Psychosocial Factors Impacting Rural Oldest-Old Adults' Quality of Life while Aging in Place

by

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Abstract

In British Columbia, Canada, older adults make up 40% of the rural populous. Rural communities have been reported to have reduced quantity and accessibility to formal services and supports in comparison to their urban counterparts. With the anticipated increase of older adult populations in Canada and recent implications from the COVID-19 pandemic, determining programs and policies to support older adults aging in the community with reduced access is vital to their quality of life. To address this, two project objectives are completed through this capstone project. The first is a scoping review, which identifies recent empirical literature focused on psychosocial factors, and the characteristics of these processes, related to aging in place for urban and rural older adults. The term psychosocial, is defined as individual, social and environmental processes that impact behaviour. Three themes related to psychosocial processes and aging in place were identified, (1) social connections, (2) continuity and sense of identity and, (3) independence, safety and security. Time and familiarity are key characteristics related to these processes.

Limited research was found addressing rural oldest-old (age 80 years or older) community-dwelling older adults and how the presence of psychosocial factors may impact or relate to their quality-of-life aging in place. To address this gap in literature, a CIHR project grant research proposal is presented to study (1) the lived experience of oldest-old adults residing in rural communities in British Columbia and (2) how psychosocial factors may impact or relate to this group of older adults' experience aging in place or quality of life.

Keywords: aging in place; rural; psychosocial; older adults; quality of life

Dedication

To my grandparents Nana Jane, Grandad Harold, Grandpa Jack and Grandma Pat. You taught me the beauty of time, simplicity, laughter and love, and are forever inspiring me to pursue the truest version of myself. I am who I am, because of you. I dedicate this to you, my home.

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List of Acronyms

AIP	Aging in Place
CAG	Canadian Association of Gerontology
CBPR	Community-Based Participatory Research
CIHR	Canadian Institute of Health Research
COVID-19	Coronavirus Disease of 2019
POPCTRs	Population Centres
SFU	Simon Fraser University
WHOQOL-OLD	World Health Organization Quality of Life Scale for older people

Chapter 1.

Introduction

According to a Government of Canada (2014) report outlining Statistics Canada profile of seniors, older adults (aged 65 and older) are expected to represent 23% of the population by the year 2030. These percentages are anticipated to rise as generations continue to age, reaching 21 – 29% by 2068 (Statistics Canada, 2019b). With the increase in population and anticipated pressure on health care systems, researchers have identified through relocation surveys most older adults in North America would rather age in place than move to supportive living (Cook, Yearns & Martin, 2005; Kendig & Browning, 2017; Wister & Speechley, 2015). Aging in place is defined by the Canadian government in its profile of seniors as "... having the health and social supports and services you need to live safely and independently in your home or your community for as long as you wish and are able" (Government of Canada, 2016, p. 1). This definition acknowledges the importance of accessible informal and formal social supports available to community-dwelling older adults aging in place (Cagney & Cornwell, 2018; Carver, Beamish, Phillips & Villeneuve, 2018). Informal social support refers to an older adults' family, friends, community neighbors or acquaintances who engage in activities of care that positively contribute to the older adults' daily activities (D'herde, Gruijthuijsen, Vanneste, Draulans & Heynen, 2021; Shiba, Kondo & Kondo, 2016). Professional services such as nursing, physicians and social workers provide formal social supports (Shiba et al., 2016).

Rural communities have been identified as having an insufficient number of formal support services and modes of transportation to access said resources (Ahn & Hedge, 2011; Carver et al., 2018; Erickson, Call & Brown, 2012). Rural areas are defined by Statistics Canada (2020, p.1) as geographic regions outside of population centers and can include "… small towns, villages and other populated places with less than 1,000 population according to the current census". In British Columbia, older adults (aged 55 and older) make up 40% of the population in rural areas (Statistics Canada, 2018c). However, despite the absence of formal social supports, Carver et al. (2018) identified social relationships and place attachment outweighed the importance of adequate accessibility to services and resources for rural community-dwelling older

adults. In other words, how older adults feel about where they are living, or their sense of attachment to a place, significantly impacts their satisfaction with their residence or community despite barriers (Erickson et al., 2012). This finding was also reflected in a study by Ahn and Hedge (2011) who assessed older adults' perceived attitudes of their home environments while residing in rural communities in the United States. Regardless of the state of their house (deteriorating with or without supportive equipment such as grab bars, wide doorways, ramps) rural older adults reported high satisfaction with their home environment (Ahn & Hedge, 2011). Moreover, oldest-old adults (aged 80 years and older) reported a higher satisfaction with their home environment than the younger age category (aged 65 and older) (Ahn & Hedge, 2011). The authors determined participants' personal attachment to their home and informal social support in the community contributed to their high satisfaction despite environmental barriers and lack of formal services within the community (Ahn & Hedge, 2011).

Place attachment and meaning of home scholars discuss the strong psychological and emotional connection older adults develop with their homes, community and social networks over time (Chaudhury & Oswald, 2019; Chaudhury & Rowles, 2005; Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). Place attachment can be defined as the development and accumulation of memories, relationships and meaningful possessions over the life course that facilitate older adults' sense of belonging and identity associated with a place (Chaudhury & Rowles, 2005; Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). According to Rubinstein and Parmelee's (1992) place attachment theory, the subjective process of embedding meaning into a geographic area over time, transforms it from an objective space to a place of significance for an older adult (Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). This 'place' can refer to a house, neighborhood, or city (Oswald & Wahl, 2005; Rubinstein & Parmelee, 1992). Social relations and connections developed throughout the life course also significantly contribute to older adults' sense of belonging, feelings of embeddedness and familiarity (Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). Authors suggest attachment to the home and neighborhood contributes to the reason why older adults are less inclined to relocate as they age, even when relocating would be safer for their physical or mental health (Chaudhury & Oswald, 2019; Cook, Yearns & Martin, 2005; Erickson et al., 2012; Kendig & Browning, 2017; Rowles, 1983; Rubinstein & Parmelee, 1992).

Age-related decline in physical functioning, chronic illnesses and potential physical and cognitive health impairment in later life can often create challenges for older people's independence (Government of Canada, 2020; Jaul & Baron, 2017; Lawton & Nahemow, 1973). Depending on the severity, older adults will adapt their behaviour to cope with environmental barriers to continue their daily routines including accessing resources and social networks in the community (Lawton & Nahemow, 1973). In some cases, older people are likely to evade everyday activities altogether and socially isolate themselves (often unintentionally) (Szczerbinska, Hirdes, & Zyczkowska, 2012). Social isolation can have a significant impact on older adults' physical and mental health, increasing loneliness, obesity, and lead to cases of early mortality (Holt-Lunstad, Smith, Baker, Harris and Stephenson, 2015). Other contingents on remaining in the community can be exacerbated when adverse events (such as an epidemic or pandemic) occur, as demonstrated by the recent novel coronavirus pandemic (COVID-19) (Canadian Institute for Health Information, 2021; Weil, 2020; Wister & Speechley, 2020).

At the beginning of 2020, the world was significantly impacted by the unexpected rise of the novel coronavirus (COVID-19). It spread rapidly, physically isolating global populations of all ages as public health governance mandated people to socially isolate in their homes to prevent the spread. Mortality rates for older adults aged 65 and older rapidly escalated in the initial months, significantly impacting long-term care homes (CIHR, 2021; Wister & Speechley, 2020). For community-dwelling older adults, they faced social isolation and restricted access to resources in their community such as groceries, health care and social networks (Weil, 2020; Wister & Speechley, 2020). Informal social support provided by family members, friends or neighbors was discouraged, as it meant coming into close contact with vulnerable older adults (D'herde et al., 2021). Even formal care services for older adults aging in place were restricted during the first few weeks of the pandemic, placing more responsibility on already strained informal caregivers (D'herde et al., 2021). D'herde et al. (2021) focused on the social impacts of COVID-19 on community-dwelling older adults and noted caregivers reported dissuading their older family members from receiving informal support from neighborhood contacts in fear they would contract the virus. As we move forward with lessons learned from the COVID-19 pandemic, it is critical to acknowledge the effects on

community-dwelling older adults from a psychological and social support lens as well as how their quality of life was, and still is, impacted.

When evaluating the benefits or drawbacks of aging in place, especially in the face of global crises', it is critical to assess how psychosocial processes impact older adults' quality of life while aging in place. According to the American Psychological Association, the term psychosocial is defined as "… the intersection and interaction of social, cultural, and environmental influences on the mind and behaviour" (American Psychological Association, n.d., p. 1). Cosco, Prina, Perales, Stephan and Brayne (2013) also define psychosocial as the unique psychological and social processes experienced by an individual. Resilience, self-identity, quality of life or social roles are examples of psychosocial processes (Cosco et al., 2013). The World Health Organization (WHO) (2012, para. 1) defines quality of life, "… as an individual's perception of their position in life in the context of the culture and value systems in which they lived and in relation to their goals, expectations, standards and concerns." In other words, quality of life is a subjective interpretation of how satisfied an individual is with certain aspects of their life (such as relationships, health, housing or financial security) during specific time periods (past, present or future) (WHO, 2012). There are several instruments that have been tested and approved by the academic community as valid and reliable tools to measure quality of life (Burckhardt & Anderson, 2003; Vanleerberghe, Witte, Claes, Schalock & Verté, 2017). These tools can include a variety of domains seeking to measure aspects of an individuals' life such as their sense of independence, physical and mental health, interaction with the environment and social relationships (Burckhardt & Anderson, 2003; WHO, 2012). As this is a subjective evaluation, it is heavily influenced by what the person values (Burckhardt & Anderson, 2003; Vanleerberghe et al., 2017; WHO, 2012). Therefore, the factors that influence their sense of place attachment (for example, social relationships or sense of identity in a place) may also contribute to how they assess their quality of life (Vanleerberghe et al., 2017). If these psychosocial factors are compromised, then an assumption could be made that so would their quality of life (Vanleerberghe et al., 2017).

As noted in the previously referenced quote from the Government of Canada (2016) (page 1), aging in place should be a choice supported by informal and formal care services to improve or sustain older adults' social, mental and physical quality of life while remaining in the community. Psychosocial factors are not only relevant to older

adults' decision to age in place but also in their continued lived experience and quality of life while remaining in the community (place attachment, sense of identity or social participation) (Ahn & Hedge, 2011; Chaudhury & Oswald, 2019; Chaudhury & Rowles, 2005; Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). Identifying psychosocial factors and how they relate to aging in place lend insights to what older adults value while they age in place, further impacting their quality of life. This knowledge is especially important for the oldest old demographic (aged 80 years or older) living in rural communities with reduced access to informal and formal resources or social supports and subject to increased frailty (as opposed to young-old adults aged 65 or older). This knowledge can support governing bodies, organizations and policymakers as they build programs (such as social engagement opportunities, housing solutions or emergency response programs to global pandemics) to support urban or rural communities in light of the anticipated growing populous of older adults in Canada (Statistics Canada, 2019b).

1.1. Purpose and Research Questions

The goal of this capstone project is twofold; first to identify psychosocial factors, and the characteristics of these processes, that impact aging in place for older adults in rural and urban environments. This is conducted through a scoping review and synthesis of empirical literature in this area. Second, to propose a research study that will explore the lived experience of rural community-dwelling oldest-old adults (aged 80 years and older) and how these psychosocial factors impact their quality of life while aging place. To address the first goal, a scoping review is completed of relevant empirical literature to first identify and summarize key findings focused on psychosocial influences impacting older adults aging in place in urban and rural geographic regions (Arksey & O'Malley, 2005). Gaps in current literature are acknowledged through the scoping review, further informing the development of a research grant proposal (goal 2).

In this grant proposal, the psychosocial lived experiences identified by rural community dwelling oldest-old adults (aged 80 years and older) and how it impacts their quality of life is explored. The research grant proposal was developed following the CIHR grant proposal requirements. This particular grant was chosen because it is designed to accept and highlight research focused on the progression of health-related knowledge (whether fundamental or applied) as it relates to quality of life and social determinants of health (CIHR, 2021). As the proposed topic covers socio-spatial context of aging in place for this group of older adults (in the context of housing and neighbourhood) the topic relates to social determinants of health and is therefore applicate to the research grant requirements. However, the focus and nature of this research topic is broad enough that it could be eligible for the Social Sciences and Humanities Research Council (SSHRC) Insight Grant category of funding.

The researcher proposes to study the impact of psychosocial processes on oldest-old adults' wellbeing, while aging in place. Studying this specific age category of older adults (oldest-old, aged 80 years or older) is significant as this demographic typically experiences more mental and physical health impairments and increased barriers while aging in place than younger older adults (aged 65 or older) (Lee, Oh, Park, Choi & Wee, 2018; Ness, Hellzen & Enmarker, 2014). The research questions for the scoping review and research grant proposal are outlined below.

Scoping Review

1. What are the psychosocial factors that impact aging in place for older adults?

2. What are the characteristics of the psychosocial processes that impact older adults' experience of aging in place?

Research Grant Proposal

1. What is the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities?

2. How do psychosocial factors impact (or relate to) quality of life for this group of older adults while aging in place in rural communities?

This project is designed to not only highlight relevant empirical research focused on psychosocial factors related to aging in place (achieved through scoping review in goal one) but also identify gaps in current research to accentuate the value of the research focused on oldest-old lived experiences and quality of life aging in place. The following chapters review theoretical, conceptual and background work pertaining to psychosocial processes experienced by older adults aging in place (Chapter 2). This is followed by the scoping review and research grant methods presented in Chapter 3. The scoping review is presented in Chapter 4, followed by the complete CIHR project grant application in Chapter 5 and capstone conclusion in Chapter 6.

Chapter 2.

Background Context & Theoretical Perspectives

Aging in place is largely guided by conceptual and theoretical work in the field of environmental gerontology, as it is focuses on the relationship between an older adult and their environment. Lawton and Nahemow's (1973) *Ecological Model of Aging* identifies how behaviour acts as a function between the environment and the person. This behaviour shapes actions, which further promotes or hinders psychosocial processes involved in older people's daily life (Lawton & Nahemow, 1973). Therefore, understanding these key processes, and the characteristics of said processes, can support knowledge of older adults' lived experience while aging in place.

This chapter reviews relevant contextual information to aging in place, including the definition and what psychosocial processes are involved. This chapter also guides three pertinent theoretical models to lend insights to the discussion on psychosocial factors and lived experience of aging in place. These models are Golant's (2014) *residential normalcy* model; Chaudhury and Oswald (2019) *person-environment exchange* model and Bigonnesse and Chaudhury's (2021) *aging in place* model. The review of contextual knowledge as well as theoretical perspectives guides the scoping review presented in Chapter 3. It is important to note the literature reviewed in this chapter is excluded from the list of publications included in the scoping review (Chapter 4).

2.1. What is Aging in Place?

The concept 'aging in place' has multiple definitions throughout academic and grey literature (Forsyth & Molinsky, 2020; Government of Canada, 2016; Pani-Harreman et al., 2020; Weil et al., 2016; WHO, 2018). The concept is highly dependent on the source from which it comes from and the context it is used in (academia, policymakers, or governing bodies) (Forsyth & Molinsky, 2020; Pani-Harreman et al., 2020). From an academic perspective, aging in place was originally perceived as the connection older adults have with a "... physical or emotional space..." which later evolved to the home or place of residence older people continue to age in, during their later years (Weil & Smith,

2016, p. 223). Bigonnesse and Chaudhury (2021, p. 3) define aging in place as, "… an ongoing dynamic process of balance enabling an individual to develop and maintain place integration, place attachment, independence, mobility and social participation". The use of the word 'place' is intentional, as it refers to the subjective attachment and significant meaning an individual embeds into a particular geographic space (Bigonnesse & Chaudhury, 2021; Rowles, 1983; Rubinstein & Parmelee, 1992; Weil & Smith, 2016). As previously noted, place is a space that has subjective meaning, influenced by cultural and individual experiences, and prompts a sense of embeddedness (or belonging) in physical and social contexts (Rowles, 1983; Rubinstein & Parmelee, 1992). Governing bodies such as the World Health Organization (WHO) (2018), define aging in place as being able to continue living independently in the community. These definitions from both public and academic domains acknowledge that aging in place refers to the opportunity and ability to live independently in a place that holds significant meaning for the individual while maintaining healthy, supportive social connections.

Forsyth and Molinsky (2020) recently conducted a content analysis of aging in place definitions across academic and grey literature to identify themes related to the concept. The authors identified three themes: place-related, service-based and control (Forsyth & Molinsky, 2020). Place-related definitions include language focused on older people's desire to remain in their home due to the simplicity involved (Forsyth & Molinsky, 2020). For example, older adults are familiar with their community, services and resources and therefore do not have to manage logistical complications with daily life (Forsyth & Molinsky, 2020). Service-based definitions contained language focused on a desire to stay out of care homes (Forsyth & Molinsky, 2020). The final theme, control, incorporated discourse focused on older adults' sense of continued autonomy while aging in place (for example, sense of independence) (Forsyth & Molinsky, 2020). Though the concept of aging in place can be utilized from various perspectives, each definition reflects the relationship between an older adult and place of meaning (Bigonnesse & Chaudhury, 2021; Forsyth & Molinsky, 2020; Government of Canada, 2016; Pani-Harreman et al., 2020; Rowe & Kahn, 1997; Rubinstein & Parmelee, 1992; WHO, 2018).

Though there is a substantial amount of empirical evidence supporting the benefits of aging in place, there is also significant research weighing against it (Weil &

Smith, 2016). Weil and Smith (2016) argue the concept of aging in place should expand to include residences along the care continuum (as opposed to independent housing) for older adults who may not have the mental or physical capacity to continue living independently. The authors recognize that without access to social networks, health care resources or community programs, community-dwelling older adults may feel more "stuck in place", which comes from Torres-Gil and Diana Lam's (2012) stuck in place model (Weil & Smith, 2016, p. 225). The concept of aging in place has also received criticisms that it may be dependent on the traditional mindset of successful aging (Rowe & Kahn, 1997). Successful aging assumes older adults will continue to engage with society and maintain a high level of cognitive and physical functioning with low probability of disease or disability (Rowe & Kahn, 1997). However, the theory of successful aging does not acknowledge environmental or psychosocial impacts on aging, nor older adults' ability to manage adverse events (resilience) across the life course (Golant, 2014; Pruchno & Carr, 2017). Therefore, Weil and Smith (2016) argue the concept of aging in place is not as inclusive as it should be and needs to incorporate places that support older adults' aging, inclusive of all abilities in later life.

In relation to this, Golant (2015) proposed a revision to the concept of aging in place, further recommending aging in *the right* place. The concept, aging in the right place, still refers to aging in the community, but incorporates other housing options that offer environmental, social and health-based supports catering to older adults' personal needs and goals (Golant, 2015). Aging in the right place focuses more on older adults' unique capabilities and how varying aspects of their character and the environment (such as sense of comfort, security, social support, engagement, and access to resources) can support or hinder their experience (Golant, 2015; Weil & Smith, 2016). In Golant (2014) *residential normalcy* model, resilience in older adults is recognized as the ability to cope and adapt to changing environments or adverse events through assimilative or accommodative strategies. Despite experiencing decreased mental or physical health while remaining in their home, older adults make decisions to either mentally accept (accommodative coping) or act (assimilative coping) in the face of challenging or undesirable circumstances (Golant, 2014).

2.2. Residential Normalcy

When considering individual agency and resilience in older adults aging in place, Stephen Golant's (2014) *residential normalcy* model acknowledges older adults' active role in assessing their home environment and relying on coping strategies (or repertoires) to continually achieve residential normalcy. In other words, older adults continually behave as active agents who evaluate their emotional satisfaction and feelings of control over their environment to ensure it aligns with their needs and goals (Golant, 2014). The two key subjective assessments older adults conduct when evaluating their environment is 'residential comfort-emotional experiences' and 'residential mastery-emotional experiences' (Golant, 2014). Residential comfort-emotional experiences are defined as feelings of comfort and familiarity with the environment, whereas residential mastery-emotional experiences are a sense of control and competency (Golant, 2014). Residential normalcy is achieved when one (or both) of the emotional assessments (residential comfort experiences and residential mastery experiences) are subjectively appraised as obtained (Golant, 2014). If one (or both) of these experiences are appraised as not within the older adults' mastery zone, the older adult will engage in a secondary appraisal based on their repertoire of coping strategies (Golant, 2014). Based on what is available in their coping repertoire, the older adult will then activate a form of coping (assimilative, action strategy or accommodative, mind strategy) (Golant, 2014). Accommodative coping strategies refer to older adults' ability to mentally accept and cope with the barriers or stressors they may be experiencing in their environment (Golant, 2014). Assimilative coping strategies, however, refer to actions older adults take to mitigate any barriers or stressors and potentially change their situation to achieve residential normalcy (Golant, 2014). The coping strategy the older adult exercises is heavily dependent on what supportive processes are available to them in their repertoire (Golant, 2014).

