A LONELY TIME TO LIVE: ASSESSING THE SEVERITY AND CHRONICITY OF LONELINESS IN EMERGING ADULTS

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ABSTRACT

Severe and chronic forms of loneliness are thought to contribute to declines in both mental and physical health. Although the impacts of loneliness are well-established, little is known about the extent to which more severe and chronic forms of loneliness impede on individuals' functioning and well-being. This oversight is in large part due to the lack of an adequate measure that more fully assesses the severity and chronicity of loneliness. By extension, little is understood about the extent to which severe and chronic forms of loneliness affect emerging adults in general and in challenging times (e.g., during the pandemic). Considering these observations, three multi-method studies were conducted to address this gap in the literature. Study One is a qualitative study conducted during the height of the COVID-19 public health crisis which found that both internal (personal) and external (social and situational) mental health concerns emerged as themes related to the perception and experience of loneliness (N = 37). Study Two (N = 289) and Study Three (N = 371) both involved collecting data from two self-report online surveys during ensuing stages of the pandemic to test the psychometric properties of a newly developed scale (the Severe Enduring Loneliness Factors Questionnaire; SELF) and the extent to which it is predictive of risk and resilience indicators above existing loneliness scales with samples exclusively composed of emerging adults. Overall, findings suggest that it is useful to view and use the measure as two separate subscales that individually evaluate the severity and chronicity of loneliness. As well, the majority of regression analyses showed that both factors of the SELF were either individually or simultaneously predictive, although not uniquely predictive, of the majority of outcomes such as higher levels of depression and shame and lower levels of mattering to others. Notably, an enduring sense of loneliness was uniquely predictive of lower levels of total hope. Study Two compared participants identifying

no chronic loneliness ($N = 29$) with those reporting chronic loneliness to a high degree ($N = 84$), as well as Study Three (no chronic loneliness, $N = 33$; high chronic loneliness, $N = 125$). Both studies found significant, consistent group differences in psychological strengths and vulnerabilities between those reporting an absence versus a heightened level of chronic loneliness. Findings from the present series of studies suggest that the SELF questionnaire shows promise not just in terms of demonstrating sound psychometric properties but also with respect to providing a more comprehensive understanding of the kinds of loneliness that are characterized as more extreme and persistent. The implications of these findings and recommendations for further advancements pertaining to the research and clinical applications of this work are outlined and discussed.

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Chapter One: Introduction

It has been said that "the whole conviction of my life now rests upon the belief that loneliness, far from being a rare and curious phenomenon…is the central and inevitable fact of human existence" (Thomas Wolfe, *God's Lonely Man* as cited in Murthy, 2020, p. 3). Indeed, this poignant quote was included in a timely book by the US Surgeon general about a 'loneliness' epidemic released just after the onset of the pandemic. And as everyone is now well aware, COVID-19 is an infectious disease turned into a potentially deadly threat across the globe with the health imperative being to increase the physical distance between individuals. As physical distancing was implemented to stop the spread of COVID-19, the term *social distancing* seemed to inevitably forecast a sense of impending loneliness (Murthy, 2020). This sentiment has been recently echoed in research showing an association between social distancing during the pandemic and impaired social connectedness, consequently resulting in declines in self-rated health (Bierman et al., 2021). However, while some individuals tended to retreat into social isolation, in a way others found ways to stay socially connected and became increasingly aware of just how linked we all are at the familial, community, and international level. Just as we all share a need to belong and socially connect (Thoits, 2011), we also frequently share the common experience of loneliness at one point or another during the lifespan.

As the psychological literature defines it, loneliness is experienced when we have fewer social relationships or fewer relationships of sufficient quality than we wish to have (Peplau & Perlman, 1982) with associated feelings that no one cares (Rokach, 2019). It is distinct from social isolation, however, in that loneliness does not focus on the frequency of social interaction because even individuals with frequent social interactions can feel lonely (Gardner et al., 2000). Some individuals are capable of coping with being alone without painful pangs of loneliness, but

other people are greatly impacted it, sometimes to the point of incapacitation. As Rokach (2004) notes, it is possible to be lonely without being alone, and alone without being lonely.

As described above, loneliness is distinct in that it is negative emotional experience resulting from a discrepancy between “one's desired and achieved levels of social relations” (Perlman & Peplau, 1981, p. 32). The experience of loneliness can also be differentiated from solitude, otherwise known as the absence of social interaction (Burger, 1995; Larson, 1990). Eccles and Qualter (2020) have noted that learning to tolerate feelings of loneliness is considered an adaptive, natural, and necessary component of human life. Although there are associated negative feelings that accompany loneliness in part these feelings can also motivate and propel us to seek reconnection with others (Cacioppo & Hawkley, 2009; Qualter et al., 2015). Loneliness not only has emotional consequences, it also has significant cognitive and behavioural consequences (see Hawkley & Cacioppo, 2010), and as such, it can involve multiple forms of impairment that can have a debilitating impact on people.

Loneliness is especially maladaptive and potentially deadly when it is severe and chronic. Loneliness has been identified as a risk factor for mortality (Holt-Lunstad et al., 2015; Rokach, 2019), with the chronically lonely reporting a slightly greater mortality risk using a Cox proportional hazards model with time to death as the outcome variable and loneliness as the predictor (Shiovitz-Ezra & Ayalon, 2010). These results were found even after controlling for potential confounders such as age, gender, level of education, medical conditions, functional impairments and depression (Shiovitz-Ezra & Ayalon, 2010). Loneliness has been linked to a multitude of vulnerabilities such as depression, generalized anxiety, dementia, and suicidal ideation, as well as behaviours indicative of health risk including smoking and more frequent physician visits (Beutel et al., 2017; Luo et al., 2012). Evidently, there are myriad physical and

mental health concerns linked with loneliness. Given the well-established link that persistent, long-term loneliness has with health problems and earlier mortality (see Cacioppo & Patrick, 2008), it seems essential to routinely measure self-reports of chronic loneliness in research and in individual assessments of people in counselling and clinical settings.

Regarding how loneliness is conceptualized and assessed, it is usually discussed as a state phenomenon and state measures of loneliness are predominant. The most widely used trait measure in the field is the UCLA Loneliness Scale. A special issue on loneliness published in the late 1980's provided a useful overview of the history of the field (Perlman, 1987). Within this special issue, Perlman (1987) states that scale construction of the UCLA involved only retaining items that correlated with the total score which unsurprisingly led to a strong general factor. As such, the measure was not designed to assess different types of loneliness. Given that the UCLA does not tap different types of loneliness, he asserts that measures should be developed to address this need (Perlman, 1987). For instance, it can be argued that there is a need to measure severe, persistent forms of loneliness that are not yet captured by the UCLA scale which is a primary goal of the present research.

Several studies have identified the developmental stage of emerging adulthood as a time in which levels of loneliness reach their peak (Barreto et al., 2021; Hawkley et al., 2020; Luhmann & Hawkley, 2016). During this stage of life, emerging adults are contending with a host of developmental tasks such as building intimate partnerships, continuing to form their identity, and managing other close relationships such as friendships (Barry et al., 2009). As a result, emerging adults may feel a sense of loneliness when their actual interpersonal relationships do not meet their relationship goals (Bueckner et al., 2021). As Buecker et al. (2021) notes, loneliness in emerging adults has been linked to several serious health issues such

as depressive symptoms and other mental health problems (Matthews et al., 2019; Vanhalst et al., 2012a), maladaptive physical health behavior (e.g., smoking, lower levels of physical activity), and the use of negative coping strategies when experiencing stress (e.g., social withdrawal, being overly preoccupied about problems; Matthews et al., 2019). The study by Matthews et al. (2019) also found that lonely emerging adults were less confident about their occupational future and were more likely to be unemployed than their non-lonely peers. Actually, the recent cross-temporal meta-analysis by Buecker and colleagues (2021) found that rates of loneliness in emerging adults have slightly increased between the years of 1976 and 2019. While these findings support that claims of a "loneliness epidemic" may be exaggerated, this meta-analysis still very much supports that there is a dire need to design interventions to address loneliness among the emerging adult age group (Buecker et al., 2021).

Indeed, loneliness has been extensively studied among older individuals (see Poscia et al., 2018) and yet Americans ages 18-22 years were recently identified as being the loneliest generation (Cigna, 2018). As supported by the literature, there is a tendency for individuals to think of loneliness as a problem pertaining to older adults. Research on loneliness among the older generation has increased given the growing rate of individuals living alone, decreased rates of social and religious activity, and an aging population that is increasingly isolated (Holt-Lunstad, 2017; Nyqvist et al., 2017). Notwithstanding these societal changes, data do not support the assumption that changes in the prevalence or intensity have increased among the older adult population (see Dahlberg et al., 2018; Hawkley et al., 2019; Nyqvist et al., 2017). The nationwide survey by health insurer Cigna (2018) calls attention to the need to evaluate loneliness across the life span, although among young adults in particular. They surveyed 20,000 adults online and incorporated use of the UCLA Loneliness Scale (Russell et al., 1980). For this

widely used scale, possible loneliness scores range from 20 to 80 with higher scores consequently indicating higher levels of loneliness. It was found that half of respondents identified as feeling lonely and reported an average loneliness score of 44. Of the respondents, members of so-called Generation Z, those born between the mid-1990s and the early 2000s, reported the highest overall loneliness score (48.3), followed by the Millennial generation (45.3). Loneliness scores gradually dropped as respondents' age increased, with adults aged 72 or older being the least lonely group (38.6).

