Older Adult Mental Health Considerations and Differences in the COVID-19 Context: A Mixed Methods Study

by

Elizabeth Kalles

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Author’s Declaration

I hereby declare that I am the sole author of this thesis. This a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be electronically available to the public.

Abstract

Background

The COVID-19 pandemic has impacted older adult mental health in Ontario. Information around the aging and mental health considerations of older adults and their support network is lacking. There is also a knowledge gap regarding differences in older adults' mental health since the pandemic onset.

Research Questions

This thesis asked two research questions:

1. What are the considerations older adults, their caregivers, and health or social care providers have regarding aging and mental health support, care, and treatment, as identified during the beginning of the COVID-19 pandemic?

2. Are there differences in mental health indicators, supports, care, or treatments for older adults during the COVID-19 pandemic?

Methods

A pragmatic approach was applied to a follow-up quantitative mixed methods study design involving the qualitative framework analysis of free-form survey responses (*n* = 268), and the quantitative analysis of first-time homecare assessments conducted in Ontario.

Results

Four core areas of consideration around aging and mental health were identified: key principles that influence the experiences and outcomes of older adults; societal- and system-level factors affecting older adult mental health; valuable services, supports, and programs; and mental health experiences and outcomes as mapped to the dual-continuum model of mental health. Analysis of *n* = 96,919 homecare assessments indicated older adults during the pandemic had poorer mental health experiences and outcomes, even when controlling for clinical and demographic differences.

Conclusions

Understanding COVID-19 related older adult mental health differences and key considerations relating to aging and mental health can inform the design and application of resources for Ontarian older adults.

Acknowledgements

A graduate degree is always a culmination of the efforts of not just the graduate student, but also the individuals who shared their support, feedback, and wisdom throughout the process. To all who have helped me along the way, thank you.

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I would like to acknowledge the support of the SE Research Centre, as my employer and the source of the qualitative survey data for my thesis. I give a big thank you to my colleagues, past and present, who have cheered me up, cheered me on, and shared brilliant gifs to capture the unique struggle of a master's thesis.

Dedication

This thesis is dedicated to my family, who have fostered in me a love of learning and challenging the status quo.

To my dad and mom, Peter and Patricia, and my siblings, Kat and Dave – I would never have started down this path without you. And to my grandparents, Vance and Betty Anne, who have shown me how to live life while just so happening to age.

To my fiancé, Colin – you are my best cheerleader and I have been so lucky to have your endless faith in me. I love you.

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Chapter 1. Background

The emergence of the novel coronavirus in late 2019 and the subsequent global pandemic has had a profound effect on the everyday lives of people across the world and the associated mental health consequences are anticipated to be long-lasting (Galea et al., 2020). This mental health impact is evident in Canada at large (Jenkins et al., 2021), and across the provinces and territories, where multiple factors, including unique health structures and pandemic responses (Detsky & Bogoch, 2021; Fafard et al., 2020; McCoy et al., 2020) have produced varied and idiosyncratic experiences of COVID-19. In Ontario, there is a need for mental health support, care, and treatment that are responsive to the impacts of the COVID-19 pandemic (Betini et al., 2021; Moreno et al., 2020). This is especially true for older adults who may be socially isolated or lonely; worried about their health or the health of individuals important to them; or experiencing decreased access to necessary health and social care supports (Fontes et al., 2020; Meisner et al., 2020; Mukhtar, 2020).

Developing programs and services to address older adults' mental health needs requires an understanding of the nature and magnitude of the associated mental health impacts, and what contextual factors are related to them (Meisner et al., 2020). Thus, it is not enough to speak broadly about the likely differences (Levin, 2019; Perrin et al., 2009; Rubin & Wessely, 2020; Usher et al., 2020), and instead we must identify particular challenges facing the Ontarian population and health system, and develop solutions to address them.

1.1. Older Adult's Mental Health as a Concern in Canada

Even before the pandemic, older adult mental health has increasingly been identified as a concern in Canada. In the first mental health strategy for Canada, the Mental Health Commission of Canada (2012) identified older adults as a priority group for action promoting mental wellness and preventing mental illness. More recently, they published a report in 2019 laying out guidelines for comprehensive, accessible and evidence-informed mental health services for older adults (Mental Health Commission of Canada, 2019). In these guidelines they highlight that mental health care is not one-size-fits-all, and that needs and preferences are influenced by cultural and historical contexts, so solutions must be responsive in order to be effective (Mental Health Commission of Canada, 2019). Organizations like the Canadian Mental Health Association Ontario (2010) and the Canadian Coalition for Seniors' Mental Health (Conn et al., 2014) continue to campaign for better mental health care while educating the population on the significant role that mental health and experiences of social isolation, loneliness, and depression play in the lives of older adults. These efforts are echoed by think tanks like the National Institute on Aging (2020) who consider mental health to be an important component of overall health and something that should be included in policy planning and development.

Since the pandemic was declared in March 2020, mental health has come to the forefront of the Canadian consciousness. Surveys conducted by organizations like Mental Health Research Canada (MHRC), the Canadian Mental Health Association (CMHA), and the Canadian Longitudinal Study on Aging (CLSA) report that Canadians feel their mental health has been negatively affected by the pandemic in a wide variety of ways, including through a reduced ability to cope, decreased hopefulness, and increased anxiety and depression (Betini et al., 2021; McKearnan et al., 2020; Mental Health Research Canada, 2021; UBC Faculty of Medicine, 2020). In parallel with these concerns, the Canadian Institutes for Health Research – Institute of Aging has identified older adults as an especially vulnerable group and included their experiences of mental health and isolation as one of 3 key areas for priority research (Rylett et al., 2020). In a joint call to action, the Canadian Association on Gerontology (CAG) and the Canadian Journal on Aging (CJA), made the case that older adults are being affected in a myriad of complex ways, and specifically advocated that "*it will be important to conduct inductive, qualitative research that provides the perspectives of older people about the impact of COVID-19 on their lives*." (Meisner et al., 2020, p. 337).

1.2. Learnings from Mental Health Research Conducted During the Pandemic

In response to global mental health concerns, a growing pool of literature has been published since March 2020 exploring mental health differences due to the COVID-19 pandemic (Galea et al., 2020; Luchetti et al., 2020; Usher et al., 2020). However, it is challenging to synthesize this literature into a cohesive understanding of what differences are present, especially when looking at the experiences of older adults. First, the different pandemic responses between countries and governments makes it difficult to generalize results across borders (Clemente-Suárez et al., 2021; Lee et al., 2021). For example, despite negligible differences in pre-pandemic mental health diagnoses and symptomatology, Americans during the pandemic reported they felt less supported by their government and had significantly greater levels of anxious and depressive symptoms than Canadians (Reppas-Rindlisbacher et al., 2021). This does not mean that findings from other countries cannot be useful, but rather that they should serve as a starting point for understanding areas of potential concern in Ontario since a direct 'translation' of findings cannot be assumed.

Second, there is a strong interest within the mental health literature to explore the variance in experiences across groups of interest (e.g., age, sex, income, education, etc.) (see Aknin et al., 2021; Gibson et al., 2021 for reviews) as part of an ongoing dialogue on the impact of health inequalities and (dis)advantage (McQuaid et al., 2021). Many of these studies are using a single time-point cross-sectional analysis method to draw their conclusions, which does not capture mental health differences *across time*, and may be biased by the use of small convenience samples of older adults (Pierce et al., 2020). For example, Nwachukwu et al. (2020) looked at age differences in Canadians for experiences of stress, anxiety, and depression during the pandemic with less than 10% of their sample constituting older adults grouped into a single category of 60 years or older.

Nevertheless, existing literature can be used as a signal to help with further understanding of the Ontarian context.

1.3. Older Adults' Mental Health During the Pandemic

Tyler et al. (2021) looked at older adults' mental health across 33 countries and found that, controlling for factors like gender and COVID-19 exposure, the two greatest predictors of anxiety and depression were living in a high-income country and experiencing conflict with other adults in the home. Younger age was predictive of greater depression and anxiety, but the authors suggested this may be connected to levels of perceived social support, since adults typically condense their social circle as they age, with their remaining relationships being particularly close and meaningful (Tyler et al., 2021). This is corroborated by Krendl and Perry (2021) who found that feelings of loneliness moderated an increase in depression among older adults with a close relationship network, and older adults without a close network reported greater depression during the onset of the pandemic irrespective of their loneliness.

When comparing experiences of loneliness across 3 time points in early 2020, Luchetti et al. (2020) found that American older adults, on average, reported lower levels of loneliness than younger adults, but that older adults were the only group who experienced an increase in loneliness after social distancing measures were put in place in March 2020. Van Tilburg et al. (2021) explored loneliness in greater depth by separating it into social loneliness, which emerges from an absence of contacts/a social network, and emotional loneliness, which emerges from an absence of an intimate or close emotional attachment. They found that among a random sample of community-dwelling Dutch older adults, social loneliness had increased slightly and emotional loneliness increased more strongly compared to responses 7 months' prior (van Tilburg et al., 2021). Additionally, they found that experiencing personal losses (e.g., death of someone they know, loss of employment, etc.) and a loss of professional welfare/care supports were both associated with greater social and emotional loneliness as well as a deterioration in overall mental health (van Tilburg et al., 2021). A potential protective factor of loneliness is how older adults engage in coping, which typically occurs via emotion-focused coping (i.e. reducing the negative emotions experienced in a stressful situation) or problem-focused coping (i.e. attempting to solve the stressful situation) (Yeung & Fung, 2007). Older adults in the early weeks of the pandemic self-reported that they were coping well with the situation and were primarily employing emotion-focused coping skills (Fuller & Huseth-Zosel, 2021).

In Canada, regardless of age, pre-existing mental condition, or social factors like living alone, those who experienced a COVID-19 quarantine for any reason other than recent travel (e.g., due to experiencing symptoms or from potential exposure) had worse mental health, and higher odds of reporting suicidal ideation and deliberate self-harm compared to those who had not experienced a quarantine (Daly et al., 2021). Among rural older adults in Manitoba, over 70% of participants reported feeling lonely at least 1-2 times a week and most participants reported feeling more isolated because of pandemic-related physical distancing measures (Herron et al., 2021). Although some older adults identified previous experiences of isolation as a beneficial resource for coping, the adults most consistently lonely lacked many of the resources that other adults used to alleviate their distress (e.g., could not drive, had limited mobility, did not own their own home, etc.)(Herron et al., 2021). In line with these findings, more than one-third of the participants in a large national sample of retired educators reported feeling lonely following the onset of COVID-19, with factors like living alone, experiencing no positive effects from the pandemic, receiving or giving care, and having fair or poor health all being positively associated (Savage et al., 2021).

1.4. Experiences from Previous Pandemics & Natural Disasters

Previous pandemics and natural disasters also add valuable insights and show that large-scale health crises have a disproportionately greater impact on the mental health of vulnerable populations, including those with inadequate social support, lower education status, or prior psychiatric history (Perrin et al., 2009). In Hong Kong, following the 2003 SARS epidemic, there was a significant increase in older adult suicides in 2003 and 2004, suggesting mental health impacts persisted beyond the acute pandemic crisis and that experiences of social disengagement, mental stress and fears of disconnection play a role in this increase (Cheung et al., 2008; Yip et al., 2010). Reynolds et al. (2008) studied the impact of the SARS quarantine in Canada and found that a self-reported longer duration of quarantining was significantly associated with greater psychological distress and increased PTSD symptoms.

A review by Esterwood and Saeed (2020) of past epidemic and natural disaster literature suggests that groups vulnerable to negative health outcomes include those under especial levels of stress (e.g., those quarantined, family members of infected persons), individuals vulnerable to developing a mental disorder, and those already coping with a mental illness who may experience acute exacerbations in previously well-managed symptoms. Targeting people with high levels of distress for immediate interventions can be especially effective, and missing this opportunity may result in a prolonged experience of negative mental health outcomes (Wilson-Genderson et al., 2018).

1.5. Comprehensive Assessments for Older Adult Well-being

Comprehensive assessment tools play a powerful role in categorizing multiple components of social and physical well-being (e.g., physical health, functional status, mental health) into an overall understanding of an individual’s health (Jiang & Li, 2016). They present multiple advantages from a clinical care perspective (e.g., consistency of assessments over time to compare patient progress) and can provide valuable system-level information (Gray et al., 2009; Hirdes et al., 2019). In Canada, and Ontario specifically, where the interRAI Home Care (interRAI-HC) is a mandatory comprehensive assessment completed for all home care clients (Hogeveen et al., 2017) there is an opportunity to leverage already existing data in order to investigate the well-being of older adults during the pandemic in comparison to individuals assessed before March 2020.

The interRAI-HC was developed by an international team of researchers and has been validated for use in Canada (Hirdes et al., 2008; Hogeveen et al., 2017; Landi et al., 2000; Morris et al., 1997). It was developed to be a “*user-friendly, reliable, person-centred system that informs and guides comprehensive planning of care and services in community-based settings*” (Morris et al., 2012, p. 1) and provides information on multiple domains of function, health, social support, and service use. It is designed for use by clinical professionals (e.g., nurses, occupational therapists, social workers) but can be completed by anyone trained to do so (Morris et al., 2012). Assessments are supposed to be completed in-person, although interRAI released guidelines for completing them via video feed at the beginning of the pandemic (interRAI, 2020).

Chapter 2. Study Rationale & Objectives

2.1. Overall Purpose

Recognizing the limitations of the extant literature and the opportunities presented by routinely gathered comprehensive assessment data in Ontario, the goals of this research were two-fold. Applying a pragmatic approach, the purpose was to explore the mental health considerations of Canadian older adults, caregivers, and health and social care providers at the onset of the COVID-19 pandemic, and to use these to inform the investigation of mental health differences experienced by Ontarian older adults during the COVID-19 pandemic.

2.2. Missing Voices in Mental Health Research

As part of the research purpose, the perspectives of caregivers and health and social care providers were prioritized in combination with those of older adults. Incorporating these perspectives provides a more well-rounded and fulsome understanding of older adult well-being and the multiple considerations that may affect it.

From a pragmatic perspective, the specific inclusion of multiple perspectives is in line with the demography of older adults in Canada, as many aging individuals occupy more than one social role (e.g., parent, spouse, employee, patient) (Federal/Provincial/Territorial Committee of Officials, 2006). For example, a Statistics Canada report indicates that in 2018 almost one-quarter of adults over 65 "*provided care or help to family members or friends with a long-term condition, a physical or mental disability, or problems related to aging*" (p. 1), and 34% of those caregivers provided support for their spouse or partner (Arriagada, 2020). Additionally, research has demonstrated the importance of the dyadic relationship between caregiver and care recipient on the mental health of both parties (Sebern & Whitlatch, 2007). Excluding caregivers would omit an important avenue of information about holistic older adult well-being.

Similarly, health and social care providers play an important role in the well-being of aging individuals. These individuals can act as important facilitators for mental health services, especially for older adults and caregivers who may be navigating opaque health and social systems (Colgate & Jones, 2018; Vieira et al., 2014). Some providers (e.g., personal support workers) may be privy to intimate personal details through virtue of providing care (Denton & Barken, 2014) and may develop important almost ‘kin’-like interpersonal relationships with their older adult client (Karner, 1998). Including their perspectives may provide additional health and social system context that might otherwise be lacking from the responses of older adults and caregivers.

Finally, from a pragmatic perspective, both caregivers and health/social care providers may contribute information to comprehensive assessments like the interRAI Home Care assessment (interRAI-HC) utilized in this thesis. Incorporating their voices into the qualitative responses provides an opportunity for continuity in the ‘translation’ of qualitative considerations into quantitative variables.

2.3. Research Questions

The proposed research questions for this thesis are:

1. What are the considerations older adults, their caregivers, and health or social care providers have regarding aging and mental health support, care, and treatment, as identified during the beginning of the COVID-19 pandemic?

2. Are there differences in mental health indicators, supports, care, or treatments for older adults during the COVID-19 pandemic?

In this context, ‘considerations’ is defined as the uncertainties, interests, and important factors that older adults, caregivers, and health or social care providers connect with mental health.

Chapter 3. Methods

To investigate older adult mental health, this thesis took a pragmatic approach to a follow-up quantitative mixed methods study incorporating the secondary data analysis of both free-form survey responses and routinely collected health assessment data.

3.1. Theoretical Orientation

Pragmatism as a research orientation emphasizes the production of relevant and rigorous results oriented towards action and decision-making (Glasgow, 2013; Morgan, 2014a). On the continuum of postpositivism-constructivism, that is, from a single 'true' reality to an unknowable reality constructed uniquely by each person that experiences it, pragmatism is situated at a midpoint which rejects rigid adherence to pre-prescribed ontological, epistemological, or methodological choices and instead sees the other paradigms as tools best suited to particular circumstances (Glasgow, 2013; Morgan, 2014b). As John Dewey in his seminal works describes (see Morgan, 2014b for a summary), 'inquiry' is considered to be the process in which self-reflective decision-making occurs, which directly contrasts 'habit' – when the beliefs from past experiences can guide our responses to a current situation without requiring any modification or further assessment (Kaushik & Walsh, 2019).

Emphasized by Kaushik and Walsh (2019), "*…pragmatism requires [the] detection of a socially situated problem and adequate action to address the problem*" (p. 9), which strongly aligns with the goals of this thesis to not only identify the mental health considerations and differences of older adults during the pandemic, but to position this information in a way that it can be used to support the design and delivery of services to address them.

3.2. Research Design

A follow-up quantitative mixed methods design, like the one utilized in this thesis, consists of a ‘primary’ or ‘core’ qualitative element, and a supplementary quantitative element, and is commonly displayed as a *QUAL* → *quan* research design (Morgan, 2014a). Other literature has called this approach an exploratory sequential mixed methods study (Creswell, 2015). The goal of this process is to develop a methodology that is accessible and dependable (Morgan, 2014a) while leveraging the unique strengths of both qualitative and quantitative research components (Creswell & Plano Clark, 2006; Morgan, 2018; Orina, 2015). In a sequential design, the core priority (i.e., qualitative in this research) is given emphasis, while the supplementary priority (i.e., quantitative in this research) augments the primary component.

Specifically, this research will engage in the secondary analysis of qualitative survey data from the SE Research Centre’s *Aging & Mental Health: Collaborating on Research Priorities* project (SE Research Centre, 2021) and quantitative interRAI client assessment data (interrai.org) from the interRAI Home Care assessment (interRAI-HC)(Morris et al., 2012). The qualitative phase consisted of two stages: 1) a critical literature review to inform deductive themes based on anticipated and previously observed mental health outcomes of pandemics and epidemics and 2) framework analysis (Srivastava & Thomson, 2009) of the qualitative survey data combining the previously generated deductive themes in order to develop a series of thematic considerations (Question 1). Through the mixing phase, the qualitative considerations were used in the selection of quantitative variables of interest on the interRAI-HC. Comparison between client assessment scores at 2 pre-pandemic time points and 3 intra-pandemic time points was used to identify which variables demonstrate a significant difference over time (Question 2). See Figure 1 for a visual representation of the follow-up quantitative design and its components, as utilized in this thesis.

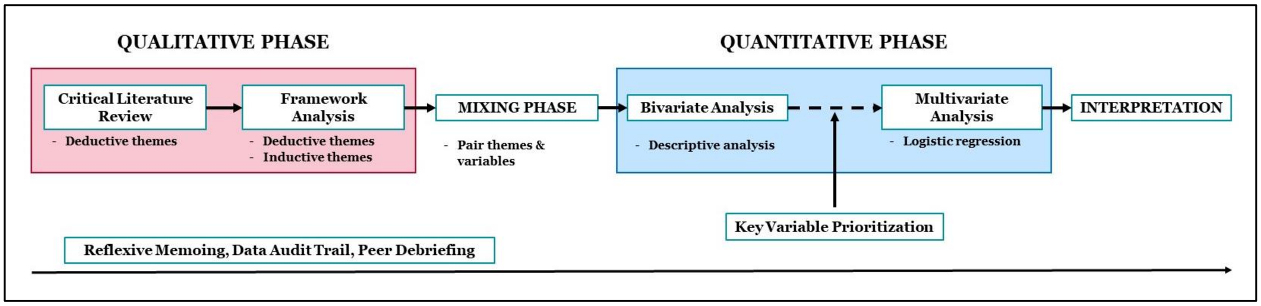

Figure 1. The follow-up quantitative design and its components, as utilized in this thesis

3.3. Research Context & Definition of Mental Health

Keyes' (2002) definition of mental health as a dual-continuum was utilized in this research, which posits that mental health is comprised of two inter-related but independent continua – one for mental health or well-being, and one for mental illness (see Figure 2). Mental health as a continuum is comprised of three domains – that of emotional well-being (commonly referred to as hedonic well-being), psychological well-being (aka eudaimonic well-being), and social well-being (Keyes, 2002; Ryan & Deci, 2001). In this model, psychological disorders like Generalized Anxiety Disorder, Major Depressive Disorder, or Posttraumatic Stress Disorder fall along the mental illness continuum. Although Keyes (2002) does not explicitly address suicidal ideation in the dual-continuum model, some researchers have included it along the mental illness continuum (Baiden & Fuller-Thomson, 2016).

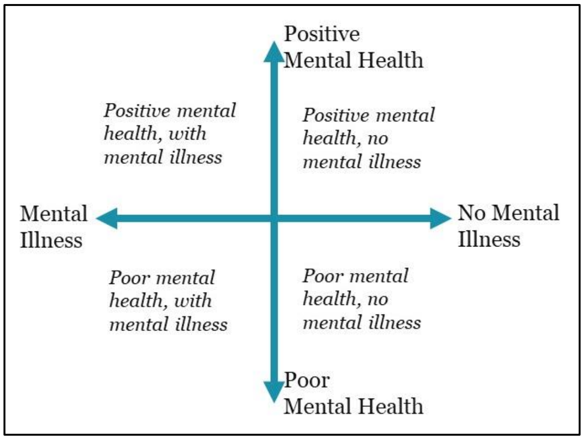

Figure 2. Dual continuum model of mental health; conceptualization by Keyes (2002)

Within a dual-continuum model of mental health, it is possible that someone with a mental illness or disorder may still exist on a positive spectrum of mental well-being. Alternatively, someone without a mental illness may experience poor mental health through their poor mental well-being. Research has shown this conceptualization of ‘complete’ mental health better represents the experiences of older adults than a single bidirectional continuum as mental health is traditionally conceived (Westerhof & Keyes, 2010).

3.4. Critical Literature Review

A critical literature review was performed to identify mental health challenges for older adults that were identified or anticipated during respiratory virus pandemics and epidemics since 2000 in the international peer-reviewed literature. Unlike other types of reviews, the purpose of a critical literature review is not to summarize all of the literature available on the topic of older adult mental health, but to identify and review the research *most relevant* to a topic in order to establish clear gaps in what is known and unknown (Saunders & Rojon, 2011). Drawing on work by Carnwell and Dally (2001), Jesson, Matheson, and Lacey (2006; 2011), and Saunders and Rojon (2011), this critical literature review comprised of 7 broad steps, which focused on the preparation, process and analysis of a review:

1. Defining the question and scope (*preparation*),
2. Identifying appropriate literature databases and keywords (*preparation*),
3. Completing the search (*process)*,
4. Assessing results for inclusion (*process*),
5. Reading a selection and refining the assessment framework (*process*),
6. Reviewing the literature and coding content (*analysis*), and
7. Mapping codes to the dual-continuum model (*analysis*).

3.4.1. Preparation for the Critical Literature Review

While not a systematic review of the available literature, a systematic search process was developed for the critical literature review. The search strategy was developed in conjunction with a research librarian at the University of Waterloo (Stapleton, 2021 personal communication) and a combination of 3 databases were used in the review: PubMed, CINAHL (via Embase), and Scopus. See Appendix A for a detailed breakdown of the scope, strategy, and a list of the inclusion and exclusion criteria.

Recognizing that the COVID-19 pandemic is an ongoing and rapidly evolving crisis, it is difficult to say for certain what longer term mental health differences will emerge for older adults. In turn, this means it is difficult to conduct a literature review on the anticipated and identified mental health differences in older adults, since research is necessarily limited to anticipatory and early/middling outcomes. To help contextualize the early concerns being raised in the mental health literature, and to provide guidance for potential areas of long-term importance, this literature review focused on all respiratory virus pandemics and epidemics occurring since 2000. This includes: Severe Acute Respiratory Syndrome Coronavirus (SARS; 2002/2003), Influenza A subtype H1N1 (H1N1; 2009), Middle East Respiratory Syndrome Coronavirus (MERS; 2012/2013), and Severe Acute Respiratory Syndrome Coronavius-2 (COVID-19; 2019-ongoing) (Roychoudhury et al., 2020).

Review papers were included in this review to identify, broadly, the deductive themes for inclusion in the subsequent framework analysis, with all other types of articles excluded. Reviews were required to be written in English and published in a peer-reviewed journal. Literature published outside of the peer-review process, aka ‘grey literature’, can provide valuable information but was omitted, given the pragmatic and specific focus of this literature review. Although the type of review literature was not specified, papers were required to primarily include a review component, rather than predominantly function as a commentary, editorial, letter to the editor, or protocol paper.

In line with the two-continuum model of mental health underpinning this research, mental health was conceptualized broadly as mental health, mental well-being, and/or mental illness. Likewise, the inclusion criteria of a focus on ‘older adults’ was kept purposefully broad.

Based on these considerations, the overall question for the critical literature review was: What respiratory virus pandemic- or epidemic-related mental health changes for older adults have been identified, or are anticipated, as identified in reviews published since 2000 in the international peer-reviewed literature? The objectives were to: 1) identify key areas of mental health-related concerns; 2) codify areas into deductive themes with established definitions; and 3) to map themes to the 2-continuum model of mental health.

3.4.2. The Process of the Critical Literature Review (Steps 3-5)

In this critical literature review, a two-stage assessment process was completed using Covidence – a software-as-a-service (SaaS) platform that facilitates systematic paper reviews. Papers were first screened by their title and abstract for fit with the above inclusion and exclusion criteria. Papers that passed the first stage then proceeded to a full text review.