Coping repertoires are dependent on individual characteristics (such as demographics, personality, health status and life history), resilient environments (for example, accessible, resourceful and affordable places) and agency or decision-related support provided by trusted social connections (Golant, 2014). Golant (2014) theorizes three individual and environmental factors that facilitate coping repertoires in older adults. The first, 'individual resilience characteristics', acknowledges older adults' ability

to problem solve quickly and tolerate change (Golant, 2014). Golant (2014) attributes resiliency in older adults to favourable demographics, personalities, developmental antecedents, and life histories as well as physical and mental health. For example, those who are extraverted or have Type A personalities tend to have stronger coping repertoires as they are more self-disciplined and motivated to seek out solutions (Golant, 2014; Skodol, 2010). Similarly, older adults who do not experience physical and mental ailments are more likely to have the energy and resources to address and resolve incongruent residential barriers (Golant, 2014). The third factor that influences older adult coping repertoires (and is related to individual resilience characteristics) is older adults' control over decision making (Golant, 2014). Older adults who exhibit high resilience will be less likely to allow others (family members or trusted social contacts) to make decisions on their behalf (Golant, 2014; Lazarus & Folkman, 1984). However, there are some older adults who willingly delegate the decision-making authority of their residential experience to a trusted individual (Golant, 2014). The third (and final factor) that influences coping repertories is objective factors that contribute to resilient environments (Golant, 2014). This refers to meso and macro factors such as the governing bodies a particular area (what local programs and policies are available for older adults), climate patterns (does weather impact older adults' ability to engage in necessary or enjoyable activities), availability of informal or formal support services (home care, medical facilities, family and friends) (Golant, 2014).

Though Golant (2014) *residential normalcy* model is typically applied to relocation decision-making in older adults, it is also useful when considering psychosocial factors related to aging in place. Many of the coping repertoires theorized involve social and environmental supports to further enable the older adult to activate a coping strategy when considering their perceived residential satisfaction (Golant, 2014). These formal and informal supports or services influence older adults' ability to either accept or change their situation (Golant, 2014). This model acknowledges the weight of environmental, formal and informal social supports have on older adults and their residential experience (Golant, 2014). Having resilient environments is also important when considering aging in place (Golant, 2014). The relationship community-dwelling older adults have with their proximal and distal environments may evolve with their mental or physical health decline over time, further impacting their sense of belonging or identity (Chaudhury & Oswald, 2019; Lawton & Nahemow, 1973)

2.3. Person-Environment Exchange Model

Aging in place is largely focused on the interaction between an older adult and their social and built environment. Chaudhury and Oswald (2019) *person-environment exchange* model exemplifies this dynamic process over time. The first component of the model identifies the core aspects involved in the relationship between an individual and their environment (Chaudhury & Oswald, 2019). This includes individual characteristics, social factors, built environment and technological systems (Chaudhury & Oswald, 2019). These factors are referred to as the "… primary characteristics of the fundamental components and their interactions" of the model (Chaudhury & Oswald, 2019, p. 3). In other words, when reflecting on person-environment exchange, these are the four main areas that are involved in the interaction between an individual and their environment (Chaudhury & Oswald, 2019). The individual (or older adult) has extensive personal history, characteristics and health status that impact how they engage with their social and built environments (Chaudhury & Oswald, 2019). Social factors refer to the relationships an individual may have that further impact daily routines, support and engagement (Chaudhury & Oswald, 2019). The physical environment (in this model) refers to both the immediate (proximal) and nearby (distal) environments (Chaudhury & Oswald, 2019). This could mean an older adults' place of residence or their neighborhood (Chaudhury & Oswald, 2019). Different from other person-environment frameworks, Chaudhury and Oswald (2019) incorporate the role of technology in the main components of person-environment interaction. This aspect accounts for technological supports that further support older adults' ability to age in place safely, further supporting their quality of life (Chaudhury & Oswald, 2019). These four components not only influence one another (for example, physical ability of older adult may impact their engagement with the built environment) but are foundational aspects to the person – environment interaction (Chaudhury & Oswald, 2019).

The model also outlines two key concepts involved in the dimensions of environmental exchange, belonging and agency (Chaudhury & Oswald, 2019). Agency is defined as the ability to function and exert control over the environment to achieve personal goals (Chaudhury & Oswald, 2019). Belonging, on the other hand, is an emotional experience tied to the concept of place attachment discussed earlier (Chaudhury & Oswald, 2019; Rowles, 1983; Rubinstein & Parmelee, 1992). This refers

to the connection older adults develop with a place over time through engagement of daily routines in their social and built environment (Chaudhury & Oswald, 2019; Rowles, 1983; Rubinstein & Parmelee, 1992). These two dimensions, belonging and agency, interact with one another and correspond with person-environment components (noted above) over time (Chaudhury & Oswald, 2019). For example, as older adults lose their ability to exert control over their environment, their sense of belonging may also be impacted (Chaudhury & Oswald, 2019). The authors conclude these dynamic processes create environment related outcomes: identity and autonomy (Chaudhury & Oswald, 2019). Chaudhury and Oswald (2019) define autonomy as having personal independence to conduct activities of daily living or instrumental activities of daily living including social engagement. Identity is an understanding of the self and is typically reinforced through daily activities, social relationships and "…personalization of the home environment…" (Chaudhury & Oswald, 2019, p. 5). The time component in the model not only includes changes that occur on a micro level (for example, physical or mental health decline or significant life events of an individual) but also macro components (such as historic events) (Chaudhury & Oswald, 2019). The temporal aspect in this model highlights the how these processes interact with time, for example an older adults' decrease of agency with decline in their physical capabilities (Chaudhury & Oswald, 2019).

The components and interacting processes outlined in this model exemplify how individual characteristics, technology, social and built environment can contribute to an older adults' sense of belonging, agency, identity and autonomy over time (Chaudhury & Oswald, 2019). These aspects are important to consider as they also impact quality of life (Chaudhury & Oswald, 2019). For example, if an older adult is forced to relocate to a new home or community farther away from familiar social contacts and resources (due to decreased physical agency) not only is their sense of belonging compromised, but so is their self-identity and autonomy (Chaudhury & Oswald, 2019). The person-environment components support the understanding of what processes occur and impact an individual when considering aging in place.

2.4. Aging in Place Model

Bigonnesse and Chaudhury (2021) present a multifaceted model of social and individual perspectives related to aging in place. The authors incorporate the capability

approach to exemplify how aging in place impacts an individuals' opportunities and freedom to achieve their needs and goals (Bigonnesse & Chaudhury, 2021). The capability approach is defined as an individuals' agency, functioning and ability to pursue and engage in their desires (Deneulin, Shahani, Alkire, Proochista, Johnson, Naveed, Robeyns, Spence, Unterhalter & White, 2009). Therefore, similar to Golant's (2014) residential normalcy theory, the older adult has agency to make changes or seek solutions to their residential environment. In Bigonnesse and Chaudhury (2021) model, aging in place is impacted by four key pillars -- place attachment, social participation, mobility and independence (Bigonnesse & Chaudhury, 2021). Place attachment is the emotional bonding to a home or neighborhood that is developed over time (Bigonnesse & Chaudhury, 2021). Social participation refers to the development of social relationships and roles and engagement in social activities, further contributing to place attachment (Bigonnesse & Chaudhury, 2021). This can include civil engagement activities or even receiving social support from family or community members (Bigonnesse & Chaudhury, 2021). Mobility is identified as a key component to aging in place as the ability to engage in activities and connect through social relationships, further contributing to an older adults' sense of identity (Bigonnesse & Chaudhury, 2021). Finally, independence is defined as having "… the capacity to exert control on one's environment, to make decisions and choices, and to meet daily needs." (Bigonnesse & Chaudhury, 2021, p. 19). These four pillars all feed into a key component that directly impacts aging in place; a concept referred to as place integration (Bigonnesse & Chaudhury, 2021).

Place integration refers to the conversion of an objective space to a place of meaning for an individual (Rowles, 1983; Rubinstein & Parmelee, 1992). Meaning is created through individuals' daily activities, routines and habits which in turn, contribute to their sense of familiarity and safety of a space over time (Bigonnesse & Chaudhury, 2021; Rowles, 1983; Rubinstein & Parmelee, 1992). These five components (place attachment, social participation, mobility, independence and place integration) are influenced by proximity to services and amenities, meaningful social connections, individual factors and accessible built environments (Bigonnesse & Chaudhury, 2021). These factors also impacted by continual routines, habits and familiarity that are included in an individuals' relationship with aging in place over time (Bigonnesse & Chaudhury, 2021). This model outlines several psychosocial components that are

pertinent when evaluating psychosocial factors that impact aging in place (Bigonnesse & Chaudhury, 2021). Not only do the five components (place attachment, social participation, mobility, independence and place integration) feed into aging in place for older adults, but they also impact each other (Bigonnesse & Chaudhury, 2021). The interrelatedness of these factors provokes the argument that if one psychosocial factor is significantly impacted, it will have a significant impact on the others, further affecting an older adults' experience aging in place (Bigonnesse & Chaudhury, 2021). This model presents the various components that contribute to aging in place for older adults' and what impacts their lived experience while aging in place as well as their desire to continue living in their home.

Golant (2014) *residential normalcy* model, Chaudhury and Oswald's (2019) *person-environment exchange* model and Bigonnesse and Chaudhury (2021) *aging in place* model highlight the dynamic processes and various factors involved between an individual and their built and social environment. The individual acts as an active agent engaging and coping with changes not only in their environment but also in a personal and social capacity (Bigonnesse & Chaudhury, 2021; Chaudhury & Oswald, 2019; Golant, 2014; Lawton & Nahemow, 1973). Having access to resources and services, such as social supports (informal or formal), supportive programs or personal resilient characteristics bolster older adults' coping repertoires to further adapt to changes or stressors that occur in their life (Golant, 2014). The components outlined by all models outlined above inform future discussions on what psychosocial aspects impact community dwelling older adults.

Chapter 3.

Methods: Scoping Review & Research Grant Proposal

This chapter provides an overview of the methods used for both the scoping review (Chapter 4) and CIHR research project grant proposal (Chapter 5). For the research grant proposal, the methods section includes research design, research setting, sampling and recruitment, informed consent, an overview of data collection and analysis, ethical considerations and finally, knowledge translation activities.

3.1. Scoping Review Methods

The scoping review method is informed by Levac, Colquhoun and O'Brien's (2010) refined strategies for Arksey and O'Malley (2005) methodological framework for scoping reviews. Arksey and O'Malley's (2005) framework follows similar components of systematic reviews to maintain a reliable, rigorous process in identifying and documenting literature relevant to the research question. The six stages of the framework are: (1) identifying the research question, (2) determining relevant studies, (3) study selection, (4) charting the data, (5) collating, summarizing, and reporting the results, and (6) consultation (Arksey & O'Malley, 2005, p. 22). This scoping review framework is an iterative process that encourages flexibility while collecting relevant literature to ensure the search is comprehensive (Arksey & O'Malley, 2005). This includes reviewing and adjusting search terms while collecting literature to continually refine study selection (Arksey & O'Malley, 2005). By identifying and collating relevant literature, the process also presents the opportunity to discuss gaps in current research (Arksey & O'Malley, 2005).

Following this, Levac et al. (2010) reviewed and published adapted methods to enhance Arksey and O'Malley's (2005) strategies for each stage of their framework. Key recommendations of Arksey and O'Malley's (2005) framework include outlining explicit search parameters (such as target populations) to support search strategies and study inclusion (Levac et al., 2010). Levac et al. (2010) also suggest providing a rationale for the scoping review to further strengthen the purpose of the search and corresponding

implications on practice or policy. In reference to stage five (collating, summarizing, and reporting the results), Levac et al. (2010) recommend reporting the result of each study and relating it to the determined themes and purpose of the study. Further, articulating how the results of the study may have broader implications on "… research, policy, and practice" (Levac et al., 2010, p. 7).

In acknowledgment of these recommendations and strategies, the goal of this scoping review is to identify, summarize, and report findings and implications from recent empirical literature to address two research questions (outlined below). The purpose of conducting this scoping review is to select, summarize and broaden knowledge of current empirical research that explores psychosocial processes related to aging in place for urban and rural older adults. Conducting this scoping review and identifying psychosocial processes related to aging in place is valuable for three reasons. First, it offers a deeper awareness as to what older adults deem valuable in their lived experience aging in place and why many wish to continue living in their home or community, regardless of any environmental or health barriers they may be experiencing (Cook et al., 2005; Erickson et al., 2012; Kendig & Browning, 2017; Wister & Speechley, 2015). Second, it supplements meaning of home literature that accentuates how cognitive, behavioural, and social processes hold significant weight for older adults aging in place (Chaudhury & Oswald, 2005). Finally, this scoping review reveals current gaps in research, implications on policy and practice as well as opportunities for future research initiatives. To explore this topic, two research questions are proposed (outlined below). The first research question intends to identify psychosocial factors that impact older adults' experience aging in place. The second, is to outline the characteristics of psychosocial processes that effect older adults' experience aging in place. The term characteristics, refers to specific and related attributes of the psychosocial processes. Refer to the definition of psychosocial on page 4. The research questions for this scoping review are as follows:

1. What are the psychosocial factors that impact aging in place for older adults?
2. What are the characteristics of the psychosocial processes that impact older adults' experience of aging in place?

Three databases were used to search relevant publications: Ageline, PSYCInfo and CINAHL. Key words such as, "aging in place", "independent living", "older adult",

"psychosocial" and "meaning of home" were used to identify pertinent literature (see Table 1). During the search, an asterisk was used to prompt the wild card search function that includes the word before the asterisk with multiple endings following. Similarly, Boolean phrases were also used to combine keywords in the search. Inclusion criteria involved empirical literature published in English between January 2000 and 2021. Following initial title identification, abstracts were assessed for eligibility, followed by full-text evaluations. Exclusion reasons of full text publications included literature (1) research focused on built environment or home modifications, (2) unrelated to research questions or aging in place and (3) with non-community-dwelling sample (see Figure 1). The findings were charted and analyzed to address the research questions, identify gaps and future research as well as guide discussion on broad implications (see Appendix A) (Arksey & O'Malley, 2005; Levac et al., 2010). Results from this scoping review are outlined in Chapter 4.

Table 1: Scoping Review Literature Search Parameters

Literature Included	Empirical Literature
Databases	AgeLine, PSYCInfo and CINAHL
Key Word Search Phrases	"aging in place" OR "independent living" OR "community dwelling" AND "older adult" OR "older people" OR "seniors" AND "psychosocial factors" OR "psychosocial impacts" OR "psychosocial effects" "aging in place" AND "older adult" AND "meaning of home" "aging in place" AND "older adult" AND "psychosocial" "aging in place" AND "older adult" AND "social support" elder*
Dates	2000 to 2021
Language	English only
Geographic Regions	None specified
Peer Reviewed	Yes

3.2. Methods: Research Grant Proposal

The following sub-sections (3.2.1 – 3.2.8) outline the methods for the research grant proposal (see Chapter 5). This chapter outlines the research questions, study design, research setting, sampling and recruitment, informed consent, data collection and analysis followed by plans for knowledge translation. The research questions for the grant proposal are as follows:

1. What is the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities?
2. How do psychosocial factors impact (or relate to) quality of life for this group of older adults while aging in place in rural communities?

3.2.1. Study Design

This study will follow a hybrid method of community-engaged and participatory research; methods that are heavily informed by community-based participatory research method (CBPR) (Jull, Giles & Graham, 2017). CBPR is intended to engage and empower participants as co-researchers in research and knowledge translation activities (Jull, Giles & Graham, 2017). This method is influenced by several ideologies such as feminist theories and participatory action research (Jull, Giles & Graham, 2017). Kurt Lewin (1946) and Paulo Friere (1970) both contributed to the concept of participatory action research in which community participants or stakeholders are heavily involved in the research process, further breaking down the power difference often found between academic and members of the community (Jull, Giles & Graham, 2017). The goal of this method is to reduce inequities in the partnerships between stakeholders and engage participants in the planning, implementing and knowledge translation activities (Evans-Agnew & Rosemberg, 2016; Jull, Giles & Graham, 2017). This study incorporates a modified CBPR method by including community members through data collection and dissemination of study results (Evans-Agnew & Rosemberg, 2016; Jull, Giles & Graham, 2017). Stakeholders are not involved in the initial stages of the study (development of questions in survey or photovoice interviews) but are actively involved in end-of-grant knowledge translation activities (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton, Schleien, Brake, Trovato & Oakes, 2012).

To address the research questions noted above, a mixed-methods approach will be conducted to utilize both qualitative and quantitative data. Mixed-methods support the collection of objective and subjective data that further contribute to the understanding of psychosocial factors impacting quality of life for community-dwelling oldest-old adults aging in rural communities (Groves, Fowler Jr, Couper, Lepkowski, Singer & Tourangeau, 2009). Quantitative data includes demographic and quality of life data supports researchers in making broader generalizations of the population being studied (Groves et al., 2009). Qualitative data captures the lived experience of oldest-old adults living in rural areas of British Columbia (Groves et al., 2009).

The research proposal will include two phases of data collection. Phase 1 involves an online or paper survey (dependent on accessibility to internet and technology) intended to collect demographic information of oldest-old community-dwelling adults living in rural communities. Following the survey, participants will be asked to complete World Health Organization Quality of Life Scale for older people (WHOQOL-OLD) (WHO, 2006). This scale was chosen for its high validity, reliability and specific questions assessing quality of life in older adults (Gobbens & van Assen, 2016; Peel, Bartlett & Marshall, 2007). Phase 2 of the study incorporates photovoice interviews with a selected sample of participants from phase 1 to determine the lived experience of oldest-old adults living in rural communities and how psychosocial factors influence aging in place. The research activities are outlined in greater detail in the following sub-categories (3.2.2 – 3.2.5).

3.2.2. Research Setting

Participants will be recruited strictly from rural communities in British Columbia Canada. Statistics Canada (2018) defines rural areas as geographic regions outside of population centers (POPCTRs) and include populated places with less than 1,000 people. Rural population "… includes all population living in rural areas of census metropolitan areas (CMAs) and census agglomerations (CAs) as well as population living in rural areas outside CMAs and CAs (Statistics Canada, 2018, p. 2). Both CMA and CAs need to consist of at least one municipality that surrounds a core metropolitan (Statistics Canada, 2018c). The difference between a CMA and a CA, is a CMA has a minimum population size of 100,000 whereas a CA as a core population of 10,000 (Statistics Canada, 2018c). The term "rural" can have different meanings and contexts

to different communities depending on geographic location and general understanding of rural community characteristics. Thus, the concept of rural population and rural area needs to be clearly defined to funders, research team, participants and community members during data collection and dissemination. In this proposal, the definition of the concept 'rural' is taken from Statistics Canada's (2018c) definition of rural population. In this definition, rural people refers to people located in rural areas (geographic regions) of less than 1,000 people (as noted above).

British Columbia is divided into five regional health authorities: Fraser Health (FHA), Interior Health (IHA), Northern Health (NHA), Vancouver Island Health Authority (VIHA) and Vancouver Coastal Health Authority (VCHA) (Government of British Columbia, 2021). Rural population participants will be gathered from each health authority region to (1) ensure accurate coverage of the entire province of British Columbia, as opposed to collecting data in specific or concentrated areas (north versus south of the province), and (2) disseminate data and create reports specifically catered for health authority regions based on data collected in that region. Some health authority regions have less rural areas or rural population than others (for example, Northern Health has higher number of rural areas than Vancouver Coastal). Rural community members can be collected from with CMA regions, however again, the research team will need to clearly outline the meaning of rural community and differentiate terms such as remote and rural for participants and in knowledge translation activities.

3.2.3. Sampling and Recruitment

In Phase 1 a heterogeneous sample of 60 participants from each of the five health authority regions in British Columbia will be recruited, Canada (n = 300) to complete the demographic and WHOQOL-OLD survey. Participant lists of older adults living in rural areas will be purchased through a vendor, Data Axle (previously Infogroup) and people from the list will be contacted to participate in the study. Literature shows that the use of participant lists purchased through vendors usually yield 20-30% eligible participants. Thus, a list of 2000 participants will be purchased to get a sufficient number of eligible participants. The eligibility criteria for phase 1 participation requires the person to be (1) the age of 80 years or older, (2) living in an independent residence (own or rent) alone, (3) independent residence must be located in a rural community in British

Columbia, Canada, (3) fluent in English and (4) have the cognitive ability to provide informed consent and answer questions independently.

Purposeful sampling will be used to recruit participants for phase 2 (6-8 participants recruited per health authority region, n = ~40) (Palinkas, Horwitz, Green, Widsom, Duan & Hoagwood, 2016). Purposeful sampling is beneficial for mixed methods research (with emphasis on qualitative data collection) as it allows the researcher to identify and recruit participants that are more likely to yield a high quantity of relevant data (information rich) (Palinkas et al., 2016). Though there are several strategies involved in purposeful sampling, this study seeks to identify and select participants based on a predetermined list of criteria (Palinkas et al., 2016). This involves the researcher contacting phase 1 participants by email or phone to request their voluntary participation in phase 2 photovoice interviews. Participants will be asked if they can be contacted for phase 2 through the informed consent letter (see Appendix B).

3.2.4. Informed Consent

An informed consent letter will be provided to all participants (either in an online or physical copy format, depending on the participants' preference) prior to completing the survey and WHOQOL-OLD in phase 1 (see Appendix B). If the participant prefers to receive the informed consent letter virtually, the consent letter will be emailed in a fillable pdf format by a research team. In the email, the researcher will ask the participant to review the informed consent letter and write down any questions they may have about the study, their participation, confidentiality, or ability to withdraw. The email will also specify the date and time the researcher and participant will connect over the phone to review the consent letter and acquire verbal consent. Once reviewed over the phone, the researcher will ask if the participant consents to the activities outlined in the study and if the participant can be contacted for phase 2 of the study. If verbal consent is provided, the researcher will sign the consent form and email a copy to the participant for their records.