The findings from the nationwide survey are in line with previous research findings showing that younger generations more often report feeling lonely and also tend to report more distinctive age-related changes in loneliness (Fried et al., 2020; Nyqvist et al., 2016; Victor & Bowling, 2012). It has been proposed that this loneliness trend among young people is tied, in large part, to more screen time and social media use causing a rise in depression and suicide rates starting around adolescence (Twenge et al., 2017). Notably, the Cigna survey did not find a correlation between social media use and feelings of loneliness among this age group. However, research supports that an increase in loneliness among adolescents appears to be due to a wider scale generational difference regarding the ways in which leisure time is spent (Twenge et al., 2019). For instance, compared to adolescents from previous generations, individuals from Generation Z are spending less time interacting with their peers during leisure time, which has occurred in conjunction with a marked increase in loneliness (Twenge et al., 2019). However, the reasons and mechanisms behind these trends need to be further investigated and better understood given it is a complex, nuanced, and ever-evolving topic.

Importantly, outside of the American population young adults in other cultures have similarly reported high levels of loneliness (see Luhmann & Hawkley, 2016; MacDonald et al.,

2020). As well, Beam and Kim (2020) present data from three population-based longitudinal studies from the United States as well as from Sweden that also show support for young adults and old-old adults as being most at risk across the lifespan in terms of experiencing the effects of social isolation and loneliness. This underscores the importance of a preventative approach that identifies the ways in which loneliness and its negative effects may be ameliorated or ideally protected against among young people. There is a growing movement which recognizes that there is a need to explore and better understand the experience of loneliness earlier in life because of its potential relevance in order to intervene and potentially protect health and well-being in later life (Bessaha et al., 2020). A focus on the earlier experiences of loneliness is further supported by research findings that loneliness in older populations likely emerges before people enter a period of old age (Berkman, 2009; Brody, 2017; Qualter et al. 2010; Williams & Braun, 2019).

It was not until recently that researchers conducted meta-analyses of interventions designed at reducing loneliness among young people (Eccles & Qualter, 2020). The meta-analyses pertaining to youth aged 25 years or younger found that interventions could reduce loneliness among youth, but there was no indication of whether they were successful in impacting experiences of transient versus chronic loneliness (Eccles & Qualter, 2020). As suggested by Rubenstein and Shaver (1982) and Shaver et al. (1985), loneliness is differentiated as chronic for some or situational, transient, and event-related for others. Interesting, past work has found important differences regarding the distinction between situational and chronic loneliness. For instance, contrary to the expectations that chronically lonely people might have of others, they tend not to blame themselves for their situation and appear to be mindful of the benefits of loneliness even while experiencing its pain (Rokach & Brock, 1997). In contrast,

those individuals who experience loneliness in response to external events tend to feel socially inadequate and blame themselves for the onset of the socially unacceptable and adverse experience (Rokach & Brock, 1997). However, there is a risk that chronic loneliness may emerge if individuals internalize the idea that there must be something wrong with them that has resulted in them being so isolated. Eccles and Qualter (2020) mention that future research needs to investigate how interventions for young people can be designed to target feelings of loneliness. However, from this research it also becomes clear that there is a need to improve the assessment of the chronicity of loneliness to distinguish features relevant to guiding those interventions given the particular risks among young people.

Loneliness During Pandemic Times

It would be remiss to fail to mention the importance of exploring levels of loneliness among young people during the current time of the COVID-19 pandemic. Stay-at-home orders and social distancing efforts have been instituted during the pandemic to help contain and curb the spread of the coronavirus outbreak. As necessary as these orders are for protecting the health and safety of the public, they are in contradiction of humans' fundamental need to connect through socialization with others. With regards to the ongoing spread of the Coronavirus Disease 2019 (COVID-19), there are concerns both domestically and internationally regarding social distancing and its temporary and perhaps more enduring impact on the health-exacerbating consequences of loneliness. Indeed, events on a large scale such as pandemics serve as a stark reminder that research does not exist in a vacuum and must reflect the current realities of everyday life. Recent research has assessed levels of loneliness among American adults just before the outbreak and into late April. That research (Luchetti et al., 2020) assessed levels of loneliness on three occasions: before the outbreak in late January/early February 2020, in late

March 2020, and in late April 2020. Contrary to expectations, there were no significant mean-level changes in loneliness across the time points. Keeping these findings in mind, it is possible that levels of loneliness will rise as the pandemic persists and quarantine continues especially if individuals' loved ones are lost due to COVID-19. Furthermore, intervention and prevention efforts to address social connectedness may be needed both during and after the pandemic resolves (Beam & Kim, 2020). However, the study by Luchetti et al. (2020) also found that older adults reported less loneliness overall compared to younger age groups but had an increase in loneliness during the acute phase of the outbreak. These age-related findings are perhaps not surprising in light of past research showing that greater than 60% of older adults have reported not feeling lonely, whereas fewer than 10% have reported severe loneliness (Victor & Bowling, 2012). In contrast, pre-COVID research has found that 20-48% of adolescents and young adults have reported severe levels of loneliness (Williams & Braun, 2019).

Data from April to May 2020 also highlights the significant increases in mental health symptoms and substance use symptoms since COVID-19 began (Horigian et al., 2020; Wardell et al., 2020). The study by Horigian and colleagues (2020) found elevated levels of loneliness, depression, anxiety, alcohol and drug use among over one thousand emerging adults during the pandemic. More specifically, just under half of respondents reported a great degree of loneliness with scores above 50 on the UCLA scale (Russell et al., 1980). The mental health consequences of the pandemic continue to be highlighted; some are predicting that a global mental health catastrophe will occur among these most vulnerable sectors of the population (Izaguirre-Torres & Siche, 2020).

Methods of Assessment in Researching Loneliness

Loneliness can be assessed and conceptualized in a variety of ways. Weiss (1973, 1974) differentiated between emotional loneliness versus social loneliness. Jones (1987) criticized Weiss (1987) for focusing primarily on state loneliness and failing to make the key distinction between state loneliness versus trait loneliness. This criticism can likely be applied to the loneliness field as a whole. Jones and colleagues have demonstrated the viability of focusing on trait loneliness (see Jones et al., 1990). For instance, Jones and colleagues (1981) described university students with persistent loneliness. Their investigation of students in dyadic interactions and group interactions showed that lonely students saw themselves in more negative terms and as having deficits in social skills and they anticipated that other people would give them negative ratings. They also endorsed views of people in general being alienated and isolated. In general, this research program on trait loneliness can be seen as a strong justification for why there needs to be more emphasis on persistent, chronic forms of loneliness. Another way to assess and conceptually examine loneliness is to consider why some people who are in relationships still feel exceptionally lonely. Sermat (1978) described this as being due to a lack of emotional intimacy in relationships and Schmidt and Sermat (1983) went to create a measure known as the Differential Loneliness Scale that was designed to assess loneliness within the context of specific relationships.

Loneliness is a subjective emotional experience and is difficult to measure in a reliable or valid way from observational data. Therefore, researchers have typically used self-report assessments to evaluate loneliness. Although self-report assessments are the primary tool used to evaluate loneliness, the content of these instruments varies widely. Whereas some measures include items that directly assess loneliness, others focus mainly on the hypothesized causes such

as whether one feels accepted by peers, and whether one feels close relationships provide emotional support. In addition, some measures assess loneliness as a unitary construct, whereas others assess various dimensions of the experience of loneliness (family related loneliness versus peer related loneliness). Presently, based on current knowledge, there is no well-validated measure that adequately captures the severity and chronicity of loneliness that individuals experience. The 'gold-standard' UCLA loneliness measure initially created by Russell and colleagues (1978) has high internal consistency but to a certain extent is considered to be overly global as the loneliness construct. A key criticism of the scale is that the item content includes several questions that pertain to hypothesized causes (i.e., lacking companionship) as well as associated constructs (i.e., feeling shy). Depending on the particular research question, there are times in which it may be pertinent to evaluate these relevant aspects as they relate to the experience of loneliness. However, by focusing on loneliness concomitants and on hypothesized causes of loneliness, item content may overlap with the assessment of other related constructs of interest, such as the quality of one's relationships or engagement in friendships.

An alternative existing measure, the NYU Loneliness Scale (Rubenstein & Shaver, 1982) is rarely used in research and its eight items focus more on the affective experiences of loneliness versus the hypothesized causes, which may help to address the potentially limiting confounding content in the UCLA measure. However, the brief NYU scale contains just one item each to assess the chronicity and severity of loneliness despite these attributes considered to be important dimensions of the loneliness experience. Within the loneliness field, there is a clear gap in loneliness measurement that needs to account for these dimensions that to date have not been addressed within the literature. Additionally, further work needs to be carried out with regards to developing loneliness measures that include evaluation of the feeling and affective components

of loneliness while at the same refraining from the inclusion of items whose content pertain to potential causes, to better assess the experience of loneliness.

The UCLA (and versions of it) were included in the present research primarily because of their most frequent use as well as their brevity given the volume of other measures that needed to be included for an adequately in-depth preliminary investigation. However, within the field of psychology there are other measures of loneliness that are worthy of mention as well. For instance, there is a measure that has been used extensively in understanding aspects of 'coping' with loneliness as well as the experience of loneliness by focusing on the qualitative aspects of coping strategies. This measure (Rokach & Brock, 1998) includes a comprehensive collection of 80 items, which ultimately yielded six factors related to coping with loneliness: reflection and acceptance, self-development and understanding, social support network, distancing and denial, religion and faith, and increased activity. As well, there is also the De Jong Gierveld scale (De Jong Gierveld & Kamphuls, 1985), which is a unidimensional measure with a mere 11 items developed with Weiss's (1973) distinction of emotional and social loneliness in mind. Although this loneliness measure does include some affective items, to date it has almost exclusively been used in European contexts (De Jong Gierveld & Van Tilburg, 2010).

