experiencing suicidality. Therefore, the program incorporates strategies that challenge these cognitions and employs motivational strategies to modify common misperceptions held by people in the Asian community about mental health and psychotherapy. It also aims to normalize struggles and encourage seeking professional help. For example, the program uses parallels to physical health to illustrate how seeking help rather than ignoring a problem is a strength and a sign of resourcefulness rather than weakness, and how the same idea applies to mental health and illness. Participants are also encouraged to consider the actions they would recommend to someone they care about who is facing similar struggles.

Strengthening motivation is another mechanism of change used to encourage participants to think about the whole picture, such as the pros and cons of both seeking help and not seeking help. Therefore, participants are also asked to engage in specific goal setting in Module Ten, M*aking and Revising My Action Plan*, for when to seek help.

Finally, another common problem was a sense of lack of ability or self-efficacy to find the right type of mental health care for themselves. The content for both the core series and the psychotherapy series is designed to empower people to take charge of their mental health by learning how to navigate the mental health system. For example, the module *Mental Health Services Decoded* explains the differences between different mental health professionals, and in the module *Getting Help: The Practical Stuff,* participants learn how to problem-solve common

systemic barriers to access, such as affordability or specific language needs. As many therapist professions do not reflect the diversity of the population in Canada, the modules also address common barriers that minorities might experience, such as feeling misunderstood, and empowers participants to speak up and look for a different therapist if needed. The content aims to support people to be informed consumers of psychotherapy services and get the most out of the process. It provides education about what to expect and ideas for things they can do or ask for to support their experience, such as relevant material or setting the agenda proactively.

Figure 2.1: Screen Shot of Layout of the Asian Mental Health Program on a Computer Screen and a Smartphone.



Clarifying the method of delivery

The design adhered to the guiding principle of providing *A Good Learning Experience*. We opted to host the program on a website to ensure a secure and welcoming environment. The website was designed to be user-friendly on both computers and smartphones. Sample screenshots of both a computer and a smartphone are shown in Figure 2.1. The website incorporates quotes and images that evoke aspects of Asian culture, and the color scheme features calming, light pastel colors. Each module comprises an animated video and offers optional reflection activities in a downloadable PDF workbook, enhancing the personalization of the participant's experience. The videos also include experiential exercises, such as reflecting on warning signs for mental health and setting goals using the SMART goal-setting approach. To maintain engagement, video lengths vary from 5 to 15 minutes, and bookmarks are included so participants can easily resume from where they paused within a module. The workbook is provided in both a fillable PDF format and a print-friendly format to facilitate usability.

Advisory board members emphasized that family could serve as both a barrier and a source of support, depending on a family member's knowledge and individual stigma about mental illness. Consequently, we chose to design the intervention to be completed alone or with the option of involving a family member. Given the variability in the supportiveness of family members, individuals themselves are best positioned to determine whether participating with a family member would be advisable based on their relationship quality. Overall, the design was structured to be user-friendly for individual self-guided use. At this stage, we opted not to include a community interaction component, where participants could communicate with each other, due to insufficient resources to monitor interactions for appropriateness.

Table 2.2: Logic Model for Asian Mental Health Program

Context	**Project**			**Impact**		
Problem Analyses	**Resources/Input**	**Activities**	**Outputs**	**Short-term Outcomes**	**Mid-term Outcomes**	**Long-term Outcomes**
What are the issues? What are the challenges?	What we invest to create and pilot the program	What we do	Who we reach What products are created	What learning might happen?	What actions might people take?	What are the ultimate impacts?
Issue: Asian people tend not to use mental health resources **Barriers:** low mental health literacy, stigma, low motivation, low sense of self-efficacy, lack of information about how to address logistical issues	<u>Digital</u> - Website budget - Technology for creating the videos - Survey platform <u>Human Expertise</u> - Clinical knowledge and lived experience - Time to create content <u>Monetary</u> Funding for honorariums, advertising, and incentives	<u>Process</u> - Consent and orientations with participants - Address technical issues <u>Data collection</u> - Send follow-up question and reminders - Conduct interviews after program completion	<u>Reach</u> - 60 Asian Canadian adults - 30 family members <u>Information</u> - Feedback about feasibility and value for efficacy testing - Ideas for ways to improve the program	<u>Psychological</u> ↑ mental health literacy ↑ motivation ↑ self-efficacy ↓ stigma <u>Education</u> ↑ knowledge about ways to address practical barriers	↑ use of self-help resources for mental health ↑ use of professional resources for mental health	↑ mental health for participants ↑ Asian representation in mental health research ↓ delay before seeking help when in distress - Greater equity in use of mental health service use for Asians

Note: the logic model presents the we used the resources to create the Asian Mental Health Program, and the activities and output that will help us answer the feasibility question. The outcomes represent what we hope to achieve through the program.

Table 2.3: Summary of Module Content

Module	Module Descriptions	Main Learning Objectives	Theoretical Basis & Skill Development *
Core Series			
1. Mental Health and Asian communities	People with Asian heritage tend to delay seeking help or not seek help at all. This module covers some common myths about mental illness and new ways of thinking about mental health that can help you think about accessing care differently.	- Normalizing that we have learned unhelpful social messages about mental health - Reflections on which values to keep	- Social norms - Framing as strength - Challenging Assumptions
2. What is Mental Health?	Have you ever wondered what contributes to mental health and mental illness? In this module, we define mental health and mental illness and help you think about biological, psychological, and social factors that impact your mental health.	- Introduction to a biopsychosocial model - Vignette of Asian man struggling with mental health	- Mental health literacy - Indirect contact theory
3. Warning Signs in Self and Loved Ones	How can you tell if someone might be struggling with their mental health? In this module, you will learn some common signs of struggling, so you can notice early when you might benefit from support or when someone close to you does!	- Learning about warning signs in oneself or family members - Safety planning	- Mental health literacy - Crisis intervention
4. Understanding My Mental Health	Just like your bank account, you can add or take away things to improve your mental health. In this module, you will learn to understand and adjust your mental health balance sheet.	- Learning about risk and protective factors in the domains of biology, psychologically, socially, spiritually/religious -Identifying stressors	- Mental health literacy -Problem solving skills
5. Taking Care and Advocating for Yourself	Have you wondered how to engage in self-care? No, it is not about buying more things. Today, we look at different self-care strategies and ways to strengthen your support system.	- Learning ways to promote self-care: physically, emotionally, socially, spiritually, and through helpful thinking	- Framing as health promotion - Problem Solving & Coping skills - Thought challenging skills

6. Setting Mental Health Goals	Do you find yourself delaying taking steps to improve your mental health? Learn how to use S.M.A.R.T. goal setting to get results.	- Connecting with personal values - Using the SMART goal setting approach - Use of vignettes	- Motivational Interviewing - Behavior Shaping - Indirect contact intervention
7. Mental Health Services Decoded	Feeling a bit overwhelmed about what professional support to get? Today, we cover different mental health professions, discuss medication versus psychotherapy, and more. Get answers to commonly asked questions.	- Learn about psychopharmacology, psychotherapy, and expertise of different professionals - Learn about telehealth - Use of vignettes	- Mental health literacy - Consumer empowerment theory - Indirect contact intervention
8. Getting Help: Making the Decision	Have you ever considered mental health treatment but talked yourself out of it? In this module, we go over common thoughts, emotions, or human biases that come up and how to handle them.	- Learning about importance of self-compassion - Challenge common concerns	- Framing as a strength - Thought challenging skills - Using a decision matrix
9. Getting Help: The Practical Stuff	Are you wanting to get help but are concerned about health coverage and affordability? Or maybe you have questions about language and multicultural issues. Today, we dive into how to find affordable services that meet your needs.	- Learning to navigate the system - Learning about tools that can make help-seeking seem easier e.g., through supplying scripts and how-to demo	- Self-efficacy - Consumer empowerment theory - Reduce activation energy for behavior - Problem solving
10. Making (and Revising) My Action Plan	How can we take care of ourselves when overwhelmed? Sometimes the answer is to get support from a professional. We use the S.M.A.R.T.E.R. goal setting to take action for our mental health.	- Using the SMART goal setting approach for help-seeking - Showing sample journey maps of relatable characters - Sharing stories from advisory board	- Implementation Intentions - Motivational enhancement - Modeling - Indirect contact-based intervention
Psychotherapy Series			
1. Choosing a Therapy & a Therapist	What kind of psychotherapy or therapist do I need? Today, we look at different	- Normalizing reasons for seeking psychotherapy - Intro to common therapies	- Social norms - Consumer empowerment theory

	psychotherapies and therapist qualifications to help narrow your search.	- Key terms: evidence-based and licensed professional	
2. Finding a Therapeutic Fit	Finding the right therapist for you. We discuss therapeutic fit: why it's important, and what to look for to evaluate if you are a good match.	- Importance of fit and cultural responsiveness - Ideas for assessing fit - The right to choose your therapist	- Locus of control - Social norms - Empowerment
3. What to Expect in Therapy	Therapy is a journey together. It takes time, and there are ups and downs. People who don't know how therapy works are more likely to stop going – before they get the results they want. Today, we cover what to expect in therapy, and it will not be like in pop culture.	- Learning about the psychotherapy process - Vignette's demonstrating the process - Metaphors that are relatable e.g., physical healing - Stories from the advisory board	- Mental health literacy - Instilling hope - Setting realistic expectations
4. Getting More Out of Therapy	Getting bigger returns on your investment. Therapy takes time and can be expensive. Today, we provide tips on how to get the most out of your psychotherapy experience.	- Learning ways to address process issues in therapy e.g., adherence, practice, agenda setting, openness, comfort to give feedback - Stories from the advisory board	- Self-efficacy - Empowerment - Thought challenging - Problem solving
5. Recap & What's Next?	Reviewing is the key to remembering. We will take a tour of the program from beginning to end and reflect on what's next.	- Visual review of a person travelling traveling through the modules - Normalizing struggles are part of life - Encourage contributing through the research process	- Memory consolidation - Celebrate achievement

*Glossary for terms used to describe underlying principles and the skills individuals may develop through their participation.

1. Social norms: Addressing and challenging societal beliefs and attitudes surrounding mental health to normalize help-seeking behaviors and reduce stigma.

2. Framing as strength: Reframing mental health issues as a sign of strength and resilience rather than weakness, promoting a positive perspective and encouraging individuals to seek support.
3. Mental health literacy: Enhancing individuals' understanding of mental health, including its definition, risk factors, protective factors, and common mental health conditions.
4. Indirect contact theory: Using narratives, vignettes, or stories to expose individuals to positive experiences of help-seeking and mental health treatment, promoting behavioral change through identification and modeling.
5. Crisis intervention: Equipping individuals with the knowledge and skills to identify warning signs of mental health distress and providing strategies for immediate support and intervention.
6. Problem-solving skills: Teaching individuals effective problem-solving techniques to address mental health challenges and promote adaptive coping strategies.
7. Motivational Interviewing: Employing a collaborative and client-centered approach to enhance motivation and commitment to change, exploring ambivalence, and eliciting intrinsic motivation for seeking help.
8. Consumer empowerment theory: Empowering individuals to take an active role in their mental health care decisions, including choosing appropriate therapies, advocating for their needs, and participating in shared decision-making with mental health professionals.
9. Reducing activation energy for behavior: Removing barriers and making help-seeking behaviors more accessible and feasible through providing resources, scripts, and practical guidance.
10. Thought challenging skills: Assisting individuals in recognizing and challenging negative or distorted thoughts, beliefs, and assumptions that contribute to mental health challenges, promoting more adaptive thinking patterns.
11. Locus of control: Empowering individuals by fostering an internal locus of control, encouraging them to believe in their ability to make choices and take action regarding their mental health.
12. Empowerment: Promoting a sense of empowerment in individuals, emphasizing their autonomy, strengths, and ability to take control of their mental health journey.
13. Implementation intentions: Guiding individuals in creating specific plans and strategies to overcome barriers and facilitate the implementation of their mental health goals.
14. Memory consolidation: Emphasizing the importance of reviewing and reflecting on learned material to enhance memory consolidation and retention of mental health concepts and skills.
15. Celebrate achievement: Recognizing and celebrating personal achievements and progress made throughout the program, reinforcing positive outcomes and fostering motivation to continue prioritizing mental health.

Discussion

In recent years, there has been increased recognition of the value of prevention and early intervention for mental health. Yet, many Asian Canadians and Asian Americans tend to not seek professional support or delay treatment for mental illness. This study contributes knowledge and insight into considerations for designing help-seeking interventions for mental health services for Asian Canadians. It also provides an example of how to use the themes to create a targeted digital intervention that attends to diverse cultural experiences in Canada. The results of our study underscore the necessity of developing programs that are relatable, that address cultural differences in beliefs about mental health, and that empower Asian individuals to take charge of their mental health through a positive learning experience.

The themes related to program content are consistent with previous literature on the need for a culturally responsive model of mental health literacy for East Asians (Na et al., 2016). Similar to the review conducted by Na et al. (2016), we found it was important to consider cultural modification of knowledge and recognition of differing beliefs about mental illness. The second theme *Empowering to Take Charge of My Mental Health* was found to be a useful framework to understand the motivations and help-seeking decisions among Asian Canadians. Previous literature has identified the framing effect as a robust cognitive bias across life domains from environmental to medical decisions (e.g., Gong et al., 2013; Homar et al., 2021). Framing help-seeking as a proactive behavior and sign of strength has the additional benefit of fostering a sense of internal locus of control, the belief one can take actions to influence one's life outcomes (Wallston, 2015). Internal locus of control is associated with lower psychological distress (Alat et al., 2021), and increasing specific beliefs about behavioral control, such as the ability to get

better through the use of mental health services may increase health-promoting behaviors (Cheng et al., 2016).

The theme of *normalizing struggles* is consistent with a large body of literature identifying de-stigmatization as reducing negative attitudes toward mental illness and promoting help-seeking behavior. In Clement and colleagues' review (2015), stigma was a common barrier and had a medium to large negative association with help-seeking among Asian Americans. Normalizing struggles and building acceptance that mental health difficulties are a common part of the human experience can reduce stigma (Xu et al., 2018; Fung et al., 2021). Therefore, we included many vignettes in the modules to provide an indirect form of contact-based intervention. Vignettes that facilitate identification with realistic characters can generate reflection and discussion about mental health (Lapatin et al., 2012).

The theme regarding *creating a good learning experience* was consistent with general recommendations for designing and delivering engaging digital behavior change interventions. Engagement in digital behavior change interventions can be fostered by attending to the user experience. Ease of use, use of narratives, and personalization often positively influence engagement (Perski et al., 2017). Research on user perception of strategies for promoting engagement also finds that succinct and easily applicable content was an important feature for promoting engagement (Gan et al., 2023). In a study by Gan and colleagues (2023), many participants thought social media platforms such as Instagram and Facebook might be suitable, but similar to some members in our advisory group, they were concerned about unintended negative consequences, such as distractibility or confidentiality concerns, or lack of options to view content anonymously. The possibility of using social media may lead to unintended stigma for Asian Canadians because mental illness is often interpreted as a sign of weakness and there

might be a “fear of losing face” if friends or family members become aware of their struggles (Nguyen & Anderson, 2005; Shea & Yeh, 2008) In general, no single strategy is superior to others for promoting engagement in digital mental health interventions, thus reiterating the importance and need to co-design and pilot interventions. Digital interventions offer options to reach a broader segment of Asian Canadians, but it is essential to co-develop, pilot, and refine the intervention to best meet the need and characteristics of the group.

Lack of knowledge, stigma, and low motivation are key barriers to seeking professional help (Bonabi et al., 2016; DeBate et al., 2018; Snyder et al., 2017). Most effective studies combine different interventions (Xu et al., 2018) and include personal involvement through exercise, personalized feedback, and sharing personal narratives (Evans-Lack et al., 2022). Evens-Lacko and colleagues' (2022) review found considerable success in increasing help-seeking behaviors when studies used multiple intervention sessions versus single sessions. In designing the intervention, we decided on shorter daily modules to balance the need for sharing content with the need to promote engagement (Yardley et al., 2016).

Intervention development studies that report on the rationale and decision-making in developing an intervention prior to formal testing improve scientific rigor, provide opportunities for the intervention to be enhanced, and allow others to learn from the experience (Hoddinott, 2015). Careful attention to the development of interventions and sharing the development process promotes interdisciplinary learning and reduces research waste (Hoddinott, 2015). A contribution of this study is the reporting on the iterative cycles of development with stakeholder input throughout the development of the intervention (O’Cathain et al., 2019). In combination with the guidance of the themes from the focus group discussions, the self-guided web-based intervention Asian Mental Health Program draws on psychological and behavioral economics

literature to identify components for fostering help-seeking for mental health: increasing mental health literacy, de-stigmatization, and motivational enhancement (Evans-Lacko et al., 2022; Xu et al., 2018).

The Asian Mental Health Program is developed to be an accessible tool that fills a gap in a system with limited resources. Many settings serve Asian clients, such as primary care clinics, cultural organizations, and centers for international students. These settings may benefit from being able to share a digital resource for early intervention with their clients. Clinicians or staff working in these settings often do not have the time or sometimes training to provide a face-to-face intervention for help-seeking. A digital resource like the Asian Mental Health Program can fill this gap to reduce the chances of untreated mental health issues and mitigate the burden on the health care system.

Implications, Limitations and Future Recommendations

The results of this study suggest that encouraging help-seeking behavior among Asian Canadians requires a complex intervention with multiple components. Asians in Canada and the United States tend to be less likely to seek support compared to the general population (Tiwari & Wang, 2008), even among the subsegments that tend to struggle more with mental illness than the general population (Okazaki et al., 2014). Therefore, it may be beneficial for clinicians to attend to the diversity within Asian experiences, such as generational differences or family roles as a source of support or reluctance in the help-seeking process. It is important, especially for clinicians without an Asian background to understand their own biases and views about mental health and ask questions about their clients' views (Green et al., 2006; Islam et al., 2022). Tools such as the Cultural Formulation Interview (CFI) a supplement module to the DSM-5 is available and free of cost to encourage increased culturally responsive care, reduce health care disparities

and increase clinicians' knowledge of diverse cultures of clients (American Psychiatric Association 2013; Díaz et al., 2016). In addition to normalizing help-seeking and framing it as a strength, clinicians can ask questions regarding their hesitations around help-seeking to uncover and address any barriers. For example, they can inquire if any aspects of the client's background or identity make a difference in their decision to seek help for mental health issues.

Consistent with previous literature (Griese, 2020), our study revealed the presence of structural barriers to accessing mental health care. These barriers often pose challenges for individuals navigating the complex healthcare system, particularly for marginalized populations with diverse language needs or non-resident status (Ngo et al., 2003; Robard et al., 2019). Clinicians working in prevention, health promotion, or primary care settings play a vital role in supporting and advocating for clients as they navigate this system. Clients with limited knowledge about mental health services may feel overwhelmed by the process (Ådnanes & Steihaug, 2013; Renante et al., 2022). To address these challenges, patient navigation emerges as a valuable healthcare delivery support service. It assists patients in identifying and overcoming barriers, provides education about healthcare coverage and services, and coordinates necessary care and referrals (Freeman & Rodriguez, 2011). However, despite its potential to improve outcomes, the availability of patient navigation services is limited in many healthcare settings due to resource constraints (Mullen et al., 2020). To bridge this gap and empower individuals in accessing appropriate support and services, tools such as the Asian Mental Health Program can play a crucial role. This program aims to equip individuals with the knowledge and skills to navigate the system effectively, make informed decisions regarding service providers, and increase their engagement with available mental health services.

This study has some limitations. Even though there was a range of participants who were not Canadian-born, the opportunity to participate was limited to those feeling comfortable participating in English. While most Canadians speak English or English and another language (87.8%; Statistics Canada), Asian Canadians that only speak French or other languages were excluded. Future research on this topic may benefit from offering participation in different languages to explore other ideas for increasing help-seeking in Asian populations. Even though we had a good representation of ages from the 20s to 50s, we lacked participation from older adults. There is a digital divide across age groups that put older adults at risk of being excluded from digital mental health interventions (Seifert et al, 2019). Future research on this topic can benefit from targeted recruitment of older adults to allow for a better understanding of designing digital mental health interventions for this population. Relatedly, it is important to note the vast differences in history, cultural practices, and experiences with privilege/oppression among Asian Canadian populations (Columba, 2017). Future research can further explore the socio-cultural influences to consider for developing effective help-seeking interventions.