As part of step 5 in the critical literature review process outlined above, the initial search strategy was re-assessed following a screening of the titles and abstracts. Given the purpose of the review as a starting point for the framework analysis, the search strategy was deemed appropriate following consultation with the research librarian, and no further changes were made.

3.4.3. Analysis of Papers in the Critical Literature Review (Steps 6-7)

Papers that passed the full-text review were examined to extract information regarding the observed and anticipated mental health outcomes of older adults during pandemics and epidemics. This included a list of outcomes identified in each paper, as well as any definitions provided for a given outcome and the scales/tools used to assess it. In turn, these outcomes were sub-divided into experiences (e.g., social isolation) and feelings (e.g., apathy).

Following the examination of each paper individually, an overall list of outcomes was compiled and mapped to the dual-continuum model of mental health (see Appendix B). The outcomes mapped along the model were reviewed in a peer debriefing session with one of the committee members, before advancing to the framework analysis as deductive codes.

3.5. Secondary Framework Analysis

The secondary qualitative data analysis utilized the framework analysis method, with a combination of inductive and deductive components, to identify and interpret the mental health-related considerations that older adults, and their caregivers and health/social care providers identified during the beginning of the COVID-19 pandemic (Ritchie et al., 2013; Srivastava & Thomson, 2009). Framework analysis consists of 5 interconnected hierarchical stages (see Parkinson et al., 2015 for a detailed working example): 1) *familiarizing* to become acquainted with the data overall; 2) *identifying a framework* to begin categorizing responses; 3) *indexing* to formally apply the framework to the data; 4) *charting* to condense the framework data into brief coherent summaries and produce a framework matrix; and 5) *mapping and interpreting* to draw conclusions about the data (Bonello & Meehan, 2019). The deductive themes identified through the critical literature review described above were incorporated in the first stage of the secondary framework analysis process (Gale et al., 2013). Analysis was conducted using NVivo 12 Pro.

3.5.1. Original Qualitative Survey Data.

The qualitative data utilized in this secondary framework analysis was drawn from a previously completed open-ended free-form survey where Canadian older adults, caregivers of older adults, and health and social care providers who work with older adults, were invited to share their aging and mental health related questions and priorities (SE Research Centre, 2022). This data was gathered between February 2020 and June 2020 by the SE Research Centre as part of a collaborative initiative with Canadian Mental Health Association (CMHA) National to identify the top 10 unanswered research questions on aging and mental health according to Canadians.

Utilizing a modified James Lind Alliance approach (https://www.jla.nihr.ac.uk/) to inform a collaborative initiative with CMHA National and a steering group of older adults, caregivers, and representatives of mental health organizations from across Canada (Chang et al., 2020), the SE Research Centre undertook a series of 2 national surveys, and 4 virtual workshops between 2019 and 2021. The data used in this master's thesis comes from the first national survey which was used to identify the general questions and concerns that Canadians had regarding aging and mental health support, care, and treatment.

The survey was shared online through SurveyMonkey (https://www.surveymonkey.com/) and via paper copy in both English and French, although no paper copies were completed. Snowball recruitment techniques included promoting the survey online through affiliated social media accounts (e.g., SE Research Centre, SE Health, CMHA National, etc.), leveraging wordof-mouth connections (e.g., SE Health Wiser Adviser group, the Aging & Mental Health Steering Group), and promotion in local communities. Recruitment materials were utilized in English and French.

In the original consultation process, potential respondents were introduced to the purpose of the initiative before completing the survey. Prior to its administration in 2020, the original research team reviewed the survey prompts with a steering group of experts-by-experience to ensure they were clear, approachable, and relevant. At that time, researchers disseminated recruitment materials within their networks, so it is possible that members of the original project had an existing relationship with respondents to the survey, although no relationship was established for the purpose of their survey and responses were de-identified prior to analysis. In this current thesis research, no relationship was established as no data collection took place, and data was analyzed solely through secondary means.

The thesis researcher, EK, is a cisgender white heterosexual female with prior experience in the areas of qualitative analysis, aging across a life course perspective, and mixed methods. EK has a strong familiarity with pragmatism as a paradigm but was originally trained in a postpositivistic perspective. The focus of this thesis was on producing action-oriented knowledge, which may have influenced the implicit direction of the coding process. This was potential bias was challenged by engaging with members of the thesis committee who were familiar with the original data and/or qualitative methods (JG, CM), or who brought non-qualitative perspectives (CP).

3.5.2. Secondary Analysis Inclusion & Exclusion Criteria.

A total of *n* = 305 survey responses were gathered by the SE Research Centre as part of their priority-setting initiative. As part of the secondary analysis undertaken in this thesis, participant responses from the original dataset were excluded if they met any of the following criteria:

1. There were no free-text responses for at least one of the prompts in regards to mental health support, care, and treatment.
2. There was no perspective (i.e., older adult, caregiver, health/social care provider) identified.

The first exclusion criterion was selected out of practicality – without free-text responses, participant data could not be analyzed qualitatively for their text content. The second criterion was included from a demographic perspective to ensure responses could be categorized based on the perspective provided. At the time of initial selection, it was anticipated that the framework matrix produced during the qualitative analysis process (stage 4) would be based on perspective (i.e., older adult, caregiver, health/social care provider) although this was later changed for comparison by age group.

In total, *n* = 268 responses were eligible for inclusion in the secondary analysis. The professional translation of French responses was commissioned by the SE Research Centre prior to their inclusion in the dataset, and those English translations were analyzed in this secondary analysis. Demographic statistics regarding the included sample set are discussed in Chapter 4, section 4.3.1. Secondary Analysis Dataset Characteristics.

3.5.3. Stage 1. Familiarizing.

Analysis began in the familiarizing stage by reviewing all free-form survey data. Although the framework analysis process does not prescriptively require reviewing all of the data (Ritchie et al., 2013; Ritchie & Spencer, 1994), given the relatively small amount of data utilized in this secondary analysis and the comparatively broad topics that were prompted, this was deemed the most appropriate choice. As part of the familiarization process, all of the responses were coded as NVivo free (i.e., non-hierarchical) nodes. In turn, these codes served as the basis for identifying a thematic framework in Stage 2 of the analysis process.

3.5.4. Stage 2. Identifying a Framework.

The process of identifying a framework and indexing the data to that framework were bi-directional, such that the process of developing the framework through propositional statements facilitated the application of the framework to the whole dataset, and applying the framework clarified previously unnoticed components of the framework codes. For example, while defining a code 'alternatives to medication' it became clear that this was a broader concept, within which the code 'why is medication the default' should be placed. In this way, the previously flat structure of the non-hierarchical free codes was transformed into a layered hierarchical tree node structure (Bonello & Meehan, 2019).

The thematic framework was constructed by critically reviewing the free codes generated during the familiarization stage and making interpretations about their higher-order structure. At this time, labels assigned to components of the framework were largely descriptive and served primarily to capture the essence of the coded content, rather than to make interpretations about its purpose or meaning (Ritchie et al., 2013). A first draft of the thematic framework was constructed by EK and reviewed with JG and CP, and then CM. The final thematic framework was constructed through an iterative revision process whereby EK introduced the initial codes and framework to JG and CP before engaging in discussion and consensus-driven decision-making to refine the concepts. For example, feedback from JG helped clarify the original core principle of 'ability' into its final form as 'autonomy'. develop a refined and condensed framework. A similar process was followed with CM as EK introduced the framework and engaged in discussion with CM to identify areas of weakness and/or ambiguity which were then further developed.

3.5.5. Stage 3. Indexing.

As all the data was coded during the familiarization stage, the indexing stage was accomplished by way of constructing the thematic framework in NVivo.

3.5.6. Stage 4. Charting.

The process of charting involved consolidating the framework codes into 'summary' cells that capture the essence of the content, without reproducing it in unmanageable depth. Drawing on the practice of Goldsmith (2021), responses were sorted by age groups – under 55, aged 56-65, aged 66-75, age 76+, and 'not identified'.

3.5.7. Stage 5. Mapping and Interpretation.

The mapping and interpretation stage involved reviewing the data cross cases (i.e., age groups) and across themes (i.e., framework concepts) to draw conclusions. Conclusions were generated by comparing responses, themes, and priorities a) across age groups to explore whether considerations and foci vary at different stages in the life course, and b) between sub-themes to draw higher-level conclusions about overall considerations and priorities.

3.6. Mixing Phase

The mixing phase consisted of 4 stages and was intended to ground the quantitative analysis in the qualitative considerations via a pragmatic lens. In the first stage, the conceptualization of constructs from the qualitative framework matrix were reviewed. This included identifying key ideas, repetitive areas of focus/priority, and differences across age groups. By starting with the framework matrix, it was possible to identify idiosyncratic aspects of the constructs, which might otherwise have been obscured or overlooked. For example, social isolation in traditional mental health literature consists of several attributes – number of contacts, feelings of belonging, presence of fulfilling relationships, engagement with others, and the quality of network members (Nicholson Jr, 2009). From theory-driven perspective, all of these aspects could be given equal representation in the selection of quantitative variables of interest. However, when exploring the qualitative responses, there was comparatively little emphasis placed on objective experiences of social isolation, like the number of contacts an older adult had, and instead there was a greater focus on building social engagement and connection. Within the mixing phase, and ultimately the quantitative analysis phase, priority was given to those 'subjective' foci.

The second stage involved augmenting the early ideas from the framework matrix by returning to the papers from the critical literature review to identify any additional missing nuance. In the case of the social isolation construct, the understanding that social engagement was a priority for older adults was further developed by a paper from Rodrigues et al. (2022) which noted that socially isolated older adults used social media and neighbourhood resources to maintain social contact. This idea of social engagement including both in-person and virtual methods of contact was carried forward into the initial item selection process.

Once an understanding of the construct was developed from the qualitative results, the third stage involved reviewing the interRAI-HC in full to identify potential items of relevance to the construct. A list of viable items was assembled for each construct, which ranged from a single item to multiple items for more complex ideas.

In the final stage of the mixing phase, the list of potential variables and their corresponding construct of interest was reviewed with an interRAI expert (CP). This peer debrief session served to defend the rationale for proposed items and their construct representativeness, in addition to functioning as an opportunity to identify alternative items that may be better suited. In one case, this discussion resulted in the discarding of an older aggregate distress scale in favour of a newer and more comprehensive version. Once the list of items was finalized, it was applied in the quantitative phase.

3.7. Quantitative Phase

The quantitative phase consisted of two stages: 1) bivariate analysis and descriptive statistics, and 2) multivariate analysis using logistic regression. The bivariate analysis included all the constructs of interest from the mixing phase. Given the comparatively smaller scope of the quantitative component in a follow-up quantitative mixed methods design, it was not feasible to complete multivariate analysis for all the constructs of interest. Instead, a selection of key items was advanced to model testing. Quantitative analyses were completed using SAS® version 9.4.

3.7.1. Quantitative Assessment Data

InterRAI Home Care assessments (interRAI-HC) from Canadian admission assessments between November 2018 and June 2021 were used for the quantitative analysis. The de-identified interRAI-HC data utilized in this thesis was accessed through a data sharing agreement between interRAI Canada at the University of Waterloo and the Canadian Institute for Health Information (CIHI) Home Care Reporting System (HCRS). CIHI holds and manages the assessment data on behalf of the Ontario Ministry of Health and Long Term Care (MOHLTC).

3.7.2. Defining Ontario's COVID-19 'Waves'

At the time of writing this thesis, there has been ongoing ambiguity within the research community regarding what constitutes each of the case 'waves' that Ontario has experienced. Sources typically reference these waves colloquially and only rarely define what their specific time period of interest is. For example, Hsu et al. (2021) set their Wave 1 cut-off as July 31, 2020 because it was the mid-point between a drop in cases during June 2020 and an increase in cases during September 2020, but they don't define when Wave 1 actually starts. Verma and Razak (2021) set their Wave 1 cut-off at June 30, 2020 and also don't define a start date. Sinn et al. (2022) define Wave 1 as March 2020 to September 2020 inclusive, and the Ontario Ministry of Health (2020) is even less clear by simply referring to Wave 2 to as starting 'in the fall'.

Given this lack of consensus, EK opted to use Public Health Ontario's COVID-19 Daily Case Count tracker (Government of Ontario, 2021) to define the following (inclusive): Wave 1 – April to July 2020, Wave 2 – September 2020 to January 2021, and Wave 3 – March to June 2021. See Figure 3 for an image of the case count tracker at the time of its use in determining these waves.

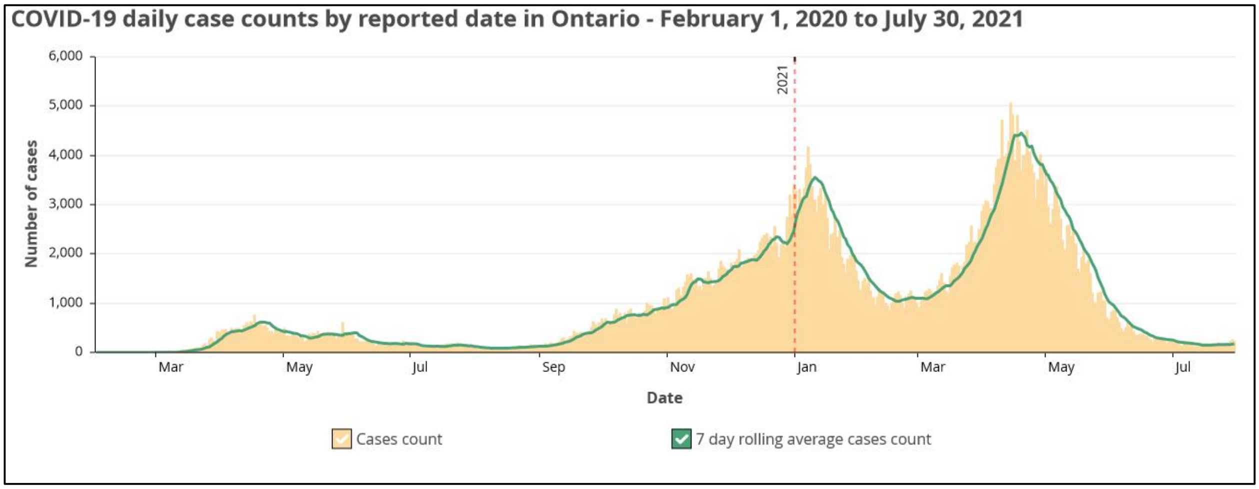

Figure 3. Public Health Ontario's COVID-19 Daily Case Count as Pictured on July 30, 2020

3.7.3. Quantitative Assessment Inclusion & Exclusion Criteria

A sub-section of the total interRAI-HC data available via the University of Waterloo was utilized in this thesis. Only interRAI-HC assessment data meeting the following criteria were included:

1. Assessments must be conducted within one of the following time periods:
    a. Time I = April 1 – June 30, 2019
    b. Time II = November 1, 2019 – January 30, 2020
    c. Time III = April 1 – June 30, 2020
    d. Time IV = November 1, 2020 – January 30, 2021
    e. Time V = April 1 – June 30, 2021
2. Assessments must be completed in Ontario;
3. Assessments must be the first assessment for a client, i.e., they have not received home care services previously, and they are not being re-assessed or discharged from services; and
4. Participants must be at least 55 years of age at the time of assessment.

The current interRAI-HC dataset available to the University of Waterloo does not include data after October 8, 2021 so Waves 4-6 (at the time of this thesis completion) were not considered for inclusion. As discussed above in section *3.5.5. Defining Ontario's COVID-19 'Waves'* and demonstrated in Figure 4, the duration of the pandemic waves is not consistent. They vary between 4 months and 6 months in length, so a consistent 3-month sampling from the peak of each wave was selected for inclusion. Selecting a consistent duration sampling allowed for comparisons across both the pre-pandemic and intra-pandemic time periods. See Table 1 for a list of the time periods and corresponding intra-/pre-pandemic waves. In total, *n* = 96,919 assessments were eligible for inclusion.

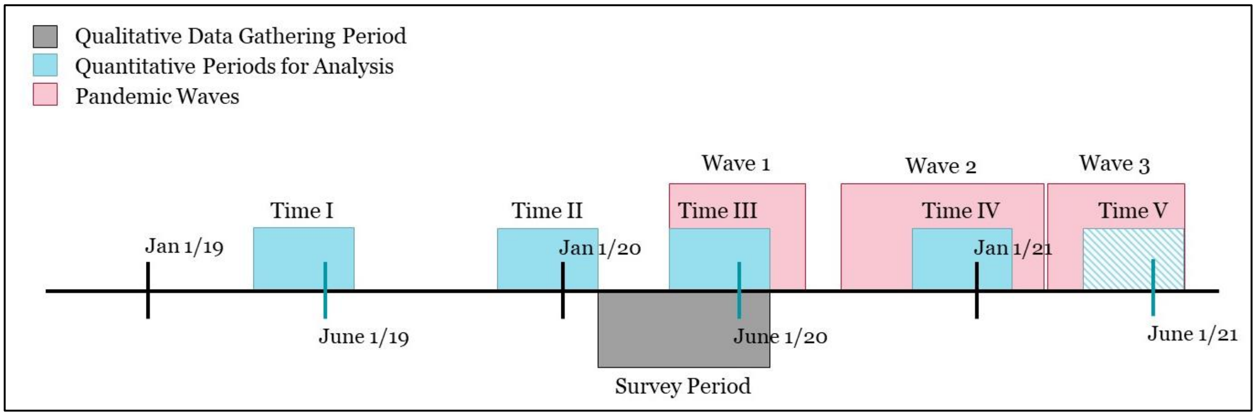

Figure 4. Timeline of qualitative & quantitative data mapped against Ontario COVID-19 waves

Table 1.
Time periods of intra-pandemic assessment seasonally matched with pre-pandemic time periods

Pre-pandemic Time Periods	Intra-pandemic Time Periods
Time I. April 1 – June 30, 2019	Time III. April 1 – June 30, 2020 (Wave 1)
	Time V. April 1 – June 30, 2021 (Wave 3)
Time II. November 1, 2019 – January 30, 2020	Time IV. November 1, 2020 – January 30, 2021 (Wave 2)

3.7.4. Variables & Outputs from the interRAI-HC

The interRAI-HC is designed as a comprehensive assessment for both individual-level care and system-level service planning. As part of this multi-functionality, an interRAI-HC assessment produces items, aggregate sub-scales, and Clinical Assessment Protocols (CAPs) in increasing complexity. Individual items have standardized scoring options, depending on if they are self-report or clinician-report metrics. These may include demographic features (e.g., age, gender, province of residence, marital status) as well as physical, social, functional, and environmental features. See Appendix C for a sample of items and their response options. Aggregate sub-scales may be computed by a care provider or clinician, but are also useful for identifying clients with clusters of risk-factors. For example, the Distressed Mood Scale combines items regarding anxiousness, apathy, and low mood, as a way to identify individuals experiencing mood disturbances (Hirdes et al., 2022). Clinical Assessment Protocols (CAPs) are indicators designed to assist clinicians in identifying and actioning key issues clients may be experiencing. They are built in to all interRAI-HC licensed software platforms (Canadian Institute for Health Information, 2022) and are organized into four domains: functional performance, cognition/mental health, social life, and clinical issues (interRAI, 2022). The individual items, sub-scales, and CAPs selected for use in the quantitative analysis are introduced in Chapter 5 as part of the mixing phase.

3.7.5. Bivariate Analysis

The bivariate analyses in this thesis were conducted using Pearson’s chi-square test of independence. A total of $n = 44$ chi-square analyses were conducted to explore the effect of time on the demographic and dependent variables. For each chi-square test conducted, 3 values contributed to the interpretation: 1) the significance of the chi-square test (i.e. the *p*-value); 2) the strength of the association (i.e. the Cramer's *V* value); and 3) the residuals produced in the matrix.

Exploring the significance of the chi-square statistic was the first step in the interpretation process for a given variable, and the least important in the overall conclusions. Although the significance of a given statistical test is important, for a large sample size like the one used in this thesis, there is danger in relying too heavily on it. As sample sizes approach arbitrarily large numbers, it becomes increasingly likely that the *p*-value for a given test will approach 0 (Lin et al., 2013). In turn, relying solely on the significance of the test to determine its usefulness in the 'real world' risks prioritizing outcomes with limited to no practical significance, simply because the *p*-value has many zeros. For the purposes of this thesis, the significance of the tests at a *p*-value less than .05 was a minimum threshold for proceeding with subsequent interpretation.

The chi-square statistic is a measure of significance, but it does not convey any detail on the *magnitude* for the association observed. For chi-square tests, the degree of association is estimated via Cramer's *V* value, which varies between 0 and 1, with no negative values. SAS automatically produces a *V* score for chi-square tests, although it can be calculated manually using the equation:

$$V = \sqrt[2]{\frac{x^2}{n(df_s)}}$$

Where df_s = the degrees of freedom obtained when examining the smaller of the rows and columns in the matrix (e.g., a 3x6 matrix would produce a $df_s = 2$); x^2 = the chi-square statistic; and n = the sample size. Table 2 displays the interpretation recommendations used in this thesis, which are drawn from Akoglu (2018).

Table 2.
Guidelines for interpreting Cramer's V, drawn from Akoglu (2018)

Cramer's *V* Score	Interpretation
>.25	Very strong association
>.15	Strong association
>.10	Moderate association
>.05	Weak association
0	No or very weak association

Of note, the chi-square test of independence is an omnibus test – that is, there is no directionality of change implied in the results outputted by the test. In order to draw conclusions about the trends of difference observed, interpretation of the raw residuals can be undertaken (Sharpe, 2015). Raw residuals are a value computed from the difference between the observed and expected frequency values for a given cell within a chi-square matrix. By computing the raw residuals for a given cell we can determine whether the observed frequency is greater or lesser than the frequency that would be expected if there was no significant association in the variables. Put simply, examining raw residuals allows us to draw conclusions about the direction and trend of the change that the chi-square statistic indicates is significant.

3.7.6. Multivariate Analysis

Binomial logistic regression was used to explore the association between time of assessment and important dependent variables, while accounting for demographic categorical control variables (Peng et al., 2002). In this thesis, a total of *n* = 2 logistic regression models were tested.

3.7.6.1. Covariate Selection

For the purposes of this thesis, covariate selection was as parsimonious as possible, and limited to the identification of key demographic variables that met the following criteria: 1) are available as an item(s) in the interRAI-HC; 2) were anticipated to have some relevance to specific dependent variables and 3) were anticipated to have differing frequencies during the pandemic. A recently published paper from Sinn et al. (2022) was particularly helpful in this process, as they explored differences in interRAI-HC assessments in Ontario during the COVID-19 pandemic, including multiple demographic factors (e.g., age, cognitive impairment, marital status).

In SAS® version 9.4., logistic regression via the PROC LOGISTIC command allows you to specify between five effect-selection methods: forward selection, backward selection, stepwise selection, score selection, and no selection (i.e. applying the full model as written) (SAS Institute Inc., 2018). The application of the full model as written (i.e. no selection) was utilized in this thesis.

3.7.6.2. Model Building & Interpretation

Guided by Peng and colleagues (2002; 2002) interpretation of the model building results looked at 4 components: 1) the overall model; 2) individual predictors; 3) goodness-of-fit statistics; and 4) validation of the predicted probabilities (i.e. *c* statistic). Interpretation also involved examining the odds ratios and 95% confidence limits for the independent variables. The overall model for each logistic regression analysis was evaluated by examining the likelihood ratio test for both its x^2 statistic and its *p*-value. The likelihood ratio test compares the fit of an ‘empty’ model (i.e. with no predictors and just the intercept) to the proposed model (i.e. with variables), where $p < .05$ indicates the more permissive model (i.e. with variables) is a better fit for the data (Agresti, 2007). The minimum significance was set at $p < .05$.

Individual predictors, that is, independent variables of interest (including categorical control variables), were evaluated by examining the Wald chi-square statistic for each variable and its significance. Examining the odds ratios for each value of the independent variables of interest also provided further information regarding the probabilities associated with different demographic profiles (e.g., male vs. female, living with family vs. living alone). Goodness-of-fit was assessed with the Hosmer & Lemeshow (H-L) goodness-of-fit test, which should have a significance $p > .05$ when the proposed model is a good fit to the data (Peng & So, 2002). The validation of the predicted probabilities was assessed using the concordance statistic, commonly referred to as the *c*-statistic, which is "*a unitless index denoting the probability that a randomly selected subject who experienced the outcome will have a higher predicted probability of having the outcome occur compared to a randomly selected subject who did not experience the event*" (Austin & Steyerberg, 2012, p. 2). The *c*-statistic can range between .5 and 1.0, where a value of $c = .50$ indicates the likelihood of correctly determining an outcome is entirely random, at 50% likelihood. A value of $c = 1.00$ indicates a model is 100% accurate at determining the appropriate outcome for a given set of data. Note that with the pragmatic focus of this research, the goal of the analysis was not to develop a model with the best predictive accuracy possible (i.e., to produce a *c*-statistic as close to 1.00 as possible), but to understand to what degree an association was present between the time of assessment and dependent variable, while controlling for other important variables.

3.8. Maintaining Rigour

Several techniques were used to maintain rigour and build trustworthiness in this thesis. These include maintaining an ongoing data audit trail throughout the 3 phases, undertaking reflexive memoing, and engaging in peer debriefing sessions with members of the thesis committee. Challenges unique to secondary qualitative analysis are also addressed.

3.8.1. Rigour in Secondary Qualitative Analysis

Secondary data analysis (SDA) of qualitative data is a valuable research practice that can result in novel findings, although it is less common and subject to more caution than quantitative SDA (Hinds et al., 1997). There are four broad categories of qualitative SDA: 1) using a different 'unit' of analysis (e.g., caregiving mothers vs. whole families); 2) using a subset of cases for a more intensive analysis (e.g., relationships during illness vs. motherhood during illness); 3) using all or part of the data with a different focus that was identified in the original study but not specifically addressed; and 4) using existing data to refine the study purpose as it continues to gather data (e.g., identifying a theme of self-care and developing questions to probe this going forward), and this thesis will undertake the third type.