The current work focuses on the development and correlates of a measure of loneliness designed to assess more extreme loneliness and chronic loneliness. For instance, a severity item that taps the feeling and affective components of loneliness is "my loneliness feels like it is too much to bear" and a chronicity item is "I always feel at least a little lonely". As can be seen from these items, the content of these items does not refer to the potential causes or sources of loneliness. Rather, these items specifically emphasize loneliness with regards to its felt strength and enduring nature. With regards to the dimension of the severity of loneliness, items from

existing measures such as the UCLA neglect to incorporate content that inquires about the deep intensity of loneliness that is experienced as well as distress in the form of exhaustion, frustration, or suffering. Additionally, with regards to the dimension of the chronicity of loneliness, existing loneliness measures also do not include items that assess childhood history of loneliness, identifying with loneliness across the lifespan, and feeling burdened by loneliness or experiencing an inability to escape it. These are just a few noteworthy themes that have not yet been addressed in the assessment of loneliness thus far, and therefore there is a need to measure them in order to more fully appreciate and understand the psychological experience associated with loneliness that is felt on a more excruciating and continuous basis.

The Clinical Importance of Loneliness

Case accounts have indicated that for some people, loneliness can be severe and persistent (e.g., Blatt, 1974; Stein et al., 1989) and, as a result, it is not surprising that a strong case has been made for the clinical significance of loneliness (Cacioppo et al., 2015; Heinrich & Gullone, 1988). Famous author Sylvia Plath described a loneliness tinged by psychological pain when she wrote in her journal, “Yes, there is joy, fulfillment and companionship – but the loneliness of the soul in its appalling self-consciousness, is horrible and overpowering.” (Plath, 2000, p. 31). Their experience of severe and chronic loneliness has been described by some people as “unbearable loneliness” (see Hyatt, 2010). Other work on a “double jeopardy” state of being described as being exceptionally lonely and feeling insignificant to others (i.e., a low level of mattering) suggests that some people constantly experience loneliness and a sense of disconnection that may be difficult to bear (McComb et al., 2020). Intense and chronic loneliness has also been described in the seminal work of theorists such as Bowlby (1998) and Blatt (1974). Bowlby (1998) emphasized the loss of intimate attachment figures, while Blatt

(1974) discussed extensively within the context of anaclitic depression how impairment in object relationships can result in people become highly vulnerable to profound and persistent loneliness. Clearly, there is clinical value in developing a measure that appropriately assesses these forms of loneliness.

Objectives of the Current Research

The topic of loneliness is even more important to investigate in light of the claim that those living in North America have experienced an epidemic of loneliness in recent years (Jeste et al., 2020; Murthy, 2020). Notably, this research expands on the existing literature by developing and testing the psychometric properties of a new measure designed to evaluate both the chronicity and severity of loneliness, deemed the Severe Enduring Loneliness Factors Questionnaire (SELF). As mentioned above, there is no specific psychometric measure that has detailed empirically the severity and chronicity of loneliness. The core premise of the current research is that there is a subset of people who suffer from severe and chronic loneliness and that loneliness in this form contributes to and prolongs psychological distress, including psychological pain. As alluded to previously, this topic is even more vital to investigate during the present time of the pandemic when considering that chronic forms of loneliness may persist, or even strengthen, among young people during the ongoing health crisis. More broadly, although concepts related to loneliness are worthwhile and relevant to examine among young people all of the time, a recent study (Lee et al., 2020) which examined loneliness ratings pre- and during-pandemic suggests that the pandemic has resulted in loneliness being *increasingly salient* among this age group. Accordingly, for this current research, a series of three online studies investigated the phenomenon of chronic and severe loneliness including among emerging adults.

It was anticipated that through this research, it would be possible to identify some chronically lonely individuals even amongst this group of young adults. More specifically, it is hypothesized that two different dimensions of loneliness (severity and chronicity) would emerge. At the outset of this research, these dimensions of loneliness were considered to be separate yet also conceptually related to one another, as they measure differential aspects of the loneliness experience. It was expected that the dimensions would generally show a similar pattern in predicting risk and resilience factors - for example, it is anticipated that high chronicity and severity will be associated with increased depression and anxiety and decreased psychological well-being and feelings of mattering to others. There is much to be gained in terms of deepening and broadening the understanding of feelings of loneliness within the young adult population in particular (Rokach, 2000).

Chapter Two: Study One

Objectives

Qualitative research is considered one of the most beneficial approaches to understanding the meaning people make of their experiences (Morrow, 2007). Qualitative inquiry was integrated in the current study to facilitate the generation of theory and to assess the meaning of loneliness experienced during the pandemic in an inductive manner. This study involved also administering a series of self-report questionnaires, although for the purposes of the present study the qualitative responses will be focused upon. These qualitative findings are thought to complement eventual findings from Studies Two and Three, which make primary use of quantitative methodology. Combining quantitative and qualitative methodologies has been recommended to increase understanding of complex psychological experiences (Nastasi & Schensul, 2005).

This qualitative inquiry was carried out for two primary reasons in relation to investigating chronic and severe forms of loneliness. First, it was thought that content from the qualitative responses would help provide a context that informs the specific chronicity and severity items and how to undergo the process of writing them. Additionally, it is also useful to keep a focus in mind about the personal experience of loneliness when conducting subsequent cross-sectional research on loneliness from a variable centered perspective. This qualitative inquiry was not intended to be purely or solely focused on loneliness, as it is well established that loneliness interacts with many difficulties in many domains of life including mental health problems, negative physical health-related behaviours, academic and job-seeking struggles as well as difficulties coping with stress, to name just a few main relevant factors (Matthews et al., 2019). As Matthews et al. (2021) notes, "each individual case is likely to be complex and multifaceted" (p. 2). Ultimately, qualitative inquiry can assist in exploring the intricacies of loneliness in meaningful ways. Thus, this study explored the experience of mental health concerns during the pandemic, with the goal of pointing to the importance of loneliness amongst (and contributing to) the mental health concerns that are described by participants.

Participants underwent an experimental procedure wherein quantitative data were collected, including two open-ended questions about the meaning and impact of mental health effects during the pandemic. The qualitative analysis in the present study helps to provide a preliminary look at these mental health phenomena during a uniquely stressful time in history and is intended to add contextual meaning and interpretation to quantitative results obtained from later studies. This qualitative data will help increase understanding of loneliness and other mental health outcomes through an analysis of participants' subjective experience. This qualitative data importantly describes these experiences from the view of participants, which adds nuance of

meaning and idiographic complexity in anticipation of the nomothetic quantitative data which will be described in Study Two and Study Three. As well, through examination of participants' responses, the hope is that this can inform the conceptual theory and implications behind creating a measure that more adequately assesses chronic and severe forms of loneliness (Fossey et al., 2002; Nastasi & Schensul, 2005). Participants were asked about their current living circumstances during the COVID-19 pandemic. As well, qualitative questions were posed to the participants and were as follows:

1) "What effect, if any, COVID-19 has had on your mood or mental health."
2) "Whether you feel supported and connected during COVID-19 or isolated."

Methods

Participants and Procedure

The participants were university students recruited through the undergraduate research participant pool at York University. Participants received research credit towards selected courses for their participation. The sample consisted of 285 students, and 37 (12.98% of the total sample) were identified as having a UCLA loneliness score that fell within the top quartile. In other words, scores on the UCLA can range from 20 to 80 and these students' scores fell within the 65 or above range, denoting a high degree of loneliness. Of these 37 students, 32 (86.5%) identified as female and 5 (13.5%) identified as male, with a mean age of 22.62 (SD = 5.20). This study was aimed at taking a preliminary look at high levels of loneliness during the beginning stages of the pandemic as data were collected in June of 2020. As such, this study was not restricted to participants within the 18 to 24 age group, although only 4 out of 37 participants self-reported an age above this range. The sample was culturally diverse with 35.1% identifying as Asian/Pacific Islander, 18.9% as Caucasian, 13.5% as Middle Eastern, 8.1% as African

Canadian, 2.7% as Hispanic, and 21.6% as Other (participants identified as Caribbean, South Asian, and of "mixed" ethnicity). Interestingly, although not surprisingly given the student sample as to which this sample was derived, 8.1% reported living alone whereas the vast majority of the sample reported living with others such as parents and/or siblings, roommates, friends, and significant others. With regards to the practice of social distancing, 8.1% reported never leaving the place where they live, 54% go out on rare occasions, 29.7% leave the house once per day practicing social distancing, and 8.1% reported Other (leaving the house to go to work, going out for the first time in months).

Nearly half (45.9%) of the sample reported being diagnosed with a mental illness, consisting of disorders related to depression and anxiety, as well as one instance of post-traumatic stress disorder, obsessive-compulsive disorder, and attention deficit hyperactivity disorder. This was a targeted investigation of a specific subsample to better understand those with higher levels of loneliness, who are particularly at risk in that they are more than likely susceptible to experiencing other negative mental health effects as well. Indeed, past research has highlighted the link between loneliness and the frequency of mental health concerns, as research shows that more than half of people with severe mental illness have described problems with loneliness, as compared to about one-third of the general population, which is still quite an elevated prevalence rate (Perese & Wolf, 2005). Taking that into account, it should be noted that given the mental health status of the sample, the results preclude generalization of results to the population at large. The study was administered online through Qualtrics. After participants indicated their informed consent, they then completed a battery of questionnaires followed by the three open-ended questions that will be the focus of the current qualitative analysis. Please note that as part of this research, there was no inter-rater reliability checking and as well, there was no

opportunity to do member checking with participants, largely due to considerations involving public health restrictions during the COVID-19 pandemic.

Qualitative Analysis

Aside from distinct differences in methodology, qualitative and quantitative research differs in that research design is established based on different paradigms, otherwise known as a "basic set of beliefs that guides action" (Morrow, 2007; Guba, 1990, pg. 17). These paradigms are composed of distinctive ontological assumptions related to one's view of the nature of reality, as well as epistemological assumptions that address how reality is known (Morrow, 2007). Rather than using the deductive, hypothesis-testing approach associated with *quantitative* research, *qualitative* research is inductive in its process and works to make sense of the meanings of participants through observations that lead to the generation of theories and hypotheses (Morrow, 2007). The fundamental differences between these two methodologies are not at odds with one another and can be considered complementary (Atieno, 2009). Whereas quantitative findings can be extended to wider populations with greater certainty, qualitative analyses simplify and manage content while reducing the likelihood of content and complexity being eliminated (Atieno, 2009). The inclusion of qualitative data related to chronic loneliness provides rich detail related to how participants' mental health experiences have been shaped especially during a tumultuous time of the pandemic in summer of 2020. Quantitative research designs view objectivity as a goal or at the very least an aspiration, while qualitative data and its analytic processes are grounded in subjectivity that is embraced although also appropriately managed (Morrow, 2005). Those conducting qualitative investigations strive to approach the process in a reflective or self-aware way to address potential biases or assumptions that accompany life experiences (Rennie, 2004). With these principles in mind, the researcher is considered the

instrument of investigation and the co-constructor of meaning (Morrow, 2005).