If the participant prefers a physical copy of the consent form, a paper copy will be sent to participants via postage and a date and time will be scheduled over the phone to review the informed consent form in person. The researcher will request the participant review the consent form prior to meeting them in person. Following the review of the

informed consent form in person and after obtaining verbal consent, the researcher will sign two copies of the informed consent form (one for the researcher and one for the participant). Tracking of all consent forms (whether a virtual or physical copy) will be monitored by the research team. Storage of the consent letters will be under a password protected local drive owned by the researcher. The informed consent letter will outline details of the study, requirements of the participants, risks and benefits of participating, participant confidentiality and if the participant can be contacted for phase 2 of the study (see Appendix B).

3.2.5. Data Collection

Phase 1 of the study will include an online (or physical copy) survey requesting demographic information (age, sex, gender, ethnic origin, education, participant housing details as well as mental and physical health) of community-dwelling oldest-old adults (aged 80+, n=300) living in rural areas of British Columbia, Canada (see Appendix C). The survey will be offered both online and paper format, depending on the accessibility and comfortability with technology and internet. The survey will also include the WHOQOL-OLD, to measure quality of life in older adult participants (see Appendix D). The WHOQOL-OLD is a versatile, valid and reliable tool used to measure quality of life in older adults and has been used internationally (Gobbens & van Assen, 2016; Peel, Bartlett & Marshall, 2007; WHO, 2012). The WHOQOL-OLD consists of 24 Likert-scaled questions, categorized into six domains, (1) sensory abilities, (2) autonomy, (3) past, present and future activities, (4) social participation, (5) death and dying and (6) intimacy (WHO, 2012). The Likert-scale is a psychometric response scale that prompts the participant to answer questions on a five-point continuum ranging from one end of the spectrum to the other (WHO, 2012). Sensory abilities refer to older adults' loss of abilities, autonomy assesses independence and autonomous activities, and past, present and future activities evaluates the participants satisfaction with life goals (WHO, 2012). Social participation affirms level of activities in the community, intimacy focusing on personal relationships and finally, the tool also collects their perceptions on death and dying (WHO, 2012).

To collect data focused on the lived experience of oldest-old adults, phase 2 will utilize the photovoice method. Using photovoice as a method of data collection empowers the participant to express their perspective and lived experience to the

researcher through photographs (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton et al., 2012). The researcher will prompt older adult participants to take photos of places, things or people they believe contribute or hinder their experience aging in place, in a rural community. Follow-up interviews will review the photographs and discuss the context behind each photograph (researcher-identified questions, see Appendix E) (Evans-Agnew & Rosemberg, 2016). Details of each phase of data collection is provided below.

Phase 1: Survey and Quality of Life Scale

The demographics survey and WHOQOL-OLD will be offered to participants in online or physical format depending on participant preference and accessibility to computer software. Investing time and resources in developing trustworthy relationships with participants as well as creating opportunities for participant engagement will be prioritized (Jull, Giles & Graham, 2017). Schilling and Gerhardus (2017, p.1) also found successful research methods in studies involving older adult participants included "… a thoughtful choice of location, use of visualization and accessible communication, building good relationships and flexible approaches". Acknowledging this, the survey and WHOQOL-OLD will either be sent to the participant through a secure, SurveyMonkey weblink via email or conducted in-person on paper. SurveyMonkey is an intuitive, online survey software hosted in Canada that supports ease of data collection and offers data analysis tools to view, analyze and download results. The demographic survey and WHOQOL-OLD will be inputted into the survey software for participants interested (and able) to complete using a digital version.

The survey will include questions focused on participants' demographic information including age, sex, gender, ethnic origin, education, participant housing details as well as mental and physical health (see Appendix C). These questions are intended to gather quantitative data to make broader generalizations about oldest-old adults residing in rural communities. The survey also gathers information on participants who will be completing phase 2 photovoice interviews. Through data analysis, the information collected in phase 1 can support researchers to draw inferences on the data collected through phase 2 photovoice interviews. Following the survey, the participant will be asked to complete a WHOQOL-OLD to determine a quality-of-life score (see Appendix D). As this study is assessing the correlation between psychosocial factors

and quality of life in oldest-old adults residing in rural communities, the WHOQOL-OLD will provide quantitative data determining quality of life for participants (WHO, 2006).

Phase 2: Photovoice Interviews

Photovoice is a unique method of data collection as it prompts participants to express what is meaningful to their personal lived experience through photographs (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Walton et al., 2012). The goal of this method is to empower less researchered groups (in this case, rural oldest-old adults) and encourage dialogue focused on personal experiences or barriers that inform and provoke social change (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton et al., 2012). The photographs are a means of giving participants a “voice” in conveying information from their point of view (Plunkett et al., 2013; Tsang, 2020; Walton et al., 2012). Having a visual aid captured by the participant facilitates their ability to express their individual experience in ways where an interview method would fall short (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton et al., 2012).

Unlike phase 1, it is preferable to hold photovoice interviews in person for ease of data collection and to establish rapport with participants. However, dependant on the COVID-19 health restrictions and travel-related costs, photovoice may need to be hosted over Zoom conference software or over the phone. Guided by Plunkett, Leipert and Ray (2013) photovoice method, there will be three points of contact between the researcher and participant during phase (see Table 2 below). During the first point of contact (session 1: initial meeting), the researcher will connect with the older adult by phone to determine the device the participant is comfortable taking photographs with and how they would like to receive the informed consent letter to review (postage or email). The researcher will then set a date and time for the second meeting, which will occur in person. In the second meeting, the researcher will review the informed consent letter (sent to the participant prior to the meeting by postage or email), a detailed orientation as to what photovoice method is and the role of the participant in the study. In this meeting, the researcher will also determine the device the participant is most comfortable taking photographs with and review instructions on how to take photographs with the device (if needed). If in person activities need to be curtailed, postal service will be utilized to support sending devices and collection of photographs.

All participants will be provided with a digital camera to take up to 27 photographs over a period of seven days. Participants will also be given a logbook to track the date and context of each photograph taken. The digital camera will be given to the participant in session 2 (see Table 2). The researcher will conclude the second meeting by scheduling a date, time and location to collect the digital camera and completed logbook from participant in approximately seven days. All digital copies of the photographs will be saved to a password-protected local drive by the researcher. The research team will also print the photographs and use them in session 3 to discuss with the participant (individual open-ended interview). In the final meeting (session 3), the researcher will first review the informed consent to ensure the participant is familiar with their participation, confidentiality, and rights to withdraw in the study. Following this, the researcher will prompt the participant to discuss the photographs and notes made in the participant logbook following open-ended interview questions (see Appendix E). The interviews will be audio-recorded and transcribed by the research team following the interview.

Table 2: Phase 2 Photovoice Interview Sessions

Researcher & Participant Sessions	Session Goals	Time Required
Session 1: Initial Meeting	Determine device participant would like to take photographs with (phone or digital camera). Schedule date, time & location for session 2. Send informed consent letter by postage or email for participant to review prior to session 2.	30 min
Session 2: Informed Consent & Photovoice Orientation	Thoroughly review and answer questions regarding informed consent letter. Obtain signed copy of informed consent letter. Provide orientation to study and photovoice method. Review familiarity and instruction of taking photographs with device (if needed). Hand-off digital camera (if applicable)	1 hour
Session 3: Individual Photovoice Open-Ended Interview	Review informed consent. Conduct open-ended interview to discuss meaning of photographs.	1 hour
Total Participant Time		~ 3 hours

3.2.6. Data Analysis

Data analysis of both quantitative and qualitative data will involve two types of software: SPSS for quantitative data and NVivo for qualitative data. SPSS is a statistical software that will support the analysis of survey and WHOQOL-OLD data whereas NVivo will be used to support thematic analysis of the transcribed interviews and logbooks from photovoice interviews.

Quantitative Data

Following the digitization of survey and WHOQOL-OLD data (if collected on paper copies), the researcher will input the data into SPSS and conduct basic descriptive and inferential statistics. The WHOQOL-OLD data will follow a scoring guide with the support of a SPSS syntax file provided by WHO (2006). Questions belonging to

each of the six facets of the WHOQOL-OLD (sensory abilities, autonomy, past/present/and future activities, social participation, death and dying, intimacy) needs to be sorted, recoded and scored based on the scoring list provided (WHO, 2006). Each of the facets will then be summed to retrieve the raw facet score (WHO, 2006). Each facet score will then be added together, to create a total score (WHO, 2006). A high score on the WHOQOL-OLD represents a high quality of life, whereas a low score suggests a low quality of life (WHO, 2006). The two types of statistical analyses will help determine frequency of responses and correlations between variables that will further support the researcher in making larger generalizations regarding the population studied.

Qualitative Data

The analysis of photovoice interview data will follow a four-step process outlined by Plunkett, Leipert and Ray (2013). Following the collection of photographs, the researcher will review the photographs (without referencing participant logbook entries) and categorize the photographs based on their own interpretation (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). To maintain rigor, the researcher will take analytical notes to document photographs, corresponding themes and personal interpretations of what the photographs may mean (Tsang, 2020). This inductive approach allows the researcher to theorize relevant themes based on their personal perspective and interpretations of the photographs (Tsang, 2020). This analysis will be conducted before session 3 with the participant.

In session 3, the researcher will collect participants perspective and interpretation of each photograph (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). Following the participants analysis of the photographs, the researcher will conduct a cross comparison between their interpretation of the photographs and the participants' (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). The final step of analysis involves developing theories based on themes collected from both participant and researcher (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). This process encourages a collaborative analysis of the data between the researcher and participants (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020).

3.2.7. Knowledge Translation

Knowledge translation is defined by CIHR (2020, p.1) as “a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians…”. In other words, knowledge translation is a series of activities conducted between researchers and knowledge users to share information pertaining to the research they are conducting or have collected (Barwick, Phipps, Myers, Johnny & Coriandoli, 2014). Depending on the level of engagement determined by the research team, knowledge translation and strategic communication activities can have varying degrees of intensity and involvement in different states of the study (Barwick et al., 2014; CIHR, 2020). Strategic communication refers to intentional and thoughtful methods of sharing information to relevant audiences (Barwick et al., 2014). There are two key methods of knowledge translation according to CIHR: (1) integrated knowledge translation or (2) end of grant knowledge translation (CIHR, 2020). This study will utilize end of grant knowledge translation activities. End of grant knowledge translation focuses on “… diffusing, disseminating, or applying the results of the research project…” (CIHR, 2020, para 1).

End of grant strategies for this research study will include an abstract submission to Canadian Gerontology Association (CAG) to present findings following the completion of the study in 2024. The research team will also publish the data collected from this study in an open-access publication. Other strategies to disseminate findings to knowledge users outside of academic communities will include podcasts, blog posts, newsletter articles and social media messages through the Department of Gerontology at Simon Fraser University. Following a community-engaged approach, researchers will also host 5 community workshops and 1 World Café to discuss how the practical implications of the research and potential future action on how to support rural, oldest-old adult quality of life while aging in place (Fouche & Light, 2010).

First, five community workshops (1 for each health authority region) will be hosted in rural community- or recreation centres to engage community members and health authority representatives in informal conversation relating to phase 2, photovoice findings. This integrative strategy of reviewing participant photographs and discussing the meaning behind each photo, prompts a larger discussion of the meaning, value and impact of photovoice findings. Community workshops will be catered events 50-90

minutes in length, with photographs of the phase 2 photovoice interviews on display (written permission to use photographs will be requested of the participants prior to use in community workshops). Second, conversations relating to the photographs arising from the community workshops will inform table topics and questions for discussions at the World Café. The difference between community workshops and the World Café, is community workshops are a more relaxed, integrative and less targeted method of conversation guided by researchers.

The World Café method encourages informal conversations across a variety of stakeholders (including those with lived experience) on related research issue (World Café, n.d.). Stakeholders will include local organizations supporting older adults, health authority representatives, rural, oldest-old adults, and participants from phase 2 of the study. The process will follow recommended methods of (1) creating an inviting and safe environment, (2) welcoming participants, (3) small group discussions (usually lasting 20 minutes in length) guided by questions, and (4) harvesting insightful messages through shared discussion from the groups (World Café, n.d.). Conversations may lead to future research goals and ideas for dissemination of current research results.

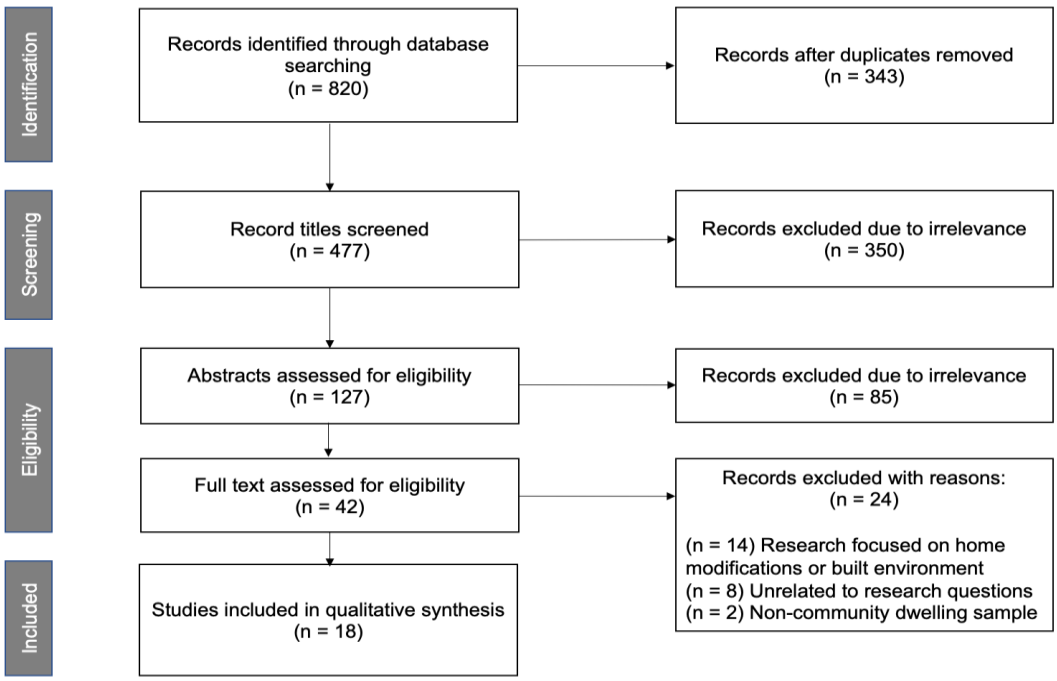
Chapter 4.

Scoping Review

4.1. Findings: Psychosocial Factors Impacting Aging in Place

The American Psychological Association (n.d., p.1) defines psychosocial as "… the intersection and interaction of social, cultural, and environmental influences on the mind and behaviour". This scoping review sought to select, summarize and report findings from recent empirical research focused on psychosocial aspects relating to older adults aging in place. The first research question seeks to identify psychosocial factors that impact older adults' experience aging in place. The second, is to outline the characteristics of psychosocial processes that effect older adults' experience aging in place. As shown in Figure 1 (below), records were identified through databases and search methods outlined in Table 1. After record titles were screened, full text articles were identified through abstract assessments. Records were then excluded with reasons, rendering 18 studies to be included in the final scoping review (see Figure 1).

Figure 1: Flow chart of literature screening process



From these 18 publications, three key themes were identified relating to psychosocial factors impacting aging in place for community-dwelling older adults. The themes are: (1) implications of social connection and community of neighborhood on aging in place, (2) perceptions of independence, safety and security linked to aging in place and (3) sense of identity, continuity and purpose with aging in place (outlined below). All empirical research is summarized into each of the theme sub-headings below.

1. Implications of social connection and community on aging in place (Social).
2. Sense of identity, continuity, and purpose with aging in place (Continuity).
3. Perceptions of independence, safety and security linked to aging in place (Independence).

4.1.1. Social: Implications of social connection and community on aging in place

Through participant interviews, Ahn, Kwon and Kang (2020) identified three groups of community-dwelling older adults who reported a desire to age in place (easygoing townkeepers, finance-cautious warriors and balanced achievers). Though the groups were primarily differentiated based on their financial means, the authors found the “easygoing town keepers” (group with low financial means) attributed their well-being and desire to age in place to the social connections they had with nearby family and community (Ahn et al., 2020). Participants frequently referenced wanting to age in place when there was significant presence of informal social supports within their community or neighborhood (Erickson et al., 2012; van Hees, Horstman, Jansen & Ruwaard, 2017). Similar results were determined by Erickson, Call and Brown (2012). The authors identified community satisfaction significantly contributed to community attachment (because older adults’ perceptions of sense of belonging within the community (community satisfaction) outweighed how older adults viewed the community (attachment) (Erickson et al., 2012; van Hees et al., 2017). Similar results were found in Finlay et al. (2020), which emphasized how social connections were highly valued, so much so that residents would often outweigh the social support they received over the barriers they experienced in their environment (Finlay, 2020). Grimmer et al., (2015) reported older adults identified having access to informal and formal social relationships

and supports contributed to their desire to age in place. Similarly, data from Utah Community Study found rural older adults, despite reduced accessibility to resources, had a high level of attachment and satisfaction with their community (Erickson et al., 2012). Minority group participants in Finlay (2020), Willis, Raithby and Maegusuku-Hewett (2018) reported they felt strong cohesion with their community and reported high levels of satisfaction. Older lesbian, gay or bi-sexual (LGB) adults noted having a connection to their community (whether in person or online) was significant to determining their sense of home (Willis et al., 2018). Similarly, Wiles, Leibing, Guberman, Reeve and Allen (2012) determined older adults wanted to age in place due to access to familiar resources and social connections.

Older adults who liked their neighborhood were more likely to age in place (Kendig & Browning, 2017). Proximity also served as an important facilitator in developing relationships in neighborhoods for older adults' aging in place (Gardner, 2011). Neighbours and local services facilitated older adults' opportunities to engage and often contribute to their community (Gardner, 2011). There were also several cases where the help provided by older adults was reciprocated by neighbours (informal social support) (Gardner, 2011). Community-dwelling older adults who did not have family within a proximal distance reported concerns of isolation and feeling pressure to move (Martin, Long & Kessler, 2019). This finding was present in older adults across cultures (Baron, Fletcher & Riva, 2020; Dobner, Musterd & Droogleever Fortuijn, 2016). Baron, Fletcher and Riva (2020) identified Inuit elders valued the informal support and social connection provided by family and community members. Having a safety net of informal support within the community was also found to be important to participants in Portland, US and Amsterdam, NL (Dobner et al., 2016).

Many older adults wish to age in place not only because of the social connections and support received through their neighborhood but also because of the familiarity associated with the community (Ahn et al., 2020; Baron et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Vos, Boekel, Janssen & Leenders, 2020; Wiles et al., 2012; Willis et al., 2018). Neighborhood community members and resources are familiar, which plays a large role in older adults trust in receiving formal and informal support (Ahn et al., 2020; Baron et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Vos et al., 2020; Wiles et al., 2012; Willis et al., 2018). A recent study

determined that social or neighborhood trust significantly impacts community-dwelling older adults desire to engage in and develop social relationships, further impacting social isolation or loneliness (Yang & Moorman, 2020). Vos, Boekel, Janssen and Leenders (2020) also identified when experiencing a change in their social circle (whether that be a death of spouse or significant friendship), older adults experience feelings of loneliness. Social connections were valued above all else to remain engaged and supported by the community (Baron et al., 2020; Dobner et al., 2016). Having sense of community contributed to participants' sense of identity, making aging in place a more desired choice despite barriers experienced (Finlay, 2020). Similar results were reflected in a study by Wiles, Leibing, Guberman, Reeve and Allen (2012), Willis, Raithby and Maegusuku-Hewett (2018) as well as Erickson, Call and Brown (2012).

4.1.2. Continuity: Sense of identity, continuity and purpose with aging in place

Recent publications also reflected older adults' perspectives on wanting to continue aging in place as it preserves their identity and maintains a continuity in their life. Baron, Fletcher and Riva (2020) found for Inuit Elders, living and having visual access to the land held deep symbolic value. Through the interviews, researchers identified how Elders frequently referenced activities in their youth (one participant noted hunting) and how that is a deep part of their identity, despite no longer having the physical capabilities to engage with nature and roam the land (Baron et al., 2020). Self-identity was also found to be connected to older adults' personal possessions, as memories and meaning were embedded into objects accumulated throughout the life course (Oswald & Wahl, 2005). In a study conducted by Board and McCormack (2018, p. 3077) participants used photovoice to exemplify how their personal possessions contributed to their sense of home because they were a "…presentation of themselves…". Older adults reported being intimidated to relocate to assisted living or retirement homes with assisted supports in fear they would not be able to bring their possessions with them or (if they could) only a limited amount (Board & McCormack, 2018).

Community-dwelling older adults not only derive their sense of identity from their possessions but also from their community; their social identity (Gardner, 2014). In the study conducted by Gardner (2014), community-dwelling older adults adopted a social

identity by engaging and participating in their community. Though this role was heavily dependent on their mobility, older adults sought to preserve their identity and sense of belonging in the community (Gardner, 2014). Similar themes of working to preserve identity despite physical and mental barriers, were also found in a qualitative study conducted by Martin, Long and Kessler (2019). Through interviews, older adults voiced they would prefer to age in place as it contributes to their sense of self and their place in society (Martin, Long & Kessler, 2019). Maintaining independence was also found to be important in upholding older adults' sense of identity through their social networks (Martin, Long & Kessler, 2019).