Familiarity with the original project is generally considered a benefit when undertaking qualitative SDA (Hox & Boeije, 2005; Johnston, 2014) and most qualitative SDA is undertaken by an original project member (Ruggiano & Perry, 2019). As such, it was a benefit that this thesis flowed from open access to the raw qualitative data and SE Research Centre project team. EK is employed by the SE Research Centre and is a member of the scientific team who undertook the aging and mental health priority-setting consultation work. Another member of the original scientific team (JG) is currently participating as a member of this thesis' committee. Innate familiarity with the primary research helps take into account the context in which the data was originally collected and applied (Hox & Boeije, 2005; Johnston, 2014). However, there is a risk that this continuity will introduce ethical or methodological issues. For example, only 24% of the studies reviewed by Ruggiano and Perry (2019) obtained ethics approval prior to what was variously termed "…post hoc analysis, re-analysis, and supplemental analysis" (p. 87). Additionally, many of the studies analyzed did not take into account the limitations of secondary analysis, perhaps because of the murky distinction that was drawn between that process and the original research study (Ruggiano & Perry, 2019).

Several steps were taken to balance these concerns. First, engaging in ongoing peer debriefing with members of the thesis committee provided an opportunity to bolster trustworthiness and credibility in the secondary analysis (Janesick, 2015) and minimize any interpretational biases (Spall, 1998). Second, this thesis has been clearly delineated from the original project and explicitly identified as an SDA study, rather than an 'add-on' lumped into an ongoing initiative. Third, this thesis received ethics approval through the University of Waterloo's Research Ethics Board (#43775).

3.8.2. Data Audit Trail

This thesis incorporated an ongoing data audit trail with structured applications of the guidance Carcary (2009, 2020) suggests is most effective for this method of enhancing rigour. In particular, this thesis took advantage of the conceptualization Carcary (2009, 2020) uses of a data audit trail consisting of both physical and intellectual components. Intellectual components facilitate self-reflection on how one's thinking has changed over time (Carcary, 2020), and in the case of this thesis, included ongoing reflexive memoing (see section 3.8.3 below) and detailed meeting notes to track how discussion and peer debriefing influenced subsequent conceptualizations.

A physical audit trail tracks the realized process of a research project over time (Carcary, 2020), and in this thesis included, among other things, individually dated files of all thesis analyses conducted. This is a key component of a data audit trail, because, for example, by saving a first round of free coding in a dated file separate from the final consolidated matrix it is possible to manually reconstruct at a later date the evolution of coding that ultimately produced the final results discussed in this thesis (Wolf, 2003).

3.8.3. Reflexive Memoing

Extensive memoing was undertaken throughout this thesis to support reflexivity and justify the logic behind various analytic decisions (Birks et al., 2008). These memos incorporated quotes, thoughts, questions, and rationale on various aspects of the critical literature review, framework analysis, mixing phase, bivariate and multivariate analysis. For example, the excerpt below reflected on the recurring concept of agency in the qualitative analysis,

> *How do we help, what do we do to help – these keep coming up. People want to take agency and age "well" but it's pretty opaque on how to actually do that. Is it because this is a new and burgeoning area for mental health advocacy or because people are accustomed to ignoring it and are stymied about how to take action when they need/want to?* (Book 1, Memo 18; January 3, 2022; emphasis original)

Another excerpt from the quantitative phase mused on the bivariate results and the implications for the discussion,

> *It is possible that resilience or a sense of altruism could moderate this effect [of less distress than anticipated] such that older adults who feel they are being virtuous or protecting others with refusing social contact may experience a protective effect for the distress they may otherwise experience. It is also possible this is a virtue of the coping*

> *style that older adults engage in for circumstances beyond their immediate control.*
> (Book 3, Memo 70; April 17, 2022)

These memos functioned to organize self-reflections in the intellectual data audit trail, in addition to serving as a component of the physical data audit trail on analysis decisions, etc.

3.8.4. Peer Debriefing

A series of peer debriefing meetings were completed throughout October 2021 and May 2022 with various members of the thesis committee. These sessions were used to help identify areas of potential bias, to challenge implicit assumptions made during the analysis, and to draw broader conclusions about the meanings gleaned from the data (Spall, 1998). Artifacts from these debriefing sessions (e.g., slide decks, meeting agendas and notes) make up part of the physical data audit trail.

Chapter 4. Results – Qualitative Phase

4.1. Introduction

The following chapter describes the results from the qualitative analyses conducted in this thesis. The critical literature review served as a primer to the anticipated and previously observed mental health outcomes of older adults during pandemics and epidemics and generated a series of deductive codes that were applied in the secondary framework analysis. The secondary framework analysis of previously gathered free-form surveys from older adults, caregivers, and health and social care providers identified mental health considerations around associated principles, system- and societal-level factors; and important supports, services, and programs; in addition to mental health experiences and feelings.

4.2. Critical Literature Review

4.2.1. Results

A total of 238 articles were found during a systematic search of the literature on December 10, 2021, and 55 were omitted as duplicates (see Figure 5). A title and abstract review were conducted on 183 articles and 165 were deemed irrelevant, before 18 full-text papers were assessed for eligibility. Of those 18 articles, 16 were omitted for a primary focus on knowledge outputs other than a review (*n* = 8), a primary focus other than mental health changes (*n* = 4), a focus on the wrong population (*n* = 2), being unavailable in English (*n* = 1), or comparing results across cross-sectional age groups (*n* = 1). The final review included 2 articles, both of which were published in 2021[1] (Parlapani et al., 2021; Rodrigues et al., 2022).

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[1] Rodrigues (2022) was available as an online pre-print in October 2021, but was officially published in March 2022

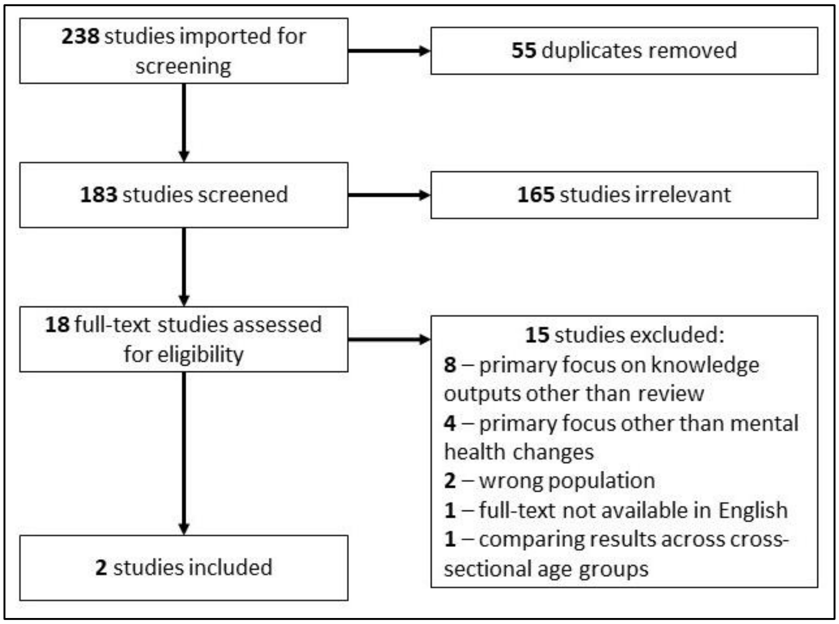

Figure 5. PRISMA diagram of critical literature review screening process

Information extracted from each paper included the mental health outcomes identified, any definition provided for the outcome, and the tools/scales used to assess the outcomes. The purpose of Parlapani and colleagues' (2021) paper was to explore the mental health impact of the COVID-19 pandemic on older adults using studies that employed validated psychometric tools. This focus excluded any papers on qualitative or intervention studies, although they did not limit the design parameters, such that both longitudinal and cross-sectional designs were permitted. Parlapani et al. (2021) reviewed papers from May 2020 – Jan 2021, while Rodrigues (2022) reviewed papers from October 2020 – Jan 2021). Rodrigues et al. (2022) looked at the impact of social isolation due to the COVID-19 pandemic on older adults as a single group of individuals aged 55+.

For the purposes of this review, papers identified by Rodrigues et al. (2022) that were purely focused on interventions were disregarded. Since *n* = 29 of the 33 papers identified (88.9%) described older adult outcomes and these results were clearly delineated from intervention-related conclusions, this paper was determined to adequately meet the inclusion criteria without failing any of the exclusion criteria.

From the papers, 29 codes were constructed and incorporated in the framework analysis as free codes. These codes included mental health-related experiences (e.g., anxiousness, low mood, sleep disruptions) and feelings/emotions (e.g., grief, gratitude for having lived a good life) (n = 21), mental illnesses (e.g., stress disorders, suicidal ideation, anxiety disorder) (n = 7) and experiences unrelated to mental health (e.g., negative financial impacts) (n = 1). Given the conceptual grounding of this work in the dual continuum model of mental health, it made sense to interpret the critical literature review results by where they fell along this dual spectrum, such that 3 thematic areas were identified – mental illness, mental well-being, and 'other' for non-mental health experiences.

4.2.2. Constructing Definitions

An unexpected challenge when interpreting the review papers was the lack of definitions provided by the authors for the psychological constructs of interest. Rodrigues et al. (2022) list an inclusion criterion of "*studies that state or evaluate the psychological impact experienced by the participants*" (p. 3) and expand on this in their supplementary material by noting "*mental health outcomes to be considered can include loneliness, depression, fear, anxiety, post-traumatic stress disorder, suicide or sleeping issues*" (S2, p. 8). Parlapani et al. (2021) defined their inclusion criteria to be focused on "*…psychological burden, that is, depressive* [sic], *anxiety, stress and post-traumatic stress symptoms, insomnia, loneliness and quality of life…*" (pg. 1731). In their criteria and results, there is limited differentiation in either paper for experiences of poor well-being (e.g., low mood or anxious feelings) from clinically-oriented experiences and outcomes (e.g., major depressive episodes). Rodrigues et al. (2022) aggregated these experiences into broad statements that "… *commonly reported consequences of social isolation and loneliness included ... adverse outcomes such as depression, sleep disorders, and suicide ideation*…" (p. 22). Parlapani et al. (2021) were less sweeping in their conclusions by virtue of strictly reporting scale scores without interpretation, e.g., "*Subgroup analyses revealed that both mean Geriatric Depression Scale (GDS-15) and Apathy Scale scores significantly increased in those younger than 75 years of age*…" (p. 1738). In this way, Parlapani et al. (2021) relied on readers to interpret overall trends and findings, while also failing to differentiate experiences of stress, distress, and stress disorders in a consistent manner.

Given this limitation, identification of key deductive codes primarily relied on interpreting the scales, findings, and outcome measures reported by the papers. This gave the opportunity, as best as possible, to clarify whether a given outcome/experience related to the mental health or mental illness continuum of Keyes' (2002) model. For example, in Rodrigues et al. (2022) results on the anxious sub-scale of the Depression Anxiety Stress Scales (DASS-21) are not differentiated or interpreted differently from results using the Generalized Anxiety Disorder-7 (GAD-7) scale. As described by the scale creators, Lovibond and Lovibond (1995), the DASS-21 is designed to measure "*general negative affective syndromes*" (p. 336) among both normative and clinically anxious individuals. The GAD-7 on the other hand, was designed to identify probable cases of Generalized Anxiety Disorder (Spitzer, 2006). Thus, anxiousness as conceptualized by Lovibond and Lovibond (1995) can be considered a component of positive affect (or lack thereof) on Keyes' domain of emotional well-being, where a positive affect is being "*regularly cheerful, interested in life, in good spirits,* calm and peaceful, *full of life*" (Keyes, 2005, p. 98, emphasis mine). Clinical anxiety as conceptualized by Spitzer et al. (2006) can be understood as an example of mental illness.

Ultimately, given the paucity of description provided by Parlapani et al. (2021) and Rodrigues et al. (2022), early definitions of the *n* = 29 deductive codes were not constructed beyond noting their differing presentation along the mental health continua. See Figure 6 for a visual representation of the deductive codes mapped along Keyes' (2002) model.

4.2.3. Mapping Deductive Codes to the Dual-Continuum Model

Results for the critical literature review fall along the 'positive' and 'poor' valences of the mental health continuum and along the 'poor' and 'neutral' valences of the mental illness continuum. One item fell outside of either continuum – economic strain/ negative financial impacts. 'Positive' valence codes came from Rodrigues (2021) and centred around an increased sense of social well-being and belongingness; feeling satisfaction with life; and psychological well-being around feeling fortunate or grateful to have lived a good life.

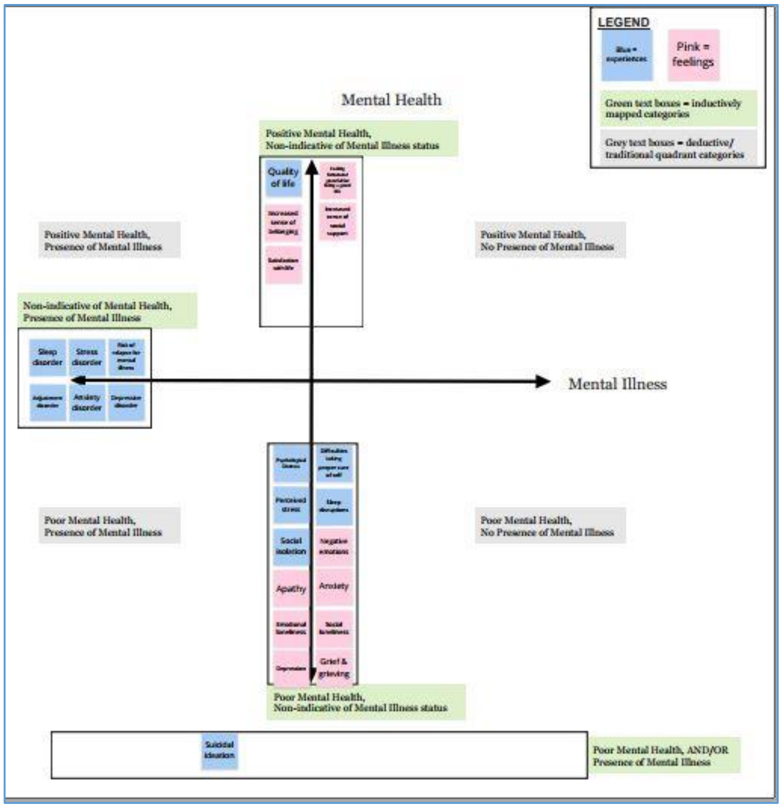

Figure 6. Deductive Codes Mapped to the Dual-Continuum Model

‘Poor’ valence codes came from both papers and centred around emotional and psychological well-being domains. Emotional well-being codes included stress, psychological distress, apathy, prolonged grief, anxiousness, depressed/low mood, emotional loneliness, and negative emotions generally. Psychological well-being codes related to social isolation, social loneliness, difficulties taking proper care of self (e.g., maintaining personal hygiene), experiencing challenging adapting to technology (e.g., due to physical limitations), or encountering sleep difficulties.

‘Neutral’ valence codes – those not necessarily tied to ‘positive’ or ‘poor’ valences on the mental health spectrum – were quality of life, using technology to facilitate social contact or care delivery, and having no interest adapting to technology.

4.3. Framework Analysis

4.3.1. Secondary Analysis Dataset Characteristics

See Table 3 for an overview of the demographic characteristics of the included sample of previously gathered survey responses. Respondents to the qualitative survey predominantly identified as older adults, aged 55+ (*n* = 186; 69.40%) although slightly under half (43.28%) of the respondents self-identified as a caregiver (*n* = 116) and almost one-third (29.85%) were health or social care providers (*n* = 80). Almost half (48.13%) of respondents identified more than one perspective (*n* = 129) and of those individuals, 62.01% were caregivers who were themselves older adults (*n* = 80). In comparison to the total sample, 29.85% of respondents identified as caregiving older adults, which is in line with statistics reported by Statistics Canada

Table 3.

Sample Characteristics for Qualitative Survey Responses

	n	%
Perspective (check all that apply)[1]		
Older adult (age 55+)	186	69.40%
Caregiver (family, friend, neighbor etc. who provides support to an older adult)	116	43.28%
Health and social care provider (paid to provide care to older adults)	80	29.85%
Number of Perspectives		
One perspective	139	51.87%
More than one perspective	129	48.13%
Province/territory of residence		
Alberta	17	6.34%
British Columbia	12	4.48%
Manitoba	37	13.81%
New Brunswick	9	3.36%
Newfoundland and Labrador	23	8.58%
Nova Scotia	5	1.87%
Northwest Territories	0	0.00%
Nunavut	1	0.37%
Ontario	144	53.73%
Prince Edward Island	1	0.37%
Quebec	12	4.48%
Saskatchewan	7	2.61%
Yukon	0	0.00%
Age Group		
Under 55	73	27.24%
Age 56-65	108	40.30%
Age 66-75	53	19.78%
Age 76 and older	30	11.19%
Not identified	4	1.49%
Gender		
Female	213	79.48%
Male	52	19.40%
Not identified	3	1.12%
Ethnicity		
Asian – East (e.g., Chinese, Japanese, Korean)	6	2.24%
Asian – South (e.g., Indian, Pakistani, Sri Lankan)	3	1.12%
Asian – South East (e.g., Malaysian, Filipino, Vietnamese)	2	0.75%
Black – North American (e.g., Canadian, American)	1	0.37%
First Nations	1	0.37%
Indian – Caribbean (e.g., Guyanese with origins in India)	1	0.37%
Indigenous/First Nations – not included elsewhere	1	0.37%
Métis	1	0.37%
Middle Eastern (e.g., Egyptian, Iranian, Lebanese)	1	0.37%
Mixed heritage (e.g., Black - African & White - North American)	3	1.12%
Other (please specify)	4	1.49%
Prefer not to answer	3	1.12%
White - European (e.g., English, Italian, Portuguese, Russian)	43	16.04%
White - North American (e.g., Canadian, American)	198	73.88%

[1] *Select all that apply options mean percentages will not add up to 100.00%*

that in 2018 almost 25% of individuals aged 65 or older provided care to family members or friends (Arriagada, 2020).

Respondents largely lived in Ontario (*n* = 144; 53.73%), although there was at least one respondent from 11 out of the 13 provinces and territories in Canada. They were primarily between 56 and 65 years in age (*n* = 108, 40.30%), and female (*n* = 213; 79.48%). Respondents were overwhelmingly Caucasian (*n* = 241; 89.93%).

4.3.2. Results

Results from the secondary qualitative analysis indicate 4 key areas of consideration regarding aging and mental health support, care, and treatment. These were 1) principles respondents felt influenced the experiences and outcomes of older adults; 2) societal and system-level factors that affected older adult mental health; 3) services, supports, and programs that respondents felt would be valuable; and 4) mental health experiences and outcomes as mapped to the dual continuum model of mental health (see Figure 7).

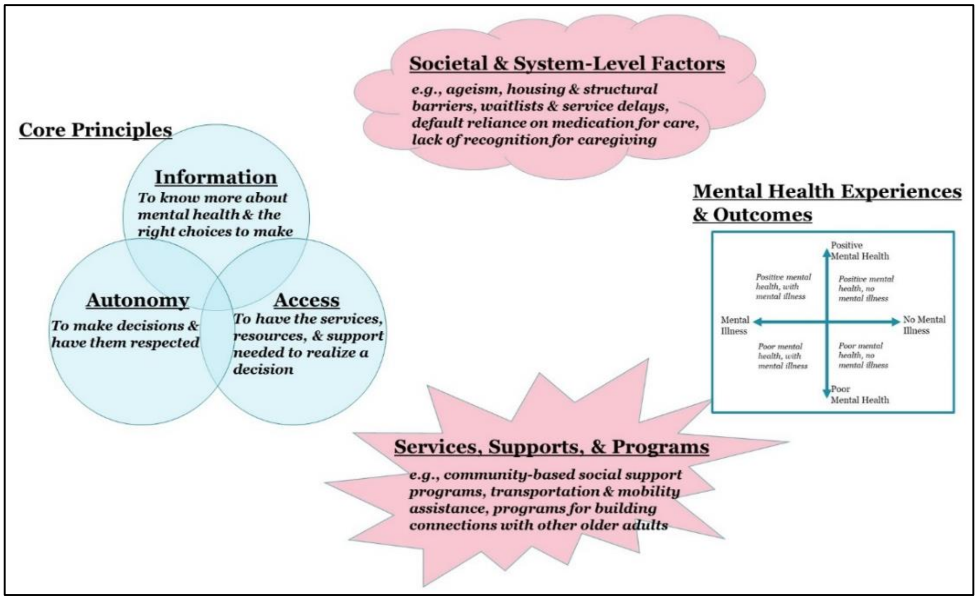

Figure 7. Four key areas of consideration identified in the qualitative survey responses

4.3.2.1. Core Principles

When talking about aging and mental health, respondents implicitly referenced a set of core principles that underpinned their understanding of mental health and their role (self-defined or externally imposed) in the ‘system’. They relate to how older adults see themselves, but also to how they interact with their external environment, be that healthcare providers, services, organizations, etc. The principles include the importance of information in making decisions for oneself and others; a desire for the autonomy to decide what choice (in whatever capacity that may be) is best for them; and the need for access to resources/supports to realize their choices as best as possible (see Appendix D for a list). Respondents described the principles in both pro-active and reactive ways. That is, they guided how respondents acted towards the world, e.g., to recognize when professional mental health services may be appropriate, *and* how they reacted to what the world imposed on them, e.g., by motivating a search for medication alternatives after receiving what they felt was a ‘default’ prescription.

Information

Respondents spoke about a need for information in 9 areas: 1) defining mental health and mental illness across the life course; 2) what is dementia; 3) signs to recognize and watch out for; 4) life course changes; 5) beneficial lifestyle behaviours; 6) how to support and help others who may be in need; 7) how to be a caregiver; 8) where to get help; and 9) assessment, treatment, and care information.

In all age groups there was a desire to define mental health and mental illness across the life course. This included a need to define the concept itself, “*what is mental well-being*” (P004), as well as the difference “*… between mental health and mental illness,* [as] *the terminology is* *confusing*." (P120). There was also a lack of clarity on "*what is considered a 'mental health' issue as opposed to a health issue?... What is 'normal' aging and what is a mental health issue?*" (P198). Some respondents wondered, "*if I have mental health – would I be able to identify, how much of what I brushed aside is really issue[s] I should be addressing – are my close family ready to support, how do I face society, is it embarrassing*" (P265).

When asking about dementia, respondents across all four age groups wanted to know how to recognize "*aging and forgetfulness vs alzheimers or dementia*" (P029). They needed information about the "*various kinds of dimentia* [sic] *& how it affects the family & caregiver that provides home care*" (P117). One respondent wanted to know "*what does wellness (in terms of mental health) look like for individuals with dementia or who have trouble with their memory?*" (P002).

Respondents were worried about recognizing the signs of negative outcomes, such as "*mental deterioration*" (P149), "*someone thinking [of] suicide*" (P159) or someone who "*is not coping or perhaps [is] at risk*" (P007). Several respondents identified concerns with being exploited and ensuring abuse does not happen.

The need for information about life course changes incorporated a wide variety of topics an older adult might encounter as they age. This was one of the few areas that had trends across age groups. Responses tended to fall along the lines of changes/challenges one might typically encounter at that age. For example, those under 55 or between 56-65 years had concerns which were predominantly oriented towards caregiving and 'early' aging life course changes (e.g., retirement, declines in health). These young-older adults often incorporated an element of anticipatory change in their responses, e.g., changes that had not yet occurred but which were expected to happen in the future. For example, one respondent asked, "*When should I begin* *worrying about my parents? When should I step in and override their own decisions about seeking health care or support services? What is my role in getting my parents to stop certain activities such as driving, cooking, etc. if I feel it is unsafe.*" (P198). For those aged 55-65, there was a strong focus on the interaction between physical health (e.g., life limiting disease, vision impairment and sensory decline, dementia) and well-being. This included a self-focus, "*How do I navigate a health transition into retirement. It's a big change in one's life.*" (P254), and other-focus, "*Provide information for elderly individuals to cope with the changes (e.g., seminars/visits from health care individuals/information for caregivers).*" (P199). As one respondent put it,

> *Mental health and aging is not easy to comprehend. We seem to consider mental health/mental illness as being much the same as in younger adults rather than considering the mental health effects of profound life changes, including loss of friends, partners, family, incremental losses in mobility and health, changes in chronicity and acuity of long standing health conditions such as diabetes and COPD, and the effects of social and physical isolation. It may be that we need to change our conceptions of mental health in older adults to incorporate an approach that starts with mental health rather than physical health, that places the mind and spirit at the core and base of all other health issues, and that looks at health not from a starting point of what is wrong but looks at social connections/relationships and how to strengthen them as an initial and enduring measure of mental and physical health.* (P188)

Individuals aged 66-76 brought up retirement (e.g., "*What are the short term effects on mental health with retirement*." (P084)), changes in available social support (e.g., "*How to relate to others when your support group have all passed on*." (P114)), and an inflection point between living at home and potentially moving to an assisted living residence (e.g., "*Will I have to go into a long-term care facility? Or can I 'go it alone'*." (P125)). That third topic was a recurring concern for many adults in this age group – as they wanted information about living options, who might care for them, and finding supports with limited financial resources.

Respondents over 76 years had less definite response trends, but also focused on those later life changes, asking about end-of-life choices and, "*is there research on which is best for* *mental health – staying at home with supports or moving into a retirement home.*" (P058). The lack of emergent trends may be due to the comparatively small response pool in this age group.

Information about beneficial lifestyle behaviours focused on fostering new habits and maintaining existing ones. Topics were largely consistent across age groups and included nutrition, exercising/physical activities, preventative primary care, and social activities. Fostering positive mental well-being early, and ways to maintain it over time, were also important. As one respondent put it,

> *Why is the question focused on care of those already experiencing poor mental health? what types of care contribute to PREVENTion* [sic] *of mental health problems in the elderly? are services equally available to Canadians regardless of age? Should they be? I would like to know more about availability of services for seniors focussed on mental health promotion, especially for minority language populations in rural areas.* (P146)

Respondents also included special interest/engagement activities that offered mental stimulation, well-being, and in some cases, opportunities for social contact; "*Music and art therapy and physical movement (Tai Chi) should be better supported… The more the merrier is more than just a happy saying.*" (P208), with a special concern that these resources should be cost-friendly, "*Aging care should include free physical exercise care (massage, physiotherapist, exercises, chiropractic) to continue with the best quality of life. It should also include mental welfare...sites that promote mental acuity, hobbies, free classes to learn all kinds of things...from knitting to languages to woodworking to music...anything that stimulates the mind and captures the interest*" (P077).