Despite these limitations, this study shows evidence of the importance of focusing on developing culturally informed digital help-seeking interventions that empower Asian people to take care of their mental health. We included a sample with both individual and family perspectives, diverse socio-economic backgrounds, and residing in diverse geographical locations in Canada. We developed the Asian Mental Health Program to translate some of the ideas into a program that can be tested for its acceptability, feasibility, and efficacy as a resource for Asian communities. This research direction can provide ideas for best practices for promoting mental health care in Asian populations during a time of increased anti-Asian discrimination as a result of COVID-19 (Misra et al., 2020; Statistics Canada, 2022). As a result of the spike in

racism, Asians have experienced higher levels of mental illness than whites (Wu et al., 2021). It is essential to develop and implement group-specific mental health resources (Xiang et al. 2020).

Conclusion

Asia is Canada's largest source of immigration, and the proportion of Asian immigrants is expected to continue to increase in Canada (Statistics Canada, 2022). Improving attitudes toward mental health services and help-seeking behaviors among Asian Canadians is crucial to meet community needs. The results of this study provide insight into how to develop a digital mental health intervention to encourage proactive mental health behaviors and early identification and utilization of mental health services as needed. Clinicians, researchers, and others working with Asian populations must recognize the need to empower their clients to take care of their mental health. The Asian Mental Health Program will benefit from being tested as an accessible and easily scalable web-based intervention to support the mental health needs of the Asian community.

Chapter 3 : A Digital Help-Seeking Intervention for Mental Health Service Use among Asian Canadians: A Pilot Study

Abstract

Unmet mental health needs continue to contribute significantly to disability worldwide. Despite increasing attention to mental health in North America, many individuals, particularly those from racialized and ethnic groups, do not seek professional help when they could benefit. To address this issue, we investigated the feasibility of the Asian Mental Health Program (AMHP), a 15-module unguided digital help-seeking intervention developed using a community-engaged research approach. The study involved 102 Asian participants. All participants completed questionnaires (pre, during, post, 1-month, and 3-month follow-up), and 35 also completed individual interviews post-intervention. The results found that the AMHP was highly acceptable and usable (4.48/5) according to the participants who completed the core modules (n=81). Growth modeling revealed a significant increase in positive attitudes towards mental health services, reduced self-stigma, and increased self-efficacy efficacy in managing mental health and in navigating services, with these improvements sustained at the 3-month follow-up. Logistic regression analyses also demonstrated significant increases in the odds of help-seeking behavior (OR=5.52 1 week post-intervention and OR=30.36 at 3-month follow-up). Demand was high for individual participation, but not for dyads, indicating that the AMHP is feasible as an individual intervention rather than a family intervention. Overall, AMHP is a promising individual intervention to promote mental health among Asian Canadians, highlighting the potential for unguided digital interventions to increase access to evidence-based mental health resources for underrepresented populations.

Introduction

Early intervention is crucial for reducing the severity of mental health issues and the cost to the healthcare system (Le et al., 2021; McGorry & Mei, 2018). Unfortunately, Asians in Canada and the United States tend to underutilize professional mental health services, even when they need them (Chiu et al., 2016; Derr, 2016; Yang et al., 2020). This is particularly concerning given that the mental health gap between Asians and non-Asians has widened due to COVID-19-related discrimination encountered by East Asians (Wu et al., 2021).

One way to address this issue is to improve mental health literacy, which refers to knowledge about mental illness, including its recognition, management, and prevention. Mental health literacy can facilitate early intervention for mental disorders and increase help-seeking behaviors (Kelly et al., 2007). Health literacy is a strong predictor of health status (Lee et al., 2015; Sentell et al., 2011). However, studies have shown that people with Asian heritage in Canada and the United States generally have low levels of mental health literacy (Arora & Algois, 2019; Wang et al., 2019). For example, a study using a community sample of Chinese Canadian showed that only 11.3% correctly identified depression in a vignette, compared to 74.0% in the general population who were administered the same vignette (Tieu et al., 2010). To improve mental health literacy and help-seeking behaviors in minority communities, evidence-based culturally responsive mental health promotion and help-seeking interventions must be developed and made accessible (Na et al., 2016; Smith & Trimble, 2016).

In order for a help-seeking intervention to be successful, it must address both psychological and structural issues. Research has shown that Asians tend to have less positive attitudes towards seeking professional psychological services compared to their White counterparts (Masuda et al. 2009; Tieu & Konnert, 2014) and experience high levels of stigma

towards mental illness, which can be a significant barrier to help-seeking (Clement et al., 2015). Some pilot in-person interventions have been developed to increase mental health literacy, attitudes towards mental health, and reduce stigma in Asian populations (Fung et al., 2021; Teng et al., 2009; Wong et al., 2017). However, these programs are not easily scalable as they require trained facilitators to deliver the material which includes psychoeducation, social contact, and motivational enhancement strategies (Fung et al., 2022; Corrigan et al., 2012).

Another determinant of health behavior is self-efficacy, which refers to an individual's confidence in their ability to perform specific behaviors to achieve their objectives (Stajkovic & Luthans, 1998). Self-efficacy has been extensively researched in the context of physical health, with studies demonstrating that individuals with a stronger sense of self-efficacy are more likely to engage in self-management behaviors to maintain their physical health (Yao et al., 2019). In minority communities, where individuals are more likely to encounter structural barriers to accessing care, enhancing self-efficacy can play a vital role. In Canada, common structural barriers include inadequate public awareness campaigns, prolonged wait times, and insufficient funding, among others (Moroz et al., 2020). These barriers are often compounded for immigrants and refugees due to practical barriers arising from the settlement experience, such as limited health coverage, a lack of access to cultural brokers or language interpreters, or the use of tests that are not culturally appropriate (Thomson et al., 2015). Help-seeking interventions designed to provide knowledge and self-efficacy to help people navigate structural barriers to access care may lead to greater service utilization rates.

Feasibility studies play a crucial role in identifying the likelihood of impact and factors that may impede intervention implementation, and informing decisions about which interventions show promise for further development (Pearson et al., 2020). Digital health

programs and interventions must have a user experience design that aligns with the user's skill and knowledge level (Morrison et al., 2012). Failure to meet user demands can result in decreased effectiveness, lower satisfaction, and diminished program adherence (Goldberg et al., 2011). Therefore, piloting the program and gathering feedback on its usability, identifying what works and what does not work in the interface, and determining what needs to be improved are crucial before scaling up programs (Jaspers, 2009).

Brief Description of the Digital Intervention

Digital interventions have the potential to increase access to psychological interventions and overcome barriers to help-seeking that may prevent individuals from participating in traditional in-person interventions. By delivering interventions via digital platforms, individuals who face challenges such as time constraints, transportation, or costs can receive support without these impediments.

Participants were enrolled in the Asian Mental Health Program, a 15 modules digital help-seeking intervention that was co-developed with an advisory board of 17 Asian Canadians with personal or family experience of struggling with mental health (Chapter 2, this dissertation). The program includes two parts: 10 core modules and 5 modules about psychotherapy. Each module contained a video on a topic, reflection questions, and optional activities. The core modules included psychoeducation about mental health and illness, warning signs, strategies for self-care, advocating for oneself, effects of culture and stigma, storytelling of Asian celebrities and characters that sought help, goal setting for mental health, learning about mental health services, dealing with motivational barriers, and ideas for addressing logistical challenges with help-seeking. The psychotherapy modules consisted of psychoeducation related to choosing a therapy and a therapist, assessing a therapeutic fit, what to expect in therapy and tips for getting

more out of the psychotherapy experience. The modules were mostly educational, but some also included experiential activities, such as options to pause the video and taking stock of interpersonal relationships, writing down a mental health goal using the SMART approach by making it Specific Measurable, Achievable, Relevant, and Timely. A more comprehensive description of the program can be found in Chapter 2. Participants were encouraged to complete 5 modules per week, although they had the flexibility to adjust the pace based on their individual preferences.

Family can serve as both a barrier and a source of support, depending on a family member's knowledge and individual stigma about mental illness (Chapter 2, this dissertation). For example, for Vietnamese American adolescents, the value placed on family obligation weakens the association between family stress and formal help-seeking, indicating that prioritizing family obligation may discourage youth from seeking formal support (Guo et al., 2015). This may happen because of fear of mental illness bringing shame to the family (Tang & Masicampo, 2018). Research highlights the value of reducing stigma within the family system to promote help-seeking behavior. As such, participants could choose to participate individually or complete the same content with a family member. Since the supportiveness of family members varies, individuals themselves are best positioned to decide whether it would be a good idea to participate with family based on their relationship quality. The program content was the same for individual and family arms. The only difference between the two arms was that a family member also participated in the family condition.

This study focuses on examining the feasibility of the Asian Mental Health Program, a digital help-seeking intervention developed using community-engaged research approaches. To assess feasibility, we followed Bowen et al.'s (2009) standards, which include demand,

practicality, implementation, acceptability, and preliminary efficacy. If there was low feasibility in any of the domains, we would explore the reasons using the qualitative data from the individual interviews.

1. Our hypothesis was that recruitment for the intervention would be completed in less than three months, even with minimal financial incentives for participation, indicating high demand for the program and demonstrating the practicality of our research approach.
2. Since the intervention was developed with input from our advisory board, we expected high levels of acceptability and ease of implementation among participants.
3. We hypothesized that participants in the program would experience positive outcomes, including improved attitudes towards help-seeking, reduced stigma, increased self-efficacy regarding mental health, increased efficacy to navigate mental health services, and greater likelihood of seeking professional support.
4. Finally, we hypothesized that participants who completed the program with a family member would experience greater benefits, as evidenced by greater rates of change in key outcome variables.

Method

Study Design

This pilot intervention study utilized a longitudinal design, incorporating both quantitative questionnaire surveys and qualitative interviews to provide a comprehensive understanding of the feasibility and acceptability of the Asian Mental Health Program (Creswell and Clark, 2018). Although statistical power was not the primary focus of this study, a sample of 60 participants was deemed sufficient for a pilot study (Lancaster et al., 2004). To ensure diverse perspectives, we aimed to recruit 30 participants who were accompanied by a family member,

long-term partner, or close friend. The use of five assessment time points provided greater statistical power than the commonly used pre-post design (Handley et al., 2018). At the end of the program, brief qualitative feedback was gathered from all participants. The first 35 who completed the program and had indicated an interest in participating in the interview were interviewed individually to provide more in-depth feedback about their experiences. Overall, this design allowed us to gain a thorough understanding of the feasibility and acceptability of the program. The feedback obtained also informs future iterations of the intervention.

Participants & Procedures

Participants were recruited using a variety of methods, including cultural organizations, settlement agencies, social media groups with an Asian focus, paid advertising on Facebook and Instagram, and word-of-mouth referrals. Interested individuals were contacted by the research team to arrange a brief virtual meeting, during which they received an overview of the program, a demonstration on how to access program content on the website, and access to the consent form and baseline questionnaires. The inclusion criteria for study participants were: (a) being 18 or older, (b) self-identifying as having an Asian background, (c) reporting some psychological distress (d) conversational level of English fluency, and (e) not having used formal mental health services in the past year.

Prior to the start of the program, participants completed a full assessment battery, which included a demographic questionnaire. Additional assessments were conducted at four later time points: after the first 10 modules focused on general psychoeducation about mental health and developing a plan for self-care or get professional support (core modules), one week after the last five modules focused on learning about choosing a therapy, a therapist, and getting the most out of psychotherapy (psychotherapy modules), one month post-intervention, and three months

post-intervention. Participants received a $10 gift card if they completed the core program, and another $10 gift card if they participated in the interview. Participants were given the option to select either the individual intervention arm or the family intervention arm.

Measures

To assess feasibility, the study focused on five of the feasibility areas proposed by Bowen et al. (2009) that best matched the purpose of the study.

Qualitative Data

We conducted individual interviews with 35 participants to gather their feedback and recommendations on the feasibility of the Asian Mental Health Program. In addition, we explored the challenges and opportunities of completing the interventions in dyads rather than individually. We included questions such as “What are your thoughts or hesitations about completing the program with a family member or friend?” and “What are some benefits or drawbacks of participating with someone you know?”. In this paper, we only include the qualitative findings regarding the feasibility of dyad intervention not the general qualitative findings about the Asian Mental Health Program. The full semi-structured interview guide can be found in Appendix B.

Demand. Demand assesses the extent the program is likely to be used (Bowen et al., 2009). To assess the potential demand for the Asian Mental Health Program (AMHP) among Asian individuals, we utilized the ease of recruitment and program usage as indicators. Participants' program usage was assessed by examining the proportion of video and optional activities they completed. To investigate the demand for the program based on different acculturation levels, we used the Asian American Multidimensional Acculturation Scale (AAMAS; Chung et al., 2004). The AAMAS measures behavioral and psychological

acculturation and enculturation towards participants' heritage culture and Canadian culture. We adapted the measure to refer to “Canada” instead of “America.” The AAMAS subscales each include 15 items designed to tap into language, food consumption, cultural knowledge, and cultural identity. To minimize participant burden, we excluded food consumption and language items and added a question about preferred health services (“How much do you prefer to use medicines or healers from your culture versus Western medicine and doctors?”). Each item is rated on a 6-point Likert-type scale, with a range of 1 (*not very well*) to 6 (*very well*). The reliability of the total subscales for both Asian and Canadian acculturation was good (α .85 and .76, respectively).

Practicality. Practicality examined the extent the program can be carried out with intended participants using existing means and resources (Bowen et al., 2009). To assess practicality, we evaluated the program's feasibility in recruiting and retaining participants experiencing some psychological distress, given the study's limited budget and administrative support. Retention rates were calculated based on the percentage of survey responses received at each time point. To assess whether self-report would be practical for recruiting a sample experiencing distress rather than through a clinical interview, a more resource intensive process, we allowed to self-select to participate based on verbal indications of experiencing psychological distress. However, we also measured psychological distress and quality of life using two validated tools: the Kessler Psychological Distress scale (K10; Kessler 1996) and the psychological domain of the World Health Organization Quality-of-Life Scale (WHOQOL-BREF; Whoqol group 1998) to verify that a large proportion of our sample would be experiencing psychological distress or low mental health.

The K10 is a validated and widely used self-report measure of psychological distress that consists of 10 items rated on a five-point Likert scale. Higher scores indicate greater distress. Sample items include, “feeling tired out for no good reason” and “feeling so depressed that nothing could cheer you up”. We achieved excellent reliability in the current study (Cronbach’s α ranging from .87 to .90). The psychological domain of the WHOQOL-BREF includes six items and is scored from 1 (*none of the time*) to 5 (*all the time*), with higher scores indicating a higher quality of life. Sample items include, “How much do you enjoy life?” and “How satisfied are you with yourself?”. The scores on the psychological domain were transformed to a 0 to 100 scale for interpretation and comparison to the WHOQOL-100. Reliability was good, with Cronbach’s α ranging from .78 to .86.

Ease of Implementation. Ease of implementation refers to the extent to which the program can be successfully delivered in a context that is not fully controlled (Bowen et al., 2009). We assessed the usability of the digital program for self-guided use. Participants were asked to complete the modules sequentially, as each module built on the previous one. Participants were provided with the password for the first module and could find the password for the next module at the bottom of the page after completing the preceding module. At Time 2, we used a 12-item self-report measure, the Asian Mental Health Program Content Usability Questionnaire, to evaluate participants' feedback on the program. The scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*), and the items were adapted from the System Usability Scale (SUS; Brooke, 1996) and the Standardized User Experience Percentile Rank Questionnaire (SUPR-Q; Sauro 2015) with input from the advisory board. Sample items included "The program/website is easy to use" and "Each page has the right amount of information." At Time 3,

we used a 5-item usability measure on the same 5-point Likert scale to assess participants' evaluations of the Psychotherapy Modules.

Acceptability. Acceptability refers to the extent the program is seen as suitable, satisfying, or attractive to program recipients (Bowen et al., 2009). Acceptability was evaluated with self-reported satisfaction and perceived appropriateness of the program. The Asian Mental Health Program Content Usability Questionnaires, described above, were used to assess acceptability of the program. Sample items include, “The material is appropriate for people with an Asian background” and “I would recommend the program/website to friends or family”. We also collected feedback on the program's cultural appropriateness and recommendations for future program development. This information will be described in another paper on updates made to the program.

Preliminary Efficacy Testing. Preliminary efficacy testing aims to determine whether the program holds promise for success with the intended population (Bowen et al., 2009). In this study, we conducted preliminary efficacy testing by examining changes over time in variables associated with help-seeking, including attitudes towards mental health services, self-stigma of mental illness, self-efficacy to manage mental health, and self-efficacy in navigating mental health services. Additionally, we assessed the odds of actual help-seeking behavior over the course of the study.

Attitudes toward help-seeking were measured using the Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF; Fischer & Farina, 1995). This is a 10-item scale that measures attitudes toward seeking psychological help from a professional. Items are rated on a 4-point Likert-type scale from 0 (*disagree*) to 3 (*agree*), with higher scores indicating a more positive attitude toward seeking help. Sample item on the scale include “I

would want to get psychological help if I were worried or upset for a long period of time." The ATSPPH-SF has demonstrated good internal consistency and test-retest reliability in previous studies and was found to have adequate reliability in this study (α ranging from .70 to .77).

Self-stigma of seeking psychological help was measured with the Self-Stigma of Seeking Psychology Help (SSOSH; Vogel et al., 2006). This is a 10-item scale that measures self-stigma associated with seeking psychological help. Items are rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher average scores indicating greater self-stigma. Sample item include "I would feel inadequate if I went to a therapist for psychological help". The SSOSH has demonstrated good internal consistency with Asian American populations (Cheng et al., 2018; Lee et al., 2014) and was found to have adequate reliability in this study (α ranging from .77 to .85).

Mental health self-efficacy and empowerment were measured with the adapted Youth Efficacy/Empowerment Scale - Mental Health (YES-MH; Walker et al., 2010). We used the self subscale, which measures perceptions of confidence and efficacy with respect to managing one's own mental health condition, and the service subscale, which measures perceptions of confidence and efficacy in navigating mental health services and find an appropriate provider. Items are rated on a 5-point scale from 1 (*never or almost never*) to 5 (*always or almost always*), with higher scores indicating higher levels of empowerment. Two additional items were added to the service subscale based on advisory board recommendations. These items are "I can find a professional who is competent to work with my cultural background" and "I can find a professional who can work in my preferred language". Reliability was good for the self (α ranging from .80 to .88) and service (α ranging from .80 to .86) subscale.

Actual help-seeking behavior was assessed using the Actual Help-Seeking Questionnaire (AHSQ; Wilson et al., 2005). In this study, we focused on the use of formal sources of support, which included three items: general practitioner, mental health professional, and the emergency room. The AHSQ captured any help-seeking behavior for a "personal or emotional" problem since the participant last completed the questionnaire. We dichotomized the response to indicate the absence (0) or presence (1) of help-seeking behavior at each time point after baseline.

Data Analyses Plan

Quantitative and qualitative data were first analyzed separately, and then compared. Triangulation and interpretation of convergence of findings across data will be summarized.

Quantitative analysis

To evaluate the preliminary efficacy of the program, we analyzed changes in attitudes towards mental health services, self-stigma related to mental illness, and self-efficacy in managing mental health and finding appropriate services over the course of the study. We examined if there was a significant dependency between measurements within individuals (ICC > .10) thereby requiring a multilevel analyses approach to account for clustering (Hoffman, 2015). Within-person variance typically ranges from 0 to 0.30 for observational data (Bosker & Snijders, 2011), and within-person variance above .30 would suggest significant variability within a person over time. We used a modeling approach recommended by Grimm et al. (2017), beginning with unconditional models (i.e., models with no covariates) that included no growth (i.e., intercept-only), linear growth, and non-linear growth models (spline models) for each outcome. Our study had an active intervention phase and a three-month follow-up period. Since we expected to see changes during the active intervention phase, from baseline to after the psychotherapy modules (between Time 2 and Time 3), we used spline growth models to identify

patterns of change relative to the point at which we expected the peak psychological benefits of the intervention (i.e., the knot point). Spline growth models divide time into discrete periods and use simple growth models to predict changes during each period, connected by knot points. In our case, we set the knot point to the average time between Time 2 and Time 3 (27 days). Effect sizes were calculated using the formula $d_{\text{within subject-raw}} = (\text{Mpost} - \text{Mpre}) / SD_{\text{raw score}}$, to provide information about the treatment potency (Feingold, 2009).