Community-dwelling older adults reported wanting to preserve the feeling of "be[ing] yourself" in their community-dwelling home, as opposed to moving to a care facility where they felt their independence (and with that, identity) would be stripped from them (Stones & Gullifer, 2016). Interestingly, the same participants also reported feeling no different from their younger selves (a sense of continuity) (Stones & Gullifer, 2016). The participants' possessions they surround themselves with remind them of their past and who they were (Stones & Gullifer, 2016). This is also reflected in Coleman and Wiles (2020) that identified the value of personal possessions for community-dwelling older adults in Waiheke Island, NZ. Participants noted possessions were a sense of continuity in themselves and served as reminiscent pieces of the places they visited, activities they engaged in or people they shared their life with (Coleman & Wiles, 2020). The authors also noted how the possessions offered a sense of comfort that further contributed to their quality of life (Coleman & Wiles, 2020). For older migrant adults, the sense of identity is bound not to the culture they grew up in but to the culture they are currently living in (Palladino, 2019). Their sense of belonging and identity is tied to the routines and social engagements they engage in, in their new country (linking back to the value of community and social relationships) (Palladino, 2019).

Aging in place for older adults, means preserving routines and maintaining a sense of continuity in their life (Baron et al., 2020; Board & McCormack, 2018; Coleman & Wiles, 2020; Gardner, 2014; Martin, Long & Kessler, 2019; Palladino, 2019; Stones & Gullifer, 2016). Being surrounded by familiar people and possessions, were a reminder of an individuals' identity and their purpose within the community (Baron et al., 2020; Board & McCormack, 2018; Coleman & Wiles, 2020; Gardner, 2014; Martin, Long & Kessler, 2019; Palladino, 2019; Stones & Gullifer, 2016). This finding can be related to

generativity in older adults (Au et al., 2020; Hunter & Rowles, 2005). Born from an innate desire and cultural duty to pass along knowledge and support younger generations, the concept of generativity is deeply embedded in older adults' sense of continuity and identity (Au et al., 2020; Hunter & Rowles, 2005). They seek to preserve their legacy (referring to a personal commitment and story) that provides knowledge and insight for future generations (Au et al., 2020; Hunter & Rowles, 2005). Hunter and Rowles (2005) found that legacy was deeply embedded in older adults' values, biological continuity and material possessions. Several studies reported the value of personal possessions and how the memories associated with these items reminded older adults of their identity (Board & McCormack, 2018; Coleman & Wiles, 2020; Gardner, 2014; Stones & Gullifer, 2016). Being surrounded by familiar furniture and prized possessions also gave older adults a sense of comfort, further contributing to their quality of life (Coleman & Wiles, 2020).

4.1.3. Independence: Perceptions of independence, safety and security linked to aging in place

With relation to wellbeing, concepts frequently referenced in the literature were safety, security, control, choice, comfort and satisfaction (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Stones & Gullifer, 2016; Wiles et al., 2012). When assessing their ideal environment, participants in Finlay et al. (2020) outlined safety, comfort, security (defined as physical or emotional harm) were extremely important. The more time older adults invested in fostering community relationships (increased familiarity), their higher their sense of comfort as well as feelings of security and safety (and reported well-being) (Finlay, 2020; Grimmer et al., 2015). This was also outlined in (Gardner, 2011) when participants reported a sense of safety and familiarity when seeing acquainted residents at local services in their neighborhood. These proximal networks contributed to older adults' sense of improved wellbeing and quality of life (Finlay et al., 2020; Gardner, 2011; Grimmer et al., 2015). Familiarity, choice and comfort was also found to be a large part of aging in place for older adults (Finlay, 2020; Grimmer et al., 2015; Wiles et al., 2012). Exercising daily routines contributed to older adults' sense of satisfaction in their home (Finlay, 2020). Independence was also to be a key aspect contributing to older adults' mental wellbeing and satisfaction (Stones & Gullifer, 2016). It allows them to maintain control of their environment and uphold their privacy (Stones & Gullifer, 2016). In Ahn, Kwon and Kang (2020) interviews seeking to understand why the older adults

wanted to continue aging in place revealed that older adults valued their sense of well-being (psychological, environmental, physical and financial).

An older adults' wellbeing while aging in place was found to be deeply tied to their ability to remain independent and exude control and choice while upholding comfort and satisfaction with their daily routines (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Grimmer et al., 2015; Stones & Gullifer, 2016; Wiles et al., 2012). Time played a significant role in older adults' desire to age in place as they invested more time (for example, developed relationships and community connections to resources) into the community (Finlay, 2020; Gardner, 2011; Grimmer et al., 2015). This also contributed to their familiarity and trust with the people, environment and resources (Finlay, 2020; Grimmer et al., 2015; Wiles et al., 2012). Maintaining control and choice, was also found to be linked to older adults' independence in upholding their daily routines, which further contributed to their satisfaction and wellbeing (Finlay, 2020; Gullifer, 2016). Older adults valued this sense of happiness and perceived wellbeing, further wanting to protect it by continuing to age in place (Ahn et al., 2020; Finlay, 2020; Grimmer et al., 2015; Gullifer, 2016).

4.1.4. Discussion

This scoping review sought to identify, summarize and report publications focused on psychosocial factors impacting or relating to aging in place for rural or urban older adults. Specifically, what psychosocial factors impact or relate to older adults' experience aging in place and what characteristics of psychosocial processes effect older adults' experience aging in place. From the literature reviewed, three salient themes were determined, (1) social relationships and sense of community, (2) value of self-identity, purpose and continuity, and (3) maintaining independence, safety and security. Two key characteristics that contributed to the psychosocial themes identified (social, continuity and independence) was the concepts of familiarity and time. Many studies acknowledged achieving a sense of familiarity (associated with sense of comfort, safety and belonging) was accomplished through the process of investing time and resources into the community or relationships (Ahn et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Wiles et al., 2012). For example, maintaining a sense of continuity in preserving routines (that contributed to participants' sense of identity) was often related to engaging with familiar,

social relationships and activities in the community, over time (Finlay, 2020; Wiles et al., 2012). Older adults felt safer when continuing to live in a community where they knew their neighbours or local services (Finlay, 2020; Gardner, 2011; Grimmer et al., 2015).

The concepts identified in the scoping review are also referenced and reinforced through the guiding theoretical frameworks outlined in Chapter 2 (Bigonnesse & Chaudhury, 2021; Chaudhury & Oswald, 2019; Golant, 2014). In the *residential normalcy* model, Golant (2014) emphasizes how factors such as individual characteristics (personality, demographics or health status), resilient environments (accessible community resources and social supports) and roles of influencers can impact older adults' coping repertoires and strategies. Having resilient environments can support older adults' coping repertoires when assessing the compatibility of their environment (Golant, 2014). Increased number of accessible and engaging community resources, services and social connections are considered resilient environments and further support older adults in continuing to age in these communities (Golant, 2014). Empirical research included in the scoping review accentuated how older adults valued aspects of resilient environments while aging in place such as the inclusion of informal or formal supports, sense of community and accessible transportation and services (Grimmer et al., 2015).

Chaudhury and Oswald (2019) discuss foundational pieces of person-environment interaction, which include individual characteristics, social factors, built environment and technological systems. Agency and belonging are two person-environment processes that arise from the interaction between these four components (Chaudhury & Oswald, 2019). The authors reinforce that over the individuals' life course, the interaction of these components contributes to their sense of agency and belonging in a place, further rendering a sense of identity and autonomy as person-environment outcomes (Chaudhury & Oswald, 2019). These concepts reflected in the literature as many participants from the studies included conveyed the value of their independence and sense of identity (whether self-identity or social identity) while aging in place (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Gardner, 2014; Stones & Gullifer, 2016; Wiles et al., 2012). The concept of self-identity, independence and value of social support systems is also reflected in Bigonnesse and Chaudhury's (2021) aging in place model, where place integration is facilitated by a sense of familiarity. As previously noted, familiarity is developed through continual community engagement, social connections

and support received (Bigonnesse & Chaudhury, 2021). The model also accentuates how proximity of services and amenities also impacts place integration through older adults' everyday life activities (Bigonnesse & Chaudhury, 2021). In the aging in place model, meaningful social connections, proximity to services and social participation are all interconnected (Bigonnesse & Chaudhury, 2021). Social participation includes engaging in the community through local services and connecting with community members through everyday activities (Bigonnesse & Chaudhury, 2021). As is reflected in the literature presented in the scoping review, continually engaging in these activities increases familiarity with proximal social contacts and resources, further building routines and place integration while aging in place (Bigonnesse & Chaudhury, 2021; Chaudhury & Oswald, 2019).

4.1.5. Practical Implications

There are several practical implications that can be derived from the identification of these psychosocial themes. It is referenced throughout the literature that wellbeing is influenced by several psychosocial factors (Ahn et al., 2020; Finlay, 2020; Grimmer et al., 2015; Gullifer, 2016; Martin et al., 2019; Stones & Gullifer, 2016; Wiles et al., 2012). These factors include sense of community, safety, belonging and autonomy in older adults' daily life (Ahn et al., 2020; Finlay, 2020; Grimmer et al., 2015; Gullifer, 2016; Martin et al., 2019; Stones & Gullifer, 2016; Wiles et al., 2012). For older adults, quality of life has been found to be associated with perceived presence of informal and formal social services and supports and attachment to place (Kasper, Wolff & Skehan, 2019). Similarly, in a study assessing determinants of wellbeing in rural older adults, researchers found older adults (aged 64 or older), "…reported better perceived community and personal support, lower psychological distress, better overall mental health, relationships and life satisfaction…" (Inder, Lewin & Kelly, 2012, p.186). Further, despite reporting low percentages of mental and physical health, older adults conveyed high satisfaction with relationships and with their life overall (Inder et al., 2012). Social factors such as sense of community can have a significant impact on older adults' perception of wellbeing and quality of life. Therefore, it is valuable to protect and support these factors for older adults residing in communities as it impacts their sense of wellbeing.

Understanding psychosocial factors (and characteristics of these factors) relating to aging in place can support governing bodies and local organizations when considering housing options or home modifications for older adults. Reflecting on residences along the care continuum, aging in place can be adjusted to consider other housing options in the same community to provide better services and care for older adults who may not have the mental or physical capacity to continue living independently (Golant, 2015; Weil & Smith, 2016). This acknowledges Golant (2015) concept of aging in *the right* place as well as Weil and Smith (2016) challenge against aging in place. Building smaller supportive housing in communities can support older adults in maintaining sense of identity, familiarity, belonging in their community as well as continuity in their life.

Home modifications or homes following universal design (meaning accessible environments that are built for all levels of age and ability) facilitates continuity and independence for older adults aging in place (Ahn & Hedge, 2011; Hwang, Cummings, Sixsmith & Sixsmith, 2011; Johansson, Lilja, Petersson & Borell, 2007; Lawton & Nahemow, 1973). With home modifications installed (such as grab bars, ramps or raised toilet seats), older adults' independence increased with less difficulty completing activities of daily living (cooking, getting out of bed or toileting) or instrumental activities of daily living (grocery shopping, accessing transportation or managing finances) (Gitlin, Winter, Dennis, Corcoran, Schinfeld & Hauck, 2006; Szanton, Thorpe, Boyd, Tanner, Leff, Agree, Xue, Allen, Seplaki, Weiss, Guralnik & Gitlin 2011). Enabling their ability to maintain independence, also supports continuity in their environment and further, their self and social identity (Gardner, 2014). Home modifications also impact community-dwelling older adults' perceptions of safety and security in their environment by increasing control and reducing number of falls (Bailey, Aitken, Docking, Wilson, Hodgson & Douglas, 2019). With increased control over their environment and a proven reduction of falls, older adults reported feelings of increased safety and independence in their environment and improved quality of life (Tanner, Tilse & de Jonge, 2008).

Another implication is generating (and maintaining) opportunities for social engagement so older adults are able to maintain a presence in the community and contribute to generativity (Hunter & Rowles, 2005). This could be through volunteer or paid work opportunities for older adults to pass along values to younger generations (Hunter & Rowles, 2005). As previously mentioned, generativity is a feeling of passing along (through values, possessions or biological means) some form of legacy to younger

generations (Au et al., 2020; Hunter & Rowles, 2005). In a study assessing generativity impacts on older and adolescents, the authors found increased pro-social behaviour in younger participants (Kessler & Staudinger, 2007). Generativity is not only linked to older adults' self-identity (preservation and expression of the self) but also to continuity of the self through their legacy (Hunger & Rowles, 2005). Facilitating opportunities for older adults to feel purpose (as found in the literature) further contributes to their sense of belonging in their community as they continue to age (Hunter & Rowles, 2005). Opportunities for generativity also increases social integration, relationships, and behaviour in older adults, dismantling chances of social isolation for community-dwelling older adults.

The final practical implication is identifying how these results can offer insight to lessons learned from the recent COVID-19 pandemic. In March 2020, provincial and federal health authorities world-wide ordered stay-at-home restrictions for all populations in an effort to reduce and restrict the fatal COVID-19 virus from spreading. This order was emphasized for older adults, who were deemed a vulnerable population and more susceptible to fatally contracting the virus. The findings from this scoping review state the predominate reason older adults prefer to age in place is because of community engagement, connections and social supports (whether informal or formal) (Ahn et al., 2020; Baron et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Vos et al., 2020; Wiles, et al., 2012; Willis et al., 2018). Following the stay-at-home orders, many community-dwelling older adults (and those living in assisted living, retirement or longterm care homes) became socially isolated as family members were unable to visit (Weil, 2021). It is anticipated older adults may experience strained neighborhood social relations due to the stress associated with contracting the virus (Kuwahara, Kuroda & Fukuda, 2020). Ensuring older adults remain connected to their communities and valued social contacts is critical for their wellbeing and needs to be prioritized in future emergency planning development. Technology was a massive factor in supporting older adults connect with loved ones during long periods of social isolation during the COVID-19 pandemic (Morrow-Howell, Galucia & Swinford, 2020). Creating opportunities and access to technology from the home can further promote older adults to connect with loved ones or formal services and combat social isolation during unexpected global events or integrated into daily routines (Morrow-Howell et al., 2020; Nash, 2019).

4.1.6. Gaps and Future Research Directions

The scoping review exemplifies how most older adults age in place to maintain sense of identity, familiarity, continuity, independence, community, and purpose in their daily life (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Gardner, 2014; Stones & Gullifer, 2016; Wiles et al., 2012). Many of the publications included in the scoping review examined older adults' perspectives on what psychosocial aspects were significant to their concept of aging in place. However, very few publications acknowledged how psychosocial factors may negatively impact older adults' quality of life while continuing to reside in the community. Older adults may overlook barriers present in their environment to stay in their community (Ahn & Hedge, 2011). Especially for oldest-old adults, who were identified as having stronger place attachment than young-old adults, are also more susceptible to age-related decline (Ahn & Hedge, 2011; Jaul & Baron, 2017; Lawton & Nahemow, 1973; Government of Canada, 2020).

Another gap identified was the limited research focused specifically on oldest-old adults (aged 80 years or older). Out of the 18 publications reviewed in this scoping review, only one restricted the sample to oldest-old adults (age 80 years or older). Oldest-old adults living in the community are particularly important to address, as they can have high susceptibility to a range of mental and physical health implications (Jaul & Baron, 2017). As this specific demographic has the potential to be highly vulnerable (physically or mentally), future research should assess how psychosocial aspects (such as community or sense of identity) impacts or relates to their lived experience aging in the community, even beyond what is safe to do so. Does the desire to prioritize or preserve psychosocial factors while aging in place compromise their quality of life or physical safety? These are questions that need to be explored.

The final gap that was noted through the scoping review was lack of influence and discussion regarding the role of technology supporting or hindering psychosocial factors for older adults aging in place. Chaudhury and Oswald (2019) emphasize the value and growing significance of technology (whether assistive or communication devices) when it comes to aging in place and quality of life for older adults. Especially in present day, following the COVID-19 pandemic, the role of technology can significantly contribute to older adults' sense of community as they're able to connect (virtually) with valued social contacts or formal services (Morrow-Howell et al., 2020; Nash, 2019). The

ability to utilize technology to maintain connection to both formal and informal social supports or service (especially during a global event such as a pandemic) may not only impact older adults' physical and mental wellbeing but also maintain their sense of identity, belonging and connection to their community (battling social isolation) (Holt-Lunstad et al., 2015; Morrow-Howell et al., 2020; Nash, 2019).

Based on these findings, the following chapter proposes a CIHR project grant research proposal to fund a study seeking to examine the lived experience of oldest-old community-dwelling adults and how psychosocial factors relate to their quality of life. Specifically, the research grant intends to explore lived experience of this less-researched population who are aging in rural communities, but also assess how their quality of life is impacted. The CIHR project grant was chosen as it highlights research initiatives focused on the progression of fundamental or applied health-related knowledge (CIHR, 2021). This study intends to understand how psychosocial factors may impact quality of life for oldest-old demographic of older adults living in independent residences, in rural communities.

Chapter 5.

CIHR Project Grant Application

The following chapter presents the research grant proposal following the application guidelines for CIHR Project Grant: Fall 2021 and Spring 2022, as outlined in Appendix I. Additional proposal information not included below can be found in Appendix H. Please note, the majority of information presented below has been outlined in detail in Chapters 1 – 3.

5.1. Proposal Information

5.1.1. Project Title

Psychosocial factors impacting rural oldest-old adults' quality of life while aging in place.

5.1.2. Lay Title

Mental and social aspects that impact rural older adults' quality of life living in the community

5.1.3. Lay Abstract

A recent Canada-wide survey revealed 81% of older adults are interested in aging in place (March of Dimes Canada, 2021). This means majority of Canadian older adults (aged 65 and older) would prefer to continue living in their homes than move to supportive living or care residences as they age (March of Dimes Canada, 2021). However, with age comes a natural decline in physical and mental health, especially for oldest-old adults (age 80 years or older) (Jaul & Baron, 2017; Lawton & Nahemow, 1973; Government of Canada, 2020). Access to services such as pharmacies, medical facilities, or grocery stores supports their ability to continue to live in their home safely (Ahn & Hedge, 2011; Carver et al., 2018; Erickson et al., 2012). Though this may be possible in urban environments, rural communities do not always have enough services available nor the transportation to support accessibility to these services, which may

further impact quality of life (Ahn & Hedge, 2011; Carver et al., 2018; Erickson et al., 2012; Stones & Gullifer, 2016). Through a recent scoping review assessing psychosocial factors related to aging in place for urban and rural older adults', wellbeing was found to be related to their sense of community, identity, safety, continuity and independence (Ahn et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Stones & Gullifer, 2016; Wiles et al., 2012). A gap identified through this scoping review was lack of attention to how psychosocial factors impact quality of life for rural community-dwelling oldest-old adults.

This study intends to address this gap by answering the following two questions:

1. What is the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities?
2. How do psychosocial factors impact (or relate to) quality of life for this group of older adults while aging in place in rural communities?

Addressing these two research questions will address the gap in research assessing the lived experience of aging in place for oldest-old adults and how psychosocial factors may impact or relate to their quality of life. Findings will also inform the lived experience of oldest-old adults aging in place in rural communities that have decreased quantity to formal services (Ahn & Hedge, 2011; Carver et al., 2018; Erickson et al., 2012; Stones & Gullifer, 2016). Finally, results will inform future policy and program development to support this specific group of older adults residing in rural communities.

5.1.4. Institution Paid

Simon Fraser University, Department of Gerontology.

5.2. Research Grant Proposal

The research grant proposal is a subtask included under proposal information (see Appendix I, Task 2). It is a stand-alone document that is intended to provide a clear, concise overview of the proposed research and is limited to 10 pages (in English). The following subheadings (5.2.1 – 5.2.8) review project objectives, goals, background,

feasibility of research approach, recruitment and data collection, knowledge translation of the project.

5.2.1. Overview

Older adult populations are expected to represent 21 – 29% of the population by 2030 (Statistics Canada, 2014). This anticipated increase, coupled with significant reports of older adults wanting to continue aging in place, prompts the development of programs, policies and resources to support aging communities. In British Columbia, older adults (aged 55 and older) make up 40% of the population in rural areas (Statistics Canada, 2018). Rural communities are known to not only have insufficient formal support services and resources but also modes of transportation to facilitate access for older adults (Ahn & Hedge, 2011; Carver et al., 2018; Erickson et al., 2012). However, despite these barriers and in some cases, deterioration of their house, rural older adults have reported high satisfaction with their home environment (Ahn & Hedge, 2011). The authors determined participants' personal attachment to their home and informal social supports in the community contributed to their high satisfaction despite environmental barriers and lack of formal services within the community (Ahn & Hedge, 2011).

Place attachment is the development of memories, relationships and meaningful possessions accumulated over the life course which facilitate older adults' sense of belonging and identity associated with a place (Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). A recent scoping review identified three psychosocial themes that were related to aging in place for older adults; (1) social, (2) continuity and (3) independence. These themes reinforced guiding theoretical frameworks focused on person-environment processes and aging in place models (Bigonnesse & Chaudhury, 2021; Chaudhury & Oswald, 2019; Golant, 2014). Despite psychosocial factors being identified, limited research focused on the lived experience of oldest-old community-dwelling adults aging in place and how psychosocial factors impact their quality of life. As rural communities have been identified as having decreased formal social supports and services, this geographic region stands out as having significant impact aging in place (Ahn & Hedge, 2011; Carver et al., 2018; Erickson et al., 2012; Stones & Gullifer, 2016). The study proposed will evaluate the lived experience of oldest-old adults assessing their quality of life while living alone in rural areas in British Columbia Canada. Findings from this study will, (1) address a gap of research assessing quality of life for

this specific demographic aging in place and (2) supplement knowledge for local organizations and governing bodies regarding the value of home and (3) support rural communities as they continue to build and explore housing solutions, policies and programs in light of the anticipated growing populous of older adults in Canada (Statistics Canada, 2019b).