As a preliminary step, a thematic analysis was carried out following the guidelines set forth by Braun and Clarke (2006) to identify and analyze themes found in participants' open-ended questions related to loneliness experienced during the pandemic. Whereas quantitative methodologies focus on random sampling to then more broadly generalize findings, participants in qualitative research are selected based on information that will be rich to addressing a particular research question in the process of generating validity, meaningfulness, and insights (Patton, 1990; Morrow, 2005). This selection is also criterion-based, using specific criteria to explore how people have experienced a given phenomenon (Morrow, 2005). To appropriately and adequately address the current study's objectives, participants were selected based on extreme case sampling (Fossey et al., 2002) a process in which participants are chosen based on the relevancy of their experiences to the research question(s). In this case, extreme case sampling was used to narrow down to a subset of participants who report a high degree of loneliness, a method which has again been recently utilized in new qualitative loneliness research (Matthews et al., 2021). As mentioned previously, identifying those with a UCLA loneliness score that fell within the top quartile categorized individuals with high loneliness. When taking into account potential treatment intervention, these participants likely represent those most susceptible to severe and pervasive forms of loneliness and those who would also likely benefit the most from efforts to lessen the deleterious mental health impacts associated with loneliness. As a result, 37 participants were included in the present qualitative analysis. Although there is not consensus among academic researchers on how many participants are needed to reach theme saturation, research suggests the median sample size equates to 31, which is consistent with the present work (Mason, 2010). This subsample (N = 37) had a mean UCLA score of 70.64 (SD = 4.32),

which is quite elevated when compared to a meta-analysis of randomized group comparison studies (Masi et al., 2011), which found the average control group mean for the UCLA was 41.17 (*SD* = 8.05).

Data from selected participants were pooled and analyzed while refraining from keeping track of which participant the responses originated from in an effort to reduce potential bias. The responses were reviewed several times to get a sense of key themes within the data set and initial impressions were recorded. Responses from participants were then partitioned into meaning units (Giorgi, 2009). As well, responses were assigned a code that was representative of the mental health effects of loneliness such as "missed opportunities". Basic themes that were adequately endorsed by participants were derived from the text given that the study was designed in such a way that responses were not semantically rich enough to extract a more in depth level of interpretation (Braun & Clarke, 2006). Themes were then grouped based on similarity and sorted into organizational themes and broader categories based on content and theoretical relatedness (Attride-Stirling, 2001). If a meaning unit did not reasonably fit within an existing category, then a new category was created. A thematic map (see Figure 1) was generated to organize and depict the association between the broader categories and themes.

For the current and upcoming research, the focus was on assessing and understanding those who experience higher degrees of loneliness. It is conceptualized that these individuals are experiencing a more extreme and powerful degree of loneliness as well as loneliness that is more enduring and persistent in its nature. As mentioned previously, there are drawbacks associated with the commonly used UCLA Loneliness Scale (Russell et al., 1978). In accordance with the objectives of the present study, however, the UCLA Scale was used for the purposes of taking a preliminary look at how the psychological experiences of those higher in loneliness may differ

from those lower in loneliness. More specifically, this study hoped to narrow in on these noteworthy experiences in the hopes of informing understanding of what may underlie and contribute towards these more chronic and severe forms of loneliness. As has been noted above, to our knowledge, there is no well-validated measure that adequately captures the severity and chronicity of loneliness that individual's experience. A more in-depth understanding of the meaning and experience of those with high levels of loneliness may serve to not only inform scale development efforts, but also more broadly provide insight and guidance about the construct and how to best target and implement intervention efforts for this vulnerable population. The analysis in the current study yielded a four-tier hierarchical model whereby broader-based global characteristics and organizing themes were generated from basic themes derived from the coded text, which was evaluated in an inductive manner (see Figure 1). The main themes were categorized as constructs experienced as internal mental health effects (relating to the inner experience of individuals themselves) and external mental health effects (experienced in relation to others). Please note that category labels are italicized when introduced in the analysis below.

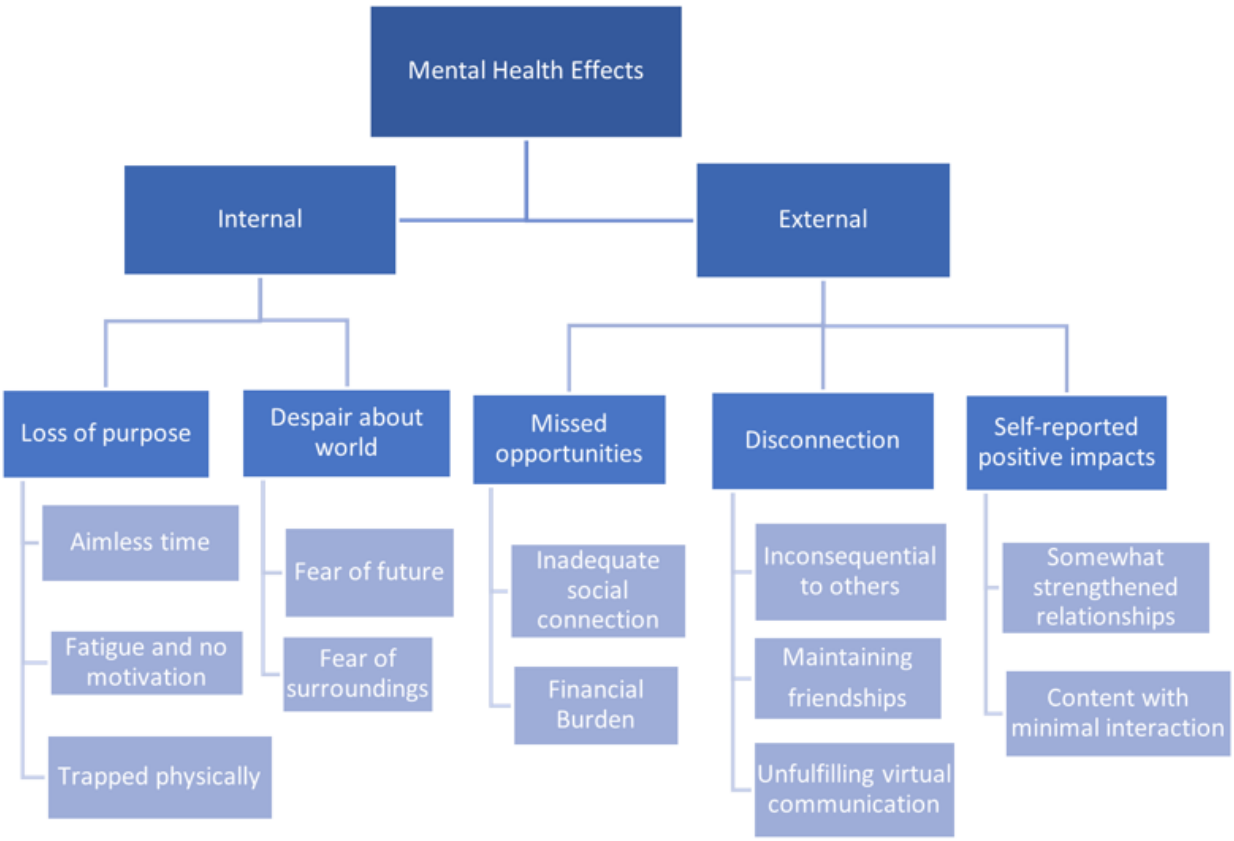

Figure 1. *Thematic network model of mental health impacts of COVID-19 among those with high degrees of loneliness*

Themes Involving Internal Mental Health Effects

From the responses of those participants identifying as experiencing a high degree of loneliness, the overarching internal mental health themes that emerged were a "*loss of purpose"* and "*despair about the world".* This study highlighted just how often loneliness and being alone was described as being associated with 'internal' mental health concerns. For instance, experiences of despair and loss of purpose were not only described by participants as being tied to depression, but were also directly linked to the context of loneliness and being alone. Within the category of loss of purpose, participants expressed a sense of having an *aimless amount of time* during the COVID-19 pandemic with one participant writing, "COVID has made me feel

very depressed and alone. It has given me too much free time alone to think about things that frighten or upset me". Another participant also wrote, "Not being able to go out is making me feel low and think about random things." Other participants expressed that the pandemic has also limited their ability to have a schedule that contains activities that they are interested in pursuing, "Being stuck at home discourages me in things I would be generally interested in". Another participant similarly wrote about a lack of activities to keep them pre-occupied, "I feel isolated because most people have things to keep themselves busy but I don't". From the participants' responses it appeared that after the onset of COVID-19 there was a lack of direction and structuring of one's time due to the necessary public health protocols put in place and the ensuing restriction of mobility and interaction.

With regards to the co-occurrence of the experience of loneliness and mental health concerns (in this case, depression), it is important to highlight their interconnectivity while simultaneously noting their distinctiveness. Indeed, during the pandemic there have been higher rates of significant mental health problems among emerging adults (Adams et al., 2022). Given these higher rates, it is expected that the current sample will be predominantly composed of people with mental concerns. Similar to the study above, for the current sample about a third to a half of emerging adults were found to have mental health concerns, which is above the usual 1 in 5 prevalence rate (Smetanin et al., 2011) that we are familiar with in the general population. Thus, this study highlights the experience of loneliness with people who are also encountering mental health concerns.