We utilized mixed effects logistic regression to model the likelihood of actual help-seeking behavior (coded as 1) versus no help-seeking behavior (coded as 0) at different time points throughout the study. Initially, we conducted an analysis with time as the only predictor to estimate help-seeking behavior, and subsequently included age, gender, past help-seeking, acculturation, and enculturation as predictors in the model. We attempted to estimate both between-person and within-person effects simultaneously, but we encountered difficulties when estimating random slopes as the dimensions of the variance-covariance matrix approached zero, resulting in a singular fit. To capture any unobserved heterogeneity in the likelihood of help-seeking behavior at baseline, we incorporated an individual-level random intercept but no individual slopes. We converted regression coefficient estimates and their confidence intervals from the log-odds scale and presented them as odds ratios. To facilitate interpretation of our logistic regression models, we grand mean centered age, acculturation, income, and education. Gender and past help-seeking behavior were dummy coded, with 0 indicating male and 1 indicating female, and 0 representing no past use of professional mental health services and 1 indicating past use of mental health services. The growth modeling and logistic regression analyses were conducted using R version 4.2.2 with packages lme4 (version 1.1-27.1; Bates et al., 2021) and nlme (version 3.1-162; Pinheiro et al., 2022).

We employed Kaplan-Meier survival analyses to examine the timing of help-seeking behavior throughout the study (Singer & Willet, 2003). Specifically, we assessed the time to recurrence of help-seeking behavior prospectively from baseline to the 3-month follow-up period. As per program design, all participants had not sought professional mental health services within the past year (coded as 0). Help-seeking behavior (coded as 1) was measured from the beginning of the program and reports of such behavior were analyzed in terms of days elapsed since that point. The analyses were performed in R version 4.2.2 using the survival package (version 3.5-5; Therneau et al., 2009).

Qualitative Analyses

We employed directed content analysis to examine open-ended responses and individual interviews (Hsiesh & Shannon, 2005). This approach involves identifying key concepts or variables as initial coding categories (Potter & Levine-Donnerstein, 1999). For this paper, we focused on responses related to *demand* and *practicality* for dyad participation. Qualitative analyses of overall *program feasibility* and *efficacy* will be explored in a future paper. The first author developed definitions for each category, then reviewed all transcribed text and coded text that fit the predetermined category. We used an inductive approach to explore nuances within the data and added subcategories as needed (e.g., concerns about involving family, practical issues) within each category. To ensure the reliability of the analyses, two independent coders each coded about 15% (4 transcripts each) to evaluate intercoder reliability, aiming for a minimum of 80% reliability, which is considered substantial agreement by many (O'Connor & Joffe, 2020). Any discrepancies were resolved by the coders. MAXQDA 2020 was used for all content analyses.

Results

Preliminary Analyses

Appendix C and D provide information on the correlations and missing data rates for primary analysis variables. Overall, the rates of missing data ranged from 1.1 to 36.7%. While the research team was able to ascertain the reasons for missing data in some cases (such as when a participant withdrew from the study), most reasons for missingness were unknown. We used logistic regression to examine the role of demographic variables, psychological distress, and quality of life as predictors of attrition. Our analysis indicated no significant differences on demographic and background measures of age, gender, highest level of education, prior mental health service use, acculturation, psychological distress, or quality of life in predicting attrition at Time 2. However, missingness of survey responses at Time 3 was related to quality of life, with those having higher quality of life being more likely to complete the questionnaire (OR = 1.04, 95% CI 1.01-1.07, p=.01, Nagelkerke r^2 = .09). At the 1-month follow-up (Time 4), quality of life (p=.084) and other variables did not predict a greater likelihood of completing surveys. At the 3-month follow-up, missingness was again related to quality of life, with those having higher quality of life being more likely to complete the questionnaire (OR = 1.03, 95% CI 1.00-1.06, p=.041, Nagelkerke r^2 = .06).

To assess the potential impact of missing data on the results, we conducted comparisons between individuals with and without missing data on the main variables. We used Kruskal Wallis test for continuous variables and chi-squared test for discrete variables (R package finalfit version 1.0.6; Harrison et al. 2022). Results of these comparisons indicated no significant differences in responses on main variables between those with missing data and those without missing data for attitudes towards help seeking, self-stigma, self-efficacy, service efficacy, and actual help-seeking behavior.

Collectively, these comparisons ruled out a missing completely at random (MCAR) process, indicating a need to assume a conditionally missing at random (MAR) process. Therefore, we used missing data-handling procedures that assume a MAR process, where a participant's unseen data values are unrelated to missingness after controlling for his or her observed data. For this, we used maximum likelihood estimation based on the multivariate normal distribution, given that the additive regression models featured incomplete variables that were numeric and approximately symmetric. We fitted the analyses models and pooled the resulting parameter estimates and standard errors using the Maximum Likelihood estimator in R version 4.2.2, utilizing the packages lme4 (version 1.1-27.1; Bates et al., 2021) and nlme (version 3.1-162; Pinheiro et al., 2022).

Sample Characteristics

Participants' mean age was 31 years (range 19-66, SD=9.10). The majority of participants were female (71.6%) and of Chinese heritage (45.1%). Most were Canadian-born (58.8%) and employed full-time (56.9%), residing primarily in metropolitan (27.5%) or mid-sized cities (62.7%) in Alberta (21.6%), British Columbia (31.4%), or Ontario (31.4%). Approximately half of the participants had accessed mental health services in their lifetime (47.1%). See Table 3.1 for further details on sample demographics for the full sample and the interview sample.

Table 3.1: Characteristics of Participants Included in the Study

Characteristics	**Full sample**	**Interview Sample**
Age (years), mean (SD)	31.49 (9.10)	31.19 (9.34)
Range	19-66	20-61
Gender, n (%)		
Male	24 (23.5)	10 (28)
Female	73 (71.6)	24 (68)
Non-binary	5 (4.9)	2 (5)
Canadian Born, n (%)	60 (58.8)	19 (55)
Highest Educational Attainment, n (%)		

High school degree or equivalent	4 (3.9)	1 (3.0)
College diploma or some university	17 (16.6)	5 (14.7)
Bachelor's degree	56 (54.9)	19 (57.6)
Master's Degree	16 (15.7)	5 (14.7)
Ph.D. or Professional School (e.g., law)	7 (6.8)	3 (8.9)
Employment, n (%)		
Employed full time	58 (56.9)	22 (64.7)
Employed part time	18 (17.6)	4 (11.7)
Not employed – looking	11 (10.8)	3 (8.82)
Full time student	13 (12.7)	4 (11.7)
Retired	2 (2)	1 (2.9)
Cultural Background, mean (SD)		
Chinese	47 (45.1)	12 (35.3)
Filipino	8 (7.8)	2 (5.9)
Vietnamese	7 (6.9)	3 (8.8)
Korean	3 (2.9)	1 (2.9)
Hong Kong	3 (2.9)	2 (5.9)
Japanese	2 (2.0)	1 (2.9)
Mixed	33 (32.4)	14 (41.1)
Location, n (%)		
British Columbia	32 (31.4)	10 (29.4)
Alberta	22 (21.6)	9 (26.5)
Ontario	33 (32.3)	8 (23.5)
Manitoba	6 (5.9)	3 (8.8)
Nova Scotia	5 (4.9)	3 (8.8)
Quebec	2 (2.0)	1 (2.9)
Prince Edward Island	1 (1.0)	1 (2.9)
Psychological Distress (Kessler-10), n (%)		
<20	27 (27.80)	10 (29.4)
20-24	28 (28.9)	13 (38.2)
25-29	19 (19.6)	4 (11.8)
30+	23 (19.60)	7 (20.6)
Psychological Quality of Life (WHOQOL), mean (SD)	49.42 (15.89)	51.30 (16.13)
Past help-seeking for mental health issues, n (%)	48 (47.1)	17 (50)
Acculturation Heritage Culture, mean (SD)	4.16 (.84)	4.21 (.90)
Acculturation Canadian Culture, mean (SD)	4.04 (.65)	4.03 (.68)

Feasibility domain: Demand

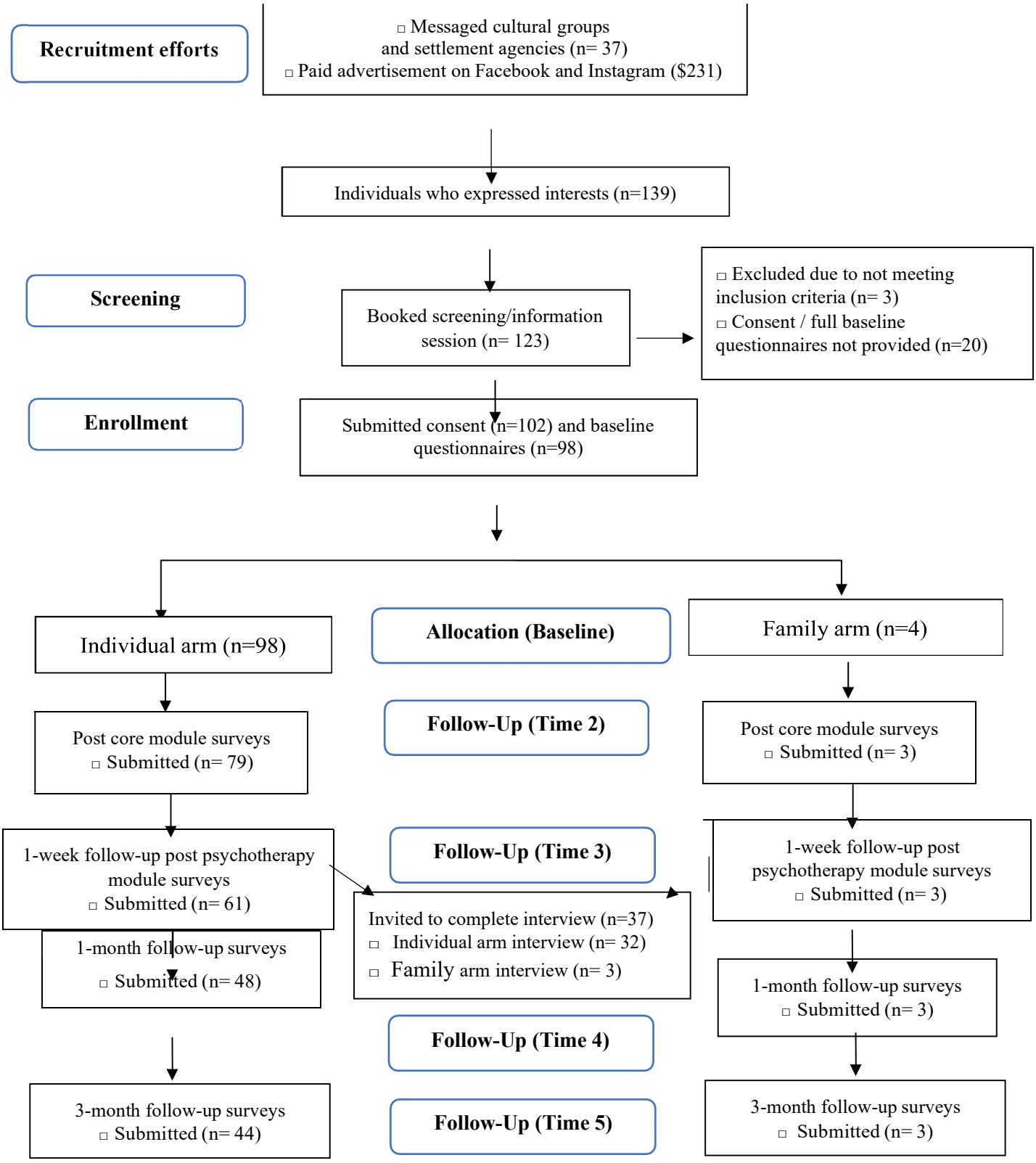
We successfully completed recruitment for the individual condition within the anticipated three-month timeframe, beginning on June 15, 2022, and ending on August 31, 2022. However, we encountered recruitment challenges for the family condition, with only two dyads enrolled

out of a desired 30. As a result, we reallocated the budget to allow for more individual participations (n=98 from n=60) to increase the accuracy of effect size estimates. A flowchart detailing the recruitment process is presented in Figure 3.1.

Our recruitment strategy resulted in a sample that, on average, reported some connection with both Asian and Canadian cultures, as indicated by their scores on the adapted AAMAS. Across the domains of behavior, knowledge, and identity, the average score for our sample was above 3.60 out of a 6-point scale, with the lowest mean score being 3.60. Pairwise comparisons revealed that participants reported engaging in more Canadian behaviors (M=5.01) than behaviors associated with their Asian culture (M=3.65). However, they also reported a stronger connection to their Asian identity (M=4.56) compared to their Canadian identity (M=3.60).

Program demand was also assessed by participants' engagement with the program content, including the time spent on each module, completion of daily videos, and the number of attempted activities. Results indicated that participants engaged well with the program overall. Specifically, in the core program, participants spent an average of 55 minutes (*SD* = 18.65) on each module and a high proportion (73.8%) watched all videos from beginning to end. Engagement with optional activities was more variable, with half of the participants trying a few or half of the activities, and 31.3% attempting most or all activities (17.5%). In the psychotherapy modules, participants spent an average of 17 minutes (*SD* = 4.90) on each module, and a large majority (81.4%) watched all videos from start to end. Again, the number of optional activities completed were more variable.

Figure 3.1: CONSORT flow diagram for the Asian Mental Health Program pilot study



Note: n represent number of individuals

Feasibility domain: Practicality

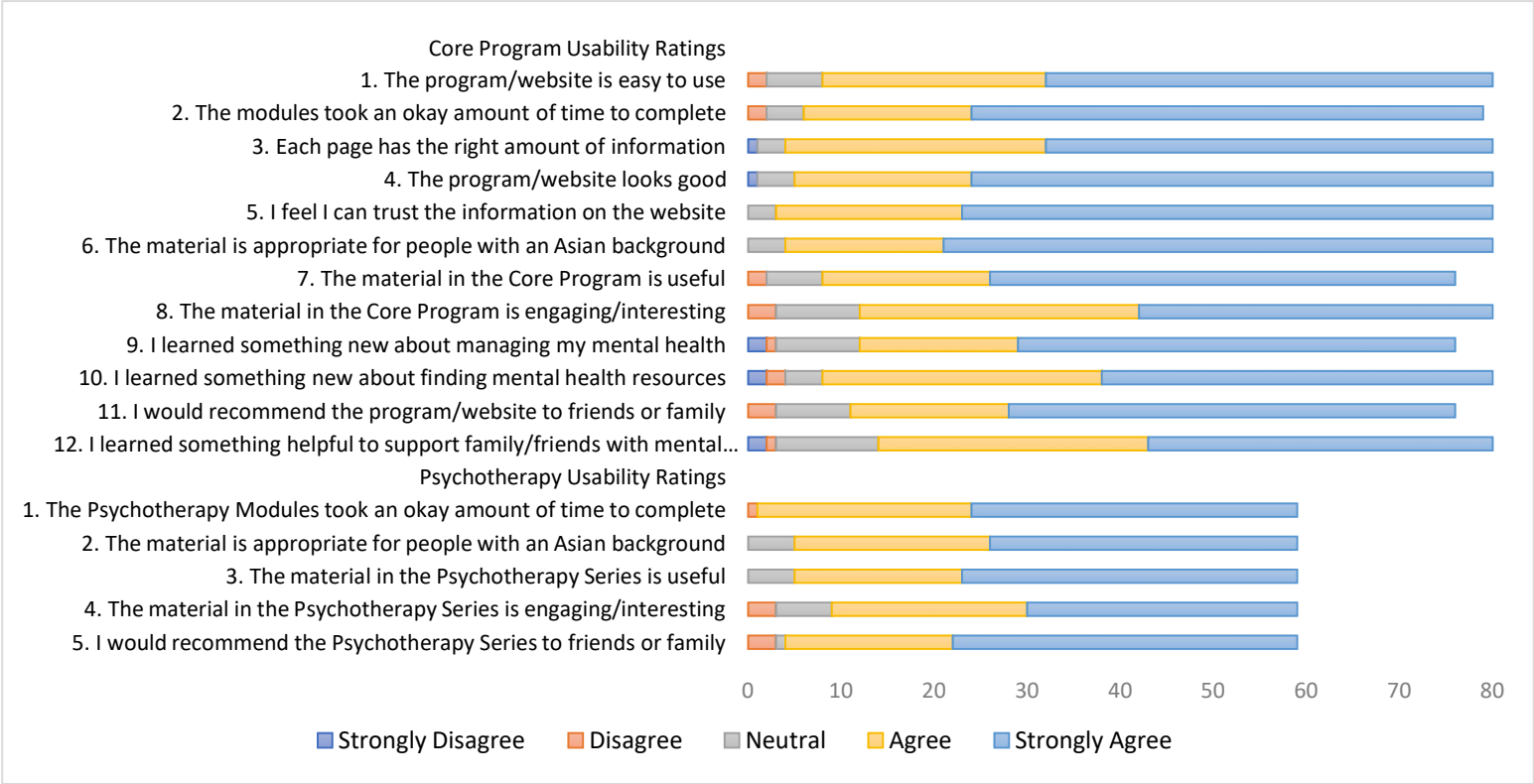
Retention rates were assessed by calculating the percentage of survey responses received at each time point from the total participants in the sample. Overall, the retention rates were good, although some attrition was observed over time. At the initial follow-up after the core modules (Time 2), retention was high, at 80%. However, retention dropped after the 1-week follow-up after the psychotherapy modules, with only 63% of participants providing survey responses. After the active intervention was completed, attrition continued, although at a slower pace. At the 1-month follow-up (Time 4), 49% of participants were retained, and this decreased to 46% at the 3-month follow-up (Time 5). Six individuals did not submit baseline questionnaires but submitted follow-up questionnaires.

The recruitment strategy that relied on verbal indications of psychological distress proved to be practical and yielded a sample with a range of distress levels. About a quarter (27.80%) of the sample scored below 20 on the Kessler-10 screener indicating low likelihood of experiencing a mental disorder. A similar proportion (28.90%) scored in the range of likely to have a mild mental disorder, while fewer scored in the range of likely to have a moderate (19.6%) or severe mental health disorder (19.60%). The mean score on the WHOQOL-BREF for psychological well-being was 49.42 (SD=15.98) which is somewhat low compared to community samples (e.g., Hong Kong community sample mean = 65.43 in Wong et al., 2018). The recruitment strategy supported the practicality of recruiting and retaining a sample that varied in psychological distress and psychological well-being through participant self-selection based on verbal indications of experiencing psychological distress.

Feasibility domains: Ease of Implementation and Acceptability

The ratings on the Asian Mental Health Program Usability Questionnaire indicated participants found the program easy to use in a self-guided manner and acceptable for Asian populations. Participants agreed or strongly agreed that the program looked good, and the content took a reasonable amount of time to complete. Participants reported spending an average of 55 min (SD=18) on the core modules and 17 min (SD=5) on the psychotherapy modules. Participants also found the content appropriate and helpful for people with an Asian background and would recommend it to family/friends. Figure 3.2 shows the ratings on each of the questions on the Asian Mental Health Program Content Usability Questionnaires.

Figure 3.2: Participant ratings of the Asian Mental Health Program on the Usability Questionnaire



Note: ratings are based on the number of participant responses from Time 2 (n=80) and Time 3 (n=60)

Feasibility domain: Preliminary Efficacy Testing

Figures 3.3 - 3.6 depict the time course of attitudes towards help-seeking, self-stigma, and self-efficacy, and service efficacy. Appendix E presents fit statistics that indicate the spline

model had lower deviance (-2 log-likelihood) and Akaike information criterion (AIC) values than the no-growth and linear models.