Beyond their self-focus, respondents also wanted to know how they could identify persons in need and the best way to help them. The type of 'person in need' ranged from older adults living in long term care and healthcare workers, to individuals unable to access services or care. There was a strong thread of concern for those left alone – whether through their own motivations, the death of other supports, or a general failure in the system to provide for them (e.g., hospitals lacking appropriate dementia resourcing). For example, one person asked "*What services are available if I am alone and start to fail…how will I manage my finances if I am all of a sudden alone and have never done so…*" (P232). Connected with this, several respondents identified a concern with being a burden to their future children/grandchildren, or worried about who would care for their dependents once they died – "*If I die before my husband, who will give my middle aged son with the mental illness the same kind of support that I am giving him now.*" (P197).

The seventh area of information that respondents identified related to how to be a caregiver. This including wondering at a basic level, "*how do caregivers help?*" (P145) or "*how best to care for [a] [loved] one? What to expect?*" (P121). Other individuals wanted information about specific caregiving challenges – for example, around "*methods the caregiver can use to ensure that the patient's abilities are in current use and practice as much as possible.*" (P129) or "*how to help and support a family member of a different generation and culture in a way that does not demean the elder and does not exhaust the caregiver.*" (P073).

The eighth and ninth areas were those most discussed by respondents, and focused on where to get help, and the types of assessment, treatment, and care information they needed. Many of the questions were foundational issues, such as a lack of knowledge about "*what is available*" (P016), "*who do I call?*" (P145), or "*how and when can I and should I access services*" (P220). Although some respondents had more 'advanced' or complex questions, for example about "*…who will take care of me, and where. Will home care actually be sufficient, or will I need more supervision? Will I be stashed in a crowded room in a nursing home? Will I have some semblance of privacy and homey atmosphere?*" (P062), many did not even know where to start and asked fundamentally "*how do you know where to go for help about mental health?*" (P238).

The breadth of assessment, treatment, and care information questions that respondents had makes it difficult to summarize succinctly. At a basic level, they lacked decision-making information related to many different care interactions along the continuum. This starts at the beginning of the care journey where respondents wondered, "*how does the referral to mental health work?*" (P003), and ranges through the diagnostic process – "*what kind of assessment tools are currently being used…*" (P239) – and treatment – "*How is the treatment provided with the older adult in mind? How often is it available?*" (P021). Many respondents implicitly identified a core lack of knowledge around mental health that made it difficult for them to identify specific questions or concerns. For some respondents, this meant generalizing their considerations or applying broad strokes descriptions. For example, one respondent when asked what type of treatment is most important to them said, "*Treatment? The most appropriate, obviously.*" (P242).

Autonomy

As much as respondents needed information to make appropriate decisions, they also wanted those decisions to be respected and acted upon. In the context of aging and mental health, this included the ability 1) to live and age where one wants, 2) to participate in the decision-making process, 3) to receive care for the whole self rather than individual pieces, 4) to preserve the ability to decide for as long as possible, and 5) to be seen and treated as a person. These areas echoed a recurring struggle in the responses for older adults to be seen as independent agents, capable of making their own choices not only in mental health, but in their own bodily autonomy and livelihood.

When talking about their autonomy to live and age where they want, respondents identified a desire to "*stay in [their] home (apartment or house) with the support of the community…*" (P083). For some this included a desire for "*affordable care and services to keep people at home for as long as possible…*" (P152), which would "*allow [them] to… have a measure of independence for as long as possible*." (P137).

They also spoke about a desire for older adults to participate in the decision-making process for their care, and that "*too often, elderly are assumed 'feeble' and not able to make decisions.*" (P078). In some cases, individuals wanted caregivers and family members to also be given a say in the decision-making, and the opportunity for "*knowing someone's story and providing a chance to tell their story*" (P084). As one respondent phrased it, "*I don't believe there is one true answer to that [question] as people all need different interventions and its our duty to provide time and space to understand what these unique needs are prior to providing any treatment.*" (P108).

Some spoke about the importance they felt for receiving care for the whole self rather than just individual pieces. That is, "*care of the person as a whole, physical, mental, spiritual.*" (P080) with a need for doctors and providers that are "*being holistic in understanding the older adults' rich, rich history and knowledge about themselves and their body's needs*" (P219). In fact, to one respondent, "*…the distinction between support, care and treatment is semantic! The three are lumped together and required for optimal outcomes.*" (P206).

Coupled with the desire for participating in the decision-making process was a desire to preserve the ability to decide for as long as possible. This incorporated supporting "*…a capable person's right to choose (even if the provider does not agree with the choice…*" (P018) while also recognizing "*if there is a problem with competence, it would be helpful [if] the supporter* *knows or is given information about how to support the person and set up decision-making supports and power of attorney.*" (P252).

The final area of autonomy that respondents spoke about had to do with being seen and treated (in the non-clinical sense) as a person. For "*…people [to] be fully recognized*" (P203) this means "*...show[ing] me what to do rather than tell[ing] me what to do.*" (P006). It means "*...that every individual be treated fairly and with the utmost dignity.*" (P199) without a "*lack of concern for this whole person and their social/ environmental situation.*" (P051).

Access

The final principle that anchored the responses was a need for access to realize a given decision. This may include access to tangible resources, e.g., home care services, or intangible resources, e.g., respectful clinicians who recognize the need for care in line with personal beliefs. There were six components of access identified, which focused on supports that 1) exist and are discoverable, 2) are accessible from an older adult's place of residence, 3) financially feasible, 4) available in a timely manner, 5) obtainable without jumping through hoops, and 6) are appropriate for personal needs, beliefs, and circumstances.

When discussing access to resources, which includes services, supports, care, programs, etc., respondents felt it was important not only that they *exist* but also that they be *discoverable*. As one respondent put it,

> *I think about how difficult it can be to access the support. Having a web site is helpful for many people but some are not computer literate, some are challenged with comprehending what they are reading, some need a voice or paper resources. I find that there is a wealth of resources but finding what I need when I need it, whether for myself, family or clients is very challenging. Even knowing where to look, who to call, what are the appropriate questions to ask to get the answers is very difficult.* (P188)

Another respondent wondered, "*Why is it so hard to FIND mental health supports in the community or even through your family MD?*" (P201).

Resources that are accessible from an older adult's place of residence had many meanings. To some, this meant locating resources in physically accessible buildings – "*When my mother was finally convinced to seek help, the only community service available was in an inaccessible building.*" (P157) – and to others this meant accounting for a lack of transportation or living in a rural/isolated area. Several identified a desire for access in-home, as "*having care from trained individuals locally if not in my home is really important as is equal access to services and supports.*" (P217).

Financial feasibility focused on resources that are low cost, which included options like counselling for those on fixed incomes, subsidized medication, social activities (e.g., tai chi, music and art therapy) that are free. Respondents wanted "*affordable supports and services in the community to keep older people active and in touch. Especially those at home alone.*" (P152).

Access to resources available in a timely manner highlighted that respondents feel "*mental health care options should not be such long waits for professional help*" (P124) and that immediate access, or at the very least "*access…in a timely fashion*" (P183) are essential. In combination with timely access, respondents wanted options that are obtainable without jumping through hoops. Several respondents talked about how "*very difficult [it is] for average individual[s] to navigate all the available sources or services*" (P025) and that "*the biggest obstacles are connecting the dots in program & service availability*" (P243). They wanted services that didn't require you to follow a complex trail of breadcrumbs to get supports, and to "*bring support to the person…not make them navigate how to get the support.*" (P016).

Finally, respondents wanted access to options that are appropriate for their personal needs, beliefs, and circumstances. This was a layered concept, which incorporated not only a desire for appropriate services for older adults, but also options that met "*our diverse culture*" (P103) and the needs of those "*whose first language is not English*." (P260). Others wanted to know, "*does the deaf community have any supports?*" (P182), "*will my dietary needs be duly considered? Will I have access to a counsellor who shares my values/beliefs?*" (P062), and "*where does one go to get mental health resources that are specifically geared to older seniors (beyond 80)?*" (P058). As one French speaking respondent phrased it,

> *I believe there are significant differences between the different ethnic groups living in Canada in terms of the support they deem most effective and appropriate. Emotional support must be provided in the person's primary language (French, English, First Nations languages, etc.) but also in a culturally appropriate manner. However, some elements will be the same despite the different cultures. Can you identify these differences and the elements that are "universal" by making sure to include the First Nations, Quebecers, Acadians, and other cultural groups who remain in Canada?* (P075).

4.3.2.2. Societal & System-Level Factors

A total of 13 societal and system-level factors that affect older adult mental health were identified from the responses.

Two pervasive social issues were identified – those of ageism and mental health stigma. Respondents spoke about the impact that ageism has generally, and in conjunction with mental health. One respondent wondered, "*does our society really care about [how many people are hanging on by a thread]?*" (P238) and asked "*if people who are articulate and know the ropes have troubles what about the less able?*" (P238). In the context of mental health "…*there is a stigma attached, people associate anxiety, depression, suicide risk etc. with younger people and do not consider elderly at high risk for these concerns.*" (P128). Many respondents identified the implicit barriers ageism raises around willingness to seek out help, awareness of resources, and the attitudes of care providers towards those needing assistance. Interestingly, in one case, a caregiving older adult demonstrated these ageist attitudes towards their own 'in-group' when saying, "*If the patient says 'No' the care should not be stopped. The patient must be gently encouraged. This seems to be all too common today when the patient says no it's hands off. That is wrong, as they are not always aware of what's best for them*." (P257).

The experiences of mental health stigma that respondents spoke about were varied. In some cases, they related to the differing treatment 'mental health issues' get when compared to physical health – "*Unlike many physical conditions, mental health conditions are viewed as relevant even decades later than any episode and treatment/therapy has ended.*" (P012). Others took a solutions-based approach, saying,

> *I think that in order to best support one another we must all be open to having discussions with our peers to normalize certain aspects of mental health while also to empower others to seek the proper care when necessary. I think this is increasingly more important for [the] aging population as we see they still have more concerns around mental health stigma than younger generations.* (P108)

Changes due to COVID-19 were identified by some respondents, though only a small number. These were mixed in composition, with one clinician noting "*With the pandemic, we had to eliminate visits from family/friends. We found our residents with dementia/Alzheimers settled and not as tormented. They seem to forget family and home therefore they do not grieve, cry, [or experience] anxiety about not seeing family or home. It's like they forget they are not with family at home and settle into a 'new normal'.*" (P010). On the other hand, one older adult shared, "*I live at home, alone since my wife developed dementia and I had to find a long term residence for her 3 years ago. She does not speak, write or read, otherwise she is healthy. It's a very trying time… with COVID-19 all around us. How do I cope?*" (P088).

Most of the factors identified related to the health and social system present in Canada and the provinces/territories respondents lived in. Two, availability of transportation and geographic accessibility and availability, were geographically bounded. Geographic accessibility and availability for those living in rural communities was a concern, but at least one respondent expressed the view that there are "*far too few professionals available -- even in cities.*" (P242). This tied into the availability of transportation and the belief of several respondents that more resources are needed "*…for transportation for elders to get to appointments or centre[s] to enjoy company*." (P246).

Two factors related to finances, both for older adults – i.e. finances and costs of services – and for those providing care – i.e. a lack of recognition for paid and unpaid caregiving. Across all age groups there was a concern for the cost of services and how "*mental health supports are so scarce and so expensive.*" (P007) as they wondered "*how can any support be obtained by those with limited income or no health insurance?*" (P007). There was a belief that "*[mental health supports] are often out of the financial reach for many*." (P167). Alternatively, no respondent felt that caregivers (paid or unpaid) receive adequate compensation for their work. In fact, for those who discussed it, the lack of recognition given to caregivers was an emotionally charged topic, with one respondent saying,

> *We need support people to care for our elders with Intelligence, skill and compassion. This will never happen if the people in these positions are grossly underpaid and regarded as one of the lowest rungs on the employment ladder. Caring for the most vulnerable in our society is and should be regarded as something sacred. When the care of the most vulnerable becomes overly driven by profit margins it is sickening. Currently I tend to regard many of the LTC facilities I am aware of as death warehouses. I dread ever placing my loved one in such a place and not much is currently occurring in our present circumstances to dissuade me of that perception*. (P055).

One factor was a complex issue that touched many areas. Healthcare system action and inaction was viewed by many as a negative force in the mental health of older adults. A lack of sufficient funding, inadequate support for person-centred over task-focused care, fragmented systems, etc. contributed to this belief. Across all ages, there was a sense that the system as it currently exists is failing to meet the needs, demands, and desires of the people it is meant to help. One respondent shared,

> *I think of visiting a local shelter at 21:00 and in their 20 beds for women, on that night, 19 were full, 4 had walkers beside them, and at least 10 occupants had grey hair. I think of older women who do not leave their homes after 18:00 hr due to fear. I think of older women who are struggling with poor health related to poor nutrition related to poor incomes and/or food deserts and/or no transportation that is accessable* [sic] *and affordable. I think of how so many women especially live in silent suffering. I think of how we do not acknowledge the grief that older people are trying to grapple with: the loss of people, the loss of vocation, the loss of children, the loss of health, the loss of relationship. I think of how care providers offer fragments of what is needed, doctors that will only hear one problem per visit, care that blames people for a lifetime of systemic abuse like poverty. I think that we really need to change our treatment approach far beyond the individualistic current offerings and we need to understand that a life time has profound historic, technological, social and mental depth and layers and is never lived in solitary isolation.* (P188).

Connected to healthcare system action and inaction were 3 other factors: a default reliance on medication for care; housing and structural barriers; and waitlists and service delays. Respondents across all age groups felt "*a common way to treat mental health in [the] aged is to medicate*" (P048), while a lack of "*safe affordable supportive housing*" (P264) and "*long wait times for medical care*" (P262) only exacerbate the other issues present in the system.

In some cases, technology that does not support aging needs was seen as an important barrier to care, since "*with increasing phone technologies and complexity, it gets harder to reach those with memory or vision problems (especially both)*." (P119).

The final factor reflects the role of health and social care providers in the health system as barriers or facilitators to care. Respondents believed that the "*most important support would probably [be] a point of entry person who could help with system access [and] knowledge of* *what's available*" (P232) while also acknowledging that there is a large knowledge gap among professionals when it comes to mental health. As one respondent put it, "*I don't know a lot about [mental health] other than prescribing antidepressants. Are there any actual therapists focused on the elderly? I work in health care and am unaware.*" (P017). For many, the family doctor was seen as a convenient ally since "*the family MD would [be] mostly likely to be seeing these elderly patients on a regularly basis for monitoring/followup*." (P250), if only the health system supported this through training and compensation that ensured "*…doctors are willing and able to deal with the chronic and complex…*" (P055).

4.3.2.3. Services, Supports, & Programs

When talking about aging and mental health respondents mentioned several types of services, supports, and programs which they felt could positively benefit older adults. There was no differentiation between resources (i.e. services, supports, programs) that already exist and ones that would simply be beneficial to develop. There were four areas of services, supports, and programs discussed, which related to: 1) social needs, 2) physical needs, 3) facilitators of access, and 4) persons needing assistance.

Social Needs

Social needs resources that were discussed included: 1) therapy, counselling, and peer support; 2) programs and opportunities to build connections with others, and foster meaning and purpose; and 3) community-based or social support programs. Therapy, counselling and peer support were some of the most frequently identified resources and were meant to give "*ongoing contact with a person or group who would provide support. This could be telephone, email contact, visitor or a wraparound group made up of volunteers who would get to know the* *individual and listen deeply to the person as they live their life.*" (P059). They were the person-to-person complement of programs and opportunities to build connections with others, and foster meaning and purpose (which were also some of the most frequently identified resources). The goal of these resources is to enable "*meaningful engagement*" (P116), "*…interaction and being social…*" (P185), and the "*promotion of active (physical and social) living*" (P165). They could take many forms, such as "*…programs that will allow for self-expression*" (P050) or "*initiatives to share learning*" (P243) but which should ultimately foster "*meaningful activities and social connections in life, so older adults feel supported and valued and that life is still interesting.*" (P094). Community-based or social support programs took many forms, but largely served as a middle ground between in-home services and institutional/primary care services. Interestingly, although some individuals provided specific examples such as "*respite for seniors, day programs, income support…*" (P093), many simply identified "*community programs*" (P160), "*community based supports…*" (P180) or "*social supports*" (P008).

Physical Needs

Physical needs consisted of: 1) homecare services; 2) medical care (i.e. primary care); and 3) opportunities for medication reviews and deprescribing. Homecare services were seen as an important resource and one that can make it possible for older adults "*…to stay in [their] home for a while longer.*" (P134). Access to "*medical and physical help if required*" (P083) was also important. This might include "*dental health…*" (P139), "*stroke recoveries…*" (P208), or "*…paramedical services such as physiotherapy, massage and…physical training which complement the medication approach.*" (P167). They were to be "*care that helps minimize the impacts of the disease progression with current methodologies and best practices from science* *and medicine. Methods by which patients can hold ground as long as possible and maintain quality of life*." (P055).

The overmedication of older adults was seen as an important issue across all age groups, and respondents wanted opportunities for medication reviews and deprescribing. Many shared opinions like,

> *Is this medication actually addressing the root causes of the mental health illness. In the older adult population over prescribing is an issue and it not only can lead to extra cost for older adults it can also lead to complications with other medications. It may also cost older adults money they do not have. I feel like there are lots of causes for mental health issues faced by older adults that need to be widely addressed.* (P213).

Deprescribing and opportunities for medication review by physicians or even pharmacists, was seen as a way to address this issue.

Facilitators of Access

Two factors were identified as facilitators of access: 1) opportunities to incorporate technology for facilitating care delivery and/or social contact; and 2) transportation and mobility assistance. It was not the majority opinion (especially considering concerns raised around technology that does not incorporate aging needs), but some respondents spoke about incorporating technology as a facilitator for either care delivery or social contact. For example, "*virtual friendly visiting visits by phone or online would be nice to decrease loneliness and to increase socialization"* (P018). It was important though, that "*…technological advancements that are being implemented or being developed right now…[are] made with [the] aging population as their target audience*" (P034) as a way to offset issues "*with memory or vision problems (especially both).*" (P119).

According to respondents, transportation and mobility assistance were important to facilitate engagement with day programs, appointments, meetups, grocery shopping, etc.

Persons Needing Assistance

In addition to the types of resources needed, respondents also spoke about resources that could help specific groups/persons who needed assistance. These were: 1) assessment and support for persons living with dementia and their families and/or caregivers; and resources and supports targeted towards 2) unpaid and family caregivers; 3) health and social care providers; and 4) older adults. In terms of assessment and support for persons living with dementia, many of the comments were focused on early detection, diagnosis and "*...resources designed for those who have Alzheimers or other forms of dementia*" (P002) in addition to "*support for care partners*…" (P042) and "*support for families coping with a family member with dementia.*" (P010).

Like the community-based and social support programs discussed above (section 4.3.2.3.4.) respondents broadly identified the need for "*caregiver support*" (P027; P140) or "*support for PSW's, nurses*" (P035), or "*health care professionals*" (P160) without necessarily specifying what form this support might take. In terms of resources and supports targeted towards older adults, this primarily involved marginalized or potentially disadvantaged groups individuals dealing with addictions or substance use issues, and those living in long term care.

4.3.2.4. Mental Health Experiences & Outcomes

The final area of consideration was that of mental health experiences and outcomes. In total 11 experiences and outcomes were discussed on the continuum of mental health (*n* = 8): anxiousness, apathy, emotional loneliness, social loneliness, grief and grieving, low mood, sleep disruptions, and social isolation; and the continuum of mental illness (*n* = 3): anxiety disorder (i.e., Generalized Anxiety Disorder; GAD), depressive disorder (i.e., Major Depressive Disorder; MDD), and suicidal ideation. These were not necessarily considerations that respondents were experiencing themselves but were ones they believed were important in the context of older adult mental health.

Mental Health Experiences & Outcomes

Anxiousness was straightforward and was largely undefined by respondents who just wanted to know about "*anxiety in people 60+*" (P076) without specifically discussing clinical anxiousness. Apathy in older adults was considered a "*lack of motivation*" (P041) and a "*loss of interest*" (P199), and was exemplified by one respondent who worried about their partner, stating,

> *My wife has no interest in going for a walk in the sunshine and fresh air, no interest in making conversation with friends, new or old, no interest in self improvement through voice exercises, stability strengthening or mental stimulation like puzzles or games, even though she was a secondary school teacher.* (P070)

Experiences of emotional loneliness and social loneliness were discussed by many respondents. Respondents spoke about "*coping with loneliness*" (P056) as an example of emotional loneliness, and "*[times] when it is very difficult to even be motivated to make new friends in new environments, creating more reasons for loneliness*" (P071) as an example of social loneliness.

Responses around grief and grieving were described as not just about "*bereavement supports*" (P014) but also loss as a multi-dimensional construct incorporating the "*impact of life limiting disease*" (P007), loss of social roles due to retirement, and caregiving grief, among others. For example, one respondent spoke about their struggles from observing the decline of their siblings with dementia,

> *My major concern is the state of depression both are experiencing.... The elder with concern for the younger, & the younger one with realizing it will get worse as time goes on, & feeling lost & hopeless.... As the only remaining sibling with all of my facilities still intact, I worry for both of them.... What may I do, or say to help them....? I am so very worried....* (P186; emphasis mine)

Low mood incorporated all experiences of low or depressed mood and non-clinical depression. For example, respondents talking about how "*We are supported to be f***ed up* [sic] *a bit because we are old so if you are experiencing depression that's normal as far as the young person telling you is concerned.*" (P175).

Sleep disruption was only identified by one respondent in the context of "*supports for promoting sleep*" (P111).

Finally, social isolation was the most frequently identified mental health/well-being experience. The experiences and concerns of respondents are exemplified in the response of one individual,

> *I am 71, in good health, a woman, living on my own. I have no children and am a widow. Being self-isolated during the COVID-19 Pandemic has caused me to feel what it is like to be isolated and not be able to change the situation. It is tough. Even though I have good friends I cannot visit them nor can they visit me. We do text, e mail or call each other. I normally would attend classes and so have some social contact several times a week. This is not possible. I can now imagine what it might be like to be isolated because of physical or mental incapacities when I am older. I can see the importance of having the emotional and social support of friends and family. If one is separated from one's friends and/or close family because of having illness, physical or mental disability I see it as vital that a way to connect a person with others be facilitated.* (P057)

Mental Illness Experiences & Outcomes

One respondent asked about anxiety disorders and wanted to know, "*what is normal anxiety and what is anxiety disorder*" (P008). Depressive disorder was based on clinically diagnosable depression, as one respondent wondered, "*how to identify clinical depression or situational depression*" (P008), and another spoke about how they "*have had clinical depression all [their] life and now can live with it but it takes away a good deal of [their] life*." (P127). Suicidal ideation was identified by 3 respondents around "*suicide prevention and intervention*" (P255) and "*how to help someone thinking [of] suicide*" (P159).

4.4. Summary

Taken together, the four themes discussed above – of core principles; societal and system-level factors; services, supports, and programs; and mental health experiences and outcomes along the dual continuum – are important considerations that older adults, caregivers, and health and social care providers feel are relevant to older adult mental health support, care, and treatment. Given the explicitly stated priority of the considerations of experts-by-experience, and the pragmatic paradigm used in this thesis, deductive topics that were not identified were omitted from all further analysis (including quantitative).

Chapter 5. Mixing Phase

5.1. Introduction

To guide the quantitative analysis, a series of constructs related to experiences and outcomes along the mental health continuum model were selected to be operationalized. Given the broad nature of the constructs identified in the qualitative analysis, and the limitations imposed by a predefined dataset and variable list, the qualitative constructs were used to inform item selection without the intention to represent a given construct in a direct, 1:1 comparative capacity. That is, to the best of the researcher's ability, items were selected that captured the components of the constructs of interest, with recognition that a total conceptual reconstruction via quantitative variables was not possible. As part of the pragmatic process, the Mixing Phase was completed using two stages. The first stage was looking at a granular bivariate level to examine a number of specific variables that were related to the constructs identified in the qualitative phase. The second stage was completed to select two dependent variables for the multivariate analysis that are representative of the domains explored in the bivariate analysis.

5.2. Descriptive Variables

A total of *n* = 8 variables were used in the quantitative analysis process to provide descriptions of the sample both from a clinical and a demographic perspective. These represent: 1) age at time of assessment; 2) gender, 3) marital status, 4) living arrangement, 5) functional status (Activities of Daily Living Hierarchy; ADLH), 6) cognitive status (Cognitive Performance Scale-2; CPS2), 7) communication ability (both expression and comprehension; Communication Scale; COMM), and 8) health instability (Changes in Health, End-stage disease, and Signs and Symptoms Scale; CHESS). Note that variables 5-8 are sub-scales calculated based on clinician scores, where a higher number indicates greater assessed impairment. Functional status was operationalized using the ADL Hierarchy Scale (ADLH), which is an aggregate assessment of key activities of daily living (e.g., hygiene, moving around the home, eating) ranging from 0-6 (Morris et al., 1999). The Cognitive Performance Scale-2 is a revised version of the original Cognitive Performance Scale, and was developed in 2005 as an improved way to identify cognitive impairment on a scale of 0-8 (Morris et al., 2016). The Communication Scale (COMM) ranges from 0-8 where higher scores indicate a greater degree of difficulty in making oneself understood, and greater difficulty understanding others (Frederiksen et al., 1996). The Changes in Health, End-stage disease, and Signs and Symptoms Scale (CHESS) is a measure of health instability where instability is assessed on a scale of 0-5 by the presence of a decline in status in the last 90 days, as well as the presence of end-stage diseases and medical problems (Hirdes et al., 2003; Hirdes et al., 2014).