5.2.2. Project Objective

The objective of this research project is to identify the lived experience of oldest old adults (aged 80 years or older) and how psychosocial factors potentially impact or relate to their quality-of-life aging in rural communities in British Columbia, Canada. This will be achieved through two research questions (see below).

1. What is the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities?
2. How do psychosocial factors impact (or relate to) quality of life for this group of older adults while aging in place in rural communities?

5.2.3. Project Goals

To (1) understand the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities, and (2) identify how psychosocial factors may impact or relate to quality of life for this group of older adults while aging in place in rural communities.

5.2.4. Background

Guiding Conceptual Frameworks

There are two key theoretical frameworks that guide conversations related to aging in place; Chaudhury and Oswald (2010) person-environment framework and Bigonnesse and Chaudhury (2020) aging in place model. Before addressing these frameworks related to aging in place, it is important to acknowledge Lawton and Nahemow's (1973) foundational Ecological Model of Aging that identifies how behaviour acts as a function between the environment and the person. The relationship between an individual and their environment is dependent on the individual abilities (Lawton & Nahemow, 1973). Through the environmental docility hypothesis, Lawton and Nahemow

(1973) state that as an individuals' capabilities (both mental and physical) decrease, the environmental press increases. Older adults will adapt their behaviour in light of increased barriers with their environment (Lawton & Nahemow, 1973). This behaviour shapes actions, which further promotes or hinders psychosocial processes that impact older people's daily life. Another person-environment framework that relates to the topic at hand, is Chaudhury and Oswald (2019) person-environment framework.

This framework accentuates three domains, (1) components of person-environment interactions, (2) person-environment process and (3) person-environment outcomes. Person-environment components includes individuals characteristics, social factors, technology and the built environment (Chaudhury & Oswald, 2019). These four domains capture personal aspects of the individual and what the individual interacts with on a daily basis (Chaudhury & Oswald, 2019). For example, these components include an older persons physical and mental health, informal or formal social supports, the immediate (home) environment they interact with daily and any technology that supports their ability to conduct (instrumental) activities of daily living (Chaudhury & Oswald, 2019). Through constant interaction of these components over time, the model suggests these components feed into two person-environment processes, sense of belonging and agency (Chaudhury & Oswald, 2019). Agency is defined as having intention and control over the environment to pursue goal-directed activities, whereas belonging refers to an emotional attachment to a place through the reoccurrence of daily routines or activities (Chaudhury & Oswald, 2019). This environmental exchange can be influenced by person-environment components (individual functioning or mobility) that further promote or hinder these processes (Chaudhury & Oswald, 2019). In other words, if an older adults' mobility is impacted and they are no longer able to engage in activities they enjoy or need to complete, their sense of control or independence over their environment will be affected (Chaudhury & Oswald, 2019). These processes further feed into an older persons' sense of identity and autonomy in their environment (Chaudhury & Oswald, 2019). The home environment is highly relevant to an individuals' identity as it is often perceived as an extension of oneself (Chaudhury & Oswald, 2019). This model exemplifies the varying processes involved in the person-environment interaction, which can be related to psychosocial components of aging in place (Chaudhury & Oswald, 2019).

Bigonnesse and Chaudhury (2021) present a multifaceted model of social and individual perspectives related to aging in place through the lens of the capability approach. The capability approach is defined as an individuals' agency, functioning and ability to pursue and engage in their desires (Deneulin, Shahani, Alkire, Proochista, Johnson, Naveed, Robeyns, Spence, Unterhalter & White, 2009). In other words, an older adult has the agency and mental processes available to make changes or seek solutions to their residential environment (Bigonnesse & Chaudhury, 2021). The aging in place model is constructed of four key pillars -- place attachment, social participation, mobility and independence (Bigonnesse & Chaudhury, 2021). Place attachment refers to the emotional attachment, developed over time, with a home, neighborhood or community (Bigonnesse & Chaudhury, 2021). Social participation refers to the social relationships, roles and engagement an older adult pursues, further contributing to their sense of place (Bigonnesse & Chaudhury, 2021). This can include civil engagement activities or even receiving social support from family or community members (Bigonnesse & Chaudhury, 2021). Mobility is identified as a key component to aging in place as the ability to engage in activities and connect through social relationships, further contributing to an older adults' sense of identity (Bigonnesse & Chaudhury, 2021). Finally, independence is defined as having "… the capacity to exert control on one's environment, to make decisions and choices, and to meet daily needs." (Bigonnesse & Chaudhury, 2021, p. 19). These four pillars all feed into a key component that directly impacts aging in place; a concept referred to as place integration (Bigonnesse & Chaudhury, 2021).

Familiarity, safety and meaningful attachment is developed with a place through individuals' daily activities, routines and habits over time (Bigonnesse & Chaudhury, 2021; Rowles, 1983; Rubinstein & Parmelee, 1992). The five components outlined in Bigonnese and Chaudhury (2019) model (place attachment, social participation, mobility, independence and place integration) are influenced by proximity to services and amenities, meaningful social connections, individual factors and accessible built environments (Bigonnesse & Chaudhury, 2021). These components not only impact aging in place but also interact with each other (Bigonnesse & Chaudhury, 2021). The interrelatedness of these factors provokes the argument that if one factor is significantly impacted (such as an older adults' mobility), it will affect the another component (mobility impacts autonomy, daily activities and social participation) further impacting older adults'

experience aging in place (Bigonnesse & Chaudhury, 2021). This model outlines several key components that are valuable when evaluating the lived experience of older adults aging in place (Bigonnesse & Chaudhury, 2021).

Psychosocial Components of Aging in Place

Aging in place has multiple definitions throughout academic and grey literature and is dependent on the context it is used in (Forsyth & Molinsky, 2020; Government of Canada, 2016; Pani-Harreman et al., 2020; Weil et al., 2016; WHO, 2018). To provide a broad definition, aging in place refers to the opportunity and ability to live independently in a place that holds significant meaning for the individual while maintaining healthy, supportive social connections (Bigonnese & Chaudhury, 2021; WHO, 2018). Place attachment, which is often affiliated with aging in place, is influenced by social, cultural and individual experiences over time and prompts a sense of embeddedness (or belonging) in physical and social contexts (Rowles, 1983; Rubinstein & Parmelee, 1992). Though aging in place commonly refers to residing in an independent residence, there is a growing amount of literature suggesting it should include other housing options along the care continuum (Golant, 2015; Weil & Smith, 2016).

Weil and Smith (2016) recognize the value of psychosocial factors when referring to aging in place, such as sense of identity, independence, belonging, and formal or informal social supports or services. Upholding these factors are important for older adults who wish to continue aging in place but can no longer care for themselves. Establishing supportive housing that facilitates these psychosocial attributes (for example, ability to connect with the valued social relationships, carry out daily routines in their community or bring personal possession with them) may offer opportunities for older adults to continue aging in place, but in a home that meets their care needs (Golant, 2015; Weil & Smith, 2016). Similar to this concept, Golant (2015) proposed an alternative perspective to aging in place; aging in *the right* place. This lens incorporates other housing options that offer environmental, social and health-based supports catering to older adults' personal needs and goals (Golant, 2015). Aging in the right place focuses more on older adults' unique capabilities and how varying aspects of their character and the environment (such as sense of comfort, security, social support, engagement, and access to resources) can support or hinder their experience (Golant, 2015; Weil & Smith, 2016).

A recent scoping review identified three themes of psychosocial factors, and their characteristics, that relate to aging in place for rural and urban older adults. These themes are, (1) social: implications of social connection and community on neighborhood on aging in place, (2) continuity: perceptions of independence, safety and security linked to aging in place and (3) independence: sense of identity, continuity and purpose with aging in place. Throughout each of themes, two key characteristics were present in each, familiarity and time. As articulated in the conceptual frameworks above, these components not only interact with each other but also shape an older adults' lived experience and sense of wellbeing while aging in place. As this study seeks to identify and evaluate oldest-old adults' quality of life while aging in place, this theoretical and conceptual knowledge offers insights to processes involved in person-environment exchanges (Bigonnese & Chaudhury, 2021; Chaudhury & Oswald, 2019).

5.2.5. Feasibility: Research Approach and Methods

Approach and Study Sites

To address the research questions noted above, a mixed-methods approach will be conducted to utilize both qualitative and quantitative data. Mixed-methods support the collection of objective and subjective data that will further contribute to the understanding of psychosocial factors impacting quality of life for community-dwelling oldest-old adults aging in rural communities (Groves, Fowler Jr, Couper, Lepkowski, Singer & Tourangeau, 2009). Quantitative data will include demographic and quality of life data that will support researchers in making broader generalizations of the population being studied (Groves et al., 2009). Qualitative data will capture the lived experience of oldest-old adults living in rural areas of British Columbia (Groves et al., 2009).

The research proposal will have two phases of data collection. Phase 1 will include an online or paper survey (dependent on accessibility to internet and technology) intended to collect demographic information of oldest-old community-dwelling adults living in rural communities. Following the survey, participants will be asked to complete World Health Organization Quality of Life Scale for older people (WHOQOL-OLD) (WHO, 2006). This scale was chosen for its high validity, reliability and specific questions assessing quality of life in older adults (Gobbens & van Assen, 2016; Peel, Bartlett & Marshall, 2007). Phase 2 of the study will include photovoice interviews with a selected sample of participants from phase 1 to determine the lived experience of oldest-

old adults living in rural communities and how psychosocial factors influence aging in place. The research activities are outlined in greater detail in the following sub-categories.

For this study, participants will only be recruited from rural communities in British Columbia Canada. Statistics Canada (2018) defines rural areas as geographic regions outside of population centers (POPCTRs) and include populated places with less than 1,000 people. Rural population "… includes all population living in rural areas of census metropolitan areas (CMAs) and census agglomerations (CAs) as well as population living in rural areas outside CMAs and CAs (Statistics Canada, 2018, p. 2). Both CMA and CAs need to consist of at least one municipality that surrounds a core metropolitan (Statistics Canada, 2018). The difference between a CMA and a CA, is a CMA has a minimum population size of 100,000 whereas a CA as a core population of 10,000 (Statistics Canada, 2018). To ensure participants are recruited across British Columbia, one rural area will be chosen from each regional health authority. British Columbia is divided into five regional health authorities: Fraser Health (FHA), Interior Health (IHA), Northern Health Vancouver Island (NHA) Health and Vancouver Coastal Health Authority (VCHA) (Government of British Columbia, 2021).

Though Indigenous communities are not specifically targeted as participants for the proposed study, some indigenous older adults may be part of the purchased lists and become a participant in the study. Indigenous communities include Metis, Inuit, and First Nations peoples (Government of Canada, 2019). There are several key considerations to be pursued, should Indigenous participants engage in the research study. Participants recruited from Indigenous communities will be 80 years or older and will therefore hold socially sanctioned status of an Elder (Government of Canada, 2019). In Indigenous communities, Elders are recognized as a significant knowledge holder and authority in the community. In recognition of their status and as part of reconciliation efforts in sharing knowledge, the research team will provide honorariums and traditional gifts (such as honorariums, tobacco, tea or musical instruments depending on the community) out of respect for their time and contributions (Government of Canada, 2019). Please note, it is important to consult with community leaders on what gifts are acceptable and desired. Ensuring a research agreement is also in place formalizes the agreement and ensures ethical standards are outlined clearly and understood by both parties (Government of Canada, 2019).

The research team will also work closely with organizations and communities of interest (such as friendship centres, housing associations and health access centers) who may be able to provide data collection support as well as facilitate advice and ethical protection for Indigenous participants (Government of Canada, 2019). The research team will contact and work under the guidance of this leadership. Additionally, they will respect the community customs and codes of practice identified by community leadership (Government of Canada, 2019). An important piece of this involves disseminating study results and receiving permission to share knowledge provided by Elder participants (Government of Canada, 2019). Indigenous members (and participating Elders) will be invited to all community workshops and the World Café to participate in discussions regarding phase 2 photographs and how the data should be disseminated. All knowledge translation activities will be checked back with the Indigenous community to ensure all photographs and language used is appropriate and can be rightfully contextualized by the Elder and community (Government of Canada, 2019). Where possible, an Indigenous committee will be formed to review data collected and knowledge translation activities. Maintaining the relationships and sharing outputs of the data collected will be continued in years to follow the conclusion of the study.

5.2.6. Recruitment and Data Collection

Prior to initiating recruitment and any research activities, ethics approval will be obtained by Simon Fraser University Office of Research Services.

Phase 1: Survey & WHOQOL-OLD

Phase 1 is anticipated to occur March – May 2022. The demographics survey and WHOQOL-OLD will be offered to participants in online or physical format depending on participant preference and accessibility to computer software (see Appendix C and D). Investing time and resources in developing trustworthy relationships with participants as well as creating opportunities for participant engagement will be prioritized (Jull, Giles & Graham, 2017). Schilling and Gerhardus (2017, p.1) also found successful research methods in studies involving older adult participants included "… a thoughtful choice of location, use of visualization and accessible communication, building good relationships and flexible approaches". Acknowledging this, the survey and WHOQOL-OLD will either be sent to the participant through a secure, SurveyMonkey weblink via email or

conducted in-person on paper. SurveyMonkey is an intuitive, online survey software hosted in Canada that supports ease of data collection and offers data analysis tools to view, analyze and download results. The survey and WHOQOL-OLD will be inputted into the survey software for participants interested (and able) to complete using a digital version.

The survey will include questions focused on participants' demographic information including age, sex, gender, ethnic origin, education, participant housing details as well as mental and physical health. These questions are intended to gather quantitative data to make broader generalizations about oldest-old adults residing in rural communities. The survey also gathers information on participants who will be completing phase 2 photovoice interviews. Through data analysis, the information collected in phase 1 can support researchers to draw inferences on the data collected through phase 2 photovoice interviews. Following the survey, the participant will be asked to complete a WHOQOL-OLD to determine a quality-of-life score. As this study is assessing the correlation between psychosocial factors and quality of life in oldest-old adults residing in rural communities, the WHOQOL-OLD will provide quantitative data determining quality of life for participants (WHO, 2006).

Phase 2: Photovoice Interviews

This phase is anticipated to occur June - October 2022. Photovoice is a unique method of data collection as it prompts participants to express what is meaningful to their personal lived experience through photographs (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Walton et al., 2012). The goal of this method is to empower less researchered groups (in this case, rural oldest-old adults) and encourage dialogue focused on personal experiences or barriers that inform and provoke social change (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton et al., 2012). The photographs are a means of giving participants a "voice" in conveying information from their point of view (Plunkett et al., 2013; Tsang, 2020; Walton et al., 2012). Having a visual aid captured by the participant facilitates their ability to express their individual experience in ways where an interview method would fall short (Evans-Agnew & Rosemberg, 2016; Plunkett, Leipert, & Ray, 2013; Tsang, 2020; Walton et al., 2012).

Unlike phase 1, photovoice interviews will be held in person for ease of data collection and to establish rapport with participants. Guided by Plunkett, Leipert and Ray (2013) photovoice method, there will be three points of contact between the researcher and participant during phase. During the first point of contact (session 1: initial meeting), the researcher will connect with the older adult by phone to determine the device the participant is comfortable taking photographs with and how they would like to receive the informed consent letter to review (postage or email). The researcher will then set a date and time for the second meeting, which will occur in person. In the second meeting, the researcher will review the informed consent letter (sent to the participant prior to the meeting by postage or email), a detailed orientation as to what photovoice method is and the role of the participant in the study. In this meeting, the researcher will also determine the device the participant is most comfortable taking photographs with and review instructions on how to take photographs with the device (if needed).

All participants will be provided with a digital camera to take up to 27 photographs over a period of seven days. Participants will also be given a logbook to track the date and context of each photograph taken. The digital camera will be given to the participant in session 2. The researcher will conclude the second meeting by scheduling a date, time and location to collect the digital camera and completed logbook from participant in approximately seven days. All digital copies of the photographs will be saved to a password-protected local drive by the researcher. The research team will also print the photographs and use them in session 3 to discuss with the participant (individual open-ended interview). In the final meeting (session 3), the researcher will first review the informed consent to ensure the participant is familiar with their participation, confidentiality, and rights to withdraw in the study. Following this, the researcher will prompt the participant to discuss the photographs and notes made in the participant logbook following open-ended interview questions (see Appendix E). The interviews will be audio-recorded and transcribed by the research team following the interview.

5.2.7. Data Analysis

The survey and WHOQOL-OLD data will be digitized (if collected on paper copies), after which the researcher will input the data into SPSS and conduct basic descriptive and inferential statistics. These two types of statistical analyses will help

determine frequency of responses and correlations between variables that will further support the researcher in making larger generalizations regarding the population studied. For the WHOQOL-OLD data, a scoring guide and syntax file (provided by WHO) will support analysis in SPSS. Questions belonging to each of the six facets of the WHOQOL-OLD (sensory abilities, autonomy, past/present/and future activities, social participation, death and dying, intimacy) needs to be sorted, recoded and scored based on the scoring list provided (WHO, 2006). Each of the facets will then be summed to retrieve the raw facet score and added together to determine a total score (WHO, 2006). A high score on the WHOQOL-OLD represents a high quality of life, whereas a low score suggests a low quality of life (WHO, 2006). The two types of statistical analyses will help determine frequency of responses and correlations between variables that will further support the researcher in making larger generalizations regarding the population studied.

The analysis of photovoice interview data will follow a four-step process (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). Following the collection of photographs, the researcher will review the photographs (without referencing participant logbook entries) and categorize the photographs based on their own interpretation (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). To maintain rigor, the researcher will take analytical notes to document photographs, corresponding themes and personal interpretations of what the photographs may mean (Tsang, 2020). This inductive approach allows the researcher to theorize relevant themes based on their personal perspective and interpretations of the photographs (Tsang, 2020). This analysis will be conducted before session 3 with the participant.

In session 3, the researcher will collect participants perspective and interpretation of each photograph (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). Following the participants analysis of the photographs, the researcher will conduct a cross comparison between their interpretation of the photographs and the participants' (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). The final step of analysis involves developing theories based on themes collected from both participant and researcher (Plunkett, Leipert, & Ray, 2013; Tsang, 2020). This process encourages a collaborative analysis of the data between the researcher and participants (Tsang, 2020).

5.2.8. End of Grant Knowledge Translation Activities

End of grant knowledge translations activities will occur between May 2023 to September 2023 (onward). Strategies for this research study will include an abstract submission to Canadian Gerontology Association (CAG) in 2024 to present findings following the completion of the study. The research team will also publish the data collected from this study in open-access publications. Other strategies to disseminate findings to knowledge users outside of academic communities will include podcasts, blog posts, newsletter articles and social media messages through the Department of Gerontology at Simon Fraser University.

Following a community-engaged approach, researchers will also host five community workshops in each of the health authorities and one World Café. The community workshops are designed to review photographs taken by participants in phase 2 of data collection and discuss meaning, value and impact. Informal conversations will lead to questions asked to community members in World Café. The World Café discusses how the practical implications of the research and potential future action on how to support rural, oldest-old adult quality of life while aging in place. The World Café method encourages informal conversations across a variety of stakeholders (including those with lived experience) on related research issue (World Café, n.d.). Stakeholders will include local organizations supporting older adults, health authority representatives, rural, oldest-old adults and participants from phase 2 of the study.

5.2.9. Feasibility: Expertise and Experience

This section would normally include expertise, experience and engagement of the applicant, co-applicants and collaborators involved in the CIHR project grant application. This section would also outline feasibility of the environment (academic institution) for carrying out said activities proposed by this grant application (see Appendix I, Evaluation Criteria). For the purposes of this capstone project, this section is excluded.

5.3. Complete Summary

For the CIHR application (as noted in Appendix I, Task 3), the complete summary is an auto-populated section of the registration. It is intended to provide

reviewers a brief summary of the research proposed in scientific terms. The following sub-categories are brief overviews of the information outlined in the research grant proposal above (subheading 5.2).

5.3.1. Background and Importance

Over the life course, older adults develop a strong connection to their home and community, which further contributes to their desire to age in place (Ahn & Hedge, 2011; Chaudhury & Oswald, 2019; Chaudhury & Rowles, 2005; Oswald & Wahl, 2005; Rowles, 1983; Rubinstein & Parmelee, 1992). Aging in place refers to older adults' ability to remain in their home while accessing the resources, services, and social networks to safely do so (Government of Canada, 2016; WHO, 2018). Psychosocial factors are defined as unique psychological and social processes experienced by an individual (American Psychological Association, n.d.; Cosco et al., 2013). A recent scoping review identified several psychosocial components such as sense of identity, continuity and value of social relationships or connections. Assessing how these psychosocial factors may impact or relate to quality of life while aging in place is valuable for their wellbeing, especially for oldest old adults (age 80 years or older) residing in rural communities (Inder et al.,

5.3.2. Goal(s) / Research Aims

This study aims to evaluate the lived experience of oldest-old adults (age 80 years or older) living alone in an independent residence in rural British Columbia, Canada, communities. This study aims to answer the following two research questions:

1. What is the lived experience of community-dwelling oldest-old adults (aged 80 years or older) living alone in rural communities?
2. How do psychosocial factors impact (or relate to) quality of life for this group of older adults while aging in place in rural communities?