Attitude towards Mental Health Services. The intervention had a large effect on attitudes towards help-seeking, with a Cohen's d_z effect size of 1.07 (95% CI: .68 to 1.34). The intraclass correlation coefficient (ICC) indicated that 59% of the variability in attitudes was due to between-person differences, while 41% was due to within-person differences. At the beginning of the study, the average model-predicted attitude score was 21.86 (i.e., intercept), as shown in Table 3.2 which presents the model-predicted changes in attitudes over the study period. Participants' average attitude scores increased significantly by 0.14 per day from the baseline to day 27, the average time it took to complete the program material, resulting in a 3.78 increase to an average of 25.64 (Table 3.2; Fig 3.3). From day 27 to the 3-month follow-up period, there was no significant change in attitude scores (b = -0.004, p = 0.368). Comparing participants' scores at the final timepoint to their baseline scores revealed a significant difference, suggesting that attitude improvements were maintained ($F(1, 41) = 47.86$, $p < .001$).

Self-Stigma of Seeking Help. The intervention had a medium effect on reducing stigma, as indicated by a Cohen's d_z effect size of -0.58 (95% CI: -0.91 to -0.25). We observed substantial within-person variance in self-stigma towards seeking help, similar to attitudes towards mental health services (ICC = 56%). At baseline, the average model-predicted self-stigma score was 2.10 (intercept), as shown in Table 3.2. On average, participants experienced a reduction of 0.01 in self-stigma score during the average intervention time of 27 days, from 2.10 to 1.83, a significant reduction of 0.27. From day 27 to the follow-up period, participants continued to experience a reduction in self-stigma at a slower pace (b = -0.002, p = 0.041; Table 3.2; Fig 3.4). Comparing participants' scores at the final timepoint to their baseline scores

indicated a significant difference, suggesting a reduction in self-stigma was maintained at the final timepoint ($F(1, 41) = 14.32$, $p < .001$).

Self-Efficacy. The intervention had a small to medium effect size on self-efficacy to manage personal mental health, with a Cohen's d_z effect size of .34 (95% CI: .03 to .65). Relative to attitudes and self-stigma, a large proportion of variance in self-efficacy was due to between-person differences (ICC =.75) and 25% being due to within-person differences. At baseline, the average model-predicted self-efficacy to are for personal mental health was 20.82 (intercept). Over the average intervention period of 27 days, the average self-efficacy score increased significantly by 1.93, reaching 22.75. There was no significant change in self-efficacy from day 27 to the end of the study ($b = -0.004$, $p = .812$: Table 3.2; Fig 3.5). Participants maintained their self-efficacy gains, with a significant difference between the final follow-up score and the baseline score ($F(1, 41) = 5.00$, $p = .031$).

Service Efficacy. The intervention had a large effect on efficacy to manage mental health services, with a Cohen's d_z effect size of 1.36 (95% CI: 0.94 to 1.78). The proportion of between-person relative to within-person variance for self-efficacy to manage mental health services was similar to mental health attitudes and self-stigma (ICC = 55%). At baseline, the average model-predicted self-efficacy to manage mental health services score was 34.23 (intercept). Over the average intervention period of 27 days, the average service efficacy score increased significantly by 5.67 to a mean of 39.9. Service efficacy did not change significantly between the end of the intervention and the follow-up timepoint ($b = 0.003$, $p = .696$: Table 3.2; Fig 3.6). As with self-efficacy, participants maintained their gains in service efficacy, with a significant difference between the final and the baseline score ($F(1, 41) = 78.13$, $p < .001$).

Figure 3.4: Help-Seeking Attitude over Time

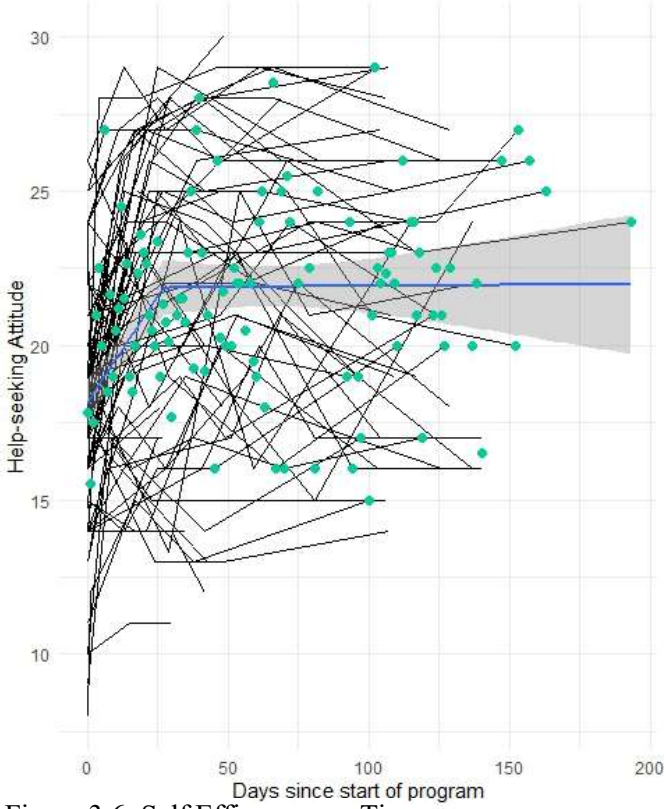


Figure 3.3: Self-stigma over Time

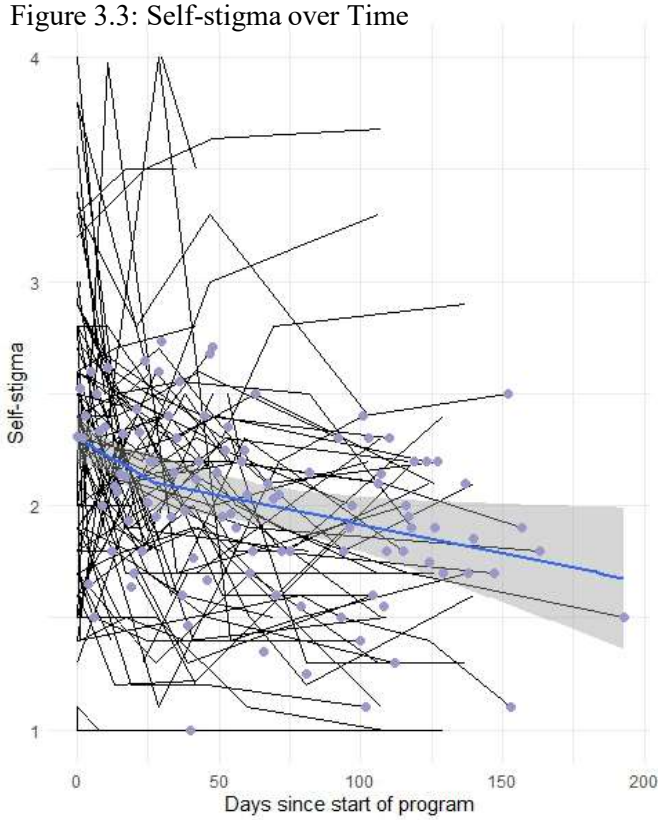


Figure 3.6: Self Efficacy over Time

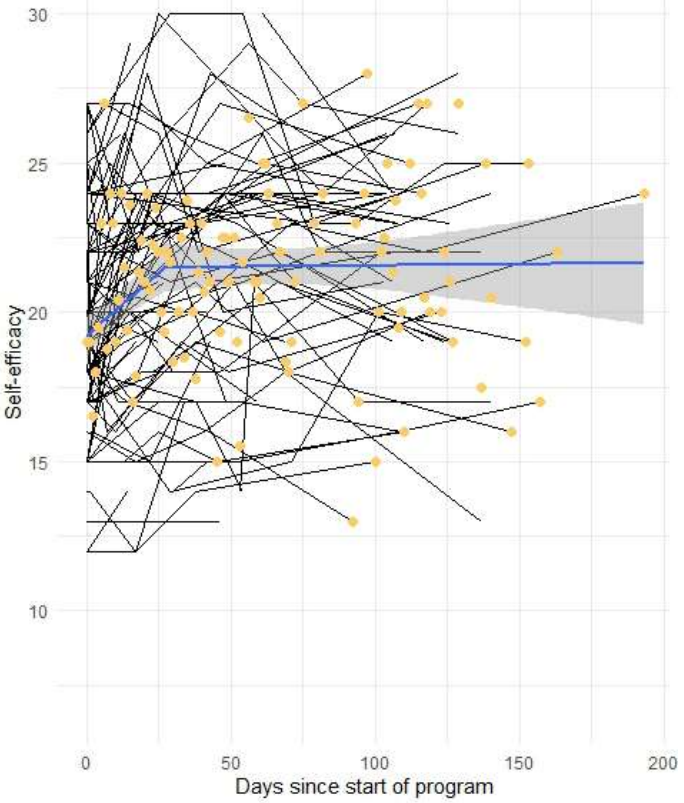


Figure 3.5: Service Efficacy over Time

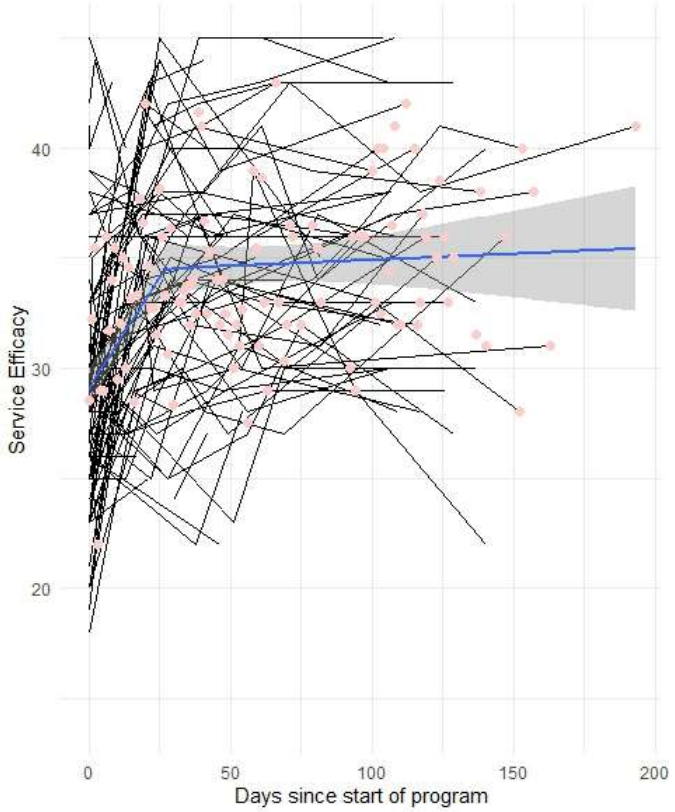


Table 3.2: Multilevel Spline Growth Models Predicting Change in Attitudes, Self-stigma, Self-efficacy, and Service Efficacy During Study Period

	Attitudes (ATSPPH-SF)			Self-stigma (SSOSH)			Self-efficacy (YES-MH)			Service Efficacy (YES-MH)		
	b	***SE***	***95% CI***	***b***	***SE***	***95% CI***	***b***	***SE***	***95%CI***	***b***	***SE***	***95%CI***
Fixed effects												
Intercept (b1i)	21.86***	0.53	21.81-22.98	2.10***	0.07	1.97 - 2.22	20.82***	0.46	3.31 - 4.84	34.23***	0.65	32.97 - 35.50
Slope 1 (b21)	0.14***	0.02	.1-.17	-0.01**	0.00	-.01 - -2.86	0.07***	0.01	0.03 - 0.11	0.21***	0.03	0.15 - 0.26
Slope 2 (b31)	0.00	0.00	- 0.01- 0.00	-0.002*	0.00	-.00 - -8.02	0.00	0.00	0.01 - 0.04	0.00	0.01	- 0.1 - 0.01
Random effects	Variance			Variance			Variance			Variance		
Intercept (b1i)	4.00		3.63 - 5.50	0.48		.377 - .614	4.00		3.31 - 4.84	5.08		4.09 - 6.30
Slope 1 (b2i)	0.07		.07 - 0.57	0.02		.01 - .02	0.06		0.03 - 0.11	0.18		0.13 - 0.24
Slope 2 (b3i)	0.02		.00 - .04	0.00		.00 - .01	0.02		0.01 - 0.04	0.03		0.02 - 0.06
Residual variance	2.24			0.36			1.75			2.82		

Note: Model Estimate = *b* Standard Error = *SE*; Confidence Interval = *CI*; **p* < .05; ***p* <.01 ****p* <.001; Attitudes Toward Seeking Professional Psychological Help-Short Form =ATSPPH-SF; Self-Stigma of Seeking Psychology Help = SSOSH; Youth Efficacy/Empowerment Scale - Mental Health =YES-MH

Modeling Help Seeking Behavior

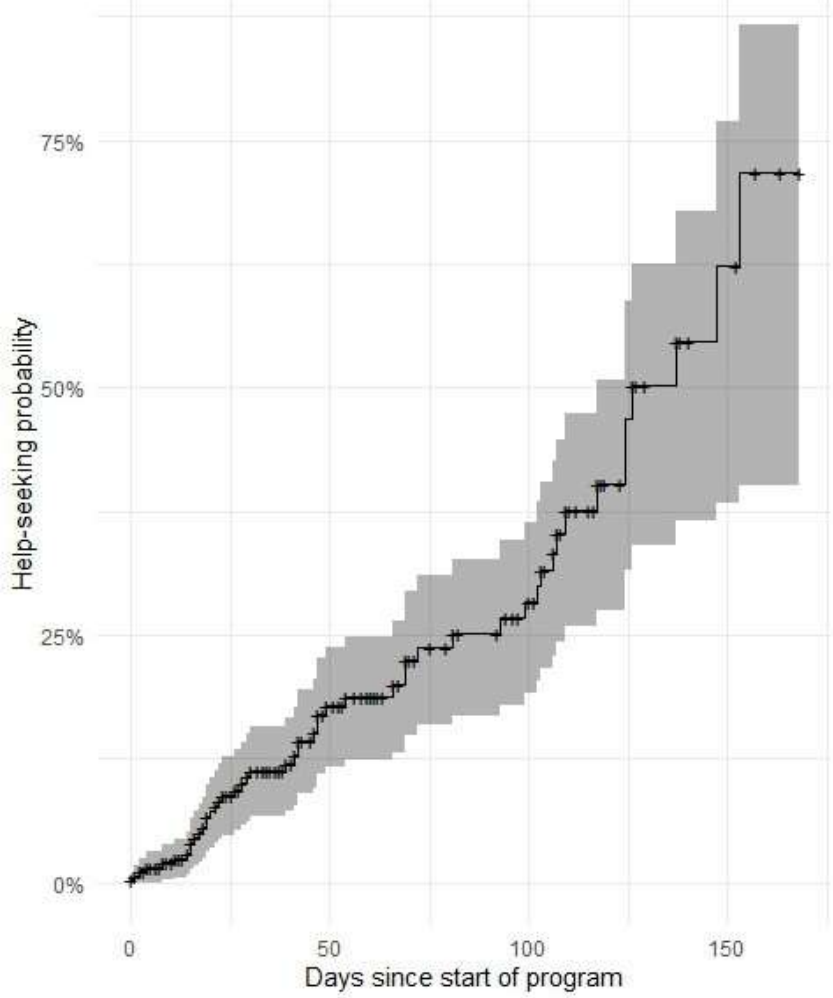
Time was a significant predictor of help-seeking behavior, while none of the demographic factors such as age, gender, past help-seeking behavior, acculturation, education, or income were significant (see Table 3.3). Based on the time only model, the average participant's odds ratio of seeking professional help increased significantly at each time point (OR=2.35 of slope; 95% CI 1.56 to 3.54). Assuming linear growth, the odds ratio increased from .007 at baseline, to 2.35 at Time 2, to 5.52 at Time 3, to 12.94 at Time 4, and 30.36 at the 3-month follow-up. In total, 49 participants reported seeking help during the study, and the estimated cumulative percentage of help-seeking behavior increased over time, with 8.8% after 25 days, 17.9% after 50 days, 23.8% after 75 days, 28.3% after 100 days, 46.9% after 125 days, and 62.3% after 150 days. Figure 3.7 illustrates the survival curve of time to help-seeking behavior.

Table 3.3: Odds Ratios from Mixed Effects Logistic Regression Predicting Help-seeking Behavior

	OR	95% CI	p
1. Time only model			
Intercept	0.01	0.00- 0.04	<.001
Slope	2.35	1.56 - 3.54	<.001
2 Time with demographic predictors			
Intercept	0.01	0.00 - 0.09	<.001
Time	2.07	1.39 - 3.11	<.001
Age	0.94	0.86 - 1.02	0.161
Gender	1.17	0.18 - 7.64	0.87
Past help-seeking	1.64	1.64 - 6.74	0.493
Income	0.81	0.81 - 1.10	0.176
Education	1.66	1.66 - 2.96	0.086
Acculturation - Canadian culture	1.63	1.63 - 4.13	0.301
Acculturation - Asian heritage	0.40	0.40 - 1.14	0.086

Note: Odds Ratio = OR; Confidence Interval = CI; p-value = p

Figure 3.7: Time to Help-Seeking Probability Curve from Start of Study



Qualitative Findings

The data on the socio-demographic characteristics of the 35 participants who took part in the individual interviews is available in Table 3.1. To maintain anonymity, the participants responses are represented with identification numbers instead of names.

Demand for Dyad Participation

Stigma and Fear of Sharing as Barriers. The analysis of individual interviews revealed that the current strategy for dyad recruitment was not very feasible and identified key obstacles to dyad participation. One significant barrier was the fear of potential stigma associated with

sharing the program with others, as well as concerns about vulnerability that might arise from participating in the program with another person.

> *"With mental health and the Asian community, it's hard to get people to openly talk about it with the stigma of mental health. It's something that you have to deal with on your own. So yeah, it's hard to even suggest doing a program like this with someone else, because of the stigma." (ID140)*

> *"They may not be comfortable sharing too much information. So, having such someone going through modules together, they may think that they have to share a lot of private information that may kind of make them more hesitant to do it together." (ID203)*

Despite the barriers mentioned, several participants expressed the belief that dyad participation would be beneficial, as it could enhance accountability and promote deeper learning. In fact, 16 of the interviewees reported sharing the program with their network to see if someone might be interested in participation together, but they did not find a friend/family member to complete the program with them.

A Lot to Consider. According to the interviewees, they gave careful consideration to various relationship factors when deciding whether or not to participate with another person. They emphasized that for successful dyad participation, a high degree of trust and closeness in the relationship was crucial. Additionally, both participants needed to have similar levels of interest and readiness for learning; without such alignment, completing the program together would be challenging.

> *We've known each other … for about 6 or 7 years now. We've basically vented and ranted to each other about all kinds of different things. We figured that whatever we did*

share, with regards to this study, the other person would probably already know about it. (ID213)

"If there are differing levels [interest] and if there's not maybe a situation that necessitates it, making them think, 'oh I really should do this,' then it could be a little harder to push through." (ID113)

Participants also expressed hesitancy to engage in dyad participation if they anticipated a less comfortable learning experience. For instance, some participants cited specific family dynamics that could impede a reciprocal learning experience, while others worried that completing the program with opinionated friends might make the experience less reflective.

"If I was doing it with my parent, that would be very difficult. Elders, they're just like "No, no, you look for me and then you just show me"… I don't know if that's just an elder thing, but they expect you to gather it for them, and they are just like, give me the concrete. They don't want to sit down and go through all the stuff." (ID205)

"Some people, they're really influenced by what their friends say or how they do things. So, I think, doing it with a friend can change your opinions, or how you think of things, or make you – not make you reluctant – but you might not be as introspective as you would have been." (ID187)

To address the complex decision-making process involved in choosing whether to participate alone or with a partner, one participant suggested creating a short survey to help individuals determine the most appropriate format based on their unique circumstances.

Different Marketing. During the interviews, several participants suggested that recruitment could be increased through alternative marketing strategies. One strategy would be to raise more awareness about the possibility of dyad participation and the eligibility

requirements. Some interviewees were not initially aware that they had the option to participate with a family member, while others assumed that dyad members needed to be of Asian descent or had not sought help in the past year. The interviewees also proposed improving the program's marketing by emphasizing the enjoyable aspects of the program and the focus on self-improvement, which may feel less threatening than presenting it as a "mental health program." Several participants reported that potential participants they had invited perceived the study description as requiring a significant time commitment, which had a negative impact on recruitment efforts.

> *"I think wellness is really good because it's like a nice umbrella term that makes it less scary. Because some people think when they hear mental health," I feel fine, I am surviving, I'm doing enough and I'm okay". But it's like, don't you want to get even better? So, you're not just surviving, you're thriving?" (ID180)*
>
> *"Just don't make it sound like it's work, but more so a fun activity that you can do together." (ID202)*

Participants also recommended using incentives, such as promoting the benefits of supporting each other or offering financial rewards, to encourage dyad participation. In addition, simplifying the sharing process can address participant hesitation when sharing with those who may be unfamiliar with the research or have questions about the study.