As highlighted by a recent meta-analysis, (Erzen & Çikrikci, 2018), loneliness does have a moderately significant effect on depression. As well, both loneliness and depression share some characteristics and a correlation in the range of 0.38-0.71 (Cacioppo et al., 2015).

However, although they are interrelated it has been argued that they are clinically and conceptually distinct (Cacioppo et al., 2006), as loneliness increases the risk of depression while being a separate experience (VanderWeele et al., 2011). They both act to reduce well-being, yet importantly they evoke different sets of responses. Whereas loneliness tends to lead to a desire to affiliate and connect with others, depression is commonly tied to inactivity and is characterized by negative feelings involving sadness, difficulties with decision making, and repetitive and automatic negative automatic thoughts about oneself, the world, and the future. As Rokach (2019) describes, people who are chronically lonely and likely experiencing depression share the perception that they have socially failed, which tends to lead to withdrawal and consequently, a heightening of future loneliness which continues to perpetuate. Nonetheless, ensuing empirical studies should continue to help disentangle the overlaps and distinctiveness of both constructs.

Although not directly related to loneliness, participants described a striking sense of anergia and malaise in the context of their physical and emotional isolation. Participants identified that their *motivation and fatigue* was running low during this time. One participant responded that they were "tired, no motivation, sick", and another participant wrote "it has… made me feel unmotivated to work, go out, eat, or anything." Other participants wrote that the pandemic had "very drastically turned my mood negative. much more anxious, very tired due to work requesting me to work full time." Participants also reported a sense of being *physically trapped* with one participant responding, "initially it was great spending time with my family but now I'm starting to feel trapped and annoyed by them". Other participants reported that the pandemic had made them feel increasingly stuck with one participant responding "it has made me feel suffocated and claustrophobic" and another participant responding "Not being able to finish my school year has been very difficult. Being stuck living with my family has been very

difficult for me and definitely is taking a toll on my mental health". Some participants also wrote about the loss of their home as their safe space and sanctuary with one person sharing that, "My home used to be the place where I could escape most of the stresses of life, now I find that those stresses have moved in are with me for 24 hours a day." These responses highlight that it is not only the loss of activities that have negatively impacted individuals' mental health but also the feeling of being confined and isolated within their own homes.

Despair about the world was another prevalent theme identified by participants experiencing high levels of loneliness. For instance, participants expressed *fears of the future* such as one person who revealed, "I try not to think about COVID-19 and the effect it has had and probably will continue to have on our future but, when I do I feel upset that these circumstances have occurred to our world where our lives have changed completely within a matter of a couple of months. It makes me feel kind of depressed thinking about when or if things will ever go back to normal." Other participants expressed the pandemic had led to "disappointments and worries about my future". A particularly powerful response referred to the generational impact of the pandemic such that, "I do not even want children because it feels like I am punishing them for bringing them into such a violent and hateful place." Participants were clearly expressing that the pandemic had brought them a considerable amount of anxiety not only in terms of the current landscape of society but also what society would look like for future generations to come. Participants also expressed a *fear of their surroundings,* with one participant responding "I have become afraid to see people, or spend any time outside." Other participant expressed that the pandemic had exacerbated their anxiety especially with regards to conversing with others, "my mood has worsened since COVID-19. I feel extremely isolated from everything and everyone. I now get anxious when I do have to talk to people because I have

become so used to not talking to anyone. I get scared that I will embarrass myself when I have to talk to people now. My mental health has definitely declined." Collectively, these responses related to fear underscore that during this unique time there is anxiety about what lays ahead as well as situations that must be confronted more immediately (stepping outside and socializing with others).

Themes Involving External Mental Health Effects

In addition to the internal mental health effects that individuals have been grappling with over the course of the pandemic, a significant number of themes involving external mental health effects emerged from the data corpus. Some participants expressed concerns about the negative impacts of *missed opportunities*, particularly by expressing an *inadequate amount of social connection.* For instance, one participant wrote, *"*I started attending York University this past winter and I didn't get a chance to establish any social life especially since I'm a mature student and there's rarely anyone in my age group" and another writing, "I feel more isolated, especially after being forced to return to Canada as to not get stuck abroad. I have not seen my friends in the past few months and haven't interacted with anyone outside my house or grocery store." Other participants expressed the *financial burden* that they felt during the pandemic with one participant writing, "I think it just financially stresses me out, as I not only have to take care of self but help my parents as well so there's no room for mistakes". Another participant responded, "I do feel supported by the governments emergency fund however it is not enough." From these responses it is evident that participants are having their opportunities thwarted whether that be in the interpersonal or the financial sense.

One of the most prevalent, if not the most prevalent theme participants discussed pertained to a feeling of *disconnection* relative to others as well as the world around them. In

particular, many participants' responses indicated a profound sense of being *inconsequential to others,* in other worlds not mattering to those around them. One particularly poignant response was, "I've always had to be my own support; so that hasn't changed much. But, I don't feel the connection I once did with people - perhaps, that has something to do with not feeling comfortable in certain spaces and social distancing protocols. More times than not, I feel like a number, in a faceless crowd of numbers, than a person trying to enjoy his day." Others expressed a perceived feeling of unreciprocated caring from noteworthy people in their life with one participant writing "I feel very isolated even though I talk to my mother more when we go for walks. I cannot see my friends and they know I am depressed even though I do nothing about it…of course, nobody cares and nobody wants to hear something like this because they cannot handle my dreary self" and another "I mostly feel isolated during Covid-19. I don't think anyone really cares about me.". Another participant who articulated feeling "isolated everyone knows I'm depressed but no one cares especially with isolation" again echoed this. Other participants acknowledged the far-reaching impacts the COVID-19 virus has had on other people while noting the personal toll this has taken on their mental health "considering how much the virus is affecting others I feel like everyone is too busy taking care of themselves and I take care of others but don't feel personally supported myself." These responses suggest the notion that understanding and assessing individuals' seemingly profound sense of not mattering to others, and also potentially targeting this within treatment interventions, will be essential for many people who have experienced struggles with their mental health during this tumultuous time.

Related to the theme of *disconnection,* participants also wrote about the struggle to maintain friendships during the course of the pandemic and the era of social distancing. For instance, one participant responded, *"*it has made me anxious as it has disturbed my life since I

am not able to see my friends". Another participant expressed, "I met 2 girls at my work with whom I relate to very much. Us 3 became very good friends and I am hopeful that we might go for some adventures or trips but I am not keeping any expectations." This last response is especially enlightening as it speaks to not only the lack of social connection felt by individuals, but also the presence of low expectancies for positive change even in the presence of some hopefulness. While this quote is not directly related to the specific theme of disconnection, it adds an important layer in understanding that individuals felt quite limited with regards to available avenues to pursue social connection and remain in supportive contact with others. One participant also responded: "I somewhat feel isolated because I'm unable to see my friends" and another responded, "my friends are supporting me from afar, but I still feel a lack of connection with my family and friends."

While some individuals wrote about feeling somewhat connected to others, they also recognized the communication limitations associated with these relationships. This relates to the next theme of feeling *unfulfilled from virtual communication.* Participants expressed a desire to communicate in-person rather than through remote means illustrated by this response, *"*I feel mostly isolated. I can't talk to people in person which is what I prefer over social media, for instance." Another participant wrote, "some friends and I tried to stay in touch but relationships of any sort can be very challenging to maintain online." Virtual communication did not fill the void of loneliness for some people during this time as one participant expressed, "I feel isolated from everyone even though I can FaceTime my friends and family. I still feel alone. There is a difference in talking to a person on the phone and talking to them in real life and seeing their face in person." Although people used the forms of communication available to them, responses indicated that some were acutely aware that these virtual formats did not allow them to feel

particularly connected to other people in their life and as such, they became increasingly aware of their ensuing feelings of loneliness.

Although responses reflected that the mental health effects from the pandemic were overwhelmingly negative in nature, an important caveat to note is that some people *self-reported positive impacts.* For instance, some participants remarked that, at least at this point in the pandemic, their quality of relationships with important others had improved, with one participant noting that "I feel loved and supported by my family and relatives during this time. Despite the fact I am lonely at times, we are all well connected with each other and frequently communicate with one another". This phenomenon was also captured by responses such as "I feel supported as I have had my parents by my side this time" as well as *"*I sometimes feel supported because of my family being there with me 24/7 at home".

Participants also expressed being *content with minimal interaction* with others such as one participant who expressed, "I enjoy not interacting with people and the lock down has allowed me a perfect excuse to not leave the house!" Other participants with a more introverted personality expressed that restrictions from the pandemic had been ideal for them, for instance, "I am an introverted person, and so staying indoors and away from people is a good thing for me, despite the very times I can feel very lonely and isolated (but that is not because of COVID-19, it's about some internal situations)." This situation resonated with others, as another participant illustrates, "I don't like going out much and conversing with strangers as I am not good at making friends. So I am very happy staying at home as I don't have to face anyone and pretend to be interested when everyone else is so boring and non-adventurous." These qualitative data were collected at quite an early stage in the pandemic and so it is unknown whether the perceived benefits of social distance persisted across a public health crisis that continues to be

longer than expected. However, it is important to take a balanced view that takes into account that societal level changes have impacted individuals in a multitude of different manners. As a whole, the qualitative analysis provided a detailed glimpse into how loneliness is experienced, particularly during a remarkably troubling time, enriching our understanding of the psychological vulnerabilities people have been confronted with and to a lesser extent, the adaptability individuals have identified and demonstrated in the midst of this struggle.

Discussion

The responses obtained in the current study speak to the impact of loneliness and although this topic is undoubtedly of higher concern during the pandemic it is also well established that outside of these times, loneliness is linked to various negative and detrimental health outcomes (Beutel et al., 2017; Holt-Lunstad et al., 2015; Shiovitz-Ezra & Ayalon, 2010). In particular, this preliminary study takes a closer look at a culturally diverse student sample, composed of primarily young adults, and examines how they are faring with regards to their mental health during a uniquely difficult and turbulent time for the world. Of course, as is the very essence of qualitative analysis, the results are both richly descriptive and also influenced by the authors' interpretations and subjectivity (Fossey et al., 2002). Thus, it is important to bear in mind that qualitative findings are meaningful in that they inform theory and item content generation; however, they are not conclusive and as such cannot be generalized to the broader population.