5.3. Constructs of Interest

In total, 5 constructs of interest were used to inform the quantitative analysis process. These constructs were identified as mental health experiences or outcomes during the qualitative phase and consisted of: loneliness, grief and grieving, distressed mood, sleep disruptions, and social isolation. Two constructs were aggregated at a higher level than the more granular qualitative data described. The higher order construct of loneliness was selected because the interRAI-HC does not include items that could adequately tap into the dimensions of social or emotional loneliness individually, but it does contain a self-report item regarding loneliness generally. The second higher-order construct was that of distressed mood which was informed by the qualitative constructs of anxiousness, apathy, and low mood. Although the interRAI-HC contains individual items to tap into these constructs, the decision was made to use the composite

Distressed Mood Scale (DMS) which incorporates all three constructs into its aggregated scoring system. Using the DMS, which has undergone validation against established measures of global distress, will facilitate comparisons with previously reported mental health outcomes in the literature, which would not be feasible if the items were analyzed separately.

5.4. Stage 1 Mixing Phase

To operationalize the 5 constructs of interest, a total of 11 variables were selected for analysis from the interRAI-HC. This included one item each for the constructs of loneliness, grief and grieving, and distressed mood. Two items were selected for sleep disruptions, and six items were identified for the construct of social isolation. See Table 4 for a joint display of each variable and a representative quote from the qualitative data.

5.4.1. Loneliness

The loneliness item consisted of a single self-report item, where clinicians coded ‘Yes’ or ‘No’ based on the older adults’ response when asked if they feel lonely.

5.4.2. Grief and Grieving

The grief and grieving consisted of a single dichotomous item where clinicians coded ‘Yes’ or ‘No’ based on whether or not the older adult being assessed had experienced a major life stressor in the last 90 days. Major life stressors include, but are not limited to, episodes of severe personal illness; the death or severe illness of close family member/friend; a loss of their home or a major loss of income/assets; being victim to a crime such as robbery or assault; or the loss of their driving license/car. Although grief and grieving are often used to describe the process of coping with death, it can also be applied to experiences of loss more generally, where non-bereavement grief “*is the process by which one reacts and responds to these non-death*

Table 4.

Joint Display for Qualitative Survey Responses and Quantitative Assessment Variables

Mental Health Experiences & Outcomes - Construct	Qualitative Responses	Quantitative Variable
Loneliness (emotional loneliness and social loneliness)	*It can be a time when it is very difficult to even be motivated to make new friends in new environments, creating more reasons for loneliness. I would really like to see more research on the link between loneliness translating into poorer physical health…. This is a key aspect of support.* (P071) *…what is your view on the many different interventions that exist to address loneliness? I see loneliness as a major concern that I to worry about as I age*. (P264)	*Says or indicates that he/she feels lonely*[1]
Grief and grieving	*I had various ideas and plans about my retirement years …. As sole caregiver for a spouse with Parkinson's and its related dementia, and especially in this pandemic, I live a repetitive and boring daily life. I know it's what she needs and there's dignity in that – in the spirit of Jean Vanier – but it also robs me of my own life and the precious few years I have left. How do I reconcile this?* (P070)	Major life stressors in last 90 days – *e.g., episode of severe personal illness; death or severe illness of close family member/friend; loss of home; major loss of income/assets; victim of a crime such as robbery or assault; loss of driving license/car*[2]
Sleep disruptions	*Supports for promoting sleep*. (P111)	*Difficulty falling asleep or staying asleep; waking up too early; restlessness; nonrestful sleep*[3] *Too much sleep – excessive amount of sleep that interferes with person's normal functioning*[3]
Distressed mood (anxiousness, apathy, low mood)	*Anxiety in people 60+* (P076) *My wife has no interest in going for a walk in the sunshine and fresh air, no interest in making conversation with friends, new or old, no interest in self improvement through voice exercises, stability strengthening or mental stimulation like puzzles or*	DISTRESSED MOOD SCALE – Composite (*clinician-rated* if no *self-report* available; otherwise whichever score is lower) 1. *Little interest or pleasure in things you normally enjoy?**[4] 2. *Anxious, restless, or uneasy?**[4]

	games, even though she was a secondary school teacher. (P070) *Depression seems to affect many seniors. I am interested in what kinds of programs are available to help our aging population.* (P117)	3. *Sad, depressed, or hopeless?**[4] 4. *Repetitive anxious complaints/concerns (non-health related) – e.g., persistently seeks attention/reassurance regarding schedules, meals, laundry, clothing, relationships*[5] 5. *Withdrawal from activities of interest – e.g., long-standing activities, being with family/friends*[5] 6. *Sad, pained, or worried facial expressions – e.g., furrowed brow, constant frowning*[5] 7. *Expressions, including nonverbal, of a lack of pleasure in life (anhedonia) – e.g., "I don't enjoy anything anymore"*[5]
Social isolation (social participation, social interaction, length of time alone)	*Being self-isolated during the COVID-19 Pandemic has caused me to feel what it is like to be isolated and not be able to change the situation. It is tough…. I can now imagine what it might be like to be isolated because of physical or mental incapacities when I am older. I can see the importance of having the emotional and social support of friends and family. If one is separated from one's friends and/or close family because of having illness, physical or mental disability I see it as vital that a way to connect a person with others be facilitated.* (P057)	*Participation in social activities of long-standing interest**[6]
	I want to know more about MH supports that exist for seniors, particularly for those who have been in full lockdown mode during the pandemic. I know that the loneliness and isolation has truly had a negative impact on many who live in LTC and retirement. AND... I know it has been necessary! It would be helpful to have ideas as to how to support an aging loved one who is isolated, and what services can be accessed, and how. (P015)	Visit with a long-standing social relation or family member*[6] Other interaction with long-standing social relation or family member – e.g., telephone, e-mail*[6] Reduced social interactions[7] Change in social activities in last 90 days (or since last assessment if less than 90 days) – *Decline in level of participation in social, religious, occupational, or other preferred activities.* *If there was a decline, person distressed by this fact?*[8]

	Social isolation... How do we support seniors that spend the majority of their time alone, possibly depressed, probably abandoned by their family, with little or no means financially? How do we help them to get out of their homes and attend some kind of social function? How can we support these seniors when we are barely given enough time to meet their physical care plan needs? (P268)	Length of time alone during the day (morning and evening)[9] *Less than 1 hour | 1-2 hours | More than 2 hours but less than 8 hours | 8 hours or more*
*Self-report [1]interRAI-HC, F2; [2]interRAI-HC, F5; [3]interRAI-HC, J2.o-p; [4]interRAI-HC, E2.a-c; [5]interRAI-HC, E1.e-f, j-k; [6]interRAI-HC, F1.a-c; [7]interRAI-HC, E1.j; [8]interRAI-HC, F3; [9]interRAI-HC, F4		

losses, …[which] can share many features of bereavement, including in areas such as job loss or loss of a significant place or period of time.” (Smith & Delgado, 2020, p. 120). In the qualitative responses, grief incorporated not just death, but also a loss of anticipated roles, opportunities, freedoms, etc. which is exemplified in a response from an older adult and caregiver,

> *I had various ideas and plans about my retirement years, which are the first time in my life I have the resources to live an active lifestyle and travel. As sole caregiver for a spouse with Parkinson’s and its related dementia, and especially in this pandemic, I live a repetitive and boring daily life. I know it’s what she needs and there’s dignity in that – in the spirit of Jean Vanier – but it also robs me of my own life and the precious few years I have left. How do I reconcile this?* (P070)

Given this focus on a holistic and multi-faceted experience of grief, the broader ‘major life stressors’ item was deemed appropriate and representative of the qualitative themes.

5.4.3. Sleep Disruptions

The two items capturing sleep disruptions were coded on a range of 0-4 where ‘0’ meant ‘not present’ and ‘4’ meant ‘exhibited daily in past 3 days’. The items probed whether older adults had difficulties with 1) too little sleep (e.g., difficulty falling asleep, restlessness) or 2) sleeping too much (e.g., excessive to the point it interferes with their life).

5.4.4. Distressed Mood

The composite Distressed Mood Scale (DMS) was used to represent a global construct of distressed mood, which incorporated experiences of anxiousness, apathy, and low mood. The composite DMS incorporates self-report and clinician-rated items of the 3 constructs, such that the sub-scale (self-report or clinician-rated) that indicates greater distress is used as the overall score. Overall scores on the DMS range from 0-9, with 4 levels: 0 is no distress; 1-2 is mild distress; 3-4 is moderate distress; and 5-9 is severe distress.

The self-report and clinician-rated items that make up the DMS (see Table 4 for a full list) both use the same scale of 0-4, where ‘0’ means ‘not present in the last 3 days’ and ‘4’ means ‘exhibited daily in the last 3 days’. The clinician-rated items also have 1 additional option for their response scale, which captures when a ‘person could not (would not) respond’. Where there is missing data in the self-report responses, the DMS uses the clinician-rated responses. For the purposes of the DMS, responses of ‘person could not (would not) respond’ are treated as missing data.

In a recent paper by Hirdes et al. (2022), the DMS underwent a series of tests to evaluate its convergent and criterion validity, as well as its internal consistency. Previous research has evaluated inter-rater and test-retest reliability for the items comprising the DMS and based on these evaluations, the DMS has been demonstrated as a reliable and valid measure of distressed mood for “*various adult age groups across settings in the continuum of care*” (Hirdes et al., 2022, p. 10) which includes the homecare settings where the interRAI-HC is administered.

5.4.5. Social Isolation

The 6 items representing aspects of social isolation include a combination of self-report and clinician-rated variables on social participation (i.e. in valued activities; *n* = 2), social interaction (via in-person and alternative means; *n* = 3), and length of time left alone (*n* = 1).

Social participation items measured self-reports of a) the recency of social activities that an older adult feels are of long-standing interest, and b) whether they have experienced a decline in social activities in the last 90 days and if they are distressed by a decline (if one has occurred). Participation in social activities is measured on a 30-day scale and scores range from 0-4 with an additional category of ‘8’ for ‘unable to determine’. Scores of ‘0’ reflected a response of ‘never’ while a score of ‘4’ represented the older adult has participated ‘in the last 3 days’. Experiences of a decline in activities and associated distress is measured from 0-3, where ‘0’ means no decline, ‘1’ means a decline but no distress, and ‘2’ means a decline and distressed about it.

Social interaction items measured a) self-reported recency of a visit with a long-standing social relation, b) self-reported recency of an interaction with a long-standing social relation via alternative means (e.g., telephone, email), and c) a clinician-rated reduction in social interactions in the last 3 days. Both recency items used a 0-4 scale with an additional category of ‘8’ for ‘unable to determine’. Scores of ‘0’ reflected a response of ‘never’ while a score of ‘4’ represented the older adult has participated ‘in the last 3 days’. Clinician-rated declines in social interaction are scored between ‘0’ as ‘not present’ and ‘3’ as ‘exhibited daily in last 3 days’.

The length of time left alone item measures, for a typical morning and afternoon period, whether the older adult being assessed is left alone ‘less than 1 hour’ (i.e. a ‘0’ score) or up to ‘8 hours or more’ (i.e. a ‘3’ score).

5.5. Stage 2 Multivariate Analysis

Stage 1 showed the patterns of these constructs are somewhat variable overtime, but overall there was an association for time of assessment. As discussed further in Chapter 6, the social isolation variables emerged as a key construct of interest with a strong association, and therefore from a pragmatic approach were investigated as multivariate analysis of all 11 variables identified above was not feasible. Instead, two Clinical Assessment Protocols (CAPS; Activities CAP, Mental Health Social Relations CAP) were selected which incorporated key items of interest.

As discussed in Chapter 3, CAPs are designed to help clinicians identify key needs clients may be experiencing, although they are not designed to indicate the severity of that need. Each CAP is a binary representation of if a client is experiencing a given ‘syndrome’ or constellation of problematic outcomes/experiences. For example, the Activities CAP incorporates the following items into its computation: an item on decision-making capacity, clinician-rated metrics of social isolation (withdrawal from activities of interest, and reduced social interaction), and self-rated metrics of social isolation (participation in social activities of long-standing interest, visit with a long-standing social relation or family member, and other interaction with long-standing social relation or family member). The Mental Health Social Relations CAP incorporates: an item on communicative understanding[2], self-reported loneliness, change in social activities in the last 90 days and if distressed by a decline, as well as the length of time left alone during the day.

A series of three steps were undertaken to identify the multivariate dependent variables. First, the results of the bivariate quantitative analysis were reviewed to ensure any potential items/constructs did demonstrate a significant association with time of assessment. As all the variables were significantly associated, this was a brief confirmatory process. Second, the results of the qualitative framework matrix were reviewed to gain a sense of the considerations older adults, caregivers, and health/social care providers felt were most important. In this case, ‘importance’ was gauged by looking at the frequency, breadth, and depth (i.e. complexity and emotionality) associated with the mental health experiences and outcomes. Based on those informal ‘metrics’ the experience of social isolation was deemed to be the most important

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[2] Note that the Mental Health Social Relations CAP also uses the CPS score as a minimum cut-off for communicative understanding, but does not explicitly incorporate this into the *computation* process

consideration that could be assessed with the interRAI-HC. This aligned with the bivariate analyses which indicated some of the strongest associations were present between time of assessment and social isolation variables. A series of variables from the bivariate analysis were selected that exemplified the social isolation construct and the domains of social isolation discussed by qualitative respondents. These variables were assembled into a tentative list, along with their rationale for potential inclusion.

Two peer debriefing sessions were then undertaken, first with CP to discuss the quantitative findings and potential multivariate models, and second with the committee as a whole. On the advice of CP, the list of dependent variables was substituted for two CAPs that ‘roll up’ many of those items into a binary triggered-not triggered outcome. These CAPs and the bivariate results were discussed with the committee at a second peer debriefing session. At that time, no members of the committee had concerns with the analysis plans and the multivariate modelling continued.

All the CAPS, including the two selected, are binary, which means it was possible to conduct binomial logistic regression (aka logistic regression) without further modification of the dependent variables.

Chapter 6. Quantitative Phase

6.1. Introduction

Bivariate and multivariate analyses were undertaken to explore the association between time of assessment and n = 13 different variables that were informed by n = 5 constructs of interest from the qualitative framework analysis – loneliness, grief and grieving, sleep disruptions, distressed mood, and social isolation.

6.2. Sample Characteristics

Chi-square tests were conducted to evaluate the significance of an association between time of assessment and scores on each of the 8 of the social and demographic variables. See Table 5 for a list of the variables and their corresponding frequencies in the sample analyzed. There was a significant association between time of assessment and scores for all of the demographics assessed. From a pragmatic perspective however, not all of these associations demonstrated practical importance.

To clarify the application of the term ‘practical importance’ in this thesis, as Kaushik and Walsh (2019) describe it, pragmatism defines an object of interest “*based on how it would help the pragmatist achieve his/her purpose*” (p. 4) with a specific orientation towards “*solving practical problems in the real world*” (p. 4). As described in Chapter 2, the purpose of this component of the research is to explore if there are differences in mental health indicators, supports, care, or treatments for older adults during the COVID-19 pandemic. Thus, while an association may be *statistically* significant, it may also be *practically* unimportant, in the pragmatic use of the term, in that it does not practically contribute to our understanding of the mental health differences of older adults due to the marginality of the association observed (as

Table 5.

Demographic statistics for interRAI-HC assessments for Time 1 – Time 5 in the quantitative sample

	Time 1		Time 2		Time 3		Time 4		Time 5					
Demographic	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	missing	*df*	X^2	*V*
n's	32244		25051		9037		14053		16534					
Age											0	24	156.63*	*.02*
55-59	1241	*3.85*	997	*3.98*	426	*4.71*	606	*4.31*	619	*3.74*				
60-64	1857	*5.76*	1439	*5.74*	612	*6.77*	828	*5.89*	927	*5.61*				
65-69	2497	*7.74*	1821	*7.27*	806	*8.92*	1084	*7.71*	1250	*7.56*				
70-74	3478	*10.79*	2782	*11.11*	1110	*12.28*	1667	*11.86*	1930	*11.67*				
75-79	4601	*14.27*	3773	*15.06*	1376	*15.23*	2124	*15.11*	2561	*15.49*				
80-84	6188	*19.19*	4766	*19.03*	1708	*18.9*	2694	*19.17*	3165	*19.14*				
85+	12382	*38.4*	9473	*37.81*	2999	*33.19*	5050	*35.94*	6082	*36.78*				
Gender											0	8	89.54*	*.02*
Female	19475	*60.4*	14903	*59.49*	5169	*57.2*	8050	*57.28*	9434	*57.06*				
Male	12769	*39.6*	10142	*40.49*	3866	*42.78*	6000	*42.7*	7096	*42.92*				
Unknown	0	*0*	6	*0.02*	2	*0.02*	3	*0.02*	4	*0.02*				
Marital status											0	12	149.84*	*.02*
Never married	2339	*7.25*	1843	*7.36*	854	*9.45*	1143	*8.13*	1356	*8.2*				
Married or have partner/significant other	12918	*40.06*	10384	*41.45*	3680	*40.72*	5822	*41.43*	6992	*42.29*				
Widowed	13450	*41.71*	10079	*40.23*	3384	*37.45*	5419	*38.56*	6314	*38.19*				
Separated or divorced	3537	*10.97*	2745	*10.96*	1119	*12.38*	1669	*11.88*	1872	*11.32*				
Living arrangement											0	12	119.48*	*.02*
Lives alone	11510	*35.7*	8999	*35.92*	3237	*35.82*	4869	*34.65*	5607	*33.91*				
Lives with spouse or partner (with or without other relatives)	11764	*36.48*	9420	*37.6*	3325	*36.79*	5330	*37.93*	6326	*38.26*				
Lives with other relatives (not with spouse or partner)	5309	*16.47*	4066	*16.23*	1664	*18.41*	2451	*17.44*	2981	*18.03*				
Lives with non-relatives	3661	*11.35*	2566	*10.24*	811	*8.97*	1403	*9.98*	1620	*9.8*				
Functional status											0	8	273.79*	*.04*
Independent (ADLH 0)	13600	*42.18*	10908	*43.54*	3406	*37.69*	5422	*38.58*	6226	*37.66*				
Supervision or limited assistance required (ADLH 1-2)	10116	*31.37*	7751	*30.94*	3012	*33.33*	4537	*32.28*	5287	*31.98*				
Moderate to severe ADL impairment (ADLH 3+)	8528	*26.45*	6392	*25.52*	2619	*28.98*	4094	*29.13*	5021	*30.37*				
Cognitive status											11	8	237.34*	*.04*
Intact (CPS2 0-1)	7533	*23.36*	5971	*23.84*	2057	*22.76*	2817	*20.05*	3502	*21.18*				
Borderline impairment (CPS2 2-3)	13494	*41.85*	10577	*42.22*	3639	*40.27*	5649	*40.21*	6604	*39.95*				
Moderate to severe cognitive impairment (CPS2 4+)	11214	*34.78*	8503	*33.94*	3340	*36.96*	5582	*39.74*	6426	*38.87*				
Communication: expression and comprehension											0	4	137.62*	*.04*
No to low communication impairment (COMM 0-3)	28986	*89.9*	22683	*90.55*	8040	*88.97*	12310	*87.6*	14509	*87.75*				

Moderate to severe communication impairment (COMM 4+)	3258	*10.1*	2368	*9.45*	997	*11.03*	1743	*12.4*	2025	*12.25*				
Health instability											0	4	439.59*	*.07*
No to low health instability (0-2)	23204	*71.96*	17168	*68.53*	5783	*63.99*	9082	*64.63*	10795	*65.29*				
Moderate to very high health instability (CHESS 3+)	9040	*28.04*	7883	*31.47*	3254	*36.01*	4971	*35.37*	5739	*34.71*				

*$p < .0001$

based on the association guidelines outlined in Chapter 3).

By and large, there were no practically significant differences observed for marital status (*V* = .02) or type of living arrangement (*V* = .02). In each of the 5 time periods, approximately 40% of older adults assessed were married or in a committed long-term relationship. Similarly, in each of the 5 time periods about half of older adults were living with a spouse/partner or some other relative. Only around 1/3 of older adults were living alone. Although gender did produce a visible trend, which was a small increase in the proportional frequency of older men being assessed, this is a largely marginal difference (*V* = .02), which comes out to a 3.32% difference at its largest deviation and is likely attributable to the differing assessment volumes across time periods. Slightly more than half (between 57-60%) of older adults in each cohort were female. The frequency of different age groups across the 5 time periods also produced a loose trend, towards a greater frequency of young- and middle-older adults (i.e. those less than 80 years of age), but this was a small enough association (*V* = .02) to be negligible.

When examining the sub-scales for assessed functional status, cognitive status, and communication ability, there was a weak association between time of assessment and the scores on the ADLH (*V* = .04), CPS2 (*V* = .04), and COMM (*V* = .04) respectively. There was a weak to moderate association between time of assessment and health instability scores on the CHESS (*V* = .07). For all four metrics, there was a general increase in the frequency of assessed impairment, such that older adults receiving home care during the pandemic were less functionally independent, demonstrated greater cognitive and communicative impairment, and had greater health instability when compared to the pre-pandemic cohort (see figures in Appendix E).

6.3. Bivariate Analysis

There was a significant association between time of assessment and all of the dependent variables of interest. The strength of these associations ranged between almost negligible (i.e. $V = .02$) and strong (i.e. $V = .14$), with the stronger associations typically seen among the social isolation dependent variables. Overall comparisons are available in Table 6 and matched time-point comparisons are available in Appendix F.

6.3.1. Loneliness

There was a weak association ($V = .04$) demonstrated between self-reported loneliness and time of assessment (x^2 (4, n = 96,908) = 160.52, $p < .0001$), with raw residuals indicating an increase in the frequency of individuals reporting feeling lonely.

6.3.2. Grief and Grieving

Individuals reporting experiencing a major life stressor, which includes death of a close family/friend as well as other types of loss (e.g., severe personal illness, major loss of income/assets), were more frequently observed during the intra-pandemic time periods, than during the pre-pandemic cohorts. Chi-square analyses (x^2 (4, 96,908) = 551.55, $p < .0001$) indicated a weak to moderate association ($V = .08$), with pre-pandemic frequencies of major life stressors ranging between 24.28%-28.80% and intra-pandemic frequencies ranging between 30.98%-33.94%. At its peak (Time 3, Wave 1), approximately 1 in 3 older adults had experienced some type of major life stressor in the last 90 days prior to assessment.

6.3.3. Sleep Disruptions

Both types of sleep disruptions demonstrated a significant but negligible association ($V = .02$) with time of assessment. Difficulty falling asleep during the pandemic (x^2 (16, n = 96,919) = 146.00, $p < .0001$) when compared to the matched pre-pandemic time period, demonstrated a

Table 6.