> *"I think one thing that could encourage people is knowing that you each have a role to play in each other's mental health journey and building up each other's mental strengths." (ID113)*
>
> *Perhaps if you were to write up a script for recruits that you already secured, then it might help them to be able to approach other people. It's hard to bring it up at times*

because you're like, "Oh, I'm doing this study" and then people don't know what a study is if you're not in research. (ID202)

Practicality of Dyad Participation

The existing format posed logistical challenges that made it difficult to implement the program with dyads. These challenges included scheduling conflicts and the program being offered only in English. Effective participation by dyads required multiple factors to align.

"With it being really personal, you may not have very many people that are able to get like the right scheduling with the person that they're comfortable, sharing with right? So, kind of multiple things have to line up there making it more difficult."(ID196)

"I wanted to do it with my grandma actually, but then I live kind of far from her. So, it's like a 25 min drive and then she's not that good with technology. And then I was thinking, 'Oh, I have to translate everything. I think that's kind of hard.' So, I was like, 'okay, let me just try by myself first." (ID116)

Discussion

This study assessed the feasibility of the Asian Mental Health Program as a help-seeking and mental health promotion intervention. Overall, the program was found to be feasible for individual participation based on measures of demand, practicality, acceptability, ease of implementation, and limited efficacy testing. However, the feasibility for dyad participation was found to be low, with limited demand and practicality resulting in low recruitment rates based on the recruitment strategy and study design employed.

Several important findings emerged from this study. The demand and practicality of the Asian Mental Health Program for individual participation were good, as indicated by exceeding the recruitment target and maintaining a high level of retention compared to other self-guided

digital interventions (Addington et al., 2022; Xie et al., 2020). For example, only 42% of participants who completed the baseline questionnaires in Addington et al.'s (2022) web-based program to promote emotion regulation skills completed a follow-up assessment. Low adherence and retention rates are common in unguided digital interventions, with adherence estimated at 26% in meta-analyses by Richards & Richardson (2012).

Notably, our study included a diverse sample of ages, socio-economic status, ethnic backgrounds, and individuals with different lengths of time living in Canada. Karyotaki et al. (2015) found that socio-demographic variables such as male gender, lower education, increased age, and higher psychological distress predicted dropout in meta-analytic work. However, in our study, only psychological quality of life was predictive of attrition, indicating minimal bias in findings based on demographic variables and good feasibility for different genders, education levels, ages, and levels of psychological distress.

We struggled to meet recruitment targets for our dyadic arm. Previous digital interventions that included a dyadic component for adult mental health (Rotondi et al., 2010; Aikens et al., 2015; Milgrom et al., 2016) involved the additional member in a smaller capacity, such as providing a partner website or sending support person information through mail, rather than requiring full participation, as in our study. Our decision to pilot the program with both members completing all modules required a high level of commitment and openness from both members to consider enrollment, as our qualitative findings indicated. The difficulties in recruiting ethnic minorities, including Asians, to participate in mental health research are well-documented (Brown et al., 2014; Quay et al., 2017). As our participants emphasized, this becomes even more challenging in the Asian community when family members experience

different levels of stigma around mental illness, mistrust in research institutions, or limited English language proficiency.

The qualitative findings from our study suggest that there are potential strategies to improve recruitment of dyads for mental health research in the Asian population. Marketing efforts that provide incentives for dyad participation and make it easier for participants to share information about the study, such as providing scripts, may be effective. Fang et al. (2013) successfully recruited 108 mother and adolescent Asian American dyads for a substance use prevention trial by designing the recruitment method in consultation with community agency staff members who assisted with advertising. The marketing strategies identified through the interview may be effective for recruiting dyads for self-guided digital interventions with adults. Further research is needed to test the effectiveness of such marketing strategies in improving dyad interest for digital mental health research among Asian populations.

Regarding the second aim of examining acceptability and ease of implementation, the Asian Mental Health Program was well received by participants, who reported high levels of satisfaction with its usability and the appropriateness of its content. Participants were also likely to recommend it to family and friends, suggesting that the program is perceived to be of value to participants and easily scalable. These findings are consistent with arguments that Community-Based Participatory Research (Wallerstein & Duran, 2010) and culturally tailored interventions (Na et al., 2016) can improve engagement with minority groups and promote health equity.

The preliminary efficacy testing showed promise for further study in a randomized controlled study. Common factors associated with help-seeking - attitudes, self-stigma, and service efficacy - also showed greater within-person variability than in typical observational studies suggesting these variables are amenable to fluctuations over a relatively short period of

time and are promising targets for interventions (Bosker & Snidjer, 2011). More importantly, the measures of these psychological variables related to increasing help-seeking behaviors and general ability to manage mental health showed significant improvement that was maintained at follow up. While Fung et al. (2021) found their four-session group intervention to be effective in reducing mental health stigma among Asian men, they did not report effect sizes, precluding direct comparison to our study. Nevertheless, our study, in conjunction with Fung et al.'s (2021) findings, suggests promise for relatively easy-to-implement solutions for targeting stigma, a significant barrier to help-seeking among Asian Canadians (Clement et al., 2015; Martinez et al., 2020).

In comparison to other digital interventions aimed at improving help-seeking attitudes, our study found a large effect size (Cohen's *d* of 1.07). This is higher than the effect sizes reported in other studies with international students (Clough et al., 2020 with Cohen's $d = 0.22$), university students in Australia and China (Han et al., 2018 with Cohen's $d = 0.14$), Australian government employees (Griffith et al., 2016 with Cohen's $d = 0.16$), and Hong Kong residents (Hui et al., 2015 Cohen $d = -0.04$). Notably, many intervention studies do not provide information about effect sizes, which can hinder the planning of future interventions or meta-analytic work (Lakens, 2013). Our study's effect sizes ranged from small/medium to very large based on Sawilowsky's (2009) guidelines for interpreting effect sizes, suggesting that brief digital interventions hold promise for meaningfully improving mental health stigma, self-efficacy, and attitudes. Our comparatively large effect sizes might be attributable to drawing on both clinical knowledge from the research team and community expertise from working closely with an advisory board in designing the intervention (Chapter 2, this dissertation). Interventions

that draw on existing evidence and community wisdom increases the likelihood that program content will be relevant, helpful, and compelling for Asian participants (Hwang et al., 2016).

The study's findings of behavioral change are particularly promising, given the heterogeneity of the sample. Prior research has shown that help-seeking interventions are effective in influencing behavior among participants with mental illness, but not as effective among those without (Xu et al., 2018). However, mental health is more than the absence of mental illness (World Health Organization, 2022). It is noteworthy that our sample included a quarter of participants who are not likely to have a mental illness, yet the odds ratio at the last time points was significantly higher (OR = 30.36) than in a meta-analytic study targeting those with mental illness (Xu et al., OR = 1.57). The high odds of help-seeking may be attributed to the effectiveness of the intervention in encouraging help-seeking among individuals struggling with low levels of mental health, not just those with mental illness (Keyes, 2002). This population is not typically targeted in help-seeking interventions, which highlights the novelty of our approach.

Our sample had a relatively low psychological well-being at baseline (M=49.42), which is lower than many community samples (e.g., Hong Kong community sample mean = 65.43 in Wong et al., 2018; M=71.5 in Hawthorne et al., 2006). Even in a Singaporean community sample that used purposeful sampling of individuals with disabilities, mental health issues, and the general population, the mean was higher (M=61.641) than in our current sample (Suárez et al., 2018). With the majority of our sample being female (71%), it is worth noting that the COVID-19 pandemic has disproportionately affected women, likely due to their overrepresentation in healthcare jobs and greater burden of social and economic stressors (Centre for Addiction and Mental Health, 2022; Sun et al., 2023). The increase in help-seeking behavior

among our participants suggests a demand for programs that focus on health promotion and support individuals with low psychological well-being, especially women who may be at higher risk of mental health problems due to the pandemic.

Limitations and Future Directions

While we achieved good retention compared to other unguided digital interventions, significant attrition was still observed in our study. Some participants contacted our research team to withdraw due to personal reasons; however, in most cases, the reasons for missing data were unknown. This raises the possibility that the unobserved test scores may carry information about missingness, for example, participants who found the intervention less useful may have opted out of questionnaires or skipped questions. In future iterations, exit interviews could be conducted to capture the opinions of participants who chose to withdraw from the study, providing valuable insights into the reasons behind their decision and informing strategies to reduce attrition (Di Noia et al., 2019).

We hypothesized that participating with a family member would be beneficial but were unable to assess the role of dyad participation due to low recruitment numbers. In future studies, researchers might consider making the dyadic component less involved or explore alternative ways of supporting family members. Studies interested in the feasibility of dyad participation might benefit from developing marketing strategies emphasizing the benefits of participating together and providing ideas for minimizing logistical barriers. By doing so, we can encourage more family members to participate in research studies, ultimately leading to a better understanding of the benefits of family interventions.

As the Asian Mental Health Program (AMHP) was not tested based on a randomized controlled trial, it is important to acknowledge that changes in the participants' mental health

outcomes could be influenced by factors unrelated to the intervention. For example, participants might have experienced a natural return to their baseline, or those who chose to participate in the study might have been more interested in mental health and more likely to seek help regardless of the intervention (Flannelly et al., 2018; Shadis et al., 2002). However, despite the absence of a control group, comparing the changes in the participants' mental health outcomes during the active intervention period with those during the follow-up period provided preliminary evidence that the intervention was effective in facilitating positive changes in attitudes, self-stigma, self-efficacy to manage mental health, and help-seeking behavior. The results document the feasibility and acceptability of the AMHP and its promise for a randomized controlled trial design with individuals.

Conclusion

The current study sheds light on how unguided low-cost digital interventions can impact psychological barriers related to help-seeking. The results suggest that building and adapting scalable digital interventions, such as the Asian Mental Health Program, for minority populations is important and feasible as it increases access to evidence-based mental health resources and promotes inclusivity (Buchanan et al., 2021). The cost-effectiveness, flexibility, and accessibility of digital self-guided programs, such as the Asian Mental Health Program, offer a promising approach to promoting better access to mental health care for minority groups.

Chapter 4 : Examining Variations in Motivation and Help-Seeking in Asian Canadians: A Preliminary Scale Adaptation and Validation Study

Abstract

Background: There is a growing interest in developing interventions to help individuals experiencing distress seek mental health services. Yet, there is no brief psychometrically validated method of assessing motivation to seek mental health services that could help evaluate the effectiveness of help-seeking interventions. The current study adapted a commonly used clinical tool, the Readiness Ruler, and assessed its psychometric properties in an Asian Canadian community sample participating in a self-guided digital intervention for help-seeking.

Method: A total of 102 participants completed the adapted measure, the Motivation for Mental Health Help-Seeking Scale (MOTIV-MH), at baseline and at four follow-up time points, along with measures of attitudes towards help-seeking, self-stigma, and service efficacy.

Results: The unidimensional factor structure of motivation was found to be acceptable. The MOTIV-MH demonstrated good construct validity, showing within- and between-person variation in time-varying covariance models with related measures in the directions expected. Additionally, the MOTIV-MH exhibited strong predictive validity for help-seeking behavior, surpassing measures of attitudes towards help-seeking, self-stigma, and service efficacy.

Conclusion: Although further efforts to validate the MOTIV-MH are warranted, the findings indicate that the MOTIV-MH holds promise as a concise tool for assessing motivation to seek mental health services.

Introduction

Early intervention plays a critical role in mitigating the severity of mental health problems and reducing the burden on the healthcare system (Le et al., 2021; McGaorry & Mei, 2018). Regrettably, a considerable number of individuals in Canada and across the globe tend to underutilize professional mental health services, even when they are in need of them (Chiu et al., 2016; Derr, 2016; Yang et al., 2020). Particularly, minority and racialized groups in North America exhibit low rates of accessing mental health services despite a high need (Alegría et al., 2014; Mojtabai et al., 2006; Staiger et al., 2017). Minority and racialized groups often face numerous barriers when attempting to access care, including high levels of stigma, low perceived need for assistance, and limited familiarity with mental health services (Martinez et al., 2020; Shi et al., 2020), as well as structural obstacles, such as a lack of culturally and linguistically inclusive services (Chen et al., 2009; Kim & Lee, 2022; Lai & Surood, 2013). Low perceived need and attitudinal barriers also frequently serve as obstacles to seeking treatment among individuals with common mental disorders (Mojtabai et al., 2010; Shi et al., 2020). These findings support the need to understand and enhance motivation to seek help for mental health needs and improve rates of service utilization.

In the context of behavioral change, motivation encompasses the arousal, direction, and persistence of behavior (Miller & Rollnick, 2012). Extensive research has been conducted on motivation, recognizing its significance as a predictor of behavioral change across diverse contexts. Meta-analytic studies have consistently demonstrated the effectiveness of motivational interviewing—an approach designed to enhance motivation (Burke et al., 2003; Lundahl et al., 2013)—in facilitating behavior change in various domains. Specifically, motivational interviewing has been found to be effective in addressing substance abuse (Smedslund et al.,

2011), weight management (Armstrong et al., 2011), self-care (Chizzardi et al., 2022), medication adherence (Palacio et al., 2016), as well as help-seeking for depression and anxiety (Holt et al., 2017; Sagar-Ouraghli et al., 2019). The efficacy of motivational interviewing extends across diverse populations and settings (Miller & Rose, 2009). Motivation plays a pivotal role in driving individuals to initiate and sustain the process of seeking help (Gulliver et al., 2010). By gaining insights into the interplay between motivation and help-seeking, it is possible to inform the development of targeted interventions to increase motivation for action and promote timely and effective utilization of mental health care (Rickwood et al., 2005). Given the tendency for minority populations to delay help-seeking (Chiu et al., 2016), the utilization of tools that assess the role of motivation in the help-seeking process may be particularly crucial in reducing health disparities.

Although motivation is conceptualized as a dynamic construct (Miller & Rollnick, 2012), the majority of research on help-seeking predictors has relied on cross-sectional or pre- and post-change methodologies that do not capture the dynamic nature of motivation in health research (Grimley et al., 2020). While the dynamic nature of other predictors, such as stigma, has been investigated (Seidman et al., 2023), there is currently a dearth of research exploring the relationship between fluctuations in motivation or readiness to seek mental health support and help-seeking outcomes. Existing research has predominantly focused on understanding interindividual differences in predictors of help-seeking (Doll et al., 2021; Schnyder et al., 2017; Yousaf et al., 2015). Although the examination of between-person differences is crucial, this emphasis may have overshadowed the exploration of how within-person fluctuations in key factors, such as motivation, can influence help-seeking behavior. Change in motivation is best interpreted in relation to an individual's own baseline, rather than being compared to group or

population averages (Hoffman & Stawski, 2009; Molenaar, 2004). Individuals likely experience day-to-day or week-to-week variations relative to their typical level of motivation, as well as considerable variations in other important variables (e.g., positive attitudes, self-stigma, distress levels) that may impact their motivation and likelihood of seeking help (Seidman et al., 2023). When investigating the links between motivation and associated variables, testing within-person coupling provides a more conservative approach for exploring potential mechanistic associations that is less susceptible to confounding factors (Hofer & Sliwinski, 2001; Molenaar, 2004).

Despite the significance of motivation in the context of help-seeking behavior for mental health, there has been limited research aimed at developing brief, standardized self-report measures specifically assessing general motivation to seek help. Motivation, as a determinant of help-seeking behavior, has received relatively less research attention compared to other factors such as stigma and attitudes (Smith & Biddle, 2016; Gulliver et al., 2010). While tools exist to measure specific domains of motivation or related psychological constructs that can impact motivation, such as attitudes towards help-seeking (Fischer & Farina, 1995), self-stigma of seeking help (Vogel et al., 2006), intentions to seek help (Wilson et al., 2005), or motivation to engage in specific treatments for conditions such as alcohol use (Heather et al., 2008) or eating disorders (St-Hilaire et al., 2017), there is currently a lack of psychometrically validated instruments for assessing general motivation to seek mental health support. It is crucial to assess motivation given the important connection to behavioral change (Miller & Rollnick, 2012). By assessing for and enhancing motivation, interventions can increase the likelihood of help-seeking behavior (Xu et al., 2018).

The Readiness Ruler, while lacking psychometric validation, represents the closest approximation to a general instrument for assessing motivation to engage in behavior change, the

transition from not seeking help to seeking help. This tool is commonly utilized in clinical practice and serves as a valuable starting point for the development of a specific measure for motivation to utilize mental health services (Perderson et al., 2021). The Readiness Ruler employs a scale ranging from 0 to 10, with 0 indicating no motivation or readiness for change and 10 representing high motivation (Miller & Rollnick, 2012). As part of the assessment of readiness or motivation, clinicians use the scale in sessions with a client to inquire about the importance, confidence, and commitment of individuals in making those changes during the conversations, such as importance of abstaining from alcohol or their confidence to use refusal skills when offered a substance (Miller & Rollnick, 2012; Naar & Safren, 2017).The absence of widely used and validated measures may contribute to the relative scarcity of research on motivation in the context of help-seeking. The Readiness Ruler has been extensively applied in the treatment of mental health (Guzick et al., 2021) and health behaviors (Lundahl et al., 2013; Resnicow & McMaster, 2012) due to its simplicity and effectiveness in capturing the multidimensional and continuous nature of an individual's motivations to engage in behavior change (Carey, 1999; Lundahl et al., 2013; Miller & Rollnick, 2012). This tool originated from the motivational interviewing approach (Miller & Rollnick, 2012) and is designed to address ambivalence towards change.

The Motivation for Mental Health Help-Seeking Scale (MOTIV-MH) adapts the questions of the Readiness Ruler to create a self-report measure to specifically assess an individuals' general motivation to seek support for mental health concerns. Following scale modification guidelines (Stewart et al., 2012), a collaborative approach was employed, involving an advisory board as part of a larger study aimed at promoting help-seeking behavior (Chapter 2, this dissertation). Notably, particular attention was given to enhancing the relevance of the

questions asked on from the Readiness Ruler for diverse ethnic backgrounds. Collaborating with community members from the target population increases the cultural appropriateness of the measures and has the potential to reduce health disparities among ethnic minority groups (Gonzalez & Trickett, 2014; Wallerstein, 2021). Many advisory board members appreciated the simple language and use of a visual ruler with anchor points. Compared to other scales (e.g., ATSPPH-SP; Fischer & Farina, 1995), the commonly used items from the original Readiness Ruler (i.e., confident, important, and committed) were found to be easily comprehensible and unlikely to cause confusion or fatigue. As such, only minor modifications were made to the original items to tailor them specifically to motivation for seeking mental health support.

The objective of this study was to evaluate the psychometric properties of the MOTIV-MH scale and assess its clinical utility in a community sample for predicting the use of mental health services. By examining the factor structure of the MOTIV-MH scale, as well as its construct and predictive validity across various constructs, this study aimed to advance the understanding of this novel area of clinical research and inform future steps in the field.

Hypothesis 1. The MOTIV-MH scale will show good factor structure, high internal consistency, and prove to be a feasible instrument to administer, as evidenced by a response rate exceeding 90% at each timepoint.

Hypothesis 2. The MOTIV-MH scale will exhibit construct validity by demonstrating positive associations with help-seeking attitudes and service efficacy, while displaying a negative association with self-stigma. We also examined the association between MOTIV-MH scores and levels of distress and psychological quality of life, without specifying directional hypotheses for these relationships.

Hypothesis 3. The MOTIV-MH will demonstrate predictive validity by predicting help-seeking behavior.

Method

Participants and Procedure

The current study utilized data collected from a pilot study conducted to evaluate a digital help-seeking intervention, involving a total of five timepoints. Recruitment of 102 participants occurred between June 15, 2022, and August 31, 2022. Prior to the initiation of the program, participants completed a comprehensive assessment battery, which included a demographic questionnaire. Additional assessments were conducted at four subsequent time points: immediately after the core program, one week following the psychotherapy modules, one-month post-intervention, and three months post-intervention.