That being said, qualitative analysis performs an integral role in increasing depth of understanding as it relates to the experience of loneliness. Ultimately, this exploratory research advances knowledge related to what may constitute more persistent and severe forms of loneliness, as well as what related outcomes may be most appropriate to measure from both a

research and clinical perspective. The above findings outline that five key themes were found with regards to the internal mental health effects of loneliness (loss of purpose, despair about world) and the external mental health effects of loneliness with regards to how it shapes perceptions and experiences with others and the surrounding environment (missed opportunities, disconnection, self-reported positive impacts). The themes expressed by the participants seem to support the emphasis that Weiss (1973, 1974) placed on distinguishing between social loneliness and emotional loneliness. The participants discussed the sense of social disconnection that was likely made more salient by the nature of the pandemic, perhaps made even more salient by too much time to ruminate and not having meaningful distractions. They also extensively reflected on the affective experience of loneliness, which broadens our understanding of their experience.

The picture that seemed to emerge was of university students who felt very disconnected from others and who also felt likely they were didn't matter because they were not important enough for anyone to care about. A related theme here involved not having reciprocal relationships. Students expressing these themes seemed to have forms of loneliness that were not mild and seemed to be quite distressing for them.

These qualitative findings set the stage for the two upcoming quantitative studies by contributing to test construction and construct development of chronic loneliness as well as helping to generate research questions that are addressed in Studies Two and Three. While there were not many explicit references to loneliness as being chronic, it is clear that some students were experiencing an extreme form of isolation and sense of disconnection that is not in keeping with common need for a sense of connectedness or relatedness to others.

While there is a subjective element to any qualitative analysis, what is not subjective in this study is the finding that about 1 in 7 participants in the larger sample had an exceptionally

high level of loneliness. This is both problematic and alarming given some of the known mental health concern correlates of loneliness which have been illustrated above and are described extensively in the broader literature (Rokach, 2019).

If a more extreme level of loneliness is present in so many students, it seems important to gain a better sense of the nature of the loneliness that is being experienced. One way to gain a better understanding is to focus on the assessment of extreme levels of loneliness that likely are highly persistent for at least a subset of these students.

Chapter Three: Study Two

Study 2 involved a quantitative investigation of the new scales that were developed by adhering to a standard test development process. The details of this process are outlined below. The items that were generated for these new scales were a reflection of conceptualizations of the nature of extreme loneliness, and this was informed by reviewing published case accounts as well as the experience of clients who were suffering from loneliness and other manifestations of social disconnection. This study also evaluated the internal psychometric characteristics of the scales and the correlates of these scales for the purposes of evaluating validity and substantive findings involving the loneliness construct.

Based on Jackson's (1970) sequential system for test construction and construct validation, reviewers (in this case, those with graduate level training in psychology) rated the scale items prior to them being administered to participants. These reviewers were uninvolved in the research project with no conflict of interest and thus are considered to be relatively impartial in their interpretation of the scale items. Reviewers were sent an initial list of 32 items and were asked to provide their feedback regarding each item and its suitability for inclusion in the final version of the scale. As a result, some item phrasing ended up being revised whereas some items

were discarded altogether. For instance, the first reviewer provided feedback to the initial item "I almost always feel alone, separated, or divided from others", saying that the compound nature of the item would complicate a respondent's answer (given that alone, separate, or divided may not be capturing the same psychological phenomenon). As a result, the item was revised to read, "I almost always feel alone from others". The second reviewer rated the items in terms of their relevance to the construct and how they were worded (from the lowest rating of 1 to the highest rating of 5). The initial item "my efforts to reduce my loneliness can leave me feeling exhausted" was ultimately removed given its primary focus on reduction of loneliness. For an item retained as part of the severity scale ("my feelings of loneliness can get quite intense"), the word "quite" was removed given the additional wording was not needed to tap into the construct. Items were also reviewed to make certain that they tapped what they were intended to tap (i.e., content validity) and they did not have "double-barrelled meaning or were contaminated by references to negative affective states such as anxiety. Overall, reviewers' feedback was that the scale items were succinct, clear, and addressed the concept and the dimensions that were focused on.

Objectives

This study involved administering a series of self-report questionnaires to undergraduate students, which included piloting the newly developed Severe Enduring Loneliness Factors Questionnaire (SELF; see Appendix E) for test construction purposes as well as examining its psychometric properties. The sample for this study was limited to emerging adults in the 18 through 24-year age range. Several steps were taken to examine these psychometric properties, including conducting an Exploratory Factor Analysis of the chronic loneliness items to uncover and investigate the structure of the scale. In other words, the EFA examined whether the severity and the chronicity items comprise two separate factors as anticipated, and ultimately help to

determine the optimal number of factors. Then, the rotated factor pattern was assessed to give some interpretation and label to the latent factors.

A vital component of verifying the psychometric properties of this new scale also involved evaluating how it compares to other measures it should reasonably correlate with as well as those constructs it is considered to be conceptually and empirically distinct from such as measures that assess experiences of ostracism as well as preference for solitude. As well, the aim of this study was to evaluate the degree to which the SELF can extend beyond existing measures of loneliness in terms of its predictive ability. For instance, correlations were computed between the SELF scale and the ULS-8 (Hays & DiMatteo, 1987), which is a short-form variation of the commonly used UCLA scale. The SELF was also compared to an interrelated measure that we have recently developed in past research, which has been termed the Loneliness Self-Compassion Scale (LSCS; Rose et al., in preparation). The LSCS evaluates the degree to which individuals are kind and understanding to themselves in response to experiencing feelings of loneliness. As well, the SELF was compared to scales evaluating the degree to which one feels they do (or do not) matter to others.

In keeping with a positive psychology framework, the inclusion of measures such as the LSCS and those that assess feelings of mattering are important because these are resilience variables that can protect against negative mental health effects and provide a sense of individuals' overall psychological well-being, particularly for those who experience severe and chronic forms of loneliness. The measures selected that are listed below in Table 1 were included due to their relevance based on existing evidence. For instance, it has been established empirically that mattering is associated negatively with loneliness (see McComb et al., 2020), so

the current work should find that mattering is also linked negatively with severe and chronic loneliness.

Other measures in this study included those that assess other psychological vulnerabilities relevant to better understanding the experience of loneliness that is chronic and severe. The constructs represented by the measures in Table 1 include various ones that reflect types of distress, including social anxiety and psychological pain, but also indices such as anti-mattering and social ostracism. Anti-mattering is the feeling that others are treating the individual as unimportant and insignificant and perhaps even invisible (see Flett et al., 2022). The new loneliness measure should be linked robustly with anti-mattering and related constructs such as perceived social ostracism. Similarly, the link between loneliness and indices of social anxiety and social phobia is well established and includes links with low self-compassion (see Rose & Kocovski, 2021), so this should be reflected in the pattern of correlations obtained in this study. The measures included also reflect opportunities to advance what is currently known about these constructs. For instance, while there has not been extensive empirical work on loneliness and the experience of psychological pain (i.e., psychache), it is generally known that suicidal people often feel exceptionally alone and isolated (Calati et al, 2018). The focus on psychache in this study is also indicated by research linking psychache with core unmet interpersonal needs (see Spinola et al., 2022).

Overall, it was anticipated that the SELF would be positively related to the variables measuring psychological vulnerabilities, and it would be negatively related to the protective variables that are associated with adaptive mental health. Hierarchical regression analyses also assessed the incremental validity of the SELF, and it was expected that the newly developed measure would add significant and unique variance above and beyond an existing measure of

loneliness (in this case, the ULS-8) by predicting scores on key variables such as those described above.

As well, this study included a focus on evaluating mental health stigma that can often accompany feelings of loneliness. Specifically, the self-stigma of seeking help for mental illness was assessed (SSOSH; Vogel et al., 2006). Despite loneliness being a common social experience, there remains a stigma attached to being lonely which prevents some people from disclosing or discussing their thoughts and feelings related to the experience of loneliness (Rokach & Brock, 1997b). The relationship between chronic and severe forms of loneliness and perceived stigma and self-stigma of mental illness has largely been neglected within the research literature. It is important that stigma be examined in this context, so as to better understand the degree to which individuals experiencing extreme loneliness are internalizing stigma that may very well be preventing them from reaching out to important others in their lives or seeking assistance in the form of professional help.

For this study, independent *t*-tests were conducted to test group differences for all variables between individuals who report higher versus lower scores of chronic loneliness, in order to provide potential idiographic applications for the newly developed SELF measure. It is predicted that for all variables, there will be significant group differences between those with higher versus lower scores of chronic loneliness. For instance, it was expected that those with higher levels of chronic loneliness would report higher levels of social anxiety and anti-mattering and lower levels of well-being and loneliness adaptability as compared to those with lower levels of chronic loneliness.

Methods

Participants and Procedure

The participants for this study were university students recruited through the undergraduate research participant pool at York University during the Fall 2021 semester, which represents a period of mandated COVID-19 pandemic social restrictions. Participants received research credit towards selected courses for their participation. The initial sample consisted of 309 students - after removing 14 participants with missing data across measures, and 6 participants who failed at least 3 or more of the 16 attention checks, the sample was reduced to N = 289. This sample of 289 students had a mean age of 18.86 (SD = 1.30), as participants were required to fall within the 18 to 24 age range. Of the 289 students, 234 students identified as female (81%), followed by 51 males (17.6%), 3 individuals identifying as non-binary (1%), and one participant identifying as 'Other' at 0.3% (demigirl). The sample was yet again culturally diverse with 21 (7.3%) of participants identifying as Black/African Canadian, 38 as Middle Eastern (13.1%), 38 as Southeast Asian (13.1%), 7 (2.4%) as Hispanic, 73 (25.3%) as South Asian, 64 (22.1%) as White/European, 22 (7.6%) as East Asian, 10 (3.5%) as Caribbean, 10 (3.5%) with mixed ethnicity, and 6 (2.1%) reporting 'Other' (e.g., Guyanese, Central Asian, Northeast Asian, West Asian, Indo-Caribbean, etc.)