These research questions will guide the study specifically intended to improve quality of life and lived experiences of oldest-old adults residing in rural communities.

5.3.3. Methods / Approaches / Expertise

A mixed method approach will be used to gather quantitative and qualitative data from rural, community-dwelling oldest-old adults (age 80 years or older) residing in British Columbia, Canada. Phase 1 of the study will include a survey collecting demographic, health and housing information from participants (n=300) accompanied by the WHOQOL-OLD to determine quality of life of participants. A subset of participants will be recruited from phase 1 to participate in phase 2 photovoice interviews (n = ~40, 6-8 participants per health authority region). Photovoice interviews are a community-based participatory research method that dismantles the hierarchy of research and empowers participants to heavily influence and communicate their perspective (Plunkett et al., 2013). Participants will be asked to take 27 photographs over a one-week period of things, people or places they believe hinder or contribute to their ability to age in place. A follow-up open-ended interview will be conducted to learn about the lived experience of rural oldest-old older adults and understand aspects of psychosocial factors that may be hindering their quality of life.

5.3.4. Expected Outcomes

Research focused on older adults' self-report of living at home found that oldest-old adults not only had a deeper concept of place attachment than young-older adults but also (despite experiencing barriers due to physical or mental conditions) reported high satisfaction living at home (Ahn & Hedge, 2011; Inder et al., 2012). Inder et al. (2012) did not report any gender differences in wellbeing of rural older adults. For phase 1 of the study, it is expected oldest-old adults residing in rural communities will report a various mental and physical health conditions through the initial survey. However, regardless of these implications, it is expected participants will report a high quality of life due to presence of social relationships, sense of belonging and familiarity with their community. Participants who are recruited for phase 2 photovoice interviews, will convey (through photographs) similar valued psychosocial aspects such as social relationships, personal possessions or areas of their community that have significant meaning and contribute to their identity or sense of belonging. A similar finding was determined by van Hees et al. (2017) who used photovoice interviews to research perspectives on aging in place. Participants took photographs of places of meaning that contributed to their sense of home (van Hees et al., 2017). The impacts of the COVID-19 pandemic will also be

taken into consideration when analyzing the results of this study. It is hypothesized there may be a heightened sensitivity to how older adults view their home and aging in place, as they were socially and physically isolated for long periods of time during this global event.

5.4. Budget Information

Please see all budget information outlined in Appendix G.

Chapter 6.

Conclusion

With the anticipated increase of older adult populations in Canada and frequently reported desire to continue to age in place, key stakeholders (such as health authority representatives, researchers and governing bodies) need to invest in the development of programs and policies to support older adults aging in communities across the country. To support knowledge related to this area of research, this capstone sought to explore psychosocial factors pertaining to aging in place through two project objectives, (1) scoping review and (2) research grant proposal. The goal of the scoping review was to identify psychosocial factors, as well as the characteristics of these processes, that impact aging in place for urban and rural community-dwelling older adults. Three prominent themes relating to psychosocial factors emerged from the literature: (1) social connections and sense of community, (2) sense of self-identity, purpose and continuity in daily life, and (3) maintaining independence, safety and security.

The most salient psychosocial factor was fostering and maintaining social relationships and investing in a sense of community (Ahn et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017). Literature exemplified how the relationships older adults developed and maintained further improved their sense of belonging, self (and social) identity, safety, security and well-being (Ahn et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017). Community-dwelling older adults were also highly motivated to maintain community connectedness as it contributed to their sense of belonging and purpose (Ahn et al., 2020; Dobner et al., 2016; Erickson et al., 2012; Finlay, 2020; Gardner, 2011; Kendig & Browning, 2017; Stones & Gullifer, 2016; Wiles et al., 2012). This sense of belonging also contributed to their well-being and satisfaction with aging in place (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Stones & Gullifer, 2016). Maintaining independence was also key for older adults when aging in place, as it supported them in continuing to maintain control and choice of their daily routines (Ahn et al., 2020; Stones & Gullifer, 2016; Wiles et al., 2012). Community-dwelling older adults were found to have higher levels of satisfaction when they maintained independence in their home (Ahn et al., 2020; Stones & Gullifer, 2016). Two key

characteristics associated with these psychosocial factors were familiarity and time. When older adults continually invest time and resources into the place where they live (through daily routines and engagement in the community), their familiarity, sense of comfort, safety and security increases (Ahn et al., 2020; Finlay, 2020; Gardner, 2011; Stones & Gullifer, 2016; Wiles et al., 2012).

Gaps identified through the scoping review revealed limited research on oldest-old adults (age 80 years or older) as well as how psychosocial factors may negatively impact older adults aging in place and the role of technology in facilitating older adults to continue aging in place. To address these gaps, a research proposal was designed targeting the CIHR project grant. The CIHR project grant proposal seeks to evaluate the lived experience of oldest-old adults living in rural communities of British Columbia, Canada and how the psychosocial components (identified through the scoping review) potentially impact or relate to their experience and quality of life aging in place. It is anticipated the results from this study will reveal oldest-old adults living in rural communities highly value the familiarity of their community and informal social supports available. Regardless of the objective barriers they may be experiencing in their environment, it is hypothesized participants will report a high quality of life.

With the large number of older adults residing in rural communities in British Columbia, as well as recent (and ongoing) implications from COVID-19 virus, identifying and acknowledging how psychosocial factors relate to aging in place is important when considering older adults' wellbeing and quality of life in later life. By prioritizing these factors, governing bodies and policymakers can create opportunities to support increased use of technology (to facilitate social connection and services), housing options (build smaller, home-like supportive living homes in communities) and facilitate opportunities for home modifications. The overall goal is to protect and acknowledge how valuable psychosocial processes are to older adults' quality of life and further increase or maintain programs that will facilitate engagement and accessibility, regardless of geographic region.

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Appendix A.

Literature Review Table

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
Ahn et al.	2020	US	Quantitative	n = 328 60+ yrs	Identify how older adults perceive how their well-being relates to aging in place	X	X	Regardless of financial means, different groups of community-dwelling older adults were found to want to age in place to stay in their own home or maintain community.
Baron et al.	2020	CA	Qualitative	n = 20 50 - 86 yrs	Exploring Inuit Elder perspectives on aging in place, health and relationships with place	X	X	Emphasis placed on upholding cultural values, protecting social connections and proximity to the land by Inuit Elders.

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
Board & McCormack	2018	UK	Qualitative	n = 6 47 - 62 yrs	What is meaning of home for baby boomers and how does it relate to aging in place?	X	X	For community-dwelling baby boomers, meaning of home is related to sense of autonomy within their environment as well as being surrounded by familiar possessions, sensory inputs and social relationships.
Coleman & Wiles	2020	NZ	Qualitative	n = 28 65 - 94 yrs	Do possessions link community dwelling older adults to their past and also facilitate notions of aging in place?	X		Personal possessions supported older adults' continuity of self and further impacted their perception of aging in place.
Dobner et al.	2016	US & NL	Qualitative	n = 27 65 - 94 yrs	What are the impacts of informal and formal social support for older adults aging in place in Portland, US and Amsterdam, NL?		X	Older adults in both Amsterdam, NL and Portland, OR, US emphasized the importance and value of informal social supports in neighborhoods as well as access to formal services.

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
Erickson et al.	2012	US	Quantitative	n = 621 60+ yrs	Understanding reasons why older adults age in place in rural Utah communities		X	Despite lack of accessibility and variety in resources, older adults preferred remaining in rural communities due to sense of community and quality of local services.
Finlay et al.	2020	US	Qualitative	n = 38 55 - 92 yrs	Identify socio-spatial and social features that support aging in place for low-income older adults	X	X	Older adults value community not only for the social support and connections, but also sense of familiarity, safety and access to services.
Gardner.	2011	CA	Qualitative	n = 6 75+ yrs	Study neighborhoods impact the development of social networks and influence the experience of aging in place for older adults		X	Social networks with local services and neighbors in proximity contributed to community-dwelling older adults' interdependence and enhanced quality of life.

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
Gardner.	2014	CA	Qualitative	n = 6 75+ yrs	Impact of neighborhoods from a social and socio-spatial perspective impact mobility older adults aging in place		X	Social identity and engagement are valued amongst community-dwelling older adults
Grimmer et al.	2015	AU	Qualitative	n = 42 65+ yrs	Identifying what contributes to older adults planning to or currently aging in place	X	X	Access to resources, information services and technology, practical support, financial subsidies, engaging activities, transportation, social networks and safe environment was prioritized for older adults aging in place.
Kendig & Browning	2017	US	Quantitative	n = 1000 65+ yrs	Expanding understanding of preferences and predictors related to aging in place from older adults with lived experience	X	X	If connection with neighborhood was stronger, older adults were more likely to want to age in place

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
Martin et al.	2019	US	Qualitative	n = 1680 65 - 74 yrs	Gain insights on barriers to aging in place from community-dwelling older adults	X		Aging in place renders meaningful activity and sense of identity; older adults want to continue to age in place even when experiencing mental/physical barriers
Palladino.	2019	UK	Qualitative	n = 27 60 - 94 yrs	Identify place attachment and sense of identity in migrant older adults	X	X	Older migrant adults have high sense of belonging and identity with the place and culture they grew up in, but also with the place and culture they reside in as well.
Stones & Gullifer	2016	AU	Qualitative	n = 23 85 - 101 yrs	Identify perceptions of aging in place from community-dwelling older adults and how they psychologically, socially and practically manage evolving changes that comes with old age.	X		Aging in place/ being at home is tied to older adults' identity, autonomy, privacy, memories and purpose in life.

Author(s)	Year	Country	Methods	Sample Size/ Age Range	Research Aim/Question	Individual	Social	Key Results
van Hees et al.	2017	NL	Qualitative	n = 18 70 - 85 yrs	Determine older adults versus local professional's perceptions of aging in place through photovoice	X	X	Professionals focused more on accessibility to resources whereas older adults identified concepts such as independence, choice and attachment to places.
Vos et al.	2020	NL	Qualitative	n = 14 60 - 99 yrs	How shifts in social networks impact community-dwelling older adults.		X	Social relationships impact community-dwelling older adults in three stages, often prompting further changes to lifestyle
Wiles et al.	2012	CA & NZ	Qualitative	n = 121 56 - 92 yrs	Identify how older adults perceive aging in place from functional, symbolic and emotional perspectives.	X		Older adults linked aging in place with a sense of familiarity, independence, safety/security, social connections and identity.
Willis et al.	2018	EU	Qualitative	n = 29 50 - 76 yrs	Assess how community dwelling older LGB adults experience home		X	Social connectivity to LGB communities (whether online or in-person) highly prioritized

Appendix B.

Informed Consent Letter

Title of Research Study: Psychosocial Factors Impacting Rural Oldest-Old Adults' Quality of Life while Aging in Place.

Granting Agency: Canadian Institute of Health Research

Department: Department of Gerontology; Simon Fraser University

What is the purpose of this study?

This study is looking to understand the experience of older adults (age 80 years and older) living in their own homes in rural communities. We are looking to evaluate how psychosocial aspects of a person impacts their experience aging in their home in a rural community. To do this, we are asking people share information about themselves, their homes and either contributes or hinders their experience living in a rural community.

What is your role in the study?

This study consists of 2 phases. In Phase 1, we are asking you to complete a 30-minute questionnaire that consists of two parts. Part 1 of the survey will ask you questions pertaining to you, your health, and housing information. In phase 1 we will also ask you to complete a Quality-of-Life Scale, which will ask questions regarding your physical and mental health, independence, death and dying, social relationships, hobbies and involvement in the community.

In Phase 2 of the study, we are asking participants to take part in a photovoice interviews. Photovoice interviews are when you go into the community and take pictures of things, people or places that mean something to you. You then share these photographs with researchers and explain why it is important. In Phase 2, you will be asked to take photographs of people/places or things that you believe contribute or hinder your experience aging in your home, in a rural community. This will take place over 2 weeks, requiring approximately 2.5 hours of your time. In week one you will be

prompted to take photographs over a period of 7 days. Once you have taken the photographs, the researcher will setup a date and time to meet and discuss the photographs in person.

What are the risks of this study?

Participation in both Phase 1 and Phase 2 of the study will require approximately 3.5 hours of your time. If you are contacted and wish to participate in Phase 2 of the study, you will be taking pictures of people, places or things in your home or community and may require mild exercise. Otherwise, there are no known risks associated with this study.

What are the benefits of this study?

For your participation in this study, you will be given a $50 honorarium for your time participating in this study. In phase 1, we will share the results of your quality-of-life scale. Information and data gathered in this study will contribute to existing research focused on aging in place. It will also support governing bodies and policy makers in creating programs or policies that will further support aging in place.

How will your rights and confidentiality be respected?

Your participation in this study is entirely voluntary. At any point if you no longer want to participate in the study, you can withdraw, and all your information will be deleted. There will be no repercussions for your withdrawal in the study and you will still receive $50 honorarium for participating in the study and will not be asked to return the funds should you no longer wish to participate. If you complete the study, the research team may keep your information to use in future publications. All photographs and information you share will be kept confidential on a password protected local drive and stored for only 1 year following the conclusion of the study. All data will be deleted 1 year following the conclusion of the study.

May we contact you for Phase 2 of the study?

Phase 2 of this study includes a 2-week period of taking photographs of things, places or people you believe contribute or hinder your experience aging in your home, in a rural

community. Are we able to use your information to contact you for participation in Phase 2? If so, please initial here: _____

If you have any questions, concerns or complaints, please do not hesitate to contact Shelby Elkes or the Director of the Simon Fraser University Office of Research Ethics, Dr. Jeff Toward, at xxx-xxx-xxxx.

By signing this form, you agree that you have read the above statements, received answers to all questions and agree to participate in this study.

Full Name	Signature	Date

Appendix C.

Phase 1: Participant Survey

Title: Psychosocial Factors Impacting Rural Oldest-Old Adults' Quality of Life while Aging in Place.

Granting Agency: Canadian Institute of Health Research

1. How old are you?
    a. 80 – 85 years of age
    b. 86 – 90 years of age
    c. 91 – 95 years of age
    d. 96 – 100 years of age
    e. 100+ years of age
2. What sex do you self-identify as? *Sex refers to your biological attributes.*
    a. Female
    b. Male
    c. Non-binary
    d. Other: _____
3. Do you self-identify as 2SLGBTQ+?
    a. Yes
    b. No
    c. Prefer not to answer
4. What is your ethnicity?
    a. Please specify: _____
5. Do you self-identify as indigenous?
    a. Yes
    b. No
6. Do you self-identify as an immigrant?
    a. Yes
    b. No
7. What is your marital status?
    a. Single
    b. Married or Common Law
    c. Separated or Divorced
    d. Widow
    e. Other. Please specify: _____

8. Do you have any children?
    a. Yes
    b. No
9. What is the highest level of education you have completed?
    a. Some high school
    b. High School Diploma (GED)
    c. Some technical/applied college
    d. Technical/applied college degree
    e. Some university
    f. University bachelor's degree
    g. Graduate school degree
10. Do you identify as having a disability?
    a. Yes
    b. No
    c. Prefer not to answer
11. Are you currently working?
    a. Yes –full time
    b. Yes – part time
    c. No – I am not employed
    d. No – I am retired
12. What is your annual household income?
    a. Less than $45,000
    b. $45,000 - $54,000
    c. $55,00 - $64,000
    d. $65,000 - $74,000
    e. More than $75,000
13. How long have you lived in your town/village?
    a. Less than 5 years
    b. 5 – 10 years
    c. 10 – 20 years
    d. 20 – 30 years
    e. More than 30 years
14. Do you own or rent your home?
    a. Own
    b. Rental
15. How long have you lived in your current residence?
    a. Less than 5 years
    b. 5 – 10 years
    c. 10 – 20 years
    d. 20 – 30 years
    e. More than 30 years

16. Are you currently experiencing any chronic or hereditary conditions or diseases?
    a. Yes
    b. No
17. How would you rate your overall physical health?
    a. Excellent
    b. Somewhat good
    c. Average
    d. Somewhat poor
    e. Poor
    f. Not sure
18. Overall, how would you rate your mental health?
    a. Excellent
    b. Somewhat good
    c. Average
    d. Somewhat poor
    e. Poor
    f. Not sure

Appendix D.

Phase 2: WHOQOL-OLD Survey

The following WHOQOL-OLD survey was taken directly from the World Health Organization (2006).

Instructions

This questionnaire asks for your thoughts and feelings about certain aspects of your quality of life and addresses issues that may be important to you as an older member of society.

Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks.

For example, thinking about the last two weeks, a question might ask:

How much do you worry about what the future might hold?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

You should circle the number that best fits how much you have worried about the future over the last two weeks. So you would circle the number 4 if you worried about your future “Very much”, or circle number 1 if you have worried “Not at all” about your future. Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

Thank you for your help!

The following questions ask about how much you have experienced certain things in the last two weeks, for example, freedom of choice and feelings of control in your life. If you have experienced these things an extreme amount circle the number next to “An extreme amount”. If you have not experienced these things at all, circle the number next to “Not at all”. You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between “Not at all” and “Extremely”. Questions refer to the last two weeks.

1. (F25.1) To what extent do impairments to your senses (e.g. hearing, vision, taste, smell, touch) affect your daily life?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

2. (F25.3) To what extend does loss of for example, hearing, vision, taste, smell or touch affect your ability to participate in activities?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

3. (F26.1) How much freedom do you have to make your own decisions?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

4. (F26.4) To what extend do you feel in control of your future?

Not at all	Slightly	Moderately	Very	Extremely
1	2	3	4	5

5. (F26.4) How much do you feel that the people around you are respectful of your freedom?

Not at all	Slightly	Moderately	Very	Extremely
1	2	3	4	5

6. (F29.2) How concern are you about the way in which you will die?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

7. (F29.3) How much are you afraid of not being able to control your death?

Not at all	Slightly	Moderately	Very	Extremely
1	2	3	4	5

8. (F29.4) How scared are you of dying?

Not at all	Slightly	Moderately	Very	Extremely
1	2	3	4	5

9. (F29.5) How much do you fear being in pain before you die?

Not at all	Slightly	Moderately	Very	Extremely
1	2	3	4	5

The following questions ask about *how completely* you experience or were able to do certain things in the last two weeks, for example getting out as much as you would like to. If you have been able to do these things completely, circle the number next to “Completely”. If you have not been able to do these things at all, circle the number next to “Not at all”. You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between “Not at all” and “Completely”. Questions refer to the last two weeks.

10. (F25.4) To what extent do problems with your sensory functioning (e.g. hearing, vision, taste, smell, touch) affect your ability to interact with others?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

11. (F26.3) To what extent are you able to do the things you’d like to do?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

12. (F27.3) To what extent are you satisfied with your opportunities to continue achieving in life?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

13. (F27.4) How much do you feel that you have received the recognition you deserve in life?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

14. (F28.4) To what extent do you feel that you have enough to do each day?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

The following questions ask you to say how *satisfied, happy or good* you have felt about various aspects of your life over the last two weeks . For example, about your participation in community life or your achievements in life. Decide how satisfied or dissatisfied you are with each aspect of your life and circle the number that best fits how you feel about this. Questions refer to the last two weeks.

15. (F27.5) How satisfied are you with what you have achieved in life?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

16. (F28.1) How satisfied are you with the way you use your time?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

17. (F28.2) How satisfied are you with your level of activity?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

18. (F28.7) How satisfied are you with your opportunity to participate in community activities?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

19. (F27.1) How happy are you with the things you are able to look forward to?

Very unhappy	Unhappy	Neither happy nor unhappy	Happy	Very happy
1	2	3	4	5

20. (F25.2) How would you rate your sensory functioning (e.g. hearing, vision, taste, smell, touch)?

Very poor	Poor	Neither poor nor good	Good	Very good
1	2	3	4	5

The following questions refer to any *intimate relationships* that you may have. Please consider these questions with reference to a close partner or other close person with whom you can share intimacy more than with any other person in your life.

21. (F30.2) To what extent do you feel a sense of companionship in your life?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

22. (F30.3) to what extend do you experience love in your life?

Not at all	A little	A moderate amount	Very much	An extreme amount
1	2	3	4	5

23. (F30.4) to what extend do you have opportunities to love?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

24. (F30.7) To what extent do you have opportunities to be loved?

Not at all	A little	Moderately	Mostly	Completely
1	2	3	4	5

Do you have any comments about the questionnaire?

THANK YOU FOR YOUR HELP

Appendix E.

Phase 2: Photovoice Interview Guide

Title: Psychosocial Factors Impacting Rural Oldest-Old Adults' Quality of Life while Aging in Place.

Granting Agency: Canadian Institute of Health Research

Session 2: Informed Consent & Photovoice Orientation

Prompt participant to take photographs over the next 7 days of things, places or people they believe impact (or relate to) their experience aging in their home, in a rural community.