Overall, the retention rates for the study were good for self-guided digital interventions; however, a gradual attrition was observed over time. Following the completion of the core modules, the retention rate at the initial follow-up (Time 2) was high, with 80% of participants providing survey responses. Retention decreased to 63% after the one-week follow-up following the psychotherapy modules. Following the conclusion of the active intervention, attrition persisted, albeit at a slower pace. At the one-month follow-up (Time 4), 49% of participants were retained, and this retention decreased to 46% at the three-month follow-up (Time 5).

Participants in the study were recruited through multiple channels, including cultural organizations, settlement agencies, Asian-focused social media groups, paid advertising on platforms like Facebook and Instagram, as well as through word-of-mouth referrals. Interested individuals who expressed their willingness to participate were contacted by the research team. They were then scheduled for a brief virtual meeting where they received detailed information

about the study, including a demonstration on how to access the program content on the study's website. During this meeting, participants were provided with the consent form and baseline questionnaires. To be eligible for participation, individuals had to be 18 years of age or older, self-identify as having an Asian background, report some level of psychological distress, have a conversational level of English fluency, and not have not used formal mental health services within the past year. As a token of appreciation for participating, participants were offered a $10 honorarium upon completion of the core program. Additionally, they had the opportunity to enter a draw for four honorariums, each worth $25, if they completed questionnaires for all the timepoints in the study. See Table 4.1 for sample characteristics.

Measures

Motivation to Access Mental Health Services. Motivation to access mental health services was assessed using the Motivation for Mental Health Help-Seeking Scale (MOTIV-MH), a four-item scale designed to examine individuals' motivation to seek support for their mental health. The scale was adapted in collaboration with an advisory board comprised of Asian Canadians who had personal or family experience with mental health issues (Chapter 2 of this dissertation). Initially, three items were adapted based on the Readiness Ruler to assess motivation for seeking help (Miller & Rollnick, 2012). During the discussion, advisory board members agreed that importance, confidence, and commitment are important components of motivation. They also found the visual ruler easy to understand and the items simple to understand. However, several participants highlighted the cultural beliefs of self-reliance and concerns related to ‘losing face’ that may hinder Asian participants’ willingness to seek help. This observation aligns with existing research indicating that willingness to speak with a professional is associated with help-seeking behavior (Mojtabai et al., 2016). To address this, a

fourth item assessing *willingness* was added to the scale, allowing for its psychometric adequacy to be tested. Furthermore, an advisory board member suggested modifying the item measuring commitment. Instead of asking about a general commitment towards seeking help, it was tailored to specifically inquire about commitment in the context of prior disappointing experiences with healthcare professionals. Research has shown that Asians and other minority groups often report higher dropout rates from mental health treatment due to reasons such as low perceived need, cost, or negative treatment experiences (Green et al., 2020). Adapting the commitment item to address this reality enhances the cultural relevance of the scale.

In the pilot study of the measure, participants were presented with a 10-point ruler ranging from 0 (indicating "not at all") to 10 (indicating "extremely") for each statement. They were then asked to indicate their position on the ruler for each of the four items. The four items include: "How *important* it is for you to get professional help if you're struggling with your mental health?" "How *confident do* you feel about finding professional help if you're struggling with your mental health?" "How *willing* you are to get professional help when facing mental health challenges?" and "How *committed* you are to finding a better fit if the professional you saw before wasn't a good match?" To calculate the total motivation score, the sum of the scores across the completed items is computed and divided by the number of items completed. The scale itself can be found in Appendix E.

Associated Measures

Attitudes toward help-seeking. Attitudes toward help-seeking were assessed using the Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF; Fischer & Farina, 1995). The ATSPPH-SF is a 10-item scale designed to measure individuals' attitudes toward seeking psychological help from a professional. Participants rated each item on a 4-point

Likert-type scale, ranging from 0 (*disagree*) to 3 (*agree*). Higher scores on the scale indicate a more positive attitude toward seeking help. Sample items on the ATSPPH-SF include "I would want to get psychological help if I were worried or upset for a long period of time." The scale has demonstrated good internal consistency and test-retest reliability in previous studies, and its reliability was found to be adequate in the present study, with Cronbach's alpha values ranging from .70 to .77.

Self-stigma related to help-seeking. Self-stigma of seeking psychological help was measured with the Self-Stigma of Seeking Psychology Help (SSOSH; Vogel et al., 2006). The SSOSH is a 10-item scale designed to measure self-stigma associated with seeking psychological help. Participants rated each item on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher average scores on the scale indicate a higher level of self-stigma. Sample items include “I would feel inadequate if I went to a therapist for psychological help”. Sample items from the SSOSH include "I would feel inadequate if I went to a therapist for psychological help." The scale demonstrated good internal consistency in the current study, with Cronbach's alpha values ranging from .77 to .85.

Mental Health Service Efficacy. Mental health self-efficacy/empowerment was measured using an adapted version of the Youth Efficacy/Empowerment Scale - Mental Health (YES-MH; Walker et al., 2010). In this study, we specifically used the 8-items service subscale of the YES-MH, which focuses on perceptions of confidence and efficacy in navigating mental health services and supports. Sample items from the service efficacy scale include, “When a service or support is not working for me, I take steps to get it changed” and the reverse scored item “I am overwhelmed when I have to make a decision about my services and support”. Items are rated on a 5-point scale from 1 (*never or almost never*) to 5 (*always or almost always*), with

higher scores indicating higher levels of empowerment. Based on recommendations from the advisory board, two additional items were added to the service subscale to address specific cultural considerations and enhance the scale's relevance for diverse populations. These items are "I can find a professional who is competent to work with my cultural background" and "I can find a professional who can work in my preferred language". Reliability analysis indicated good internal consistency for the service subscale (α ranging from .80 to .86).

Psychological Distress and Quality of Life. Psychological distress was measured using the Kessler Psychological Distress scale (K10; Kessler 1996) a validated and widely used 10-item self-report measure of psychological distress. The items are rated on a five-point scale from 1 (*none of the time*) to 5 (*all the time*), with higher scores indicating greater distress. Sample items include, “feeling tired out for no good reason” and “feeling so depressed that nothing could cheer you up”. We achieved excellent reliability in the current study (α ranged from .87 to .90).

The World Health Organization Quality-of-Life Scale (WHOQOL-BREF; WHOQOL Group, 1998) was used to evaluate participants' overall quality of life. The WHOQOL-BREF consists of six items and is scored on a Likert scale ranging from 1 (*not at all*) to 5 (*an extreme amount*). Higher scores on the WHOQOL-BREF indicate a higher quality of life. Example items include "How much do you enjoy life?" and "How satisfied are you with yourself?" For the psychological domain of the WHOQOL-BREF, scores were transformed to a 0 to 100 scale to facilitate interpretation and comparison with the WHOQOL-100. Reliability was good, with Cronbach’s α ranging from .78 to .86.

Help-seeking Behaviour. Help-seeking behavior was assessed using the Actual Help-Seeking Questionnaire (AHSQ; Wilson et al., 2005). The AHSQ asks about help-seeking behavior since the participant's previous completion of the questionnaire. Participants were

asked to indicate whether they had sought formal advice or help for a "personal or emotional problems" since they completed the previous questionnaire. Formal help-seeking behavior was considered to be present if a participant had sought help from specific formal sources, including a general practitioner, a mental health professional, or the emergency room.

Data Analyses Plan

Confirmatory Factor Analysis

The confirmatory factor analysis (CFA) specified a one-factor solution to establish the construct validity of motivation with four observed indicators (see Figure 4.1) at Time 1 as it included the largest sample size. Due to the relatively short time interval between measurements and the attrition rate, temporal invariance was not assessed. Model fit was evaluated using four global fit measures: the chi-square statistic, comparative fit index (CFI), Tucker-Lewis Index (TLI) and root mean square error of approximation (RMSEA). Acceptable fit was indicated by CFI values higher than .90 (> .95 suggested excellent fit; Byrne, 2016) and RMSEA values less than .05, signifying good fit. RMSEA values up to .08 were considered to represent reasonable errors of approximation (Browne & Cudeck, 1992; Cheung & Rensvold, 2002; Hu & Bentler, 1999). The CFAs were conducted in R version 4.2.2 using the lavaan package (Rosseel, 2012) for data analysis.

Time-varying covariation models

Multilevel models incorporating time-varying predictors offer a robust statistical approach to investigating changes within individuals and the relationships among variables over time (Hoffman & Stawski, 2009). Time-varying covariation models were used to estimate the within-person and between-person effects of the process variables, namely attitudes towards help seeking, self-stigma, and self-efficacy, on motivation. To reduce bias, models were fit with both

level 1 and level 2 estimates for each variable, such that the specific within-person variation and the constant between-person differences on motivational outcomes could be examined simultaneously (Hoffman & Stawski, 2009). To facilitate interpretation, the within person estimate variables for each participant were person-mean centered. This involved subtracting the person's mean of the time-varying predictor from the original values, allowing for the representation of variation at the individual's own mean level. We used the Maximum Likelihood estimator in R version 4.2.2 with packages lme4 (version 1.1-27.1; Bates et al., 2021) and nlme (version 3.1-162; Pinheiro et al., 2022) to fit the time-covariance models. R^2 was calculated with the glmm.hp package (Lai et al., 2022). The equation below outlines the analysis conducted to examine the covariation between the process variables and motivation.

Level 1: $\text{Motivation}_{ij} = b_{0i} +$

$\beta_{1i}\ (\textit{Attitudes}_{ij} - \textit{attitude}_{\textit{person mean}}) +$

$\beta_{2i}\ (\textit{Self-stigma}_{ij} - \textit{self-stigma}_{\textit{person mean}}) +$

$\beta_{3i}\ (\textit{Service efficacy}_{ij} - \textit{service efficacy}_{\textit{person mean}}) + e_{ij}$

$\beta_{4i}\ (\textit{Distress}_{ij} - \textit{distress}_{\textit{person mean}}) + e_{ij}$

$\beta_{5i}\ (\textit{QofL}_{ij} - \textit{QofL}_{\textit{person mean}}) + e_{ij}$

Level 2: $\beta_{0i} = \gamma_{00} + \gamma_{01}(\textit{Attitude}_{\textit{Person mean}}) + \gamma_{02}(\textit{Self-stigma}_{\textit{person mean}}) + \gamma_{03}(\textit{Service-efficacy}_{\textit{person mean}}) + \gamma_{04}(\textit{Distress}_{\textit{person mean}}) + \gamma_{05}(\textit{QofL}_{\textit{person mean}}) + u_{0i}$

$\beta_{1i} = \gamma_{10} + u_{1i}$

$\beta_{2i} = \gamma_{20} + u_{2i}$

$\beta_{3i} = \gamma_{30} + u_{3i}$

$\beta_{4i} = \gamma_{40} + u_{4i}$

$\beta_{5i} = \gamma_{50} + u_{5i}$

The parameter estimate γ_{00} represents the fixed intercept and reflects the between-person average of attitudes when all predictors are at 0. The parameter estimates γ_{01}, γ_{02}, γ_{03}, γ_{04}, and γ_{05} represent the between-person differences in the predictors on the motivational outcomes. These estimates indicate the change in the mean of the motivational outcome for every unit increase relative to the sample mean of the corresponding predictor.

On the other hand, the parameter estimates γ_{10}, γ_{20}, γ_{30}, γ_{40}, and γ_{50} represent the within-person associations between the predictors and the outcome. These estimates test the within-person coupling, assessing how deviations from an individual's average level of attitudes, attitudes, self-stigma, service efficacy, distress, and quality of life across the five time points are associated with differences in the same individual's motivation. The within-person associations reflect the extent to which variations in the predictors within an individual are related to changes in their motivation to seek out mental health services.

The level-1 residuals, e_{ij}, reflect the within-person variance, while the level-2 residuals, u_{0i}, reflect the between-person variance. By estimating the within- and between-person associations simultaneously, the model allows for a comprehensive examination of the relationships between attitudes, self-stigma, service efficacy, distress, and quality of life and motivation. It is important to note that between-person and within-person analyses can differ in terms of effect size, direction of effect, or both. This provides a more nuanced understanding of the varying impact of individual characteristics on motivation at different levels of analysis.

Mixed Effects Logistic Regression Model

We employed a mixed effects logistic regression to examine the likelihood of actual help-seeking behavior (coded as 1) compared to no help-seeking behavior (coded as 0) at different time points within the study (McCulloch et al., 2008). Separate models were initially constructed

to assess the influence of attitudes, self-stigma, service efficacy, distress, quality of life, and motivation on help-seeking behavior, incorporating both within-person and between-person effects. Subsequently, a multivariate analysis was conducted by including all predictors simultaneously to ascertain the unique contribution of each variable. To account for unobserved heterogeneity in the baseline likelihood of help-seeking behavior, an individual-level random intercept was included in the models. To facilitate interpretation of the regression coefficients, the predictor variables for each participant were person-mean centered. The resulting coefficient estimates, and their corresponding confidence intervals were transformed from the log-odds scale to odds ratios. The analyses were conducted in R version 4.2.2 with packages lme4 (version 1.1-27.1; Bates et al., 2021) and nlme (version 3.1-162; Pinheiro et al., 2022).

Results

Preliminary Analyses

The rates of missing data in the study ranged from 1.2% to 37.1% based on the timepoint. To examine for the potential predictors of attrition, logistic regression was conducted, including demographic variables, psychological distress, and quality of life as predictors. The results indicated that at Time 2, there were no significant differences in demographic and background measures, general psychological distress, or psychological quality of life, in predicting attrition. However, missingness of survey responses at Time 3 was found to be related to psychological quality of life. Specifically, individuals with higher quality of life were more likely to complete the questionnaire (*OR* = 1.04, 95% *CI* 1.01-1.07, $p = .01$, Nagelkerke $R^2 = .09$). At the 1-month follow-up (Time 4), psychological quality of life and other variables did not predict a greater likelihood of completing surveys ($p = .084$). At the 3-month follow-up, missingness was again associated with psychological quality of life, with individuals having higher quality of life being

more likely to complete the questionnaire (*OR* = 1.03, 95% *CI* 1.00-1.06, *p* = .041, Nagelkerke R^2 = .06). To assess the potential impact of missing data on the results, comparisons were conducted between individuals with and without missing data on the main variables using Kruskal-Wallis test and the chi-squared test (R package finalfit version 1.0.6; Harrison et al., 2022). The results of these comparisons revealed no significant differences in responses on the main variables between those with missing data and those without missing data.

Collectively, these comparisons ruled out a missing completely at random (MCAR) process. Therefore, we used missing data-handling procedures that assume a conditionally missing at random (MAR) process, where a participant's unseen data values are unrelated to missingness after controlling for his or her observed data. We used maximum likelihood estimation based on the multivariate normal distribution that featured incomplete variables that were numeric and approximately symmetric. We fitted the analyses models and pooled the resulting parameter estimates and standard errors using the Maximum Likelihood estimator in R version 4.2.2, utilizing the packages lme4 (version 1.1-27.1; Bates et al., 2021) and nlme (version 3.1-162; Pinheiro et al., 2022).

Sample Characteristics

The mean age of the participants was 32 years (range: 19-66, SD=9.19). The majority of participants identified as female (71.6%) and many reported a Chinese heritage (45.1%). The majority were born in Canada (58.8%) and were employed full-time (56.9%). Most participants resided in metropolitan (27.5%) or mid-sized cities (62.7%) in Alberta (21.6%), British Columbia (31.4%), or Ontario (31.4%). Approximately 41.3% of participants reported having accessed mental health services in their lifetime. Further details on sample demographics can be found in Table 4.1.

Table 4.1: Characteristics of Participants Included in the Study

Characteristics	Full sample
Age (years), mean (SD)	31.49 (9.10)
Range	19-66
Gender, n (%)	
Male	24 (23.5)
Female	73 (71.6)
Non-binary	5 (4.9)
Canadian Born, n (%)	60 (58.8)
Highest Educational Attainment, n (%)	
High school degree or equivalent	4 (3.9)
College diploma or some university	17 (16.6)
Bachelor's degree	56 (54.9)
Master's Degree	16 (15.7)
Ph.D. or Professional School (e.g., law)	7 (6.8)
Employment, n (%)	
Employed full time	58 (56.9)
Employed part time	18 (17.6)
Not employed – looking	11 (10.8)
Full time student	13 (12.7)
Retired	2 (2)
Cultural Background, mean (SD)	
Chinese	47 (45.1)
Filipino	8 (7.8)
Vietnamese	7 (6.9)
Korean	3 (2.9)
Hong Kong	3 (2.9)
Japanese	2 (2.0)
Mixed	33 (32.4)
Psychological Distress (Kessler-10), n (%)	
<20	27 (27.80)
20-24	28 (28.9)
25-29	19 (19.6)
30+	23 (19.60)
Psychological Quality of Life (WHOQOL), mean (SD)	49.42 (15.89)
Past help-seeking for mental health issues, n (%)	48 (47.1)

Hypothesis 1. Structure of MOTIV-MH

We hypothesized that the MOTIV-MH scale would demonstrate a good factor structure, high internal consistency, and feasibility of administration indicated by a high response rate (>90%) at each timepoint. A confirmatory factor analysis (CFA) supported our hypothesis,

showing a generally good fit for a one-factor underlying construct. The results of the CFA are presented in Table 4.2, and Figure 4.1 displays the specified model. The chi-squared test for our specified model was non-significant ($\chi 2 = 5.28$, $p < 0.071$), indicating similarity between the sample's implied covariance and the observed data (Bentler, 1990). Although the root mean square error of approximation (RMSEA) fell outside of Kline's (2016) recommended fit indices, the comparative fit index (CFI) and Tucker-Lewis index (TLI) indicated excellent fit (Byrne, 2016). The RMSEA index tends to be less reliable and may yield inflated values at smaller sample sizes (Hu & Bentler, 1999; MacCallum et al., 1996), whereas the CFI and TLI are less influenced by sample size, providing a more reliable assessment of fit (Hu & Bentler, 1999; MacCallum et al., 1996).

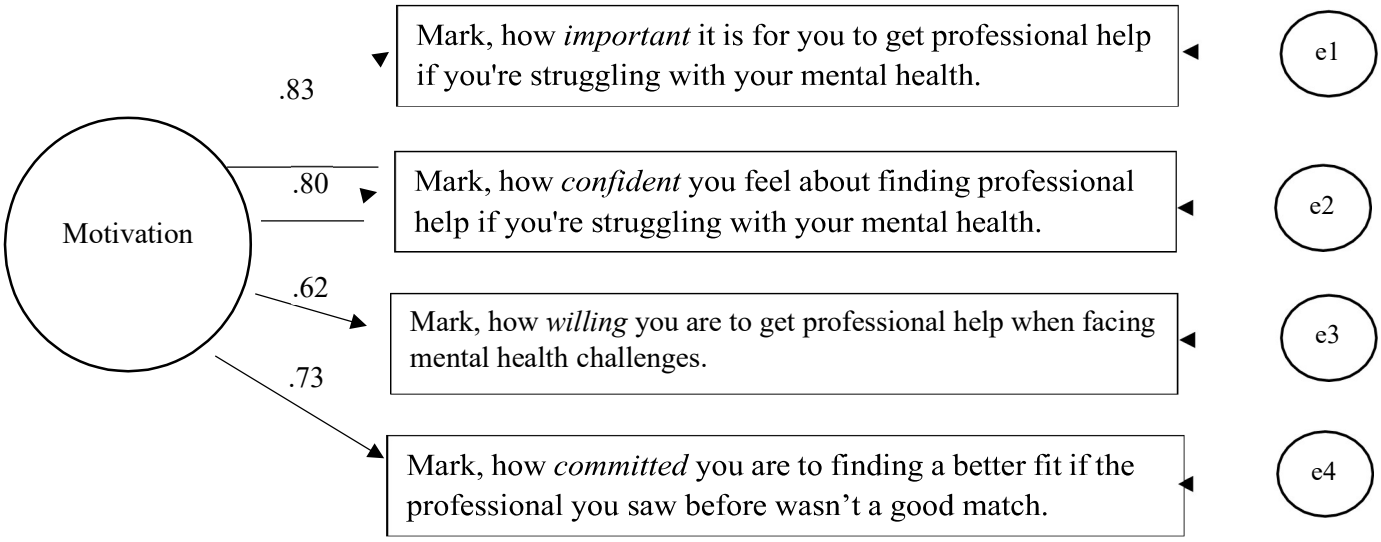
In the specific CFA model, three of the four factor loadings were excellent, at or above 0.71, and one item had a strong loading above 0.60 (Garson, 2010). This indicates that approximately 50% of the variance in those items could be accounted for by the theorized motivation factor (Bandalos & Finney, 2010), suggesting that the factor provided a good explanation for the items on the scale. The internal consistency of the four-item scale at Time 1 was good, with a Cronbach's alpha coefficient of 0.83. Throughout the study, internal reliability ranged from good to excellent, with Cronbach's alpha values ranging from 0.83 at baseline to 0.95 at the 3-month follow-up. The completion rate for the MOTIV-MH scale was high, with over 93% of participants responding at each timepoint.