Frequencies and Chi-Square Test of Independence Values for Bivariate Quantitative Analyses

	Time 1		Time 2		Time 3		Time 4		Time 5					
Variable	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	missing	*df*	x^2	*V*
Self-reported loneliness											11	4	160.52*	*.04*
No	26374	*81.80*	20329	*81.15*	7018	*77.67*	10920	*77.73*	13160	*79.60*				
Yes	5867	*18.20*	4722	*18.85*	2018	*22.33*	3128	*22.27*	3372	*20.40*				
Major life stressor in last 90 days (e.g., episode of severe personal illness; death or severe illness of close family member/friend; loss of home; major loss of income/assets; victim of a crime such as robbery or assault; loss of driving license/car)											11	4	551.55*	*.08*
No	24412	*75.72*	17837	*71.20*	5969	*66.06*	9536	*67.88*	11411	*69.02*				
Yes	7829	*24.28*	7214	*28.80*	3067	*33.94*	4512	*32.12*	2121	*30.98*				
Difficulty falling asleep or staying asleep; waking up too early; restlessness; nonrestful sleep											0	16	146.00*	*.02*
Not present	21292	*66.03*	15914	*63.53*	5744	*63.56*	8829	*62.83*	10697	*64.70*				
Present but not in past 3 days	1438	*4.46*	1104	*4.41*	504	*5.58*	750	*5.34*	892	*5.39*				
Exhibited on 1 of last 3 days	1710	*5.30*	1435	*5.73*	562	*6.22*	860	*6.12*	926	*5.60*				
Exhibited on 2 of last 3 days	1294	*4.01*	1072	*4.28*	438	*4.85*	690	*4.91*	715	*4.32*				
Exhibited daily in past 3 days	6510	*20.19*	5526	*22.06*	1789	*19.80*	2924	*20.81*	3304	*19.98*				
Too much sleep - excessive amount of sleep that interferes with person's normal functioning											0	16	90.18*	*.02*
Not present	27967	*86.74*	21714	*86.68*	7690	*85.09*	11900	*84.68*	13996	*84.65*				
Present but not in past 3 days	538	*1.67*	373	*1.49*	179	*1.98*	262	*1.86*	302	*1.83*				
Exhibited on 1 of last 3 days	627	*1.94*	476	*1.90*	201	*2.22*	331	*2.36*	390	*2.36*				
Exhibited on 2 of last 3 days	533	*1.65*	407	*1.62*	191	*2.11*	256	*1.82*	298	*1.80*				
Exhibited daily in past 3 days	2579	*8.00*	2081	*8.31*	776	*8.59*	1304	*9.28*	1548	*9.36*				
Distressed Mood Scale											11	12	94.33*	*.02*
Composite of score 0	16230	*50.34*	12128	*48.41*	4183	*46.29*	6699	*47.69*	7943	*48.05*				
Composite of scores 1-2	9056	*28.09*	7175	*28.64*	2545	*28.17*	4034	*28.72*	4789	*28.97*				
Composite of scores 3-4	5027	*15.59*	4110	*16.41*	1646	*18.22*	2395	*17.05*	2727	*16.50*				
Composite of scores 5-9	1928	*5.98*	1638	*6.54*	662	*7.33*	920	*6.55*	1073	*6.49*				
Participation in social activities of long-standing interest											11	20	7150.08*	*.14*
Never	4735	*14.69*	3524	*14.07*	1121	*12.41*	2122	*15.11*	2630	*15.91*				
More than 30 days ago	7845	*24.33*	6775	*27.04*	4513	*49.94*	6453	*45.94*	7672	*46.41*				
8-30 days ago	3668	*11.38*	3343	*13.34*	947	*10.48*	1008	*7.18*	1002	*6.06*				
4-7 days ago	3650	*11.32*	2762	*11.03*	347	*3.84*	777	*5.53*	819	*4.95*				

In last 3 days	10249	*31.79*	6891	*27.51*	1271	*14.07*	2356	*16.77*	2879	*17.41*				
Unable to determine	2094	*6.49*	1756	*7.01*	837	*9.26*	1332	*9.48*	1530	*9.25*				
Visit with a long-standing social relation or family member											11	20	5089.88*	*.11*
Never	1572	*4.88*	1219	*4.87*	487	*5.39*	799	*5.69*	989	*5.98*				
More than 30 days ago	1535	*4.76*	1285	*5.13*	2061	*22.81*	1870	*13.31*	2096	*12.68*				
8-30 days ago	2022	*6.27*	1646	*6.57*	1130	*12.51*	1244	*8.86*	1219	*7.37*				
4-7 days ago	4313	*13.38*	3298	*13.17*	864	*9.56*	1754	*12.49*	2107	*12.74*				
In last 3 days	22155	*68.72*	17119	*68.34*	4106	*45.44*	7969	*56.73*	9641	*58.32*				
Unable to determine	644	*2.00*	484	*1.93*	388	*4.29*	412	*2.93*	480	*2.90*				
Other interaction with long-standing social relation or family member - e.g., telephone, e-mail											11	20	120.51*	*.02*
Never	2447	*7.59*	1858	*7.42*	515	*5.70*	884	*6.29*	1040	*6.29*				
More than 30 days ago	1747	*5.42*	1406	*5.61*	530	*5.87*	878	*6.25*	959	*5.80*				
8-30 days ago	1753	*5.44*	1346	*5.37*	522	*5.78*	733	*5.22*	778	*4.71*				
4-7 days ago	3724	*11.55*	2863	*11.43*	990	*10.96*	1621	*11.54*	1811	*10.95*				
In last 3 days	21230	*65.85*	16607	*66.29*	6118	*67.71*	9381	*66.78*	11328	*68.52*				
Unable to determine	1340	*4.16*	971	*3.88*	361	*4.00*	551	*3.92*	616	*3.73*				
Reduced social interactions (clinician-rated)											11	12	1123.01*	*.06*
Not present	26002	*80.65*	19705	*78.66*	6210	*68.73*	10510	*74.81*	12664	*76.60*				
Present but not exhibited in last 3 days	1053	*3.27*	838	*3.35*	243	*2.69*	469	*3.34*	501	*3.03*				
Exhibited on 1-2 of last 3 days	1072	*3.32*	901	*3.60*	239	*2.64*	383	*2.73*	438	*2.65*				
Exhibited daily in last 3 days	4114	*12.76*	3607	*14.40*	2344	*25.94*	2686	*19.12*	2929	*17.72*				
Change in social activities in last 90 days, and if there was a decline if they are distressed by this fact											11	8	1815.84*	*.10*
No decline	14186	*44.00*	9797	*39.11*	2208	*24.44*	4246	*30.22*	5290	*32.00*				
Decline, not distressed	12147	*37.68*	10235	*40.86*	4640	*51.35*	6643	*47.29*	7819	*47.30*				
Decline, distressed	5908	*18.32*	5019	*20.04*	2188	*24.21*	3159	*22.49*	3423	*20.71*				
Length of time alone during the day (morning and afternoon)											6	12	1397.19*	*.07*
Less than 1 hour	12108	*37.55*	9746	*38.90*	4625	*51.18*	6710	*47.75*	8088	*48.92*				
1-2 hours	5134	*15.92*	3912	*15.62*	1100	*12.17*	1885	*13.41*	2228	*13.48*				
More than 2 hours but less than 8 hours	7596	*23.56*	5709	*22.79*	1296	*14.34*	2386	*16.98*	2761	*16.70*				
8 hours or more	7403	*22.96*	5684	*22.69*	2015	*22.30*	3071	*21.85*	3456	*20.90*				

*p < .001

marginal increase in the frequency of moderate sleep issues (i.e. present but not in the past 3 days, exhibited in 1-2 of the last 3 days), with declines in both daily recurrence and no symptoms reporting. Excessive sleeping (x^2 (16, n = 96,919) = 90.18, p < .0001) had a decline in the frequency of no symptoms, and an increase in the frequency of moderate to daily sleep issues, although this was only a change of approximately 2%.

6.3.4. Distressed Mood

The composite Distressed Mood Scale did demonstrate a significant (x^2 (20, n = 96,908) = 94.33, p < .0001) but almost negligible association (V = .02) with time of assessment. Like the excessive sleeping variable, there was an increase in the frequency of distressed mood, but the overall difference was in the range of a 2% change when comparing intra-pandemic time periods to their matched pre-pandemic time period. In the case of Time 4 (i.e. Wave 2 of the pandemic), it did not significantly differ from the pre-pandemic Time 2 (x^2 (3, n = 39,099) = 3.24, p = .356) (see Appendix F for a detailed breakdown by matched time period).

6.3.5. Social Isolation

Participation in social activities of long-standing interest (x^2 (20, n = 96,908) = 7,150.08, p < .0001) demonstrated a large association (V = .14) with time of assessment. In general, across the matched time periods there was a decline in the frequency of individuals reporting participation in social activities within the past month (i.e. 30 days ago or less). When comparing the intra-pandemic time periods to their matched pre-pandemic time periods, the strength of the association (as compared to the overall association) increased greatly, ranging between V = .23 (Time 4 vs. 2) and V = .27 (Time 3 vs. 1).

Of note, there was also an increase in the frequency of clinician-selected ‘unable to determine’ scores. This score is only selected if “*no information is available from the person or other informants about the person’s social relationships*” (Morris et al., 2012, p. 40). In the case of participation in social activities, the range of events that qualifies is very broad, and anything should be counted “*as long as they involve interaction with at least one other person*” (Morris et al., 2012, p. 39). In fact, even gossiping with neighbours on their front porches qualifies.

Visits with a long-standing social relation or family member (x^2 (20, n = 96,908) = 5,089.88, $p < .0001$) had a moderate association ($V = .11$) with time of assessment. Older adults assessed during the pandemic were less frequently visiting with close family or friends in the week prior to their assessment. There was a slight increase in the frequency of visits between 8-30 days prior to assessment, which ranged between an increase of 6.24% for Time 1 and 1.1% for Time 3. The association between time of assessment and a decline in frequent family visits was strongest for Wave 1 of the pandemic (Time 3 vs. 1) with an association of $V = .31$, although it was also strong for Wave 2 (Time 4 vs. 2; $V = .16$) and Wave 3 (Time 5 vs. 1; $V = .16$).

Overall, across the 5 time periods, there was an almost negligible association ($V = .02$) between time of assessment and increased frequency of interactions with family members through alternative means, e.g., telephone, email (x^2 (20, n = 96,908) = 120.51, $p < .0001$). This was largely consistent across all 3 waves, where associations ranged between $V = .02$ for Wave 2 (Time 4 vs. 2) and $V = .04$ for Wave 3 (Time 5 vs. 1). It is worth noting though, that approximately 2/3rd of the sample already had contact with a close relation within the past 3 days, so a ceiling effect may be observed.

Clinician-rated declines in social interactions had a weak ($V = .06$) association with time of assessment, such that intra-pandemic time points had a higher frequency of individuals rated as exhibiting a decline daily in the last 3 days (x^2 (12, n = 96,908) = 1123.01, p < .0001). Interestingly, there was a strong (V = .15) association between a decline in social interaction and time of assessment when comparing Wave 1 (Time 3) frequencies against its matched pre-pandemic time point (Time 1) (x^2 (3, n = 41,277) = 930.04, p < .0001) while Wave 2 (Time 4 vs. 2) and Wave 3 (Time 5 vs. 1) had weak (V = .06) and weak-middling (V = .07) associations respectively.

There was a moderate (V = .10) association between time of assessment and the frequency of older adults experiencing a decline in their social activities in the last 90 days with distress, *and* without distress about this change (x^2 (12, n = 96,913) = 1815.84, p < .0001). Across all 3 waves of the pandemic (when compared to their matched pre-pandemic period) there was a greater frequency of individuals reporting no distress at the decline they experienced (between 47.29-51.35%) as compared to those experiencing distress (20.71-24.21%). Similarly, the increase in the proportional frequency of individuals reporting no distress (between 6.43-13.67%) was larger than the proportional increase in the frequency of individuals reporting distress (between 2.45-5.89%). Put another way, although there was an increase in the number of individuals reporting a decline in social activities in the last 90 days, the majority of individuals experiencing a decline were not distressed by this fact.

Finally, there was a weak-middling association (V = .07) between time of assessment and the length of time an older adult (on average) is left alone during the day (x^2 (12, n = 96,913) = 1397.19, p < .0001). When examining the raw residuals for the intra-pandemic time periods (as compared to their matched pre-pandemic time period), the frequency of individuals left alone the most (i.e. 8 hours or more) stayed the same, from a pragmatic perspective, with differences of only 1-2% demonstrated between Waves 1-3. Unexpectedly, all 3 waves demonstrated a *decline* in the frequency of individuals left alone for middling periods of time (between 1-7 hours a day), and an increase in the frequency of individuals left alone for less than 1 hour a day (between 8.85-13.63%).

6.4. Multivariate Analysis

There was a significant association between time of assessment and both dependent variables, after controlling for the effects of age, gender, marital status, living arrangement, functional status, cognitive status, communication ability, and health instability (see Table 7). Sensitivity analyses were conducted to compare the model results when 1) the model was stratified by gender, and 2) when Time 2 assessments were used as the reference. In both situations, the models tested produced similar results to those discussed below (see Appendix G for an overview). Given these similarities, it was deemed sufficient to proceed with the model as stated, without further alterations.

6.4.1. Activities CAP

The logistic regression model for the effect of time of assessment and other demographic variables on the Activities CAP was significant overall, with x^2 (23, n = 96,893) = 2,218.08 and $p < .0001$. The Goodness-of-Fit, as demonstrated by the Hosmer & Lemeshow (H-L) goodness-of-fit test was not significant (x^2(8, n = 96,893) = 9.48, p = .303), which demonstrated the proposed model was a good fit for the data. Overall, the *c*-statistic was .591, which indicated the model was 59.1% likely to correctly predict whether a randomly selected client would trigger the CAP.

All of the independent variables of interest were significant at $p < .0001$, except for gender, which was significant at $p < .05$. Sociodemographic factors, like age, gender, marital

Table 7.

Binomial Logistic Regression Results for Activities and Social Relations CAPs on the interRAI-HC

		Overall Comparison			Goodness of Fit			Analysis of Effects			Odds Ratio Estimates		
Variable	*n*	Likelihood Ratio	*df*	*c*	x^2	*df*	*p*	Reference Group	Wald x^2	*df*	Effect	Point Estimate	95% CL[2]
Activities CAP	96,893[1]	2218.08**	23	0.591	9.48	8	.303						
Time of Assessment								Time 1	150.87**	4			
											Time 2 vs. 1	1.044	1.007-1.083
											Time 3 vs. 1	1.308	1.245-1.375
											Time 4 vs. 1	1.167	1.118-1.218
											Time 5 vs. 1	1.146	1.100-1.193
Age Group								Age 55-59	185.93**	6			
											Age 60-64	1.049	0.963-1.144
											Age 65-69	0.942	0.867-1.023
											Age 70-74	0.95	0.879-1.028
											Age 75-79	0.883	0.817-0.953
											Age 80-84	0.830	0.770-0.896
											Age 85+	0.754	0.700-0.812
Gender								Female	5.01*	1			
											Male	1.034	1.004-1.065
Marital Status								Never Married	49.32**	3			
											Married or have partner/ significant other	0.949	0.878-1.027
											Widowed	0.918	0.867-0.973
											Separated or divorced	1.092	1.026-1.163

Living Arrangement								Lives Alone	199.30**	3			
											Lives with spouse/partner	0.937	0.877-1.001
											Lives with other relatives	1.007	0.967-1.049
											Lives with non-relatives	0.703	0.668-0.740
Functional Status (ADLH score)								Independent (ADLH 0)	49.19**	2			
											Supervision or limited assistance required (ADLH 1-2)	1.115	1.078-1.153
											Moderate to severe ADL impairment (ADLH 3+)	1.113	1.073-1.154
Cognitive Status (CPS2)								Intact (CPS2 0-1)	187.47**	2			
											Borderline impairment (CPS2 2-3)	1.283	1.236-1.331
											Moderate to severe impairment (CPS2 4+)	1.273	1.220-1.327
Communication (COMM)								No to low impairment (COMM 0-3)	212.73**	1			
											Moderate to severe impairment (COMM 4+)	0.687	0.653-0.722
Health Instability (CHESS)								No to low health instability (CHESS 0-2)	916.45**	1			
											Moderate to very high health instability (CHESS 3+)	1.570	1.525-1.616

Variable	*n*	Likelihood Ratio	*df*	*c*	x^2	*df*	*p*	Reference Group	Wald x^2	*df*	Effect	Point Estimate	95% CL[2]
Social Relations CAP	96,893[1]	6377.89**	23	0.685	3.33	8	.912						
Time of Assessment								Time 1	140.71**	4			
											Time 2 vs. 1	1.036	0.991-1.083
											Time 3 vs. 1	1.275	1.201-1.354
											Time 4 vs. 1	1.282	1.218-1.350
											Time 5 vs. 1	1.163	1.107-1.223
Age Group								Age 55-59	309.27**	6			

				Age 60-64	0.956	0.863-1.059
				Age 65-69	0.812	0.739-0.901
				Age 70-74	0.791	0.720-0.869
				Age 75-79	0.682	0.622-0.749
				Age 80-84	0.649	0.592-0.712
				Age 85+	0.572	0.523-0.626
Gender	Female	18.48**	1			
				Male	0.923	0.890-0.957
Marital Status	Never Married	153.43**	3			
				Married or have partner/ significant other	1.425	1.300-1.561
				Widowed	1.514	1.415-1.621
				Separated or divorced	1.472	1.370-1.581
Living Arrangement	Lives Alone	1709.45**	3			
				Lives with spouse/partner	0.254	0.235-0.275
				Lives with other relatives	0.504	0.480-0.528
				Lives with non-relatives	0.688	0.651-0.728
Functional Status (ADLH score)	Independent (ADLH 0)	122.96**	2			
				Supervision or limited assistance required (ADLH 1-2)	0.823	0.790-0.858
				Moderate to severe ADL impairment (ADLH 3+)	0.805	0.769-0.842
Cognitive Status (CPS2)	Intact (CPS2 0-1)	337.56**	2			
				Borderline impairment (CPS2 2-3)	1.495	1.429-1.565

				Moderate to severe impairment (CPS2 4+)	1.531	1.453-1.612
Communication (COMM)	No to low impairment (COMM 0-3)	320.21**	1			
				Moderate to severe impairment (COMM 4+)	0.528	0.492-0.566
Health Instability (CHESS)	No to low health instability (CHESS 0-2)	386.01**	1			
				Moderate to very high health instability (CHESS 3+)	1.431	1.381-1.483

[1] omitted for unknown gender *n* = 2, omitted due to missing values *n* = 11

[2] 95% Wald Lower Confidence Limit & Upper Confidence Limit

**p* < .05, ***p* < .0001

status, and living arrangement had a mixed relationship with the likelihood of triggering the Activities CAP.

After taking these variables into account, there was a significant effect for time of assessment (x^2(4, *n* = 96,893) = 150.87, *p* < .0001) with individuals assessed during Wave 1 of the pandemic over 30% more likely to have triggered the CAP (95% *CL* = 1.245-1.375), and those assessed during Wave 2 and 3 approximately 15% more likely (95% CL_{Wave2} = 1.118-1.218; 95% CL_{Wave3} = 1.100-1.193). Individuals assessed during Time 2, the other pre-pandemic time period of reference were also slightly more likely to have triggered the CAP (95% *CL* = 1.007-1.083). When considering this value, note however that the maximum value of the 95% *CL* = 1.083 which is still below the *lowest* value of the 95% *CL* for the Wave with the *lowest* odds of change (Wave 3, Time 5) where the minimum 95% *CL* = 1.100. Additionally, from a methodological perspective, this reinforces the value in the inclusion of seasonally matched time periods, as it provides additional contextualizing data for the differences observed.

When compared to the reference group of older adults aged 55-59, there was no significant difference in the odds ratios observed for adults aged 60-64 (95% *CL* = .963-1.144), aged 65-69 (95% *CL* = .867-1.023), or aged 70-74 (95% *CL* = .879-1.028). Older adults above 75 years of age were slightly less likely to trigger the Activities CAP, compared to individuals aged 55-59, where those 75-79 were 11.7% less likely (95% *CL* = .817-.953), those aged 80-84 were 17% less likely (95% *CL* = .830-.896), and those aged 85 and older were just under 25% less likely (95% *CL* = .700-.812). Older men were slightly more likely than women to trigger the Activities CAP, at 3.5% (95% *CL* = 1.004-1.065).

There was no significant odds difference for individuals who were married or in a long term committed relationship, as compared to those who were never married. Widowhood provided slightly lower odds of triggering the CAP, at 8.2% less likely (95% *CL* = .867-.973). Older adults who were separated or divorced were just under 10% more likely to trigger it (95% *CL* = 1.026-1.163). Living with family members, either spouses or other family, did not produce significantly different odds from individuals who were living alone. Living with *non-relatives* was associated with lower odds of trigger the Activities Cap – those older adults were almost 30% less likely (95% *CL* = .668-.740).

Health demographics were generally positively associated with greater odds of triggering the Activities CAP, such that individuals with greater assessed impairment were typically more likely to have triggered it. Older adults demonstrating decreased functional capacity (i.e., higher ADLH scores) were 11.3-11.5% more likely to trigger it (95% $CL_{Supervision}$ = 1.078-1.153; 95% $CL_{Moderate\text{-}severe}$ = 1.073-1.154), while individuals demonstrating some degree of cognitive impairment on the CPS2 were approximately 28% more likely to trigger the CAP (95% $CL_{Borderline}$ = 1.236-1.1331; 95% $CL_{Moderate\text{-}severe}$ = 1.220-1.327). Unexpectedly, demonstrated moderate to severe communication impairment was associated with *lower* odds, such that individuals with a COMM score of 4 or more were 31.3% less likely (95% *CL* = .653-.722). Overall, health instability (as measured by the CHESS scale) had the largest odds ratio, with scores of moderate to very high health instability (i.e., CHESS 3+ scores) predicting a 57.0% (95% *CL* = 1.525-1.616) greater likelihood of triggering the Activities CAP.

6.4.2. Social Relations CAP

The logistic regression model for the effect of time of assessment and other demographic variables on the Social Relations CAP was significant overall, with x^2 (23, n = 96,893) = 6,377.89 and $p < .0001$. The Goodness-of-Fit, as demonstrated by the Hosmer & Lemeshow (H-L) goodness-of-fit test was not significant (x^2(8, n = 96,893) = 3.33, p = .912), which demonstrated the proposed model was a good fit for the data. Overall, the *c*-statistic indicated the model was 68.5% likely to correctly predict whether a randomly selected client would trigger the CAP. A *c*-statistic around .700 is generally considered to indicate a good model.

After taking the social and demographic variables into account, there was a significant association between time of assessment and likelihood of triggering the Social Relations CAP. Time 2, which was the other pre-pandemic time point, did not have significantly different odds (95% *CL* = .991-1.083). Being assessed during Wave 1, 2, and 3 were all associated with a greater likelihood of triggering the CAP. Wave 1 (i.e. Time 3) was associated with a 27.5% greater risk (95% *CL* = 1.201-1.354), while Wave 2 (i.e. Time 4) had 28.2% greater odds (95% *CL* = 1.218-1.350), and Wave 3 (Time 5) had 16.3% greater odds (95% *CL* = 1.107-1.223).

In general, older age at time of assessment was associated with lower odds of triggering the Social Relations CAP, such that individuals aged 65-69 were 18.8% less likely (95% *CL* = .739-.901), all the way to individuals aged 85 and older who were 42.8% less likely than individuals aged 55-59 to trigger it (95% *CL* = .523-.626). Contrary to the Activities CAP, men were less likely to trigger the Social Relations CAP – at just under 8% less likely (95% *CL* = .890-.957).

In comparison to those who were never married, individuals married or with a partner were 42.5% more likely to trigger the CAP (95% *CL* = 1.300-1.561), while those widowed were 51.4% more likely (95% *CL* = 1.415-1.621), and those separated or divorced were 47.2% more likely (95% *CL* = 1.370-1.581). Contrary to the trend observed among relationship status, older adults living alone were more likely to trigger the CAP in comparison to other dwelling arrangements. Older adults living with their spouse or partner (with or without other family members) were almost 75% less likely to trigger the Social Relations CAP (95% *CL* = .235-

.275). Living with other relatives (but not a partner/spouse) was associated with an almost 50% lower likelihood (95% *CL* = .480-.528), and older adults living with non-relatives were just over 30% less likely to trigger the CAP (95% *CL* = .651-.728).

Medical status had a mixed relationship with the likelihood of triggering the Social Relations CAP – functional status and communication impairments were associated with lower odds, while demonstrated cognitive impairment and health instability were associated with greater odds. Requiring greater assistance with activities of daily living, as assessed by scores on the ADLH, was associated with 17.7-19.5% lower odds of triggering the CAP (95% $CL_{Supervision}$ = .823-.858; 95% $CL_{Moderate\text{-}severe}$ = .769-.842). Moderate to severe communication impairment was associated with a 47.2% lower likelihood of triggering it (95% *CL* = .492-.566). Assessed impairment that was borderline 'impaired' was associated with 49.5% greater likelihood (95% *CL* = 1.429-1.565), and moderate to severe impairment assessed via the CPS2 was associated with 53.1% greater likelihood (95% *CL* = 1.453-1.612). Moderate to very high health instability (CHESS scores 3+) was associated with 43.1% greater risk of triggering the Social Relations CAP (95% *CL* = 1.381-1.483).

6.5. Summary

Taken together, the results indicate that older adults assessed during the pandemic were generally experiencing greater loneliness, distressed mood, grief/loss, and social isolation, as compared to those assessed prior to the pandemic.

Chapter 7. Discussion and Conclusions

7.1. Introduction

The purpose of this thesis was to apply a pragmatic approach to studying the mental health differences experienced by Ontarian older adults during the COVID-19 pandemic. Specifically, this meant 1) identifying the considerations older adults, their caregivers, and health or social care providers have regarding aging and mental health support, care, and treatment, as identified during the beginning of the COVID-19 pandemic; and 2) exploring if there are differences in mental health indicators, supports, care, or treatments for older adults during the COVID-19 pandemic.

7.2. Discussion

Based on the stated purpose of this thesis, 4 key considerations were identified from the qualitative responses, and 2 key differences in mental health indicators were explored with the quantitative assessment data. The key considerations were: 1) core principles respondents felt influenced the experiences and outcomes of older adults; 2) societal and system-level factors that affected older adult mental health; 3) services, supports, and programs that respondents felt would be valuable; and 4) mental health experiences and outcomes as mapped to the dual continuum model of mental health (see Figure 1, reprinted from Chapter 4). The key differences observed were 1) older adults assessed during the pandemic had a greater frequency of poor mental health outcomes but this difference was small; and 2) a greater frequency of older adults assessed during the pandemic were experiencing multi-dimensional social isolation.

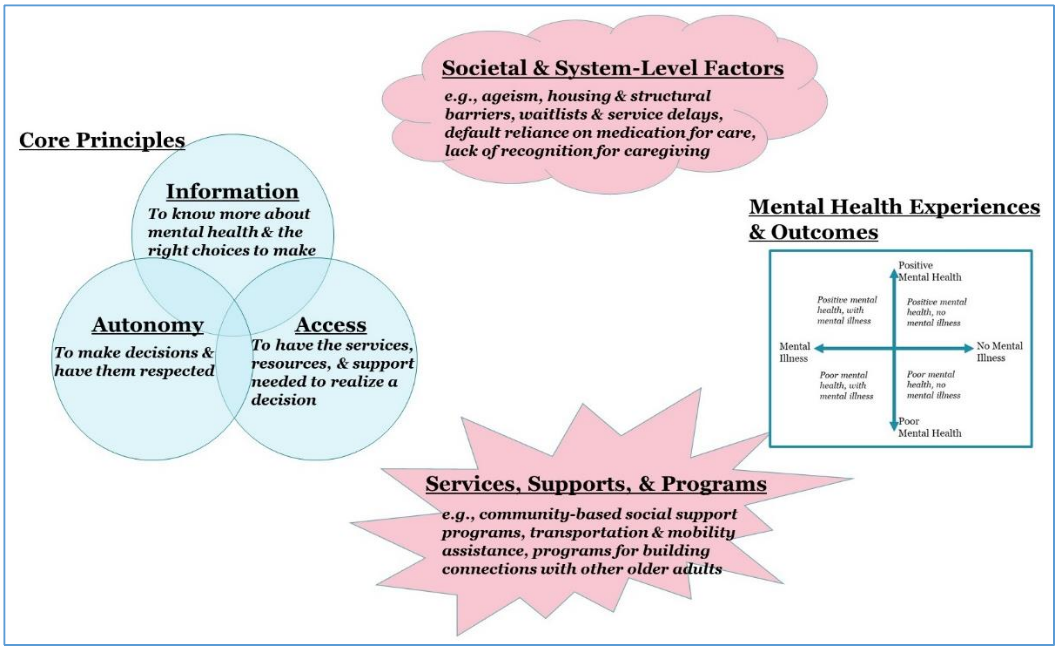

Figure 8. Four key areas of consideration identified in the qualitative survey responses

The core principles were a set of essential considerations that older adults, caregivers, and health and social care providers felt were strongly tied to the mental health of older adults. These principles were pervasive – they appeared in frustrations about resources not accommodating older adults' technological needs, they motived questions about appropriate treatment options, and most of all they encouraged a change in the status quo. Respondents felt, if an older adult has the necessary information about mental health across the life course, with the autonomy to decide what care was most appropriate for their whole self, and with access to the resources needed to action this – they would be much better off. In that way, these principles may function as an intermediary between the connections internal 'resources' or beliefs and external societal- and system-level factors have on mental health experiences and outcomes.