For living status, 12 (4.2%) reported living alone, 15 (5.2%) with roommates or friends, 3 (1%) with a significant other and/or children, 253 (87.5%) with parents and/or siblings, and 4 (1.4%) as 'Other' (e.g., grandparents, extended family). Related to the practice of social distancing, 17 (5.9%) reported never leaving the place where they live, 136 (47.1%) go out on rare occasions, 107 (37%) leave the house once per day practicing social distancing, 18 (6.2%) leave the house as often as usual without paying much attention to social distancing, and 10

(3.5%) reported ‘Other’ (leaving the house for the purposes of work and school, or to eat or go for a walk, etc.). Out of 289 participants, 43 individuals (14.9%) self-reported having been diagnosed with a mental health disorder. These diagnoses ranged from depression and anxiety, autism spectrum disorder, obsessive-compulsive disorder, anorexia, binge eating disorder, attention deficit hyperactivity disorder, post-traumatic stress disorder, borderline personality disorder, panic disorder, depersonalization disorder, and bipolar disorder. The study was administered online through Qualtrics. After participants indicated their informed consent, they then completed a battery of self-report questionnaires, as summarized below.

Measures

Please refer to the table below (Table 1) for an outline of measures used in the present study, including the descriptive statistics for each questionnaire as part of the current research.

Table 1. *Summary of Measures Including Descriptive Statistics for Present Study*

Measure Name	Measure Description	Mean and Standard Deviation (*SD*)
Ryff Well-Being Scale (Ryff & Keyes, 1995)	Measures overall psychological well-being by assessing autonomy, environment mastery, personal growth, positive relations with others, purpose in life, and self-acceptance	86.25 (*15.34*)
General Mattering Scale (GMS; Marcus & Rosenberg, 1987)	Evaluates individuals’ feelings of generally mattering to others	13.74 (*3.11*)
Anti-Mattering Scale (AMS; Flett et al., 2020)	Inventory assesses feelings of not mattering to other people	11.55 (*4.06*)
ULS-8 (Hays & DiMatteo, 1987)	Measures one’s subjective feeling of loneliness and social isolation	18.91 (*5.20*)
CES-D-4 (Mechior et al., 1993)	Evaluates feelings of depression across the last week	5.16 (*2.83*)
Loneliness Automatic Thoughts Questionnaire (LATQ; Flett et al., in preparation)	Measures loneliness of automatic thoughts that have occurred over the past week	18.52 (*9.03*)

Mini Social Phobia Inventory (MINI-SPIN; Connor et al., 2001)	Measure of social anxiety over the past week	6.81 (*3.53*)
Loneliness Adaptability Scale (LAS; Besser et al., 2022)	Cognitive, behavioral, or affective adjustment in response to the uncertainty of being alone/times spent alone during the Covid-19 period.	41.42 (*10.50*)
Self-stigma of Seeking Help (SSOSH; Vogel et al., 2006)	Assesses the self-stigma associated with seeking professional help for mental health struggles	24.60 (*7.04*)
Short-form Social Desirability (Ballard, 1992)	Measures social desirability bias, otherwise known as a *faking good* (responding in culturally and socially approved ways)	5.77 (*2.33*)
Loneliness Self-Compassion Scale (LSCS; Flett et al., in preparation)	Evaluates the extent to which individuals are kind and understanding to themselves in response to experiencing feelings of loneliness	28.01 (*8.40*)
Social Hopelessness Questionnaire (SHQ; Flett et al., 1997)	people's observations and expectations about their social worlds, in the form of social hopelessness	59.17 (*14.92*)
GAD-7 (Spitzer et al., 2006)	Measures disruption from symptoms of worry and anxiety experienced over the last two weeks	9.50 (*5.82*)
Ostracism Experiences Scale (Carter-Sowell, 2010)	Evaluates individuals' general sense of being ostracized by others	20.07 (*10.78*)
Brief Measure of Unbearable Psychache (UPA; Pachkowski et al., 2019)	Psychological pain that occurs - at sufficiently severe levels, it can become unbearable or intolerable and thus be a risk factor for suicide	6.51 (*3.01*)
Preference for Solitude Scale (Burger, 1995)	Assesses individual differences regarding a high preference for solitude to those very low in this preference	6.69 (*2.86*)

Results

Exploratory Factor Analyses (EFA) To Test Factor Structure

An EFA was conducted by extracting data with the principal axis factoring method, given the aim of describing the underlying dimensions of the chronic loneliness items. This extraction was conducted by specifying two factors (one for chronicity items, and one for severity items). The correlation of the factors exceeded 10% at a value of .87 ($p < .001$). As such, it is recommended that an oblique rather than orthogonal rotation be used (Roberson et al., 2014) as it takes into account the relationship between the factors. Thus, a promax oblique rotation was

employed. The initial results revealed that two factors had eigenvalues greater than one, however the method of including all factors with eigenvalues greater than one is said to be one of the least accurate ways of determining which factors to retain (Velicer & Jackson, 1990). Taking that into account, scree plots are another visual inspection method that may be a helpful supplementary way of presenting results although they should not be used to make a sole determination (Costello & Osborne, 2005; Zwick & Velicer, 1986). The factor structure of the SELF was assessed using a scree plot (see Figure 2) and seemed to support the notion that there is one clear factor. One factor accounted for the vast majority of the variance at a percentage of 68.63% whereas the second factor accounted for 5.76% of additional variance. Factor loadings are found below in Table 2, note that severity items are thought to represent items 1 to 11 and chronicity items are thought to represent items 12 through 28. As can be seen from the table, items are not loading on each factor in the expected way and some items are cross-loading (for instance, item 2 is loading above .40 on both factor 1 and factor 2). As well, the high alpha coefficient for the scale ($\alpha = .98$) is elevated to the point as which it suggests redundancy between the items. When examining inter-item correlations between the items themselves, several items are correlated at a level of .70 or higher which could indicate a potential problem with multicollinearity, although a correlation of .90 or above is considered to be clearly within the problematic range (Tabachnick & Fidell, 2007). These thresholds have been similarly cited in more recent research, where inter-item correlations have been checked for values that are either too low (<.30) or too high (>.90) (Jacobs et al., 2017). Sampling adequacy was tested with the Kaiser-Meyer-Olkin (KMO) measure (accepted if greater than .50) which assesses the degree to which each item is explained by others. For this study, the KMO measure resulted in a value of .97.

Although inter-item correlations may not signal a definite problem, the above findings suggest that there is reason to believe some item content may be redundant with one another. Using a rational-empirical approach, a decision was made to lessen the total amount of items by retaining ones that contain content that is central and representative of the construct, both for research and clinical purposes. There are some clear limitations to the use of this approach, and so for future work pertaining to the scale it is advisable that readers bear this in mind and exercise their own level of discretion and judgment. It is believed that the utility of these scales will be maximized when the scale itself is perceived and used as two separate subscales (severity and chronicity) as these represent related psychological phenomena. For instance, an individual may have a severe sense of loneliness that is not chronic in nature and vice versa. Within the clinical realm, a treating psychologist would want to be able to assess for severity and chronicity separately, so as to better understand the individual before them as well as what future interventions may be most suitable and beneficial. An increase in this level of understanding is important not only for assessment purposes but also for establishing or strengthening rapport between the clinician and the client, as the clinician demonstrates that they are receptive and adaptable to the client's needs.