Table 4.2: Summary of CFA Fit Results (N = 102)

	χ2	df	p-value	CMIN/DF	CFI	TLI	RMSEA [90% CI]
Null Model	161.16	6	<.001	26.86			0.50 [0.44 - 0.57]
Specified Model	5.28	2	0.071	2.64	0.98	0.94	0.13 [0.00 - 0.26]

Notes: χ2 = chi squared; df = degrees of freedom; CFA = confirmatory factor analysis; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval.

Figure 4.1: The Confirmatory Factor Analysis (CFA) Specified a One-factor Solution for Motivation with Four Observed Indicators.



Note: The large circle represents the latent factor, the small circles represent measurement errors, and the rectangles include the items on the self-report measure.

Hypothesis 2. Associations of the MOTIV-MH in Time-Varying Covariance Models

We hypothesized that the MOTIV-MH would demonstrate construct validity by exhibiting positive associations with help-seeking attitude and service efficacy, while showing a negative association with self-stigma. We also examined its association with distress and psychological quality of life.

In the time-varying covariance model, I distinguish between intra-individual versus trait variance to examine how personal fluctuations and average ratings on a variable predict motivation and help-seeking behavior. Intra-individual change or personal fluctuations refers to changes that occur within an individual over time, which I will refer to as *within-person variance*. On the other hand, trait-level differences refer to a person's average over time and represent a relatively stable individual differences, which I will refer to as *between-person variance*.

Within-person variation was sufficient for conducting time-varying covariance modeling (ICC = 0.62), indicating that 62% of the variability in motivation was attributable to differences between individuals, while 38% was attributable to within-person differences. The marginal R^2, which represents the variance accounted for by the fixed factors, was 54%, indicating that attitudes, self-stigma, service efficacy, distress, and quality of life collectively accounted for 54% of the individual variance in motivation.

The findings from the individual coupling models showed significant associations between the MOTIV-MH and all predictor variables, both at the within- and between-person levels, in the expected direction (top panel of Table 4.3). As hypothesized, attitudes and service efficacy demonstrated positive associations with the motivation scale within person ($\gamma_{10} = 0.24$, $p < 0.001$ and $\gamma_{30} = 0.19$, $p < 0.001$, respectively) and between person ($\gamma_{01} = 0.34$, $p < 0.001$ and $\gamma_{03} = 0.22$, $p < 0.001$, respectively). This indicates that higher scores on positive attitudes and service efficacy, compared to a person's individual mean (within person) and compared to others in the sample (between person), corresponded to higher scores on the MOTIV-MR scale. On the other hand, self-stigma was associated with lower levels of motivation within person ($\gamma_{20} = -1.36$, $p < 0.001$) and between person ($\gamma_{02} = -1.95$, $p < 0.001$), indicating that higher scores on self-

stigma and distress, compared to a person's individual mean and compared to others in the sample, corresponded to lower scores on the MOTIV-MR scale. In the individual coupling models, motivation was negatively associated with distress (within person γ_{40} = -0.14, $p < 0.001$; between person γ_{04} = -0.10, $p < 0.001$) and positively associated with quality of life (within person γ_{50} = 0.05, $p < 0.001$; between person γ_{05} = 0.06, $p < 0.001$) at the between- and within-person levels. These associations of attitudes, self-stigma, and service efficacy support the construct validity of the motivation scale.

In the multivariate model (bottom panel of Table 4.3), the associations between the motivation scale and the predictors attitudes, self-stigma, and service efficacy remained, although their effect sizes were reduced, except for stigma at the between-person level, which was no longer significant (γ_{20} = -0.54, p = 0.054). At the within- and between-person levels, attitudes (within γ_{10} = 0.10, p = 0.002; between γ_{01} = 0.34, $p < 0.001$) and self-efficacy (within γ_{30} = 0.10, $p < 0.001$; between γ_{03} = 0.09, p = 0.002) were still positively associated with motivation. Stigma was still predictive of motivation at the within-person level (γ_{20} = -0.47, p = 0.021). Distress and quality of life were no longer significantly associated with motivation to seek professional services at the within-person level (γ_{40} = -0.04, p = 0.085; γ_{50} = 0.01, p = 0.308, respectively) or between-person level (γ_{04} = 0.02, p = 0.548; γ_{05} = 0.02, p = 0.112). When accounting for the presence of other variables, the unique contribution of each variable was smaller, but attitudes, self-stigma, and service efficacy largely remained significantly associated with motivation, indicating that they capture unique aspects of the construct.

Table 4.3: Time-varying Covariation Models with Motivation – Fixed Effects.

		Within Person					Between Person			
Motivation Model		*b*	*SE*	*95%CI*	*p*		*b*	*SE*	*95%CI*	*p*
Simple Model										
Attitude	(γ_{10})	0.24	0.03	0.19 - 0.29	<.001	(γ_{01})	0.34	0.03	0.27 - 0.41	<.001
Self-stigma	(γ_{20})	-1.36	0.20	-1.7 - -0.97	<.001	(γ_{02})	-1.95	0.29	-2.52 - -1.38	<.001
Service-efficacy	(γ_{30})	0.19	0.02	0.15 - 0.23	<.001	(γ_{03})	0.22	0.03	0.16 - 0.27	<.001
Distress	(γ_{40})	-0.14	0.02	-0.18 - -0.11	<.001	(γ_{04})	-0.10	0.03	-0.16 - -0.05	<.001
Quality of Life	(γ_{50})	0.05	0.01	0.03 -0.07	<.001	(γ_{05})	0.06	0.01	0.03 - 0.08	<.001
Multivariate Model										
Attitude	(γ_{10})	0.10	0.03	0.05 - 0.16	0.002	(γ_{01})	0.23	0.04	.16 - 0.31	<.001
Self-stigma	(γ_{20})	-0.47	0.20	-.87 - -0.09	.021	(γ_{02})	-0.54	0.28	-1.01 - 0.09	0.054
Service-efficacy	(γ_{30})	0.10	0.02	.06 - .15	<.001	(γ_{03})	0.09	0.03	0.02 - 0.14	0.002
Distress	(γ_{40})	-0.04	0.02	-0.08 - 0.01	0.085	(γ_{04})	0.02	0.03	-0.04 - 0.07	0.548
Quality of Life	(γ_{50})	0.01	0.01	-0.01 - 0.02	0.308	(γ_{05})	0.02	0.02	-0.02 - 0.04	0.112

Note: Model Estimate = b Standard Error = SE; Confidence Interval = CI; R2 represents the individual marginal variance for individual predictors that sums up to the overall marginal R2 for the model; Attitude = ATSPPH-SF; self-stigma = SSOSH; Service-efficacy = YES-MH service subscale; Distress = K10; Quality of Life = WHOQOL-BREF psychology subscale.

Hypothesis 3. Predicting Professional Help-Seeking Behavior

We hypothesized that the MOTIV-MR would demonstrate predictive validity in relation to actual help-seeking behavior. We employed mixed effects logistic regression to estimate the likelihood of help-seeking behavior. Table 4.4 provides a summary of the effects observed in the within- and between-model for both the single predictor models and the multivariate model.

In the single predictor models, motivation, attitudes, and service efficacy consistently showed associations with help-seeking behavior (top panel of Table 4.4). As hypothesized, motivation was significantly associated with help-seeking at both the within-person and between-person levels. Within individuals, a one-unit increase in motivation was associated with a 167% increase in the odds of help-seeking (OR = 2.67, 95% CI = 1.61 - 5.03, $p < .001$), while at the between-person level, it was associated with 184% increase in the odds of help-seeking (OR = 2.84, 95% CI = 1.71 - 6.06, $p < .001$), indicating that higher levels of motivation was

consistently linked to an increased likelihood of seeking help. Similarly, attitudes and service efficacy exhibited positive and significant effects both within person (OR = 1.28, 95% CI = 1.07 - 1.59, $p = 0.013$ and OR = 1.20, 95% CI = 1.05 - 1.38, $p = 0.009$, respectively) and between person (OR = 1.32, 95% CI = 1.09 - 1.70, $p = 0.01$ and OR = 1.32, 95% CI = 1.09 - 1.70, $p = 0.011$). These findings indicate that higher levels of positive attitudes and service efficacy, both in comparison to one's personal mean and to the sample mean, were associated with a greater likelihood of help-seeking. Self-stigma showed an association with help-seeking at the between-person level (OR = 0.20, 95% CI = 0.04 - 0.72, $p = 0.024$) but not at the within-person level (OR = 0.44, 95% CI = 0.11 - 1.50, $p = 0.222$), suggesting that a one-unit increase in self-stigma between individuals is associated with a 80% decrease in the odds of help-seeking between individuals.

Distress and quality of life were not consistently associated with help-seeking. Distress was only associated at the within-person level (OR = 0.88, 95% CI = 0.77 - 0.97, $p = 0.019$) and not at the between-person level (OR = 1.04, 95% CI = 0.93 - 1.15, $p = 0.437$), suggesting that higher levels of distress compared to one's personal mean were associated with a 12% decrease in the odds of seeking help. Quality of life was not associated with help-seeking behavior at either the within-person (OR = 1.03, 95% CI 0.98 - 1.07, $p = 0.245$) or between-person level (OR = 1.03, 95% CI = 0.98 - 1.09, $p = 0.249$).

In the multivariate model, controlling for the effects of other predictors, only motivation and the level of distress significantly predicted help-seeking (bottom panel of Table 4.4). Motivation predicted help-seeking both at the within-person (OR = 2.39, 95% CI = 1.34 - 5.82, $p = 0.009$) and between-person levels (OR = 3.12, 95% CI = 1.39 - 8.57, $p = 0.002$), indicating a robust association with help-seeking behavior. Distress predicted help-seeking at the between-

person level (OR = 1.34, 95% CI = 1.09 - 1.60, $p < 0.001$), but not at the within-person level (OR = 0.93, 95% CI = 0.78 - 1.10, $p = 0.399$). Attitudes, self-stigma, and service efficacy were not significantly associated with help-seeking in either the within-person or between-person context. The multivariate findings suggest that the MOTIV-MH demonstrates promising validity in predicting help-seeking behavior. Furthermore, in the multivariate model, the positive association between the motivation scale and help-seeking behavior remained significant while most other predictors did not, indicating that the predictive power of the motivation scale persists even when considering other predictors simultaneously.

Table 4.4: Fixed Effects from Mixed effects Logistic Regression Models for Help-seeking Behavior

	Within Person					Between Person				
Help-Seeking Model	*b*	*SE*	*Odds ratio*	*95% CI OR*	*p*	*b*	*SE*	*Odds ratio*	*95% CI*	*p*
Simple Models										
Attitude	0.25	0.10	1.28	1.07 - 1.59	0.013	0.27	0.10	1.32	1.09 - 1.70	0.011
Self-stigma	-0.81	0.67	0.44	0.11 - 1.50	0.222	-1.62	0.72	0.20	0.04 - 0.72	0.024
Service efficacy	0.18	0.07	1.20	1.05 - 1.38	0.009	0.17	0.08	1.19	1.03 - 1.44	0.031
Distress	-0.13	0.06	0.88	0.77 - 0.97	0.019	0.04	0.05	1.04	0.93 - 1.15	0.437
Quality of life	0.03	0.02	1.03	0.98 - 1.07	0.245	0.03	0.03	1.03	0.98 - 1.09	0.249
Motivation	0.98	0.29	2.67	1.61 - 5.03	< .001	1.04	0.31	2.84	1.71 - 6.06	< .001
Multivariate Model										
Attitude	0.17	0.13	1.19	0.90 - 1.53	0.189	-0.03	0.14	0.97	.69 - 1.26	0.399
Self-stigma	0.99	0.78	2.69	0.57 - 9.28	0.138	-0.88	1.02	0.41	.08 - 2.81	0.857
Service efficacy	0.04	0.09	1.03	0.84 - 1.22	0.602	-0.04	0.11	0.95	.77 - 1.26	0.941
Distress	-0.07	0.08	0.93	0.78 - 1.10	0.399	0.30	0.08	1.34	1.09 - 1.60	< .001
Quality of life	-0.04	0.04	0.97	0.91 - 1.04	0.436	0.07	0.04	1.08	0.96 - 1.18	0.063
Motivation	0.87	0.35	2.39	1.21 - 5.82	0.011	1.16	0.45	3.12	1.39 - 6.88	0.003

Note: The results in the simple models represent estimates in five separate regression models; the multivariate model simultaneously includes all predictor variables; Coefficient Estimate = b Standard Error = SE; Odds Ratio = OR; Confidence Interval = CI; p-value = p; Attitude = ATSPPH-SF; self-stigma = SSOSH; Service-efficacy = YES-MH service subscale; Distress = K10; Quality of Life = WHOQOL-BREF psychology subscale.

Discussion

This study initiated the process of scale development and psychometric evaluation of the MOTIV-MH. By adapting the commonly used Readiness Ruler in motivational interviewing, the current study aimed to bridge clinical utility and psychometric evidence by adapting an existing measure. This approach capitalizes on the advantages of employing a theory-driven measure of the motivational construct and expands its applicability to understand the help-seeking process (Devellis, 2017). Overall, the MOTIV-MH exhibited good factor structure, internal consistency, and feasibility. The study also found good construct validity, with associations between attitudes, self-stigma, and service efficacy aligning with the expected directions at both the within-person and between-person levels of analysis (Hoffman & Sliwinski, 2009). Finally, the MOTIV-MH scale demonstrated predictive validity at both the within-person and between-person levels in the multivariate model. This indicates the consistency of the association and the unique and independent predictive power of the MOTIV-MH scale, further supporting the value in assessing motivation within the context of help-seeking (Bolger & Laurenceau, 2013).

The present study contributes to the literature by adopting a unique approach to investigating the relationship between motivation and help-seeking behavior. Previous research examining predictors of motivation or help-seeking behavior has often utilized pre-post or analysis of variance (ANOVA) designs without considering within-person variance (Evans-Lacko et al., 2022; Xu et al., 2018), such designs fail to capture the dynamic nature of within-person processes. In contrast, our study employed models that distinguish between within-person (individual fluctuations) and between-person (variability across people) variance, allowing participants to serve as their own controls and facilitating the detection of changes in motivation relative to their usual levels (Hoffman & Sliwinski, 2009). By adopting this approach, our

analyses provided a comprehensive examination of the systematic relationships between attitudes, self-stigma, service efficacy, motivation, and help-seeking behavior, at the within-person and between person level. This rigorous assessment addressed limitations in previous studies and shed light on the dynamic nature of these constructs. We build on prior work (Hamaker & Wichers 2017) that emphasized the importance of capturing fluctuations in motivation and its associations with related variables.

The findings demonstrate that the MOTIV-MH scale effectively captures the dynamic nature of motivation. Across both within-person and between-person analyses, motivation consistently showed associations with attitudes, self-stigma, and service efficacy, indicating that the scale encompasses crucial aspects of motivation that are interconnected with these related constructs. Importantly, the MOTIV-MH scale remained a significant predictor of help-seeking behavior even when compared to other commonly used scales for predicting help-seeking. This finding emphasizes the unique and independent role that motivation plays in individuals' decision to seek help. Specifically, at the within-person level, our results indicate that individuals are more likely to engage in help-seeking when they experience higher levels of motivation compared to their own baseline or typical levels. This suggests that personal fluctuations in motivation over time directly influence individuals' choice to seek help, with elevated motivation serving as a driving force behind their help-seeking behaviors.

Our study highlights the significance of distinguishing between within-person variance from between-person variance on predictors of help-seeking behavior in order to gain a comprehensive understanding of the help-seeking process. While our findings align with previous literature regarding the individual differences in attitudes (Bonabi et al., 2016), self-stigma (Clement et al., 2014), service efficacy (Tomasi et al., 2022), and psychological distress

(Tambling et al., 2023) as predictors of help-seeking, our approach provides nuanced insights into the role of these predictors. Specifically, in focused analyses or simple models, we found that self-stigma was associated with help-seeking at the between-person level. This indicates a stable influence of this factor on help-seeking behavior across individuals. However, self-stigma did not consistently demonstrate an effect at the within-person level, suggesting that other factors or contextual considerations may override its influence on help-seeking decisions on a daily or moment-to-moment basis. On the other hand, in the simple model including distress and help-seeking, we observed that distress was associated with help-seeking only at the within-person level and not at the between-person level. This implies that an individual's tendency to seek help is primarily influenced by their own fluctuating levels of distress over time, rather than being a static predictor that holds true across different individuals. This finding underscores the dynamic nature of the relationship between distress and help-seeking. It is important to recognize that motivation and help-seeking behavior can be influenced by various situational factors, such as stressors (Nguyen et al., 2019), social support (Nagai, 2015), or changes in mental health status. These factors can fluctuate within an individual over time. Therefore, it is essential to examine both within-person fluctuations to understand immediate influences on motivation, in addition to focusing on the relatively stable between-person or trait-like differences.

For minority populations, it is crucial to address the issue of service efficacy and provide guidance on navigating the help-seeking process. Current help-seeking interventions often overlook the importance of service efficacy as a key component in increasing help-seeking behavior (Evans-Lacko et al., 2022; Xu et al., 2018). However, structural barriers to care are common challenges faced by individuals navigating the complex healthcare system (Griese, 2020). These difficulties are particularly magnified for marginalized individuals who may have

diverse language needs or non-resident status, and they may greatly benefit from assistance in accessing mental health care (Ngo et al., 2003; Robard et al., 2019). In our study, we observed that service efficacy, both within and between individuals, significantly predicted motivation to seek help even when accounting for positive attitudes and self-stigma. These findings are consistent with the research conducted by Tomasi et al. (2022) on refugee populations, which found that knowing where to find help and not requiring an interpreter were significant predictors of help-seeking behavior. Having knowledge about navigating mental health services plays a vital role in facilitating help-seeking (Gondek & Kirkbride, 2018; Rondina et al., 2022). Therefore, it would be beneficial for help-seeking interventions to include specific content that helps individuals navigate available resources. Additionally, community workers, such as settlement workers or nurse practitioners, who recommend clients to seek mental health support should also provide guidance on navigating services. These efforts can increase the likelihood of individuals accessing the necessary care and following through with their help-seeking intentions.

The MOTIV-MH scale holds potential for both community and research applications with adult populations. Low motivation has been found to be a predictor of low adherence to recommended or referred health services, highlighting the importance of addressing motivation in the help-seeking process (Alfonsson et al., 2016). The scale's brevity and ease of use make it a convenient tool for quickly evaluating and identifying an individual's motivation to seek mental health services and provide targeted interventions in community settings if needed. The scale's significant predictive validity highlights its potential in research aimed at promoting help-seeking behavior by assessing motivational enhancement achieved in interventions. Given the inter-related psychological concepts in predicting help-seeking, the MOTIV-MH offers a briefer

and more feasible method to assess motivation in community settings or research project where it is important to minimize participant burden compared to related measures developed for the research setting. In such settings, measures that are easy to integrate will encourage researchers and community workers to administer the measure. No matter how reliable and valid a measure is, if it is not used, the benefits of monitoring and the potential to intervene will not be realized.

Limitations and Future Directions

The findings of the factor analysis and internal consistency in this study indicate that the items assessing motivation demonstrate meaningful convergence and can be measured with a reasonable level of reliability and validity. However, it should be noted that our sample size was relatively small for conducting confirmatory factor analyses, which may have contributed to the suboptimal RMSEA and the wide confidence interval for the index (March et al., 2004). Subsequent research endeavors should aim to replicate the unidimensional factor structure using a larger sample size to thoroughly assess the model fit.

Time-varying covariation analysis represents a significant step in comprehending the nuanced association between motivation and related constructs. In future intervention research, it is crucial to separate within-person and between-person effects to gain a more comprehensive understanding of the complex and dynamic impact of motivation and associated variables on help-seeking behavior (Curran & Bauer, 2011).