As discussed frequently throughout this thesis, conceptualizations like the dual-continuum model of mental health provide rich insight into the myriad of different ways that mental health can be experienced. In Keyes' (2002) model, individuals may be 'flourishing' with positive mental well-being and no mental illness. They may be in a 'middling' state with some presence of mental well-being and mental illness, or no mental illness but only moderate well-being. And they may also be ‘languishing’ with poor mental well-being and the presence of mental illness. This moment-to-moment status of mental health is composed of a complex constellation of intrinsic and extrinsic factors – the totality of which is still not entirely understood. However, we know that intrinsic and extrinsic factors *do* have an impact on mental health.

Internal phenomena such as resilience (Gloria & Steinhardt, 2016), self-efficacy (Schonfeld et al., 2016), and self-compassion (Hwang et al., 2016) have evidence to support their influence on subjective mental health. Similarly, external influences such as service access (von Humboldt et al., 2022), membership to a vulnerable group (Nam et al., 2021), and experiences of stigma (Ayalon et al., 2021; Monahan et al., 2020) also have a demonstrated impact on mental health. The core principles important for older adult mental health fit within this existing knowledge and based on respondents’ conceptualization, suggest internal and external factors may have a direct action upon mental health experiences and outcomes, *and*, if they help older adults fulfill their needs of information, autonomy, and access, an indirect action through the principles (see Figure 8 for a visualization of this concept). In the opposite direction, internal or external factors that inhibit the fulfillment of these principles may negatively affect mental health experiences and outcomes – either by negating the positive effects of other factors, or by introducing additional ‘stressors’.

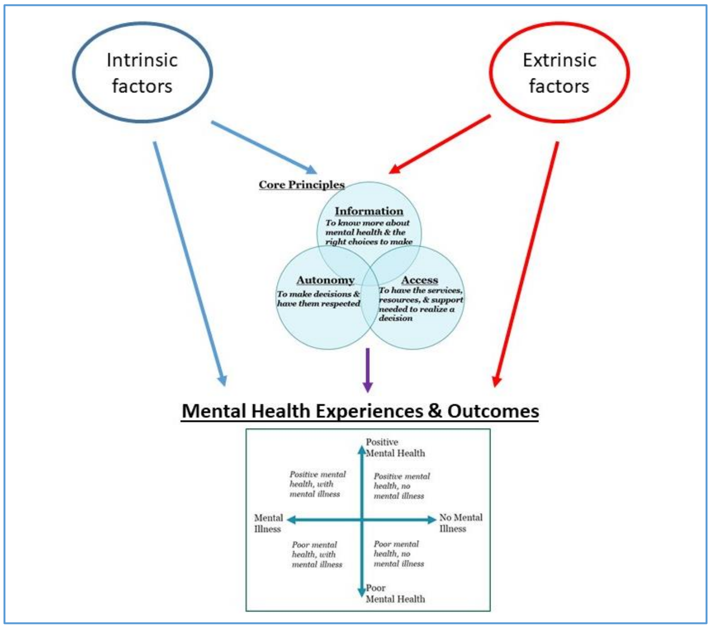

Figure 9. Tentative connection between intrinsic and extrinsic factors on the core principles

When thinking about the core principles in the context of mental health experiences and outcomes it is important to note these are not entirely novel concepts – for example, existing research suggests that restrictions placed on older adults' decision-making autonomy may contribute to the development of depression (Boyle, 2005). Indeed, the movement towards shared decision-making and the participation of service users in their care, mental health or otherwise (Dahlqvist Jonsson et al., 2015), could be considered a practical fulfillment of the *autonomy* principle. Mental health literacy, which has been defined as the "knowledge and beliefs about mental disorders which aid their recognition, management, or prevention" (Jorm et al., 1997, p. 182) could be considered a direct influence on the intrinsic fulfillment of the *information* principle whereby it affects one's ability to interpret information regarding mental health or illness. In fact, mental health literacy has been shown to influence mental health-related decision-making, especially in relation to help-seeking behaviours for psychiatric symptoms, and may influence attitudes towards mental health providers and treatment compliance (Furnham & Swami, 2018). And health service accessibility, an almost linear example of the *access* principle, has been shown to relate to older adults' mental health and behaviours (von Humboldt et al., 2022). What is novel, at least insofar as this researcher has been able to determine, is the explicit, unprompted identification of these principles as important considerations in regard to aging and mental health for older adults, and the interplay between the three principles themselves. Prior literature predominantly examines these principles and/or examples of the principles in isolation. That is, a paper may explore how sociodemographic factors like the level of education obtained influence mental health literacy (*information*) (Kim et al., 2017), but it does not explore how a lack of culturally and linguistically appropriate resources impacts mental health service use (*access*) (Guruge et al., 2015), and in turn, neither take into account the interplay between self-efficacy beliefs (*autonomy*) and willingness to seek out language appropriate resources (*access*) in an effort to identify the most appropriate treatment options (*information*).

The introduction of the core principles is a key finding from the qualitative analysis, but respondents also identified considerations in the form of societal- and system-level factors that can influence mental health experiences and outcomes. Importantly, many of these factors have been explored in healthcare contexts generally, although some (e.g., a lack of recognition for paid and unpaid caregiving) have established mental health niches. Although prompted to think specifically about aging and *mental health*, many of the factors identified by respondents are ones that affect older adults across a broad range of circumstances, not just in the context of mental health. It is entirely plausible that for respondents, mental health cannot be separated from overall health and well-being, which is a concept not without support in the published literature (Prince et al., 2007; Schnittker, 2005; Zahn, 2019).

These factors ranged from wide-reaching social stigmas (e.g., ageist beliefs) to geographically-specific community challenges (e.g., the lack of psychiatrists in the community requires driving to the next largest city for assessment). As an extension of this relevance, several of the challenges have been recently explored in the context of the COVID-19 pandemic, including the increasing prevalence of positive and negative ageist beliefs (Monahan et al., 2020; Vervaecke & Meisner, 2021). The impact of mental health stigma on older adults is well supported and published literature includes investigation on its association with help-seeking attitudes and behaviours (Conner et al., 2010; Stewart et al., 2015).

The system factors identified by respondents represent profound, long-standing issues within Canada and the provinces and territories, although their individual expression may vary by geography, demography, and other social-equity variables. Issues such as long wait times, transportation availability, geographic accessibility/availability and affordability are well documented (van Gaans & Dent, 2018), and examples exist connecting housing and structural barriers to mental health (Evans et al., 2003; Howden-Chapman et al., 2011). A lack of recognition for unpaid caregiving, often called ‘informal’ caregiving, and the inadequacy of currently available supports is a known issue in Canada (National Institute on Aging, 2018), and this challenge is carried over into paid caregiving roles, especially those that provide ‘body work’ outside of traditionally medicalized settings, e.g., personal support workers (Afzal et al., 2018; Zagrodney & Saks, 2017). Indeed, during the COVID-19 pandemic the poor well-being of healthcare providers broadly has been of great concern, with comparatively little value or progress to show from this awareness (Billings et al., 2021; Sriharan et al., 2020).

Reliance on medication as a primary treatment for mental health issues is not new – as demonstrated by a paper exploring a 17-year period from 1992-2005 where the proportion of older adults receiving medication for a diagnosis of depression increased, while the rates of psychotherapy declined (Akincigil et al., 2011). Technology that does not support the needs of aging individuals is an interesting system challenge, as older adults on an individual level are not opposed to integrating some types of technology (Andrews et al., 2019), but those available may not actually be designed with their circumstances in mind (Gould & Hantke, 2020). For example, they may be technologies that older adults do not need, or their development may be implicitly influenced by negative stereotypes that function as a barrier to their successful adoption (Mannheim et al., 2019). Healthcare providers in and of themselves may also function as barriers or facilitators to care – where they lack the appropriate knowledge or possess unhelpful attitudes they may be a negative factor (Ross et al., 2015), but where a provider gives quality empathetic care with convenient access (e.g., via flexible appointment times) they may be a positive factor (Bellamy et al., 2016).

Many of the problems discussed above are exemplified in the over-arching societal- and system-level factor that was ‘healthcare system action and inaction’. In 1994, the National Framework on Aging was developed in Canada, with the principles of dignity, participation, fairness, and security (Jeffery et al., 2018), yet over 25 years later the recent calls-to-action make the case that the healthcare system has been in steady decline and the pervasive system stagnation in Canada must be challenged by all-encompassing action (Tonelli et al., 2020).

The services, supports, and programs that respondents identified focused on four areas: 1) social needs, 2) physical needs, 3) facilitators of access, and 4) persons needing assistance. Like the societal- and system-level factors discussed above, these resources extend beyond just the narrow conceptualization of mental health and instead incorporate many aspects of physical and overall health. At least for the respondents in this work, the concept of mental well-being could not be decoupled from the other areas of their life. From an evidentiary perspective, this interconnection is supported by research that demonstrates past mental health-current physical health and past physical health-current mental health relationships are present in older adults (Ohrnberger et al., 2017).

It is not clear if respondents are aware of existing resources that fit the services, supports, and programs niches, or if the areas identified are merely a ‘wish list’ of potential sources of assistance. Although there is limited up-to-date research on this issue, research indicates a lack of resource awareness is a barrier for older adults accessing in-person (Sadavoy et al., 2004; Sanders et al., 2008) and virtual (Pywell et al., 2020) mental health services/supports. Evidence suggests that most individuals with common mental disorders are treated by their primary care physician; as examined in a representative sample of Quebec physicians (who did not demographically differ when compared to physicians across Canada) (Fleury et al., 2011). This is echoed in a report by the Canadian Institute for Health Information (CIHI; 2019) that noted approximately 50% of primary care physicians ‘often’ see clients with severe mental health issues. However, the fact that most individuals are primarily supported by a physician for their mental health needs, and their awareness (or lack thereof) may act as a barrier to accessing mental health services, is complicated by the fact that the same CIHI report noted only 23% of providers feel prepared to provide care for these clients with mental health issues (CIHI, 2019). EK is a co-investigator in a project co-designing mental health conversation approaches, as a way to address systemic stigma and ageism, while also bolstering care providers’ ability to engage with clients around mental health within existing care interactions (Canadian Institutes of Health Research, 2022). Future research exploring the existence and availability of the identified resources, in conjunction with investigation into the awareness of providers/ key points-of-contact to their existence would provide valuable considerations for older adult mental health promotion and mental illness prevention.

Older adults assessed during the pandemic were more frequently experiencing poor mental health when compared to those assessed before COVID-19. However, it is important not to overstate the strength of the associations observed between different mental health experiences and the time of assessment. Although older adults assessed during the pandemic were proportionally lonelier and experiencing multi-dimensional distress incorporating aspects of anxiousness, low mood, and apathy, these associations at a bivariate level were very weak at best. Broadly speaking, the increases observed in these mental health outcomes echo results in the published literature. For example, Kotwal et al. (2022) found a difference of 28% vs. 32% for a single-item loneliness measure (pre- vs. intra-pandemic, longitudinal) for a nationally representative sample of United States older adults. The results observed by Kotwal et al. (2022) indicate a greater frequency of loneliness in their sample than was observed in this thesis research, however the differences observed may also reflect the sample distributions. Some studies indicate a decline in the frequency of mental health symptoms across age groups (Knepple Carney et al., 2021) and in the Kotwal et al. (2022) sample adults 75 years or older made up 13%, while the same age group made up 67% of the Time 3 (Wave 1) group in this thesis research. Increases in multidimensional distress are also corroborated in the literature by studies like Jenkins et al. (2021) who discuss increases in anxiety/worry, experiences of depression, etc. in Canadians as well as increased risk of poor mental health associated with pre-existing mental health conditions.

Experiences of grief and loss increased in frequency for older adults during the pandemic, with just over one-third of individuals assessed during Wave 1 (Time 3) indicating they had experienced some type of major life stressor in the 90 days prior. Importantly, the major stressors included experiences beyond just death – with multiple social, economic, and emotional losses captured as well. Multi-dimensional/multi-causal grief is a newer concept than the traditional structure of ‘death = grief’, but recent literature has supported this expansion to other domains of life (Harris, 2020). Within the COVID-19 context, a recent qualitative study by Statz et al. (2022) explored the experiences of grief among older adults in the United States and found losses that were not limited to just death or bereavement. Participants described extensive and varied grief-themes that ranged from anticipatory grief of the unknown future to a loss of agency, lack of social and civic cohesion, and mourning for the ‘normalcy’ that was gone due to the pandemic (Statz et al., 2022). Several of the themes described, including ‘losses of contact and connection’ and ‘daily life and routine’, connect to the social isolation results observed in the quantitative analyses of this thesis.

Across a broad range of metrics, older adults during the pandemic demonstrated a greater frequency of social isolation experiences. Almost half of these individuals had not participated in social activities of long-standing interest in over a month, and they were less likely to have seen close family or friends in the recent period (i.e. 3 days) prior to their interRAI-HC assessment. Although approximately 2/3rds of older adults had engaged in some type of alternative contact with friends or family in the 3 days before their assessment, with an almost null association observed, there is little practical difference in the frequency across the pre-pandemic and intra-pandemic time periods. Clinician-rated declines in social interactions in the past 3 days (prior to assessment) were observed more frequently during the pandemic, although this was a trend that declined in frequency between Wave 1 and Wave 3. When controlling for other social and clinical characteristics, there was a significant association between time of assessment and the likelihood of triggering the interRAI-HC Activities and Social Relations CAPs. However, it is important to take into account that even though these results indicate older adults are experiencing a multi-dimensional decline in social contact, between 47-51% of older adults assessed during the pandemic were *not* distressed by the decline they were experiencing.

As a preliminary foray into the mental health experiences of older adults receiving homecare services, these findings suggest both that older adults are affected by the pandemic in important ways, but *also* that they demonstrate resilience in the face of adverse circumstances. This seemingly paradoxical outcome has been echoed in other COVID-19 literature that indicates older adults appear to be less affected by pandemic-related disruption, at least in terms of their stress and negative affect (e.g., annoyance, worry, sadness) (Knepple Carney et al., 2021). Several studies have observed resilience and effective coping strategies within older adults during the pandemic (Fuller & Huseth-Zosel, 2021; Herrera et al., 2021; Xie et al., 2021), some of which has been attributed to the strengths of older adults as demonstrated in the Strength and Vulnerability Integration (SAVI) model (Charles, 2010; Knepple Carney et al., 2021). The SAVI model suggests that older adults generally demonstrate greater well-being when compared with younger age groups due in part to the positive adaptive strategies they employ during emotion regulation in stressful situations (Charles, 2010).

If the SAVI model is applied to the context of older adults receiving homecare in Ontario, in light of the results discussed above, it highlights opportunities for bolstering the well-being and resilience of aging Ontarians. Leveraging existing resiliencies and supports can be accomplished at multiple levels, including through policy-development (e.g., increased funding for social support programs designed to foster resiliency in aging individuals), service tailoring (e.g., adapting existing resources to better tap into personal strengths), and care delivery (e.g., clinicians targeting interventions and referrals that incorporate a SAVI-lens). In turn, this process may be made more efficient by the increased understanding of how older adult mental health is influenced by internal and external processes, and the core principles that may facilitate their effect on individual mental health experiences and outcomes. In this way, the findings from the secondary qualitative analysis may be meshed with the differences identified in older adult mental health, to highlight a unique avenue of future research and solution-development.

7.3. Strengths & Limitations

Three strengths in particular are present in this thesis research, relative to 1) to the incorporation of multiple perspectives in identifying key considerations around aging and mental health; 2) the use of considerations from experts-by-experience to identify important areas of investigation; and 3) the use of representative, large-sample standardized assessment data from 3 waves of the COVID-19 pandemic in Ontario. As discussed by Meisner et al. (2020) early in the pandemic, the experiences and voices of aging individuals are lacking representation within the currently available literature and many of the areas of current exploration are driven by researcher-identified priorities. The purposeful grounding of mental health considerations within the perspectives of Canadian experts-by-experience provides a novel glimpse into the way that internal experiences/phenomenon and external societal- and system-level factors influence older adults' mental health experiences and outcomes. Second, this lived experience emphasis is continued through application of the already identified mental health experiences and outcomes to inform variables selected for analysis in the quantitative component of the thesis research. The goal of this work was to pragmatically explore the considerations of older adults and their objective differences – with an emphasis on understanding these results from a 'real-world' lens. Using the expert-by-experience findings as a guide for variable selection, rather than researcher judgment or *a priori* literature research further connects the findings to the priorities of aging Canadians and their support network and the pragmatic purpose of this thesis.

Finally, the use of a large, representative pool of standardized assessment information lends several advantages to the conclusions drawn from the quantitative component (and ultimately the overall results of this thesis). First, the inclusion of n = 96,919 assessments represents a sample several times larger than that included in almost any other extant study on older adult mental health in Canada. Second, this sample represents 100% of assessments within the 5 time periods of interest that meet the inclusion criteria. In practicality, this means the assessments included represent almost all of the older adults assessed in Ontario in those time periods. In turn this means the data constitutes a more representative pool of information from which to draw conclusions than much of the available research with its predominant reliance on convenience samples or older adults volunteering to participate in long term aging research. Put differently – these are older adults receiving home care who happen to be assessed on mental health experiences and outcomes, not older adults volunteering to be assessed on mental health experiences and outcomes who happen to be receiving home care. Third, the sample includes data from the first 3 waves of the COVID-19 pandemic in Ontario, which provides novel insight into the mental health of older adults up to June of 2021 – which is approximately 6 months further than most of the available literature. Finally, the scales and items utilized in the quantitative analysis have been previously validated for their application with older adults in a home care setting, and can be compared to that existing body of homecare and/or interRAI research as well as to future research in these areas.

Despite the many strengths, there were several limitations present within this thesis research. They are related 1) the lack of definitions available in the critical literature review papers for the early deductive constructs, 2) to the comparatively limited demographic representation present in the qualitative survey data, and 3) the quantitative dataset did not include variables that could adequately measure all potential constructs of interest. Respectively, these represent methodological/design, interpretational, and analytical limitations.

Given the lack of definitions provided in the critical literature review papers, concepts introduced in the deductive codes were necessarily high-level and lacking in ‘inclusion’ or ‘exclusion’ criteria which might have facilitated their consistent application in the qualitative response data. For example, with a clear definition of loneliness as a multi-dimensional cognitive experience related to “the manner in which the person perceives, experiences, and evaluates his or her isolation and lack of communication with other people” (de Jong Gierveld, 1987, p. 120), it is much easier to consistently apply ‘emotional’ and ‘social’ loneliness codes to the free-form survey data in the qualitative phase of this thesis. Without these clearly defined constructs, it is much easier to fall prey to coding drift, where distinct codes may become indistinguishably entangled through inconsistent application within the data. As a way to improve rigour and counteract this limitation, reflexive memoing was used throughout the critical literature review and framework analysis (and indeed throughout the whole of this thesis) to provide a conceptual ‘log’ of the codes/constructs and their evolution. Recognizing that implicit coding is built on evolving understanding, it was not the purpose of this memoing to stifle code evolution, but to ensure there was a meaningful and purposeful application of codes throughout the process. In turn, this provided rich content for both stages of the mixing phase, when EK returned to the qualitative data to ground the quantitative analysis within the considerations of experts-by-experience.

The comparatively limited demographic diversity available in the qualitative survey data poses a challenge when generalizing the qualitative findings to the overall Canadian population. Given that this limitation was inherent in the dataset utilized and not a function of the analysis performed, it was difficult to counter-act, although the inclusion of deductive codes and literature was purposefully designed to include literature with a broader base of demographics. However, this research was intended as an early foray into the identification of aging and mental health considerations of older adults, caregivers, and health/social care providers in Canada, so this limitation is more of an interpretational caution rather than a critical analytical weak-point. Put differently, the findings of this research may not represent the perspectives of all aging Canadians (in particularly those who are not Caucasian women) but it *does* suggest considerations that can be explored in future research with more diverse participants.

The interRAI-HC assessment data utilized in the quantitative analysis component presented several advantages (discussed above), but it does introduce limitations as well. Specifically, the fact that the dataset and items are pre-determined necessarily limited the pool of constructs that could be investigated. For many constructs there were adequate items (e.g., *grief and grieving*) but they were not always ‘exact’ translations and in some cases required constructs to be aggregated at a higher level – such as the case for *social loneliness* and *emotional loneliness*. Additionally, for at least one construct, *suicidal ideation,* there was no comparable item on the interRAI-HC that could be utilized. However, the constructs that were most important to older adults, caregivers, and health/social care providers (within the context of ‘important’ defined in Chapter 5) were adequately represented in the quantitative analysis, so this limitation is an important consideration but also is not a critical analytic weak-point.

7.4. Implications & Future Directions

The findings of this research demonstrate that the mental health of older adults receiving homecare in Ontario is poorer during the pandemic. However, the comparatively small scale of the differences observed may indicate older adults are benefiting from protective factors such as resilience and positive coping strategies. When combined with the qualitative considerations, it suggests that older adult mental health is a complex and multi-dimensional construct that is influenced not only by the internal processes of an individual or the external processes of their circumstances, but also by the interplay between these two factors. At a practice level, it is important for clinicians and healthcare providers to be aware of the increased need for social supports from individuals who may be less able to access them due to limited transportation, loss of tangential services, etc. At a program level, the findings of this research reinforce the value of holistic care programs that can incorporate existing societal- and system-level challenges with individual strengths to bolster older adult mental health and well-being. The findings also have implications at a policy level as the need for continuing support of older adult mental health is evident. Although the specific dynamics between the core principles, internal processes, and external circumstances like societal- and system-level factors must be explored further in future research, at the current state it highlights the wide-ranging impact that experiences of stigma, accessibility, etc. have on older adult mental health. Policy then must not only focus on mental health promotion from a direct service or funding perspective, but also from the perspective of understanding and addressing the role systemic social barriers and inequities play in overall mental well-being.

7.5. Conclusion

Identification of the aging and mental health considerations of older adults, caregivers, and health/social care providers at the onset of the pandemic highlights the importance of societal- and system-level factors as well as services, supports, and program on the mental health experiences and outcomes of older adults. It also suggests core principles that may serve as a process through which internal processes and external factors comingle and interact. Analysis of homecare assessment data indicates older adults during the pandemic are experiencing poorer mental health even when controlling for social and clinical characteristics, although the differences observed are small. Older adults appeared to be most affected through their experiences of social engagement and participation, although their increased use of alternative forms of technology was marginal. It is possible that older adults are employing beneficial tactics that help offset the negative impact of the COVID-19 pandemic. Overall, the findings of this research indicate older adult mental health is a complex, multi-dimensional construct that has been affected by the COVID-19 pandemic. Future research should explore the interactions between the core principles, older adults' internal processes, and their external circumstances, in addition to examining how these may be affected by available services, supports, and programs.

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Appendices

Appendix A. Critical Literature Review Criteria

<u>Question:</u>

What respiratory virus **pandemic- or epidemic-related mental health changes** for **older adults** have been identified, or are anticipated, as identified in **reviews** published since 2000 in the international peer-reviewed literature?

<u>Objectives:</u>

1. Identify key areas of mental health related concerns
2. Codify areas into deductive themes with established definitions
3. Map themes to 2-continuum model of mental health

<u>Scope:</u>

Reviews published since 2000 on the topics of previously identified and/or anticipated pandemic- and epidemic-related mental health changes for older adults. Mental health, mental illness, and mental 'wellness'/well-being are acceptable. Papers must be peer-reviewed and written in English. The framework for mental health will be the two-continuum model of mental health.