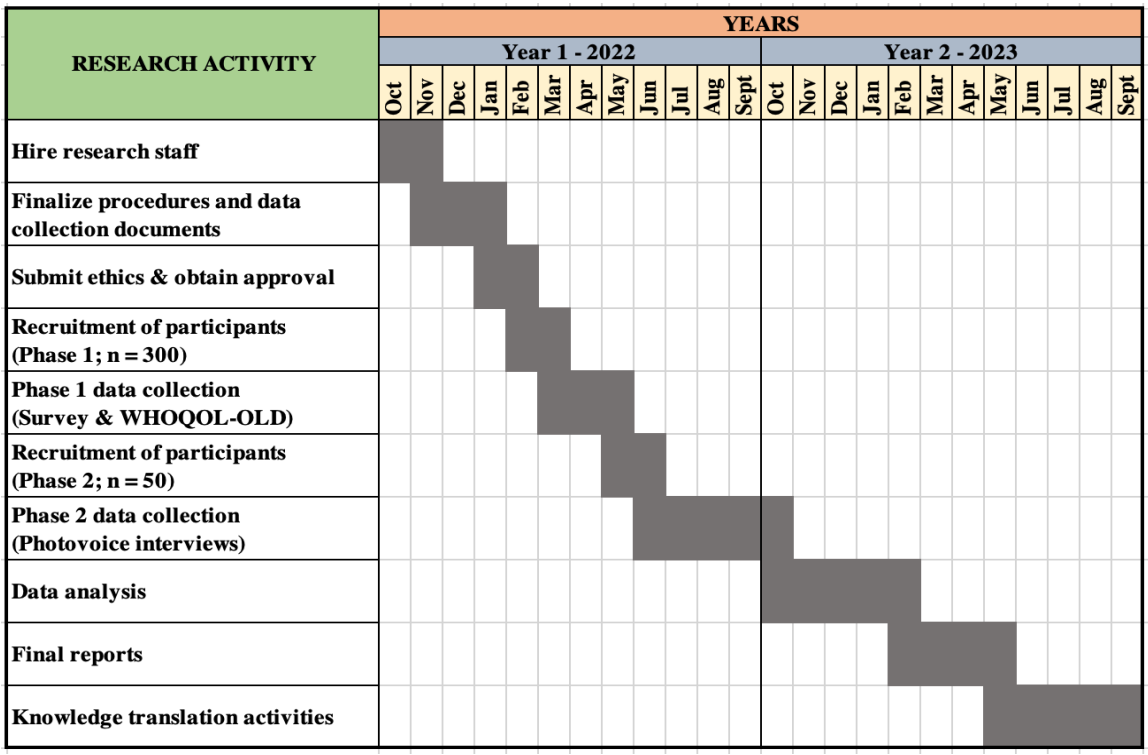
Provide the photovoice logbook to participants and outline detailed instructions on use.

Session 3: Individual Open-ended Interview

1. Describe what is in this photograph.
2. How does this photograph make you feel?
3. What does the object/person/place mean to you?
4. How does [person/place/thing in the photograph] relate to you aging in place?
5. Does it positively or negatively impact your experience living in your home in a rural community?
6. What else can you tell me about this photograph?

Appendix F.

Timeline



Appendix G.

Budget

CIHR Project Grant Budget: Fall 2021 and Spring 2022 Funding	
Term: October 2022 - September 2023 (24 months)	
Budget Category	**Amount (in thousands)**
Research Staff	**$258,585.60 ~ $259,000**
Project Coordinator Role (x1) *$30/hr + 12% benefits @ 30 hrs/week = $1,008* *$1,008 * 52 weeks/year = ($52,416)*2 = $104,832* Project Coordinator will be responsible for overall management of data collection, analysis and knowledge translation activities.	104,832.00
Research Assistants (RAs) (x5) ***1 RA per health authority region*** *$22/hr + 12% benefits @ 12 hrs/week = $295.68* *$295.68 * 52 weeks/year = ($15,375.36)*2 years = ($30,750.72)*5 RAs* RAs will be responsible for data collection and data analysis activities. Tasks will include distributing and collecting surveys and conducting photovoice interview. RAs will also be involved in data analysis activities and supporting knowledge translation activities.	153,753.60
Trainees	**0.00**
Not Applicable	0.00
Consumables	**$9,200.00 ~ $10,000**
Travel for Data Collection *This includes travel to all health authorities except for Fraser Health Authority which is considered local.*	
Flights (Provincial Destinations to IHA and NHA) $250 round trip (x2 people)	1,250.00

CIHR Project Grant Budget: Fall 2021 and Spring 2022 Funding	
Term: October 2022 - September 2023 (24 months)	
Budget Category	**Amount (in thousands)**
Rental Vehicle (Provincial Destinations to IHA and NHA) $90/day * 5 days total * 2 locations for 2 people	900.00
Ferry Costs (VIHA) $200 for 1 car round trip	200.00
Accommodations $150/night * 5 nights * 3 locations (IHA, NHA and VIHA) for 2 people	4,500.00
Meals per diem $75 * 5 days * 2 people	750.00
Miscellaneous Costs Office supplies including postage, printing costs, photo development, etc. *$500/year * 2 years* Data Axle Recruitment lists *4,000 records @ $0.14/record + processing fee + tax*	1,600.00
Non-Consumables	**$13,650.70 ~ $14,000**
Technology	
Laptop (x6) *Laptop to support Project Coordinator and RAs for managing project work, data collection and KT activities.* HP 14" Laptop - Natural Silver (AMD Ryzen 3 3250U/512GB SSD/8GB RAM/Windows 10)	3,696.00
Digital Camera (x10) *Support with Phase 2: Photovoice data collection.* *2 per health authority region.* Kodak PIXPRO Friendly Zoom FZ53-RD 16MP Digital Camera with 5X Optical Zoom and 2.7" LCD Screen (Red)	6,050.50

CIHR Project Grant Budget: Fall 2021 and Spring 2022 Funding	
Term: October 2022 - September 2023 (24 months)	
Budget Category	**Amount (in thousands)**
SD Card for Camera (x10) *2 per health authority region.* 5 Pack - SanDisk Ultra 16GB SD SDHC Memory Flash Card UHS-I Class 10 Read Speed up to 48MB/s 320X SDSDUNB-016G-GN3IN Wholesale Lot + (5 Cases)	371.20
Digital Recorder (x10) *Voice recorder will support with Phase 2: Photovoice Interview Data Collection.* *2 per health authority region.* Sony ICDPX370 IC Voice Recorder, black	3,000.00
External Hard Drive (x5) *To store and back up study information and data* *1 per health authority region.* Seagate Portable 1TB External Hard Drive HDD – USB 3.0 for PC, Mac, PS4, & Xbox, 1-Year Rescue Service (STGX1000400) , Black	315.00
Microsoft Office 365 *Microsoft Office 365 includes Word, Excel, PowerPoint, Outlook, OneDrive and Skype up to 6 people; $109/year*	218.00
Knowledge Translation	**$18,660.00 ~ $19,000**
Conference Presentations Canadian Association of Gerontology (CAG) General Meeting and Gerontological Society of America (GSA) – *x2 conferences* Registration: $420 for regular member (x1) + $170 student member (x1) Flights: Canadian Destination from Vancouver $800/person round trip * 2 people = $1,600 Hotel: $250/night * 4 nights for two individuals = $2,000 Meal per diems $75/day for 5 days = $750	9,880.00
Manuscript/Open Access Journal Publication	2,780.00
Community Workshops (x5) ***1 per health authority region.*** $500 Room Rental $200 Catering $300 Honorariums	5,000.00

CIHR Project Grant Budget: Fall 2021 and Spring 2022 Funding	
Term: October 2022 - September 2023 (24 months)	
Budget Category	**Amount (in thousands)**
World Café (x1) $500 Room Rental $200 Catering $300 Honorariums	1,000.00
Other	**$5,000.00**
Participant Honoraria $50 * ~100 participants = $5,000	5,000.00
TOTAL Requested for Enter Period	**$305,096.30. ~ $307,000**

Appendix H.

Additional Proposal Information

The CIHR Project Grant Application is typically completed in ResearchNet online, as noted in Appendix I. The chart below outlines additional information that would involve yes or no responses in the online application, that is not included in the research grant application. Please refer to Appendix I, *Task 2: Enter Proposal Details, Subtask: Details* for more information.

Task 2: Enter Proposal Information	
Subtask: Details	
Does your application include a partner and/or a knowledge user?	No
Certification Requirements	Not Applicable
Containment Level	Not Applicable
Environmental Level	Not Applicable
Is this a clinical trial?	No
Does this application contain a randomized controlled trial?	No
In order to carry out the proposed research in this application, is an exemption from Health Canada under Section 56 of the Controlled Drugs and Substances Act required?	No
Does this application propose research involving Indigenous Peoples?	Yes

Task 2: Enter Proposal Information	
Does your proposal address the TCPS 2 - Chapter 9 Research Involving the First Nations, Inuit and Métis Peoples of Canada and Indigenous partnering community/organizational ethical guidelines?	Yes
Is sex as a biological variable taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?	Yes
Is gender as a socio-cultural factor taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?	Yes
If yes, please describe how sex and/or gender considerations will be integrated into your research proposal. If no, please explain why sex and/or gender are not applicable to your research proposal. (limit of 2000 characters).	Sex and gender are not primary focuses of the research taking place. However, this data will be collected in Phase 1 survey to determine if there is a correlation between gender/sex and quality of life for oldest old adults residing in rural communities.
Subtask: Descriptors	
Descriptors	Aging Rural Communities Quality of Life Aging in Place Psychosocial Population & Public Health Meaning of Home Older Adults Mixed Methods

Task 2: Enter Proposal Information	
Themes	Theme 4: Social, Cultural, Environmental, and Population Health Research
Suggested Institutes	*Primary:* CIHR Institute of Aging *Secondary:* CIHR Institute of Population & Health
Areas of Science	*Primary:* Social Determinants in Aging *Secondary:* Psychosocial, Sociocultural and Behavioral Determinants of Health
Methods/Approaches	Mixed Methods: Mixed Methods Population & Social Sciences Methods: Community-Based Participatory Research
Study Populations/Experimental Systems	Geographical: Rural Life Stages: Older Adults

Appendix I.

CIHR Project Grant Application: Fall 2021 and Spring 2022 Funding Opportunity

The following copy comes from CIHR Project Grant: Fall 2021 and Spring 2022 Registration and Application Instructions. The original copy of this information can be found on CIHR website (https://cihr-irsc.gc.ca/e/49560.html).

Task 1: Identify Participants

This task collects information on all participants involved in your grant application. Consult the Individual Eligibility Requirements on the CIHR website for more information.

Note: The Nominated Principal Applicant must remain unchanged between registration and application. Other participants can be added, removed, or change roles between registration and application.

Subtask: Participant Information

- The applicant that initiated/opened the registration in ResearchNet is identified as the Nominated Principal Applicant for the application.
- The Nominated Principal Applicant (NPA) is able to add participants to the application in ResearchNet by:
    - Entering their validated CIHR PIN;
        - If the participant's PIN is not validated, the participant must login to ResearchNet and select the user tab (name in the top right banner) and select *Validate your CIHR PIN*.
        - Afterwards, the NPA can resume this process.
    - Entering their name;
    - Entering their role and participant type.
        - Principal Applicant
            - Independent Researcher – Early Career Investigator
            - Independent Researcher – Mid Career Investigator
            - Independent Researcher - Senior Investigator
            - Knowledge User
        - Co-Applicant
            - Independent Researcher – Early Career Investigator
            - Independent Researcher – Mid Career Investigator
            - Independent Researcher - Senior Investigator
            - Knowledge User
            - Trainee
            - Other
        - Collaborator
            - Independent Researcher – Early Career Investigator

        - Independent Researcher – Mid Career Investigator
        - Independent Researcher - Senior Investigator
        - Knowledge User
        - Trainee
        - Other
- All Principal Applicants and Co-Applicants will have access to the application on ResearchNet in order to allow them to contribute to the application.
- All Principal Applicants and Co-Applicants must complete the following:
    - Enter their CCV confirmation number or attach the Applicant Profile CV as applicable;
    - Complete their most significant contributions; and,
    - Consent.
- Only the Nominated Principal Applicant has the functionality to submit the application.
- The Nominated Principal Applicant will have to wait for all other participants to complete their relevant sections of the application before submitting.
- **It is important to provide a validated PIN for all Collaborators.** For instructions on how to generate a PIN, please refer to Register with CIHR. If you are experiencing technical difficulties with generating or validating your PIN, please contact CIHR Contact Center.
- Collaborators on the grant will not appear on CIHR funding decisions.

Subtask: Most Significant Contributions

This mandatory sub-task captures information on the Nominated Principal Applicant, all Principal Applicants and all Co-Applicants (not for Collaborators) and cannot exceed 3,500 characters, including spaces.

Note: The exact number of characters may vary slightly depending on the type of browser that you are using.

Please provide information regarding your most significant contributions (maximum of 5) as they relate to the application. Contributions can take the form of:

- Publications, presentations, intellectual property, other knowledge translation activities, etc.;
- Awards, degrees, credentials, etc.;
- Clinical practice, policy development, etc.;
- Specialized training, strategic employment positions, etc.

The contributions that you choose to share **should be directly relevant to the grant application**, and should demonstrate how you will contribute to the application at hand.

Subtask: Attachments

Applicant Profile CV

The Applicant Profile CV can **only** be used for knowledge users, non-academics, Indigenous organizations, and international applicants. To complete an Applicant Profile CV, download the Applicant Profile CV and complete the form as instructed. The

completed form should be uploaded in the “Attachments” section in the Participant Information Subtask.

NOTE – Academic applicants must continue to use their CIHR Biosketch CV.

Additional CV Information - Leave

Applicants who have taken leaves of absence in the past seven years (e.g., parental, bereavement, medical, or administrative leave) may include a PDF document (no page limits) to supplement the publication information for that equivalent period of time as included in their CCV. Whatever length of time an applicant has taken off from research in the past seven years is the amount of time that they may include in the attachment. Note that leaves of absence should also have been included in the appropriate section of the CV.

Consent

All Principal Applicants and Co-Applicants on the application must agree to General Conditions and Consent to Disclosure of Personal Information before the Nominated Principal Applicant can submit the application to CIHR. Signed signature pages are not required. Note that the Nominated Principal Applicant will consent in Task 9.

Task 2: Enter Proposal Information

Note: Information entered at registration will be pre-populated in the application.

Subtask: Overview

Project Title: The title submitted at registration is automatically transferred over to the application stage. Project title can change at application.

Lay Title: Provide a title for your project that is in a language clear to members of the general public. Lay titles are used by CIHR to inform the public and Parliament about the valuable research supported through public funds. Lay titles can change at application.

Lay Abstract: Using language accessible to a lay audience, Principal Applicants are asked to describe the proposed research, indicating how the proposed research can improve personal health, the health of populations and/or the health delivery system. The character limit for the entire task is 2000 characters. This information is used by CIHR to inform the public and Parliament about the valuable research supported through public funds. Lay abstracts can change at application.

Institution Paid: The Institution Paid will administer the funds for your project. Consult the Institutional Eligibility Requirements on the CIHR website for more information.

Please note that the Institution Paid will have access to view a limited number of application fields while your application is in progress.

Subtask: Details

Partnered/Integrated Knowledge Translation (iKT) Projects:

Does your application include a partner and/or a knowledge user?

This information has been pre-populated from Registration and is editable at application.

Please note that the inclusion of a knowledge user on the application does not automatically render the application iKT. If a proposal is not an iKT proposal, then answer “No” to the above question.

Indicate “yes” if your application consists of a knowledge translation or commercialization project and includes a partner and/or a knowledge user. If you answer **"yes"** to this question, please also indicate which of the following are included in your application:

1. A partner and knowledge user; or
2. A partner only; or
3. A knowledge user only.

If your project includes "a partner **and** a knowledge user" or "a partner only" you must identify at least one contributing partner as an Applicant Partner. **If** you select “a partner **and** a knowledge user” or “a knowledge user only”, you must identify at least one Principal Applicant who is a knowledge user.

Applications that are identified iKT projects may be assessed by both researcher and knowledge user reviewers.

Certification Requirements: If you are awarded a grant, the necessary certification requirements must be met in accordance with policies on ethical conduct of research. Relevant policies:

- Agreement on the Administration of Agency Grants and Awards by Research Institutions;
- CIHR Funding Policies.

Note: For further information on research involving human participants and human biological materials, refer to the TCPS 2-2nd edition of Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

Containment Level: Definitions of Levels may be found in the PHAC laboratory biosafety guidelines.

Environmental Impact: Proposals will be reviewed for potential impacts on the environment in accordance with the *Impact Assessment Act*.

Is this a clinical trial?

Indicate if this application includes a clinical trial. For more information regarding clinical trials, please refer to the policy on trials.

Does this application contain a randomized controlled trial?

Indicate if this application includes a randomized controlled trial (RCT).

Please note that applications including RCT have special requirements. For more information, please refer to the Project Grant Funding Opportunity and RCT evaluation criteria and heading webpage.

In order to carry out the proposed research in this application, is an exemption from Health Canada under Section 56 of the Controlled Drugs and Substances Act required?

Indicate if your proposed research is such that an exemption from Health Canada under Section 56 of the Controlled Drugs and Substances Act (CDSA) will be required. Consult

the Health Canada website for details regarding obtaining an exemption under Section 56 of the CDSA.

Does this application propose research involving Indigenous Peoples?

Indicate if your application proposes research involving Indigenous Peoples.

Does your proposal address the TCPS 2 - Chapter 9 Research Involving the First Nations, Inuit and Métis Peoples of Canada and Indigenous partnering community/organizational ethical guidelines?

If yes, please explain your engagement with the community in relation to the research proposal, so the reviewers can assess the level of engagement as required by the Tri-Council Policy Statement (TCPS2) – Chapter 9 on Research Involving the First Nations, Inuit and Métis Peoples of Canada and Indigenous partnering community/organization ethical guidelines (limit of 2000 characters).

Applications with a central focus on carrying out meaningful and culturally safe research involving Indigenous Peoples, with the intent to promote health through research that is in keeping with Indigenous values and traditions may be reviewed by the Indigenous Health Research (IHR) Committee. The IHR Committee may deem an application eligible for the Iterative Peer Review Process. See the Peer Review Manual – Project for additional information on the iterative review process.

For an application to be considered for review by the IHR committee and for the IHR peer review members to assess the level of engagement as required by TCPS 2 - Chapter 9 on Research Involving the First Nations, Inuit and Métis Peoples of Canada and Indigenous partnering community/organization ethical guidelines, **the following steps must have been completed at registration**:

1. Selecting 'yes' to the question regarding the TCPS 2 – Chapter 9;
2. Providing a detailed justification in the text field to indicate how the project addresses the principles of the TCPS 2 – Chapter 9 (limit of 2000 characters);
3. Selecting the Indigenous Health Research (IHR) Committee as the first suggested committee.

Please note that at the time of application submission, the research proposal must also explicitly describe engagement with the community in relation to the research. IHR committee will take specific considerations into account when evaluating applications submitted to this committee (see **IHR Committee considerations** under each Adjudication Sub-criterion below). Applications that do not fit with the IHR committee mandate will be reviewed by another committee.

Is sex as a biological variable taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?

Indicate if sex as a biological variable is taken into account in this research proposal. For guidance and resources on how to integrate sex as a biological variable, please consult the CIHR website.

Is gender as a socio-cultural factor taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?

Indicate if gender as a socio-cultural factor is taken into account in this research proposal. For guidance and resources on how to integrate gender as a socio-cultural factor, please consult the CIHR website .

If yes, please describe how sex and/or gender considerations will be integrated into your research proposal (limit of 2000 characters).

If no, please explain why sex and/or gender are not applicable to your research proposal (limit of 2000 characters).

Accounting for sex and gender has the potential to make health research more rigorous, more reproducible and more applicable to everyone. **CIHR expects that all applicants will integrate sex and gender into their research designs when appropriate.**

Reviewers will be explicitly assessing whether the integration of sex (as a biological variable) and/or gender (as a socio-cultural factor) is a strength, a weakness or not applicable to the proposal. Reviewers will also be prompted to comment on their assessment and asked to provide recommendations to the applicants on how they might improve the strength of their applications with respect to the integration of sex and/or gender. As such, and in addition to the answers you provide for the sex and/or gender - specific questions as noted above, you are asked to include details about how sex as a biological variable and/or gender as a socio-cultural factor is integrated in your **research design**, **methods, analysis and interpretation, and/or dissemination of findings** within your research proposal, if applicable.

For guidance and resources how to integrate sex as a biological variable, please consult the CIHR website.

Subtask: Descriptors

Note: The following six elements will provide CIHR with information on the type of expertise required to review your application.

The lists of *Areas of Science*, *Methods/Approaches* and *Study Populations/Experimental Systems* were derived from applications submitted to CIHR in recent years. This content is monitored and evolves to ensure it continues to reflect the breadth of applications submitted to CIHR. When completing these elements, think about the types of expertise needed to review your application and **please select the most appropriate terms.**

- **Descriptors:** Please provide keywords, which describe your research project and are not captured in the categories above. These keywords should provide CIHR with information for assigning reviewers with the appropriate expertise to your application.
- **Themes:** Select a primary theme classification. Indicate up to four theme classifications if the substance of the grant application significantly overlaps more than one theme. Consult the definition of the four CIHR Themes on the CIHR website for more information.
- **Suggested Institutes:** Select a primary CIHR Institute whose research mandate is related to the application's research area(s) and objective(s). Additional Institutes should only be selected if the substance of this grant application significantly overlaps with the research mandate of more than one Institute.