Previous research has shown that social support can mediate the relationship between a preference for self-reliance and help-seeking (Ishikawa et al., 2023). Exploring potential mediating or moderating factors can provide a nuanced perspective on the relationships between motivation and help-seeking. For instance, investigating the mediating role of stress, personality traits, or acculturation may offer valuable insights into the mechanisms underlying help-seeking

behavior. Furthermore, examining longitudinal within-person mediation can shed light on the temporal order of these variables and contribute to a better understanding of the causal processes involved in motivation to use mental health services (Bolger & Laurenceau, 2013).

Participants rated their help-seeking behavior since the last measurement point which varied in length for individuals from a few days to weeks or months between time points. Although the ability to estimate missing data and include unequal spacing is a strength in multilevel modeling (Kwok et al., 2008), the time lag between each time point may not fully capture the immediate impact of within-person fluctuations in the variables and help-seeking behavior. It is possible that the effects of within-person fluctuations on motivation by some variables, such as distress or quality of life, may exhibit effects on motivation and help-seeking within a shorter time frame that was not adequately captured in our study. Future studies may consider including more frequent assessment time points or using an ecological momentary assessment approach to explore more fine-grained fluctuation of variables in relation to motivation and help-seeking (Robbins & Kubiak, 2014; Shiffman et al., 2008).

Conclusions

This study involved the adaptation of a brief measure of motivation commonly used in treatment settings. It aimed to evaluate the psychometric properties and utility of the adapted MOTIV-MH scale within a community sample. The findings provided preliminary support for the reliability and validity of the instrument. The MOTIV-MH scale demonstrated significant associations with related constructs and exhibited strong predictive power for help-seeking behavior. These findings emphasize the importance of assessing motivation when examining individuals' decisions to seek help and highlight the potential of the MOTIV-MH scale to offer valuable insights for research and early intervention to target specific aspects of motivation that

are low and undermining help-seeking behavior. Therefore, despite being in its preliminary stage, the MOTIV-MH scale can be regarded as a practical tool for assessing motivation to seek mental health support in research and community settings.

Chapter 5 : Summary and Conclusions

The dissertation represents initial efforts in the development of a digital intervention tailored specifically to encourage help-seeking among Asian Canadians grappling with mental health issues. Additionally, I validated a brief tool to assess motivation to seek help. Overall, the research findings shed light on the feasibility of piloting a digital mental health program for Asian Canadians and offer potential directions for future research on help-seeking within Asian communities.

First, developing and piloting digital programs using community-engaged research approaches has demonstrated feasibility within Asian Canadian communities. Despite historical challenges in recruiting Asian populations for health research (George et al., 2014), our study surpassed recruitment targets for the advisory board and the individual pilot condition, highlighting a notable interest within the Asian community to actively engage in individual-level mental health research. This suggests a growing recognition of the importance of mental health within Asian communities, potentially influenced by mental health literacy campaigns such as Bell Canada's "Let's Talk" and Ontario's new mental health curriculum for middle and high school students (Ontario Government, 2023). Moreover, the favorable recruitment and participant retention outcomes can be attributed to the implementation of a community-engaged research approach, emphasizing meaningful participant representation throughout the research process. The incorporation of diverse representation in recruitment materials and the composition of the research team likely contributed to the observed success for recruitment for developing and piloting the digital intervention.

Second, consistent with prior research highlighting the benefits of leveraging technology in self-guided digital interventions (Fischer et al., 2020; Naslund & Aschbrenner, 2009), our

study findings underscore the positive attributes of the Asian Mental Health Program. The program exhibited good accessibility and reach, particularly in diverse geographical communities. This accessibility was particularly advantageous for individuals with limited access to in-person Asian-focused mental health resources, such as for those residing in small towns in Ontario or provinces like Nova Scotia or Prince Edward Island with small Asian populations. Moreover, the program demonstrated high cost-effectiveness and scalability, with per-participant delivery costs significantly lower than in-person workshops or sessions. This affordability and scalability make it a viable option for wider implementation. The self-guided nature of the program allowed for flexibility and personalization, enabling participants to engage with the material at their convenience and explore topics in-depth based on their individual needs. Furthermore, the program fostered engagement by providing privacy and anonymity, reducing concerns related to judgment or disclosure of mental health concerns. These findings highlight the potential of self-guided digital interventions like the Asian Mental Health Program to address mental health needs effectively, while considering factors such as accessibility, cost, flexibility, and privacy, which are essential for reaching diverse populations and promoting engagement.

Third, the Asian Mental Health Program (AMHP) has the potential to inform the general public, specifically Asian Canadians who are interested in learning about mental health and related services. In the pilot study, we restricted participation to individuals who identified as Asian, reported some psychological distress, and had not used formal mental health services in the past year, as well as their families. Given the general interest in the program and the positive response from both those who sought help and those who did not, it is likely that the program holds value for the broader public. Preventive care is a valuable public health approach for

promoting well-being and preventing the development of mental illnesses. However, it is underused in public health strategies (Singh et al., 2022). The AMHP could serve not only as a help-seeking intervention but also as a health promotion or prevention program (World Health Organization, 2002). Additionally, it might be of interest to healthcare providers as a training tool (World Health Organization, 2019). Many primary care or community organizations that regularly support Asian Canadians may be unfamiliar with how Asian Canadians perceive mental health and mental illness. The AMHP can provide content that enhances their capacity to serve the Asian community. Likewise, Asians often seek informal help from religious leaders, such as temple masters or pastors, who may possess cultural awareness but little knowledge about mental health or how to support someone in seeking professional help (Brown et al., 2014). The AMHP can provide valuable information for these leaders to better support their communities.

Fourth, our research highlighted reservations and practical barriers associated with dyad participation in the Asian Mental Health Program. The low success in recruiting dyads suggests that requiring simultaneous engagement from family members may not be the most effective approach to support the family system. While surface-level changes such as offering the program in common Asian languages and providing scripts to guide participants in discussing the research (Wang-Schweig et al., 2014) can address some barriers, it is likely that deeper structural differences, such as intergenerational beliefs influenced by hierarchical family structures (Lee & Mossey, 2004), pose greater challenges for the research team to overcome. To achieve change within the family system, alternative approaches should be considered. Sequential participation within the program, where family members encourage and support each other to complete it individually, may be a more practical approach. The Asian Mental Health Program already

incorporates elements to help participants recognize and support their loved ones experiencing difficulties. Future work could focus on developing additional content on how to support family members and initiate conversations about mental health or wellness within the family system. This would lead to greater benefits within the family without requiring co-participation. Future research tracking the impact of individual participation on other family members' help-seeking behavior could also be explored. A longitudinal analysis could provide insights into the effects of participants on their family members' utilization of mental health resources.

Fifth, we adapted the commonly used Readiness Ruler from the motivational interviewing approach (Miller & Rollnick, 2012) to develop a measure to assess motivation to seek mental health support. The Motivation for Mental Health Help-Seeking Scale (MOTIV-MH) represents the first known concise measure designed to directly assess motivation for help-seeking. In comparison to widely used tools that purportedly measure barriers to help-seeking, the MOTIV-MH demonstrated stronger predictive ability for help-seeking behavior. Many psychological barriers associated with help-seeking exhibit overlap and can lead to participant fatigue when completing lengthy questionnaires in research settings. This poses challenges in time-constrained settings, such as brief clinical encounters with healthcare professionals or support workers. The MOTIV-MH offers a solution by capturing motivation to seek help in a concise manner, requiring less reading effort, while maintaining higher predictive power. This allows researchers to minimize participant fatigue by administering fewer and briefer measures, which can reduce attrition rates in longitudinal research (Teague et al., 2018). Moreover, this tool can help identify individuals in need of intervention to enhance motivation in community settings, thereby increasing the changes that Asians are more likely to seek help, ultimately improving health outcomes.

Sixth, differentiating between intra-individual change and trait-level differences in understanding help-seeking for mental health is essential for effective intervention planning and policy development. Our research findings revealed that for some variables, such as psychological distress, only within-person fluctuations predicted help-seeking behavior. In other words, people were less likely to seek help for mental health issues during times of high stress and more likely to seek help during relative calm compared to their own baseline. On the other hand, variables like self-stigma were more trait-like and predicted help-seeking behavior at the average or trait level. Recognizing the presence of fluctuations within individuals provides a nuanced understanding of their varying tendencies to seek help during different life circumstances, levels of stress, or significant events. This recognition allows mental health professionals to tailor interventions and support individuals based on their specific needs during different stressful periods. For example, individuals may exhibit a higher inclination to seek help during times of significant life transitions, such as when dealing with post-migration stress, significant underemployment, or when faced with high levels of distress resulting from difficulties in adjusting to a serious health issue or experiences of marginalization. Future work should consider using methodologies well-suited for differentiating within and between-person differences (Hofer & Sliwinski, 2001; Kleiman et al., 2017).

Moreover, considering trait-level differences in help-seeking behavior can inform interventions and policies targeting broader communities or populations. Consistent research findings indicate that low mental health literacy or stigmatization hinders help-seeking behavior among Asian populations (Fung et al., 2021) calling for interventions aimed at addressing and reducing these barriers within communities (Na et al., 2016). By attending to these more stable trait-like differences, opportunities arise to implement culturally sensitive approaches, engage

with the community, and launch educational campaigns that promote mental health help-seeking among these populations (Castillo et al., 2019). Such comprehensive approaches can effectively address barriers and foster a supportive environment conducive to seeking help for mental health concerns.

Finally, the findings of this dissertation demonstrate the feasibility of employing community-engaged practices for the development of mental health tools intended to support Asian Canadian communities. A digitally developed program, created in collaboration with the community, has the potential to reach a broad spectrum of Asian Canadian adults and contribute to the reduction of health disparities. However, it's important to note that individuals facing multiple layers of disadvantage, such as limited English-speaking abilities, low income, and older age, might not benefit equally from digital interventions (Husain et al., 2022). Researchers concentrating on mental health and health disparities should explore ways to leverage digital technologies to reach a larger number of Asian Canadians. Simultaneously, they should take into consideration the need for additional innovations to accommodate those encountering various layers of disadvantage. Future initiatives could investigate the feasibility of delivering program materials in easily understandable written formats or through in-person wellness sessions at community centers or facilities designated for individuals aged 55 and above.

Limitations

This dissertation has several limitations. Although the feasibility study provided promising results, the efficacy of the Asian Mental Health Program still needs to be tested in a well-powered randomized controlled trial. The study lacked a control group to assess whether the improvements were due to factors other than the intervention (Flannelly et al., 2018). Second, individuals who self-select to participate in research about mental health are likely more open

and motivated to learn about mental health than individuals who do not choose to participate. Higher levels of motivation have been found to predict greater adherence (Farrer et al., 2014). The engagement and completion rates may not generalize to Asian Canadians more broadly. Another limitation is that the outcome measures utilized in the study were based on self-report and thus may have been influenced by common biases, such as recall bias or social desirability bias (Tourangeau et al., 2000). The collection of website usage data based on individual user accounts, in addition to self-reports, would have been useful to examine intervention fidelity but was not possible in the current trial due to logistical and resource constraints. Adding user accounts would require robust security measures to protect the privacy and confidentiality of participants' data (Gretzer et al., 2021). However, future iterations involving user-based accounts will provide valuable objective information about program engagement and adherence.

Closing Statement

Developing and refining digital programs and brief measures to support Asian Canadians is feasible and holds promise for improving mental health outcomes for diverse populations. The process of learning about mental health through digital platforms tailored to specific cultural groups appears to have a positive impact on motivation to seek support when needed and translates to behavioral change. By embracing evidence-based programs, digital mental health projects can foster inclusiveness and address the unmet mental health needs that exist within these communities.

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Appendix A

1st Meeting Agenda

Review the project aims and consent

Setting the stage

- Brief introductions – first names, background, why people are interested in the project or what they want to get out of the experience.
- Generate ground rules e.g., confidentiality, respect.

A: Barriers to seeking help

- What barriers are you aware of for seeking help (based on your experience/experiences of others you know)?
- What is stigma? How does it show up?
- What roles do families play in seeking help (e.g., helping, hindering)?
- Are there ways traditional services need to change to better meet the needs of Asian clients?

B: Encouraging getting help

- Where do people in your network seek help, if at all?
- What was the key reasons people decide to seek help even if there are barriers?
- What might empower people to seek help?

C: Ideas for intervention

- What are some mental health programs you like? What do you like about them?

2nd Meeting Agenda

Check-in

Review project, consent, and ground rules

A: Content

- How well does the program address the barriers you brought up in the last meeting?
- Which barriers does the intervention need to attend to more?
- Are there modules that would be useful to add?

B: Platform

- What kinds of way do we want to present the information? A website? YouTube videos, Apps?
- Does the length/demands of the online program seem too short, too long, appropriate?
- What might make the program engaging?

3rd Meeting Agenda

Check-in

Review project, consent, and ground rules

A: Feedback on program material: video and website

- What do you like? What do you think works well?
- Is there anything you don't think works well, or you think would work better differently?

B: Feedback on questionnaires

- Is anything confusing/hard to understand?
- Is there something culturally important you think is missing?

C: Feedback on recruitment flyer

- What are your initial impressions of the poster?
- Would the words about feeling "low", sad, not your usual self, resonate with people? Are there different words you would use?

D: Debrief meeting process and next steps

Appendix B

Semi-Structured Interview Questions

Prompt questions to be used as needed to get a better understanding.
Tell me more about that? Can you give me an example?

Goal: to understand a participant's general experience
What was your experience in the program?

- *Prompt*. What did you like specifically about the program?
- *Prompt*. What did you like about how it was delivered? Why?
- *Prompt*. How they liked the videos and activities?

Goal: understand perceived usefulness
What parts of the program did you find most useful?
What parts of the content were unclear/not relevant?

- *Prompts.* What would you change about the program? Or what would you have like to add or remove?
- *Prompts.* What would you like to see more off?

Goal: to understand what sticks with people
What did you take away from the program?

- *Prompt.* How did the program influence your thinking about mental health or using mental health services?

Goal: acceptability of the program
Would you recommend the program to others?
How could you see this program being used?
Who do you think would benefit most from the program?
What are your thoughts about doing with family/friend?

Goal: understand research experience
What is your experience participating in the research?

- *Prompt*. What did you like?
- *Prompt.* Is there anything you would like to change?

Goal: understand difficulties recruiting dyads

- We set out to recruit some dyads to see if completing the program with a family/friend has benefits, but it has been hard to recruit people. What would encourage you to consider doing the program with someone else? What would be your fears or concerns?
- What are your thoughts or hesitations about completing the program with a family member or friend?

Anything else I didn't ask that would be important to know about your experience in the program?

Appendix C

Table 1. Correlation between Demographic Variables and Primary Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age	1										
2. Gender	0.04	1									
3. Education	0.30***	-0.09*	1								
4. Acculturation - Heritage	-0.06	0.22***	-0.15***	1							
5. Acculturation - Canadian	-0.09	-0.14***	0.15***	-0.04	1						
6. Psychological distress	-0.09	-0.04	-0.05	-0.04	-0.19***	1					
7. Quality of life	0.04	-0.02	0.04	0.01	0.13*	-0.71***	1				
8. Attitudes	0.05	0.24***	0.10	0.02	0.10	-0.35***	0.30***	1			
9. Self-stigma	0.02	-0.10	-0.07	-0.01	-0.05	0.30***	-0.25***	-0.53***	1		
10. Self-efficacy	0.17	-0.04	0.03	0.00	0.15***	-0.59***	0.69***	0.27***	-0.31***	1	
11. Service efficacy	-0.02	-0.04	0.03	0.07	0.33***	-0.39***	0.40**	0.49***	-0.48***	0.50***	1

Note: *p < .05; **p <.01 ***p <.001

For coding of gender: male = 0 and females = 1; Acculturation = AAMAS; Psychological Distress = K10; Quality of Life = WHOQOL-BREF psychology subscale; Attitude = ATSPPH-SF; self-stigma = SSOSH; Self-efficacy = YES-MH self-efficacy subscale; Service-efficacy = YES-MH service subscale.

Appendix D

Table 2. Observed Data Proportions at Each Timepoint and Across Study

Variable	1	2	3	4	5	Overall
1 Age	93.3	~	~	~	~	93.3
2 Gender	98.9	~	~	~	~	98.9
3 Education	94	~	~	~	~	94
4 Acculturation - heritage culture	92.1	~	~	~	~	92.1
5 Acculturation - Canadian culture	92.1	~	~	~	~	92.1
6 Psychological distress	94.4	77	62	45	42.5	63.3
7 Quality of life	93.5	77	62	45	42.5	63.3
8 Attitudes towards help seeking	94.4	77	62	45	42.5	63.3
9 Self-stigma of psychological help	94.4	77	60	45	41	63.3
10 Self-efficacy to manage mental health	93.5	77	60	45	42.5	62.9
11. Self-efficacy to seek support	93.5	77	57.6	45	42.5	62.9
12. Help-seeking behaviour	93.5	77	57.6	45	41	63.3

Note: the proportion of observed values for each variable. Demographic variables were only collected at baseline.

Appendix E

Table 3. Fit Statistics for Growth Model Specifications

	Deviance	AIC	BIC	LRT
Attitude				
No growth	-934.28	1874.55	1886.02	
Linear	-915.65	1843.30	1866.24	Vs. no growth: 37.25, p<.001
Spline	-827.51	1675.02	1713.19	Vs. linear: 111.12, p <.001
Self-Stigma				
No growth	-268.98	543.97	555.43	
Linear	-256.02	524.05	546.99	Vs. no growth: 25.91, p<.001
Spline	-250.38	520.76	558.99	Vs. linear: 111.12, p = .023
Self-efficacy				
No growth	-852.70	1711.40	1722.85	
Linear	-843.08	1698.16	1721.07	Vs. no growth: 19.23, p<.001
Spline	-827.51	1675.02	1713.19	Vs. linear: 31.142, p <.001
Service-efficacy				
No growth	-1037.33	2080.67	2092.12	
Linear	-1008.93	2029.86	2052.76	Vs. no growth: 56.81, p<.001
Spline	-971.69	1963.38	2001.55	Vs. linear: 74.48, p <.001

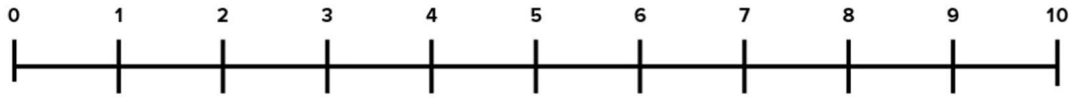
Note: Akaike information criterion = AIC; Bayesian Information Criteria = BIS; likelihood ratio test = LRT

Appendix F

Motivation for Mental Health Help-Seeking Scale (MOTIV-MH)

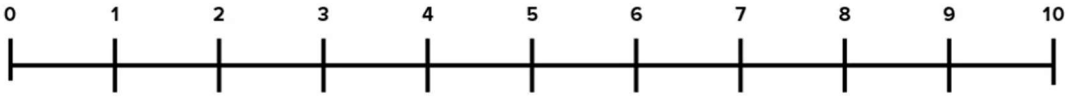
Please **mark** where you fall on the ruler from 0 to 10 for each of the four items below.

1. How *important* it is for you to get professional help if you're struggling with your mental health.



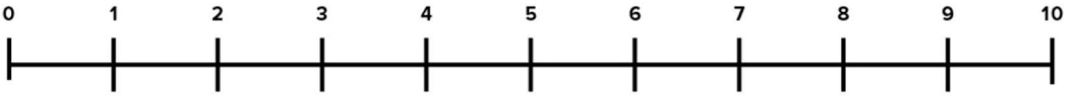
Not at all Extremely

2. How *confident* you feel about finding professional help if you're struggling with your mental health.



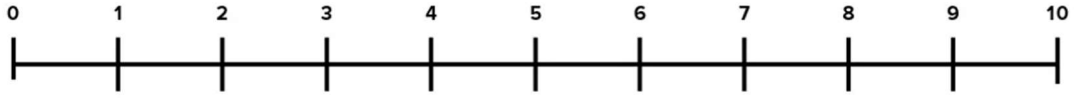
Not at all Extremely

3. How *willing* you are to get professional help when facing mental health challenges.



Not at all Extremely

4. How *committed* you are to finding a better fit if the professional you saw before wasn't a good match.



Not at all Extremely