<u>Inclusion & Exclusion Criteria:</u>

1. Include: papers focused on the general population of community-dwelling older adults[3]
2. Include: papers focusing on mental health, mental well-being, mental illness, or mental health changes
3. Include: papers related to recent respiratory virus pandemics or epidemics (i.e., COVID-19, SARS, MERS, H1N1)
4. Include: review papers
5. Exclude: papers with a primary focus on other populations (e.g., young adults, middle adults, healthcare professionals, older adults with specific conditions, or older adults in assisted living, inpatient and/or treatment settings), papers without results available for older adults, or papers prioritizing intra-pandemic/epidemic comparisons between populations (e.g., young adults vs. older adults)
6. Exclude: papers primarily focused on interventions, healthcare delivery, health systems, health services, drug treatments, lifestyle behaviours (e.g., physical activity), or primarily physical health changes
7. Exclude: papers related to recent non-respiratory virus pandemics or epidemics (e.g., HIV, Ebola)

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[3] 'Older adult' is purposefully not assigned a minimum age requirement

8. Exclude: papers with a review component but that are primarily commentaries, editorials, letters to the editor, study protocols, case studies, or proposals for policy changes or care guidelines

General criteria

Articles published between 2000 and current day

Articles must be written in English

Peer-reviewed papers, excluding grey literature or papers from non-peer reviewed journals

Databases:

PubMed, CINAHL (via EBSCOhost), Scopus

Search Terms/Keywords:

PUBMED

("older adult*"[tw] OR "senior*"[tw] OR "geriatric"[tw] OR "elder*"[tw] OR "old age"[tw] OR "older people"[tw] "older persons"[tw] OR aged[mesh]) AND ("mental well*"[tw] OR "mental health"[tw] OR "mental illness"[tw] OR "mentally ill"[tw] OR "psychological well*"[tw] OR "psychological health"[tw] OR mental health[mesh:noexp] OR mental disorders[mesh:noexp]) AND ("COVID"[tw] OR "COVID19"[tw] OR "coronavirus"[tw] OR "SARS"[tw] OR "MERS"[tw] OR "pandemic"[tw] OR "SARS-CoV-2"[tw] OR "epidemic" OR "severe acute respiratory syndrome"[tw] OR COVID-19[mesh] OR pandemics[mesh] OR “H1N1”[tw] OR “Influenza A”[tw] OR “influenza A virus”[mesh] OR "middle east respiratory syndrome"[tw] OR “Middle East Respiratory Syndrome Coronavirus”[mesh]) AND ("review"[tw] OR "review"[pt] OR "meta-analy*"[tw] OR "metaanaly*"[tw] OR "overview"[tw] OR "evidence synthesis"[tw] OR "knowledge synthesis"[tw])

CINAHL

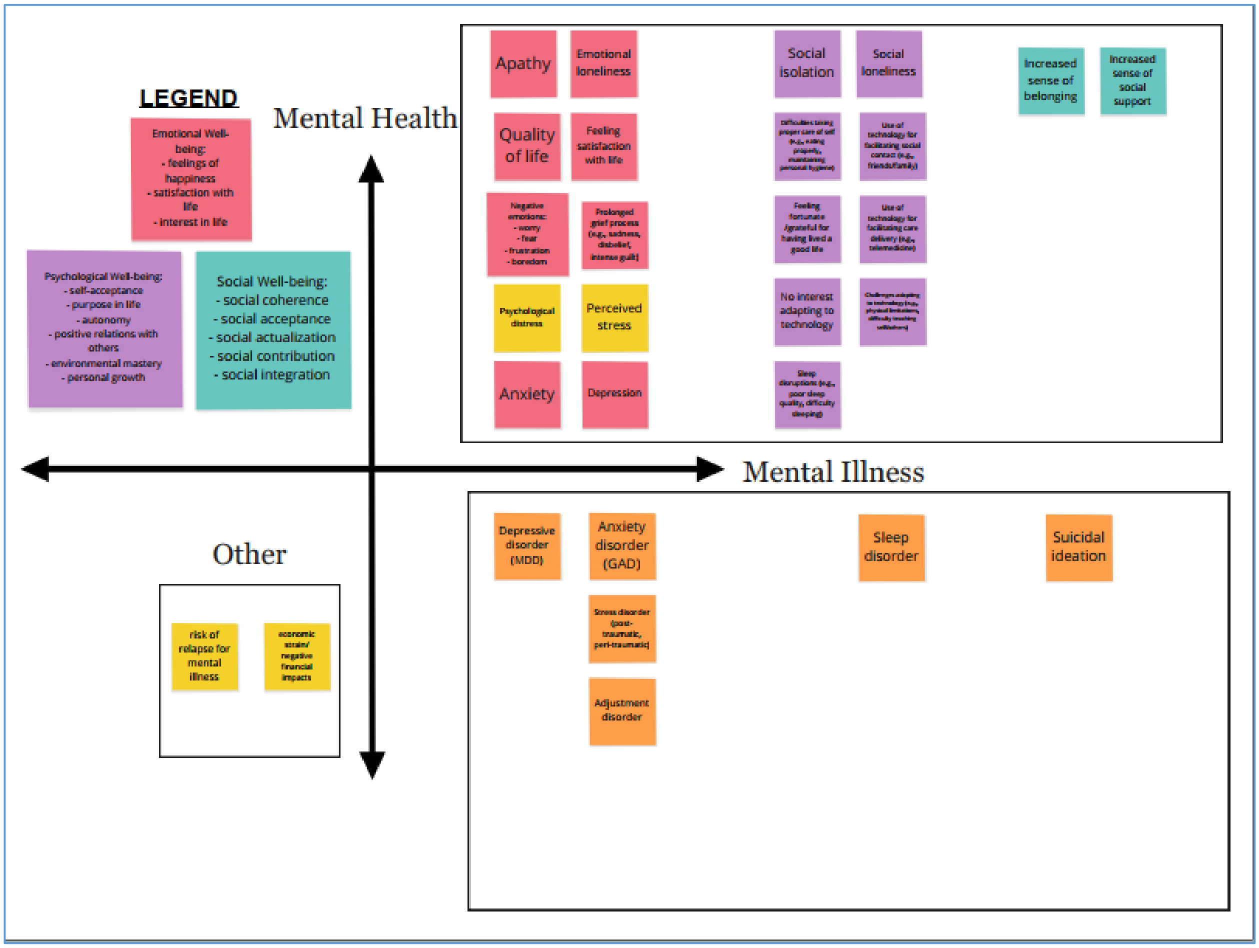
(“older adult*” OR “senior*” OR “geriatric*” OR “elder*” OR “old age” OR “old* pe*”) AND (“mental well*” OR “mental health” OR “mental illness” OR “mentally ill” OR “psychological well*” OR “psychological health”) AND (“COVID” OR “COVID19” OR “coronavirus” OR “SARS” OR “MERS” or “pandemic” or “SARS-CoV-2” OR “epidemic” OR “severe acute respiratory syndrome” OR “H1N1” OR “Influenza A” OR “middle east respiratory syndrome”) AND ("review" OR “reviews” OR "meta-analy*" OR "metaanaly*"OR "overview" OR "evidence synthesis" OR "knowledge synthesis")

Scopus Search Strategy – performed on November 19, 2021, ran by EKalles

(TITLE-ABS-KEY (((old OR older) W/2 (adult* OR female* OR male* OR men OR people OR person OR women) OR ("older adult*" OR "senior*" OR "geriatric" OR "elder*" OR "old age" OR "later life"))) AND TITLE-ABS-KEY ("mental well*" OR "mental health" OR "mental illness" OR "mentally ill" OR "psychological well*" OR "psychological health") AND TITLE-ABS-KEY ("COVID" OR "COVID19"

OR "coronavirus" OR "SARS" OR "MERS" OR "pandemic" OR "SARS-CoV-2" OR "epidemic" OR "severe acute respiratory syndrome" OR “H1N1” OR “Influenza A” OR “middle east respiratory syndrome”) AND TITLE-ABS-KEY ("review" OR "reviews" OR "meta-analy*" OR "metaanaly*" OR "overview" OR "evidence synthesis" OR "knowledge synthesis"))

Appendix B. Deductive Outcomes Mapped to the Dual-Continuum Model



Appendix C. Example Items from the InterRAI-HC

This appendix contains a selected list of questions from the interRAI-HC Assessment Form, but does not include all items.

Section E. Mood and Behaviour

N.B. Items E1a-E1g make up the Depression Rating Scale which can be used as a clinical screen for depression and has been validated against the Hamilton Depression Rating Scale (HDRS), and the Cornell Scale for Depression in Dementia (CSDD)(Burrows et al., 2000; Szczerbinska et al., 2012). Scores of 3 or more indicate the presence of symptoms of moderate to severe depression.

1. Indicators of possible depressed, anxious, or sad mood

Code for indicators observed in the last 3 days, irrespective of the assumed cause.
0 – Not present
1 – Present but not exhibited in last 3 days
2 – Exhibited on 1-2 of last 3 days
3 – Exhibited daily in last 3 days

a.	Made negative statements – e.g., “Nothing matters”; “Would rather be dead”; “What’s the use”; “Regret having lived so long”; “Let me die”	☐
b.	Persistent anger with self or others – e.g., easily annoyed, anger at care received	☐
c.	Expressions, including nonverbal, of what appear to be unrealistic fears – e.g., fear of being abandoned, being left alone, being with others; intense fear of specific objects or situations	☐
d.	Repetitive health complains – e.g., persistently seeks medical attention, incessant concern with body functions	☐
e.	Repetitive anxious complaints/concerns (non-health related) – e.g., persistently seeks attention/reassurance regarding schedules, meals, laundry, clothing, relationships	☐
f.	Sad, pained, or worried facial expressions – e.g., furrowed brow, constant frowning	☐
g.	Crying, tearfulness	☐
h.	Recurrent statements that something terrible is about to happen – e.g., believes he or she is about to die, have a heart attack	☐
i.	Withdrawal from activities of interest – e.g., long-standing activities, being with friends/family	☐
j.	Reduced social interactions	☐
k.	Expressions, including nonverbal, of a lack of pleasure in life (anhedonia) – e.g., “I don’t enjoy anything anymore”	☐

2. Self-reported mood

0 – Not in last 3 days
1 – Not in last 3 days. But often feels that way
2 – In 1-2 of last 3 days

3 – Daily in last 3 days
8 – Person could not (would not) respond

Ask: "In the last 3 days, how often have you felt…"

a. Little interest or pleasure in things you normally enjoy? ☐
b. Anxious, restless, or uneasy? ☐
c. Sad, depressed, or hopeless? ☐

Section F. Psychosocial Well-Being

1. Social relationships

0 – Never
1 – More than 30 days ago
2 – 8-30 days ago
3 – 4-7 days ago
4 – In last 3 days
8 – Unable to determine

a. Participation in social activities of long-standing interest ☐
b. Visit with a long-standing social relation or family member ☐
c. Other interaction with long-standing social relation or family member – e.g., telephone, e-mail ☐
d. Conflict or anger with family or friends ☐
e. Fearful of a family member or close acquaintance ☐
f. Neglected, abused, or mistreated ☐

2. Lonely ☐

Says or indicates that he/she feels lonely
0 – No
1 – Yes

3. Change in social activities in last 90 days ☐

0 – No decline
1 – Decline, not distressed
2 – Decline, distressed

5. Major life stressors in last 90 days ☐

e.g., episode of severe personal illness; death or severe illness of close family member/friend; loss of home; major loss of income/assets; victim of a crime such as robbery or assault; loss of driving license/car
0 – No
1 – Yes

Section P. Social Supports

1. Two key informal helpers ☐ ☐
    a. Relationship to person
        1. Child or child-in-law
        2. Spouse
        3. Partner/significant other
        4. Parent/guardian
        5. Sibling
        6. Other relative
        7. Friend
        8. Neighbour
        9. No informal helper

    b. Lives with person ☐ ☐
        1. No
        2. Yes, 6 months or less
        3. Yes, more than 6 months
        8. No informal helper

Areas of informal help during last 3 days
0 – No
1 – Yes
8 – No informal helper

    c. IADL help ☐ ☐

    d. ADL help ☐ ☐

2. Informal helper status

0 – No
1 – Yes

    a. Informal helper is unable to continue in caring activities ☐

e.g., decline in health of helper makes it difficult to continue

    b. Primary informal helper expresses feelings of distress, anger, or depression ☐

    c. Family or close friends report feeling overwhelmed by person's illness ☐

Section Q. Environmental Assessment

4. Finances ☐

Because of limited funds, during the last 30 days made trade-offs among purchasing any of the following: adequate food, shelter, clothing; prescribed medications; sufficient home heat or cooling; necessary health care
0 – No
1 – Yes

Appendix D. List of Framework Considerations

Principle 1. Information

1.1. Defining mental health and mental illness across the life course
1.2. What is dementia
1.3. Signs to recognize or watch out for
1.4. Life course changes
1.5. Beneficial lifestyle behaviours
1.6. How to support and help others who may be in need
1.7. How to be a caregiver
1.8. Where to get help
1.9. Assessment, treatment, and care information

Principle 2. Autonomy

2.1. The ability to live and age where one wants
2.2. To participate in the decision-making process
2.3. To receive care for the whole self rather than individual pieces
2.4. To preserve the ability to decide for as long as possible
2.5. To be seen and treated as a person

Principle 3. Access

3.1. Supports that exist and are discoverable
3.2. Accessible from an older adult's place of residence
3.3. Financially feasible
3.4. Available in a timely manner
3.5. Obtainable without jumping through hoops
3.6. Appropriate for personal needs, beliefs, and circumstances

Societal & System-Level Factors

4.1. Ageism
4.2. Mental health stigma
4.3. Changes due to COVID
4.4. Availability of transportation
4.5. Geographic accessibility and availability
4.6. Lack of recognition for paid and unpaid caregiving
4.7. Finances and costs of services
4.8. Default reliance on medication for care
4.9. Healthcare system action and inaction
4.10. Housing and structural barriers
4.11. Waitlists and service delays
4.12. Technology that does not support aging needs (deductive)
4.13. Care providers as barriers or facilitators

2-Continuum Model – Mental Health

5.1. Anxiousness (deductive)
5.2. Apathy (deductive)
5.3. Emotional loneliness (deductive)

5.4. Social loneliness (deductive)
5.5. Grief and grieving (deductive)
5.6. Low mood (deductive)
5.7. Sleep disruptions (deductive)
5.8. Social isolation (deductive)

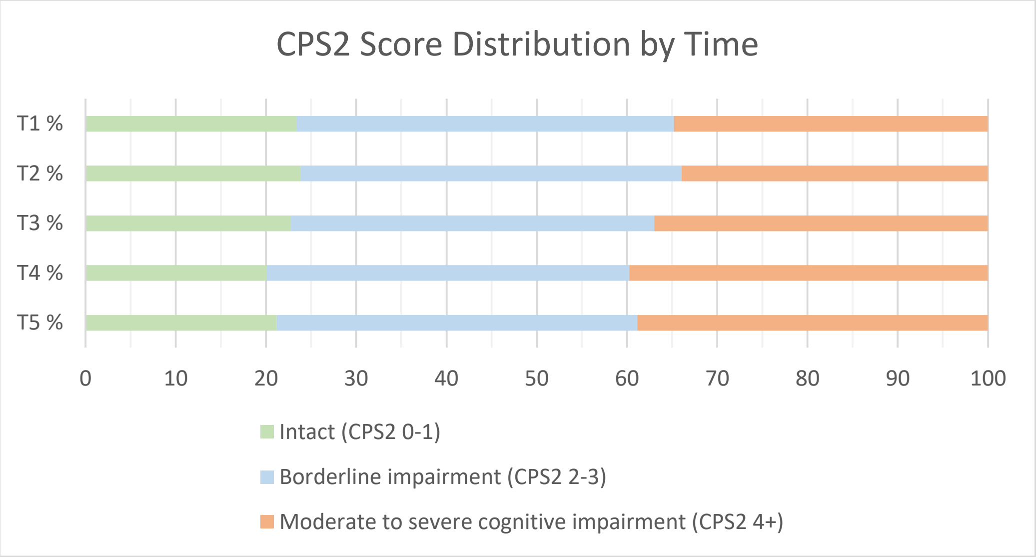
2-Continuum Model – Mental Illness

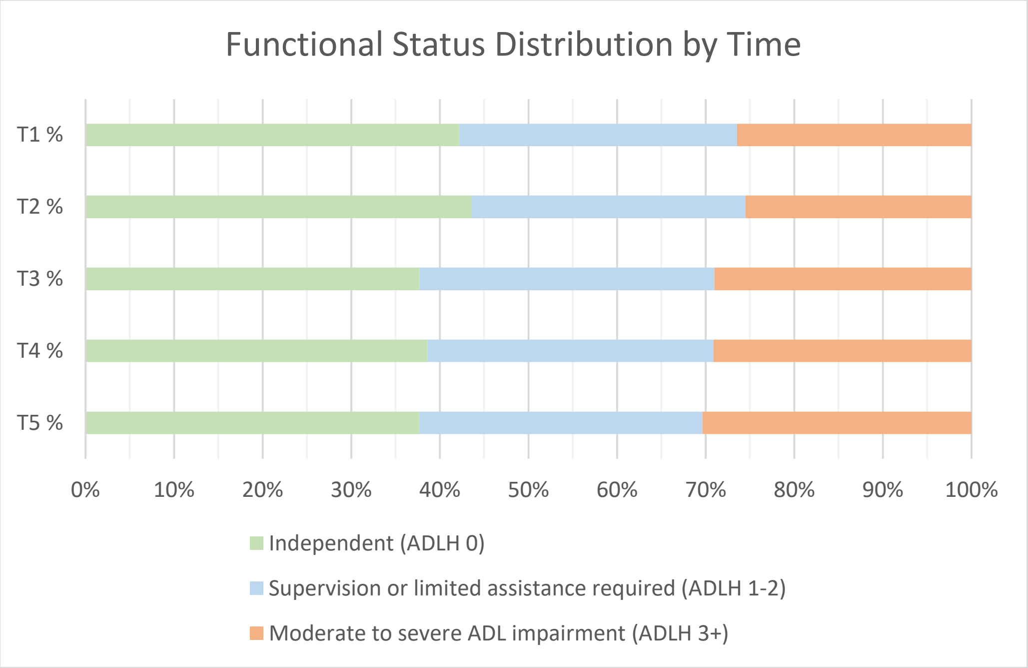
6.1. Anxiety disorder (GAD) (deductive)
6.2. Depressive disorder (MDD) (deductive)
6.3. Suicidal ideation (deductive)

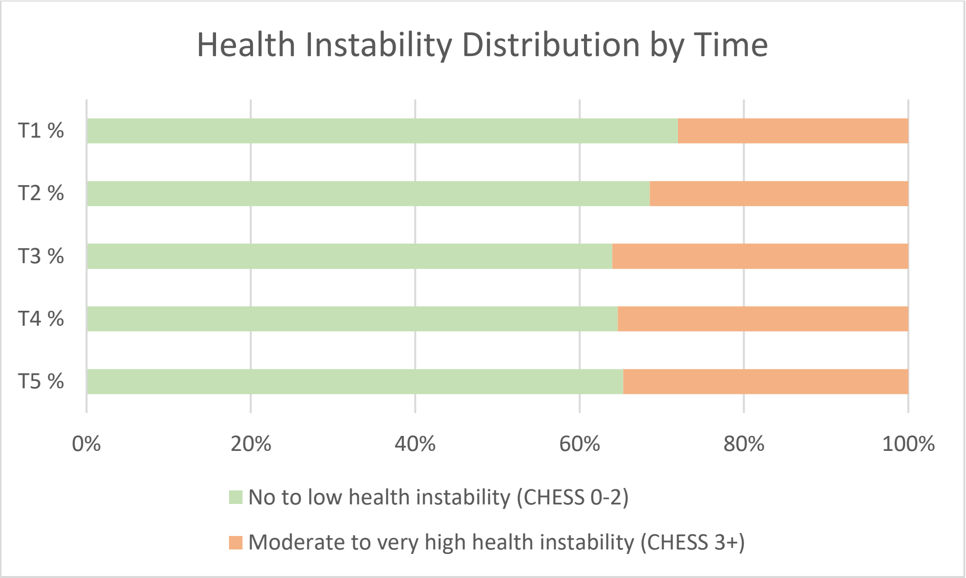
Services, Supports, & Programs

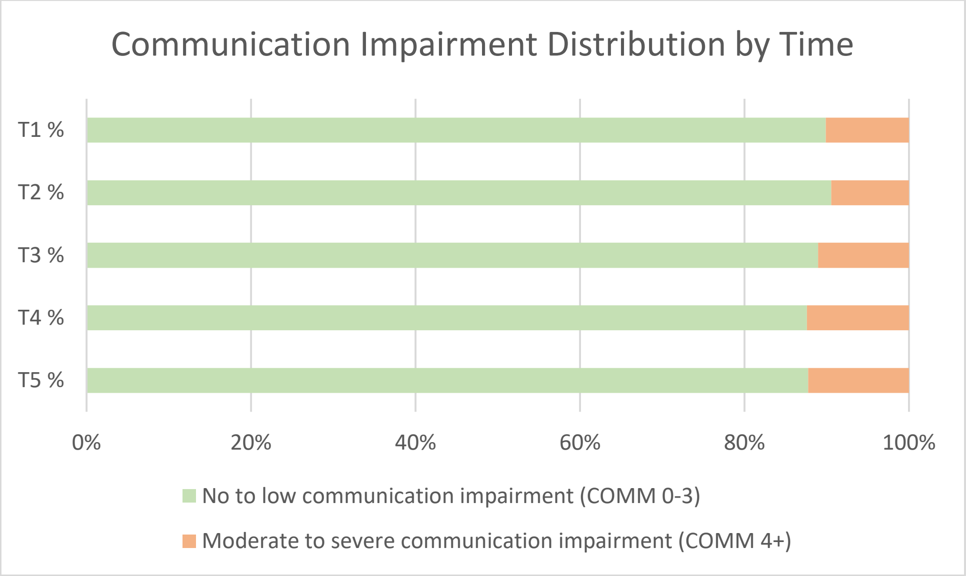
7.1. Therapy, counselling, and peer support
7.2. Programs and opportunities to build connections with others, and foster meaning and purpose
7.3. Community-based or social support programs
7.4. Homecare services
7.5. Medical care
7.6. Opportunities for medication reviews and deprescribing
7.7. Opportunities to incorporate technology for facilitating care delivery and/or social contact (deductive)
7.8. Transportation and mobility assistance
7.9. Assessment and support for persons living with dementia and their families and/or caregivers
7.10. Resources and supports targeted towards unpaid and family caregivers
7.11. Resources and supports targeted towards health and social care providers
7.12. Resources and supports targeted towards older adults

Appendix E. InterRAI-HC Cohort Characteristics






Health Instability Distribution by Time
T1 %
T2 %
T3 %
T4 %
T5 %
0%
20%
40%
60%
80%
100%
No to low health instability (CHESS 0-2)
Moderate to very high health instability (CHESS 3+)


Communication Impairment Distribution by Time
T1 %
T2 %
T3 %
T4 %
T5 %
0%
20%
40%
60%
80%
100%
No to low communication impairment (COMM 0-3)
Moderate to severe communication impairment (COMM 4+)

Appendix F. Time-Matched Bivariate Analyses

		Time 1 x 3					Time 2 x 4					Time 1 x 5				
Variable	**Variable Scores**	**missing**	***df***	**x^2**	***p***	***V***	**missing**	***df***	**x^2**	***p***	***V***	**missing**	***df***	**x^2**	***p***	***V***
self-reported loneliness		4	1	78.11	<.0001	0.04	5	1	65.49	<.0001	0.04	5	1	34.43	<.0001	0.03
	0 - no															
	1 - yes															
major life stressor in last 90 days (e.g., episode of severe personal illness; death or severe illness of close family member/friend; loss of home; major loss of income/assets; victim of a crime such as robbery or assault; loss of driving license/car)		4	1	338.93	<.0001	0.09	5	1	47.28	<.0001	0.03	5	1	251.07	<.0001	0.07
	0 - no															
	1 - yes															
difficulty falling asleep or staying asleep; waking up too early; restlessness; nonrestful sleep		0	4	48.31	<.0001	0.03	0	4	33.95	<.0001	0.03	0	4	27.58	<.0001	0.02
	0 (not present)															
	1 (present but not in past 3 days)															
	2 (exhibited on 1 of last 3 days)															
	3 (exhibited on 2 of last 3 days)															
	4 (exhibited daily in past 3 days)															
too much sleep - excessive amount of sleep that interferes with person's normal functioning		0	4	20.48	0.0004	0.02	0	4	32.93	<.0001	0.03	0	4	41.58	<.0001	0.03
	0 (not present)															
	1 (present but not in past 3 days)															
	2 (exhibited on 1 of last 3 days)															
	3 (exhibited on 2 of last 3 days)															
	4 (exhibited daily in past 3 days)															
participation in social activities of long-standing interest		4	5	2855.76	<.0001	0.26	5	5	2072.5	<.0001	0.23	5	5	3441.55	<.0001	0.27
	0 - never															

1 - more than 30 days ago															
2 - 8-30 days ago															
3 - 4-7 days ago															
4 - in last 3 days															
8 - unable to determine															
visit with a long-standing social relation or family member	4	5	3833.61	<.0001	0.30	5	5	1053.7	<.0001	0.16	5	5	1189.19	<.0001	0.16
0 - never															
1 - more than 30 days ago															
2 - 8-30 days ago															
3 - 4-7 days ago															
4 - in last 3 days															
8 - unable to determine															
other interaction with long-standing social relation or family member - e.g., telephone, e-mail	4	5	45.49	<.0001	0.03	5	5	23.35	0.0003	0.02	5	5	60.09	<.0001	0.04
0 - never															
1 - more than 30 days ago															
2 - 8-30 days ago															
3 - 4-7 days ago															
4 - in last 3 days															
8 - unable to determine															
clinician-rated: reduced social interactions	4	3	930.04	<.0001	0.15	5	5	162.64	<.0001	0.06	5	3	226.54	<.0001	0.07
0 - not present															
1 - present but not exhibited in last 3 days															
2 - exhibited on 1-2 of last 3 days															
3 - exhibited daily in last 3 days															
change in social activities in last 90 days, and if there was a decline if they are distressed by this fact	4	2	1129.53	<.0001	0.17	5	2	309.87	<.0001	0.09	5	2	673.64	<.0001	0.12
0 - no decline															
1 - decline, not distressed															
2 - decline, distressed															

length of time alone during the day (morning and afternoon)	4	3	668.86	<.0001	0.13	1	3	346.43	<.0001	0.09	4	3	647.32	<.0001	0.12
0 - less than 1 hour															
1 - 1-2 hours															
2 - more than 2 hours but less than 8 hours															
3 - 8 hours or more															
Distressed Mood Scale [composite score]	4	3	73.84	<.0001	0.04	5	3	3.24	0.3565	0.01	5	3	24.81	<.0001	0.02
0 - score of 0															
1 - scores of 1, 2, or 3															
2 - scores of 4, 5, or 6															
3 - scores of 7, 8, or 9															

Appendix G. Sensitivity Analyses for Multivariate Analysis

			1. Overall Comparison			**4. Validation**	**Odds Ratio Estimates**			
NOTE	**DV**	**n used**	**Likelihood Ratio**	**df**	**Pr > ChiSq**	***c* statistic**	**Effect**	**Point Estimate**	**Lower CL**	**Upper CL**
Sensitivity for T=2 reference	cACTIV	96,893	2218.075	23	<.0000001	0.591				
							TimeTotal 1 vs 2	0.958	0.924	0.993
							TimeTotal 3 vs 2	1.253	1.191	1.318
							TimeTotal 4 vs 2	1.117	1.069	1.168
							TimeTotal 5 vs 2	1.097	1.052	1.145
Sensitivity for T=2 reference	cMHSOCREL	96,893	6377.893	23	<.0000001	0.685				
							TimeTotal 1 vs 2	0.966	0.924	1.009
							TimeTotal 3 vs 2	1.231	1.158	1.31
							TimeTotal 4 vs 2	1.238	1.173	1.306
							TimeTotal 5 vs 2	1.123	1.067	1.183
Sensitivity for gender - female	cACTIV	57,024	1365.052	22	<.0000001	0.593				
							TimeTotal 2 vs 1	1.049	1.001	1.1
							TimeTotal 3 vs 1	1.361	1.275	1.452

							TimeTotal 4 vs 1	1.199	1.134	1.268
							TimeTotal 5 vs 1	1.161	1.101	1.225
Sensitivity for gender - male	cACTIV	39,869	870.257	22	<.0000001	0.589				
							TimeTotal 2 vs 1	1.038	0.981	1.098
							TimeTotal 3 vs 1	1.243	1.152	1.341
							TimeTotal 4 vs 1	1.125	1.054	1.202
							TimeTotal 5 vs 1	1.126	1.058	1.199