- **Areas of Science:** Select a primary area of science from the drop-down menu, which reflects the research area and objectives in the grant application. Two additional areas may be selected if the substance of the application significantly overlaps with more than one area of science. If more than one area of science is selected, they will be ranked in the order they are selected. If the additional area(s) of science of your application is (are) not listed, please use the 'Other' selection and indicate the area(s) of science. Consult the Areas of Science reference document for a complete searchable list.
- **Methods/Approaches:** Select a primary method/approach from the drop-down menu that will be utilized in the work being proposed. Two additional methods/approaches may be selected if the grant application will utilize multiple methods/approaches. If more than one method/approach is selected, they will be ranked in the order they are selected. If the additional method(s)/approach(es) you will be using is (are) not listed, please use the 'Other' selection and indicate the method(s)/approach(es). Consult the Methods/Approaches reference document for a complete searchable list.
- **Study Populations/Experimental Systems:** Select a primary study population or experimental system from the drop-down menu, which reflects the target study population or experimental system in the grant application. Two additional study populations or experimental systems may be selected if applicable to the application. If more than one study population or experimental system is selected, they will be automatically ranked in the order they are selected. If the additional study population(s) or experimental system(s) you will be using is (are) not listed, please use the 'Other' selection and indicate the study population(s) or experimental system(s). Consult the Study Populations/Experimental Systems reference document for a complete searchable list.

Subtask: Attachments

Attach Research Proposal

The research proposal should stand-alone (i.e. it should contain all the information required to support your research plan) and should contain a complete description of your project. **Reviewers are under no obligation to read Other Application Materials** (see Task 7). In support of evidence demonstrating that documents written in French require approximately 20% more space than similar documents in English, applications fully written in French will be allowed two additional pages for their research proposal. This provision will ensure an equitable amount of space for applications written in either official language. The following page limits for the research proposal will therefore apply:

- Research proposals submitted in English – 10 pages;
- Research proposals submitted in French – 12 pages.

For research proposals submitted in English, any pages over the 10-page limit will be removed with no further notification to the Nominated Principal Applicant.

Provide a clear, concise description of your proposed research, using the adjudication criteria outlined below.

Note:

- Specific considerations will be taken into account in the review of applications in the **Indigenous Health Research (IHR)** committee, as indicated below.
- Applications including a **Randomized Controlled Trial (RCT)** have specific requirements with respect to formatting. Furthermore, specific considerations will be taken into account in review of all applications including an RCT. Please consult RCT Evaluation Criteria and Headings for more information.
- Applications with **a commercialization project** have specific criteria for the evaluation of the required Research/Technical Plan and Commercialization Plan.
- Specific considerations will be taken into account in the review of applications in the **Tri-Agency Interdisciplinary Peer Review** (TAIPR) committee. For the details on the peer review process and description of the evaluation criteria, please consult the Committee Peer Review Guide.

Within the allotted page limitations, the research proposal may be comprised of text, tables, charts, figures and photographs, as required and should be attached as a PDF document.

In order to ensure that all applicants have exactly the same amount of space to write their research proposals, applicants must adhere to the following formatting requirements:

- **Font**: 12 point or larger black type. **Do not use condensed/narrow font sizes or type density.** Smaller text in tables, charts, figures, and graphs is acceptable, as long as it is legible when the page is viewed at 100%;
- **Line spacing**: A minimum of single line spacing;
- **Text colour**: black type;
- **Margins**: Not to be less than 2 cm (3/4 inch) on all sides;
- Observe page limitations, additional pages may NOT be added unless specified;
- Use only letter size (21.25 X 27.5 cm / 8.5" X 11") white paper/background for all attachments;
- Photo-reduce the supporting documents if the originals are larger than 21.25 X 27.5 cm / 8.5" X 11";
- Attachments must be uploaded in PDF format (unprotected);
- The size of the attached document(s) cannot exceed 30 MB per document;
- For more information about converting documents to PDF, please refer to Help with Accessibility page.

Failure to comply with these requirements may negatively impact the evaluation of the application and could lead to withdrawal. In cases of non-compliance that result in extra pages being added by applicants, CIHR may reformat and remove any pages that exceed the stated limit with no further notification to the Nominated Principal Applicant.

Attach Summary of Progress

The Summary of Progress is mandatory for all NPAs and can be a maximum of two (2) pages. This document supports the research proposal by allowing applicants to describe

how the application fits within their overarching research program. Formatting requirements as noted above must be respected.

The scope of the Summary of Progress should include:

- **Progress/Productivity:** Contextualize any results from research activities that support the current application;
- **COVID-19 impact on your research:** Outline the impact of the COVID-19 pandemic on the research program as appropriate;
- **ECRs**: For early career researchers (ECRs) who have held a Foundation grant, contextualize your Foundation grant into the Summary of Progress that would have gone into the half-page statement formerly added to the Project applications;
- **Budget requested in relation to overall funding held currently or pending:** Contextualize the current application and proposed budget in relation to your overall program of research and funding history. Include all relevant funding currently held and pending. It will be incumbent on the applicant to illustrate clearly to reviewers why the requested funds are needed, how they are distinct from the funds currently held, and how they will advance research.

Evaluation Criteria

Based on the criteria below, each application will be rated by three reviewers on a scale of 0.0 to 4.9, with 4.9 being the highest possible rating.

Of note, in the interpretation of the adjudication criteria, it is important to keep in mind that the research proposal may exert only a basic/mechanistic impact, which is as important as the translational impact. The impact does not only mean near-future clinical relevance. You should evaluate whether the work proposed will significantly advance the proposed area of research.

Criterion 1 - Concept

Sub-criterion 1.1: Significance and Impact of Research

This criterion is intended to assess the quality of what is being proposed, the value of the anticipated project contributions, and any advances in health-related knowledge, health care, health systems, and/or health outcomes.

- **Is the project idea creative?**
  - The project idea is among the best formulated ideas in its field, stemming from new, incremental, innovative, and/or high-risk lines of inquiry; new or adapted research in basic science, or health care, or health systems or health outcomes. When applicable, knowledge translation/commercialization approaches/methodologies should be considered, as well as opportunities to apply research findings nationally and internationally.
- **Is the rationale of the project idea sound?**
  - The project rationale is based on a logical integration of concepts.
- **Are the overall goals and objectives of the project well-defined?**

    - The goal states the purpose of the project, and what the project is ultimately expected to achieve.
    - The objectives clearly define the proposed lines of inquiry and/or activities required to meet the goal.
    - The proposed project outputs (i.e., the anticipated results of the project) are clearly described and aligned to the objectives.
- **Are the anticipated project contributions likely to advance basic health-related knowledge, or health care, or health systems or health outcomes?**
    - The context and needs (issues and/or gaps) of the project are clearly described.
    - The anticipated contribution(s) are clearly described, and should be substantive and relevant in relation to the context of the issues or gaps.
    - The anticipated contribution(s) are realistic, i.e., directly stemming from the project outputs, as opposed to marginally related.

Indigenous Health Research (IHR) committee considerations: The proposed research must be relevant to First Nations, Inuit and/or Métis priorities and have the potential to produce valued outcomes from the perspective of First Nations, Inuit and/or Métis participants and Indigenous Peoples more broadly.

Criterion 2 – Assessment of Feasibility

Sub-criterion 2.1: Approaches and Methods

This sub-criterion is intended to assess the quality of the project's design and plan; including how and when the project will be completed.

- **Are the approaches and methods appropriate to deliver the proposed output(s) and achieve the proposed contribution(s) to advancing health-related knowledge, health care, health systems, and/or health outcomes?**
    - The research and/or knowledge translation/commercialization approaches, methods, and/or strategies should be well-defined and justified in terms of being appropriate to accomplish the objectives of the project.
    - Is sex (as a biological variable) and/or gender (as a socio-cultural factor) taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
    - Opportunities to maximize project contributions to advance health-related knowledge, health care, health systems and/or health outcomes should be proactively sought and planned for, but may also arise unexpectedly.
- **Are the timelines and related deliverables of the project realistic?**
    - Timelines for the project should be appropriate in relation to the proposed project activities. Key milestones and deliverables should be aligned with the objectives of the project, and be feasible given the duration of the project.
- **Does the proposal identify potential challenges and appropriate mitigation strategies?**

- Critical scientific, technical, or organizational challenges should be identified, and a realistic plan to tackle these potential risks should be described. An exhaustive list is not expected.

Indigenous Health Research (IHR) committee considerations: In addition to demonstrating scientific excellence (Western, Indigenous, or both), the proposed research approaches and methods must respect Indigenous values and ways of knowing and sharing, and abide by *Tri-Council Policy Statement Chapter 9: Research Involving the First Nations, Inuit and Métis Peoples of Canada* and/or Indigenous partnering community/organizational ethical guidelines or clearly explain why other guidelines have been developed and agreed upon with the study governance body.

Sub-criterion 2.2: Expertise, Experience and Resources

An estimate of the number of hours per week (contribution) for each applicant working on the project should be provided.

This sub-criterion is intended to assess the appropriateness of the complement of expertise, experience, and resources among the applicants (Nominated Principal Applicant, Principal Applicant(s) and Co-Applicant(s)), and their institutions/organizations, as it relates to the ability to collectively deliver on the objectives of the project.

It is the responsibility of the Nominated Principal Applicant to ensure the proposed project is poised for success.

- **Does the applicant(s) bring the appropriate expertise and experience to lead and deliver the proposed outputs and achieve the proposed contribution(s)?**
  - The applicant(s) should demonstrate the combined expertise and experience needed to execute the project (i.e., deliver the proposed outputs as well as achieve the proposed contribution(s)). The roles and responsibilities of each applicant should be clearly described, and linked to the objectives of the project.
- **Is there an appropriate level of engagement and/or commitment from the applicant(s)?**
  - The level of engagement (e.g., time and other commitments) of each applicant should be appropriate for the roles and responsibilities described.
- **Is the environment (academic institution and/or other organization) appropriate to enable the conduct and success of the project?**
  - Project applicants should have access to the appropriate infrastructure, facilities, support personnel, equipment, and/or supplies to:
    - Carry out their respective roles; and,
    - As a collective, manage and deliver the proposed output(s), and achieve the proposed contribution(s).

Has the applicant taken into account sex (as a biological variable) and/or gender (as a socio-cultural factor) in the research design, methods, analysis and interpretation, and/or dissemination of findings.

Indigenous Health Research (IHR) Committee considerations: Appropriateness of the team based on their overall scientific experience (Western, Indigenous, or both) and skills

as well as their Indigenous community-based research experience, track record, relevance of past experience, including expertise related to Indigenous Health Research.

Other Attachments

Project References

Upload a list of references cited within the application (e.g., bibliographic information) in a PDF format. A standard reference style is required.

Response to Previous Reviews

If you are resubmitting an unsuccessful application, you may provide a response (maximum of 2 pages) to previous reviewers' comments.

Applicants who upload a "response to previous reviews" **must include** *all the reviews* and SO Notes (if available) received in that round of submission **(the reviews do not count toward the 2 page response limit)**. You do not have to respond to all the comments in the reviews, only those that are relevant to your revised application. Any additional pages over the two page limit may be removed with no further notification to the Nominated Principal Applicant.

To include the previous reviews, log into your ResearchNet account:

- Go to **Check Application Status** and click on **View Results/Reviews**.
- Choose the link **View/Print All Review Documents for Application [*application name*]**.
- Download and save the **SO Notes (if available)** and **Reviewers Report [*Committee member*]**.
- Include these download(s) with your 2-page response in your PDF.

Do NOT include the Notice of Recommendation (NOR) or the Notice of Decision (NOD) or the results letter. Your response should not require reference to any other documents because reviewers will not have access to other documents. Of note, your application may not be reviewed by the same reviewers.

Reviewers are not obligated to read your response if you do not include all the previous reviews. Nor are they obligated to read any page over the two-page response.

Task 3: Complete Summary

The research summary completed by applicants at registration has been pre-populated in the application **and can be updated at application**. However, the summary submitted at **registration** will be one of the key sources of information used to match peer reviewer expertise to applications. This is necessary to allow CIHR to secure the most appropriate expertise for review of all applications within the competition timelines.

The applicant(s) are asked to provide a research summary using scientific or technical terms making sure to provide the following sections:

a. **Background and Importance:** Provide a brief overview of relevant background information and/or rationale for the proposed research.
b. **Goal(s) / Research Aims:** Indicate the broad goal(s) and specific research aims of the proposed research and clear linkage indicating how they fit the objectives of the funding opportunity.
c. **Methods / Approaches / Expertise:** Provide a brief overview of the methodology and population that will be used to address each of the research aims. This section may also include the nature of the core expertise being brought together to address the proposed research. Information may include important collaborations (within or outside of the research community) that will be accessed to achieve the outlined research goals.
d. **Expected Outcomes:** Describe the expected outcomes of the proposed research highlighting the significance of the proposed research and how it will advance knowledge and/or its application to health care, health systems and/or health outcomes.

Note: Your completed summary cannot exceed 3500 characters (including spaces) or approximately one page. The exact number of characters may vary slightly depending on the type of browser that you are using.

Task 4: Identify Application Partners (Optional)

This task collects information on all partners involved in the application. Partnership contributions can be a combination of cash and/or in-kind contributions. There is no upper limit on partner contributions to a project.

Note: Identifying Application Partners is a requirement only for partnered projects.

Information Required from Partners:

- A signed letter of support from every partner must be provided at the time of application for all cash and/or in-kind contributions. The letter should include specific incremental cash or in-kind contributions being provided in support of the proposed research.

To enter partner information on ResearchNet, access the Identify Application Partners task and:

1. Click "Add a Partner".
2. In the small textbox on the left, click the search icon. A search tool will appear.
    - Type the partner name, or a portion of the name, and click search.
    - The search will display results and narrow itself as more information is typed.
    - To facilitate search, enter "%" before and/or after your keyword.
    - Select the partner name from CIHR's prepopulated list.
3. If the partner does not appear, select "Other".
4. Enter the required field to create a new organization record.
5. Repeat these steps for every partner on the proposal.

From the Identify Application Partners task root menu, select "Manage Attachments" and upload the PDF letter document.

Repeat these steps for each partner.

Task 5: Enter Budget Information

Provide a detailed budget justification in relation to planned activities and clearly justify all budget items.

To complete the budget request, applicants must:

- Indicate the amount that is required in each budget category, along with a comprehensive description of what the funds will be used for, in order to justify the amount requested.

Information on eligibility of expenses and employment under grants is found in the Tri-Agency (CIHR, NSERC & SSHRC) Financial Administration Guide, Use of Grant Funds. Please also note the following:

- All amounts entered in the budget section must be **totals for the entire duration of the grant (not yearly amounts)**. CIHR will take the total amount and divide it equally across all years of the proposed project of research.
- All amounts indicated in the budget should be in Canadian dollars.
- Information such as cost quotations are not required as part of the application, and should not be attached to this module.
- **For applications involving Indigenous Peoples/communities**, eligible costs include costs related to community mobilization and engagement, including culturally relevant promotional items such as tobacco, cloth, feasting and gift giving for honoring ceremonies and cash reimbursements (in a method acceptable to the individual or community being reimbursed) to compensate community participation; and contracts and/or consultant fees for knowledge translation and communication activities for Indigenous Elders, community members, and other Indigenous Knowledge Keepers involved in activities related to the Indigenous community.

Complete the Budget Request

Indicate and justify the required amounts to support the proposed project of research.

Applicants will be required to:

1. Select the term for the period of support requested by selecting the years and months.
2. Enter the requested amount for each budget category.
    - Each amount must be rounded to a multiple of $1,000.
    - Budget requests are total amounts for the **entire period of support**.
    - If a category does not apply, the field can be left blank.
3. Justify the amount requested within each applicable category (maximum 3,500 characters) in the context of the requirements of the proposed project.

Notes:

- The expectation of the budget request is that it is justified and takes into consideration the needs of the research project and any anticipated changes in requirements over the term of the grant.
- The sum of all of the budget categories (total requested budget) must add up to a multiple of $5,000.
- The budget must include the applicable provincial and federal taxes and should be calculated using the after-rebate tax rates. After-rebate tax rates are available on the Canada Revenue Agency website.
- Individuals paid from grants are not employees of CIHR.

Information on the Budget Categories

This section provides a brief overview on the budget categories and what may be included within the respective categories. Please refer to the Tri-Agency Guide on Financial Administration for more information.

1. **Research Staff:**
    - All research staff (research associates, assistants, technicians, etc.) should be determined by the work required for the research and the corresponding technical needs.
    - Co-Applicants and Collaborators can be paid for their services from the grant as long as they are not considered an independent researcher eligible to apply for CIHR funding.
2. **Trainees:** Costs related to the training and mentoring of trainees, and students and knowledge users are to be included in this section.
3. **Consumables:** CIHR grant funds may be used to cover only the direct costs of research (materials and supplies, services, travel for research activities, etc.) and may not be used for indirect costs.
4. **Non-Consumables:** Funding for equipment may be requested for this competition. Equipment is defined as any item (or interrelated collection of items comprising a system) of nonexpendable tangible property, having a useful life of more than 1 year and a cost of $2,000 or more, which is used wholly or in part for research. Maintenance and operating costs of equipment are also eligible expenses.
5. **Knowledge Translation:** Costs associated with dissemination of research results such as manuscript publication, travel for knowledge translation activities (e.g., conferences), etc. are to be included in this section.
6. **Other:** Costs associated with any other expenses related to the proposed project that are not covered in the above categories are to be included in this section.

Complete the Partner Budget Details sub-task (optional)

List any funding from partners (cash and/or in-kind support) that have been secured, or are expected to be secured. Note that this step should only be completed if this section is relevant to the budget.

Note: Securing partner funds is a requirement only for partnered projects.

In order to include any partner funding in the budget section, you must first identify the partner in the Partner Task (section 4). When you do this, a subtask will automatically appear within the Budget Task. Click on the partner name on the navigation column on the left, and complete the following steps:

1. Enter the partner's financial contribution in the Cash column or estimated value in the In-Kind column for **each year**.
    - If there is no partner contribution for a given year, enter "0" in both the Cash and In-Kind columns.
2. Describe how the contribution from the partner will be used towards the proposed research project (maximum 900 characters).
3. Repeat these steps for each partner.

Task 6: Complete Peer Review Administration Information

This task collects information used for the purpose of peer review administration.

Suggested Reviewers for this Application (optional)

Suggest at least 5 Canadian and/or international reviewers that you believe have the expertise to review the application. CIHR reserves the right to make the final selection of reviewers. **You should not suggest reviewers in conflict of interest.** Consult the Conflict of Interest and Confidentiality Agreement for Peer Reviewers and Peer Review Observers on the CIHR website for more information.

Reviewers to exclude for this Application (optional)

You may provide the names of individuals that you believe cannot provide an objective written assessment of your application and add comments specifying why they should be excluded from reviewing your application.

Suggested Committees

Suggested committees and relevant justification(s) must remain unchanged between registration and application. CIHR will consult with committee Chairs and Scientific Officers in assigning applications to specific committees and **will make the final decision on which peer review committee will review each application based on the summary of proposed research received at Registration**. The final committee selected will not necessarily be your first or second choice.

Task 7: Attach Other Application Material

Upload any other application materials you wish to include with your application package.

The research proposal should stand-alone (i.e. it should contain all the information required to support your research plan and should contain a complete description of your project).

All documents must be in PDF format and must adhere to the guidelines for attachments on the Acceptable Application Formats and Attachments.

You may attach:

- For applicants with a pending appointment including, but not limited to, early career researchers, a letter of support is required in the case of a pending appointment from the Dean of the Faculty indicating the date the appointment is

expected to take effect. The appointment must commence by the effective date of funding;
- Letters of support/collaboration under "Letters of Support";
- Questionnaires, surveys and consent forms, if applicable; consent forms can be uploaded under "Other";
- Supplementary tables, charts, figures and photographs;
- Up to five publications from the past five years, relevant to the submission. A listing of links of up to five publications is also acceptable;
- Certificate of Completion for the sex- and gender-based analysis training modules for the NPA:
    - After completing the appropriate training module that applies to the research project, you will receive a Certificate of Completion that you will save and upload under other.
    - N.B. The certificate is issued as a secured document; however, you must upload a copy of the certificate (e.g. print screen) as an unsecured PDF file in order to successfully append the document. Scanned documents and photocopies are acceptable.

Reviewers are under no obligation to read attached materials.

Task 8: Apply to Priority Announcements/Funding Pools (Optional)

Priority Announcements/Funding Pools offer additional sources of funding for highly rated and competitive applications that are relevant to specific CIHR Institute and Initiative research priority areas or mandates. For requirements on individual Priority Announcements/Funding Pools you must refer to the "Funds Available" and "How to Apply" sections of the Priority Announcements Funding Opportunity. The "How to Apply" section will indicate if additional information is required.

To apply for funding through a Priority Announcement/Funding Pool, you must select the Priority Announcement/Funding Pool title from the list, as well as the Relevant Research Area(s) addressed by the proposal, then press "Save". If a relevance form is required, a text box will appear.

Notes:

- Applicants can only apply to a maximum of three Priority Announcements at the application stage.
- Streamlined applications will not be eligible for funding through Priority Announcements, irrespective of the final rating, since they were assessed as being non-competitive.

Task 9: Preview

The Nominated Principal Applicant should preview the full application package prior to submitting the application to CIHR. To mark the preview task as complete, every other task must be marked as complete.

Task 10: Consent and Submit

All Principal Applicants and Co-Applicants on the application must agree to the General Conditions and Consent to Disclosure of Personal Information terms, presented on

ResearchNet, before the Nominated Principal Applicant can submit the application to CIHR. There are no signature pages required as part of the application submitted to CIHR.

Once every task is complete, including the consent, the Nominated Principal Applicant must review the terms listed and respond to the questions regarding consent in order to submit the application.

The Nominated Principal Applicant must click "**Submit to CIHR**". The application will be sent to the Institution Paid, as part of the eApproval process, and ultimately to CIHR. The Nominated Principal Applicant will receive e-mail confirmation once CIHR receives the application.