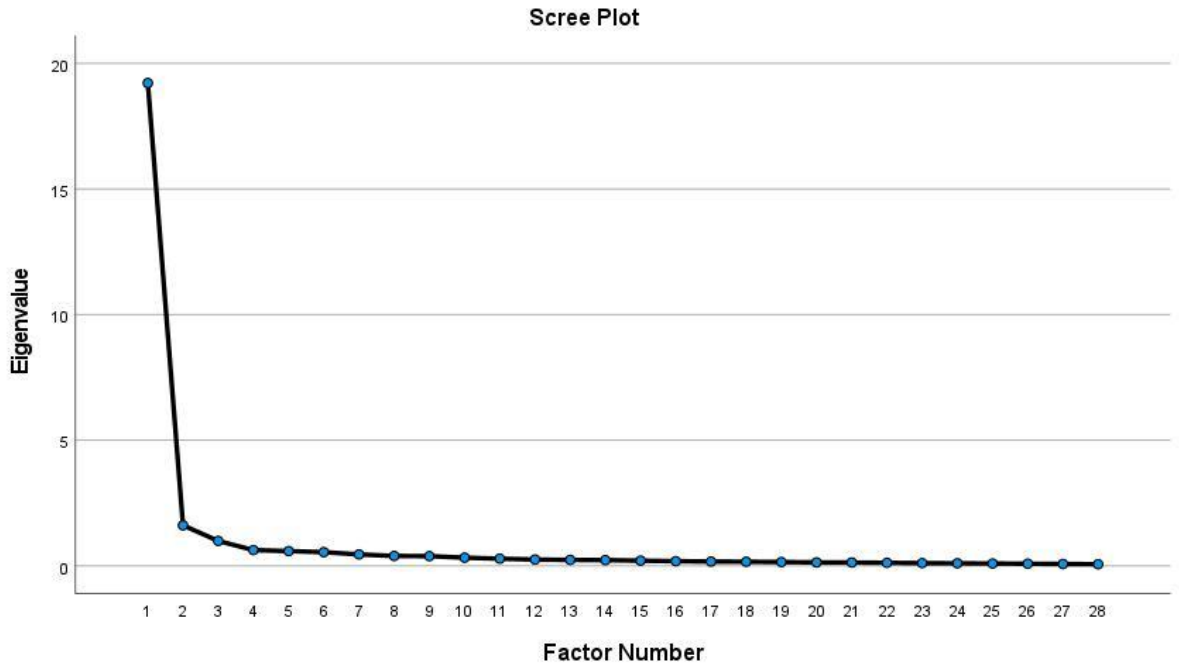

Figure 2. *SSCS Scree Plot Indicating a Two-Factor Solution for Study One*

Table 2. *Study Two Factor Loadings for the SELF Total Score*

Item		First Factor	Second Factor
1	My life is lonelier than most people's lives	.75	-.02
2	My loneliness sometimes feels like it is too much to bear	.43	.46
3	My feelings of loneliness can get intense	.17	.72
4	I have a deep sense of loneliness	.39	.54
5	My feelings of loneliness tend to leave me feeling exhausted	.13	.77
6	My loneliness weighs me down	.16	.75
7	There are times when I feel so alone, I can't stand it	-.05	.92
8	I can feel lonely to the point that it causes me emotional pain	-.04	.96
9	My loneliness overwhelms me at times	-.10	1.00
10	There are times when I have really suffered due to feeling lonely	-.03	.91
11	At times, my loneliness seems to overpower me	.06	.86
12	My loneliness lasts even when other things in my life improve	.53	.36
13	I feel like my loneliness will always stay with me	.66	.19
14	It is hard to remember times when I have not been lonely	.80	.04
15	My feelings of being lonelier than other people go back to my childhood	.58	.14
16	There have been few times in my life when I have not felt lonely	.20	.08
17	I almost always feel alone from others	.85	.02
18	I always feel at least a little lonely	.71	.09
19	My bouts of loneliness seem to last forever	.77	.16

20	My loneliness never fully seems to go away	.81	.10
21	I feel lonely most of the time	.87	.06
22	When I feel lonely, it seems to last several days or longer	.64	.26
23	Loneliness has become part of who I am	.98	-.13
24	I have been lonely for too much of my life	.89	-.01
25	When I feel lonely, I can't seem to shake it off	.53	.39
26	I can't seem to escape feeling lonely	.78	.16
27	I always feel burdened by loneliness	.52	.40
28	I feel like I am destined to have a lonely life	.82	-.06

Note. Principal Axis Factoring Using Promax with Kaiser Normalization

The inter-item correlations of these selected items are presented in Table 3 (SELF-S; for severity, α = .94) and Table 4 (SELF-E; for enduring or chronic loneliness, α = .95), respectively. Whereas the mean for the severity subscale was 3.05 (*SD* = 1.65), the mean for the chronicity subscale was 2.68 (*SD* = 1.61).

Table 3. *Inter-Item Correlations for the Severity Scale (SELF-S)*

	Item 1	Item 2	Item 3	Item 4	Item 6	Item 7	Item 8
Item 1	-						
Item 2	.66	-					
Item 3	.58	.74	-				
Item 4	.67	.81	.84	-			
Item 6	.58	.76	.77	.81	-		
Item 7	.48	.70	.75	.72	.76	-	
Item 8	.53	.72	.78	.76	.79	.85	-

Table 4. *Inter-Item Correlations for the Chronicity Scale (SELF-E)*

	Item 14	Item 18	Item 19	Item 20	Item 23	Item 26	Item 28
Item 14	-						
Item 18	.65	-					
Item 19	.74	.73	-				
Item 20	.68	.76	.84	-			
Item 23	.71	.67	.79	.78	-		
Item 26	.74	.69	.83	.84	.78	-	
Item 28	.69	.55	.67	.67	.70	.69	-

It is also important when creating new measures and evaluating individual items to make certain that the individual items are not contaminated with social desirability bias (for discussions see Helmes, 2000; Jackson, 1970). Correlations between these retained items and Ballard's social desirability were also computed, as can be seen further below in Table 5 (for severity) as well as Table 6 (for chronicity). This was done to ensure that none of the correlations, even if they are significant, are of a magnitude that is too high (suggesting participants are aiming to present themselves in a more favourable light). As can be seen in Table 5 and Table 6, there are modest significant correlations between the SELF subscales and social desirability and all correlations are below $r = .25$. Although these relationships with social desirability are significant, they are of negative directionality and fairly small in magnitude, as expected.

Given that the items were not too strongly correlated (either positively or negatively) with social desirability, none were removed based on these criteria. This decision again aligns

with Jackson's (1970) sequential system for test construction and construct validation purposes, a system that was earlier referred to in the present pilot study. This system also involves removing items that are too correlated, either positively or negatively, with social desirability.

Table 5. *Correlations Between Severity (SELF-S) Items and Social Desirability*

	SDS
Item 1	-0.17**
Item 2	-0.18**
Item 3	-0.18**
Item 4	-0.21**
Item 6	-0.18**
Item 7	-0.22**
Item 8	-0.19**

**Correlation significant at .01 level (two-tailed); *n* = 289. *SDS* Ballard Social Desirability

Table 6. *Correlations Between Chronicity (SELF-E) Items and Social Desirability*

	SDS
Item 14	-0.22**
Item 18	-0.27**
Item 19	-0.18**
Item 20	-0.19**
Item 23	-0.16**
Item 26	-0.17**
Item 28	-0.18**

**Correlation significant at .01 level (two-tailed); *n* = 289. *SDS* Ballard Social Desirability

With the selected items from the SELF, the Cor between the subscales is .85 ($p \leq .001$). Another EFA was conducted using principal axis factoring, specifying two factors (one for chronicity items, and one for severity items) and using a promax (oblique) rotation to allow the factors to be correlated with one another (see Table 7 for results from the re-run exploratory factor analysis). As a result, there were cross-loadings between factors. However, follow-up regression analyses indicated that the subscales (SELF-S and SELF-E) are not redundant with one another. For instance, when the severity and chronicity subscales were put into a hierarchical linear regression predicting loneliness (ULS-8), both subscales remained as significant predictors. Similarly, another regression model revealed that the severity and chronicity subscales both remained significant predictors of loneliness automatic thoughts (LATQ). After a mattering block was entered into a regression model (GMS and AMS) predicting the ULS-8, the GMS and the AMS as well as severity and chronicity subscales were all statistically significant.

Table 7. *Study Two Factor Loadings for Revised Items from SELF*

Item		First Factor	Second Factor
SELF 1	My life is lonelier than most people's lives	.62	.12
SELF 2	My loneliness sometimes feels like it is too much to bear	.36	.54
SELF 3	My feelings of loneliness can get intense	.10	.79
SELF 4	I have a deep sense of loneliness	.32	.62
SELF 6	My loneliness weighs me down	.13	.77
SELF 7	There are times when I feel so alone, I can't stand it	-.10	.96
SELF 8	I can feel lonely to the point that it causes me emotional pain	-.05	.95
SELF 14	It is hard to remember times when I have not been lonely	.74	.09
SELF 18	I always feel at least a little lonely	.64	.17
SELF 19	My bouts of loneliness seem to last forever	-.74	.20
SELF 20	My loneliness never fully seems to go away	.76	.16
SELF 23	Loneliness has become part of who I am	.98	-.12
SELF 26	I can't seem to escape feeling lonely	.73	.20
SELF 28	I feel like I am destined to have a lonely life	.83	-.07

Note. Principal Axis Factoring Using Promax with Kaiser Normalization

Correlational Results

To start, some Pearson correlations were computed between the severity and chronicity scales and other measures of loneliness that they should reasonably correlate with, as a means of evaluating the convergent validity of the construct. For instance, correlations between severity, chronicity and the one-item chronic loneliness measure (mentioned previously) were computed. The association between the one-item chronic loneliness measure was $r = .68$ ($p < .001$) for severity and the association between the one-item chronic loneliness measure and chronicity was $r = .69$ ($p < .001$). Similarly, correlations between the severity, chronicity, and loneliness analogue scale were computed. While the correlation between severity and the loneliness analogue scale was $r = .70$ ($p < .001$), the correlation between chronicity and the loneliness analogue scale was $r = .72$ ($p < .001$). These results illustrate that the positive correlations above are significant and yet not overly strong in magnitude. These results are further supported by the results in Table 8 below, comparing the severity and chronicity subscales to other related measures of loneliness. As demonstrated by the table, the vast majority of correlations are of moderate strength. For instance, the severity subscale produced a robust positive correlation with the ULS-8 ($r = .68$) as well as a negative correlation with the loneliness adaptability scale ($r = -.39$), both with a significant *p*-value below the .001 level. Additionally, the chronicity subscale resulted in a positive correlation with the ULS-8 ($r = .71$) as well as the loneliness automatic thoughts questionnaire $r = .79$), again with a significant *p*-value below the .001 level.

As well, some Pearson correlations of severe and chronic loneliness were computed in relation to scales measuring related yet distinct constructs as a test of discriminant validity. For instance, correlations between severity and chronicity were computed in relation to the preference for solitude, general experiences of ostracism, and social hopelessness. The

correlation between severity and preference for solitude was $r = .18$ ($p < .002$), whereas it was $r = .22$ ($p < .001$) for chronicity. The correlation between severity and the experience of ostracism was $r = .54$ ($p < .001$) whereas it was $r = .59$ ($p < .001$) for chronicity.

Lastly, the correlation between severity and social hopelessness was $r = .58$ ($p < .001$) whereas it was $r = .63$ ($p < .001$) for chronicity. As a whole, while severity and chronicity were positively and significantly correlated with these other outcomes, the associations themselves were at a modest, moderate magnitude suggesting that the measures are differentiating between the constructs and both are associated with a bleak outlook in terms of the interpersonal futures for people with chronic and severe loneliness.

Overall, Table 8 highlights that there was a high correlation between the two loneliness factors ($r = .85$, $p < .001$) and quite a similar pattern of results with respect to how the two loneliness factors correlate with the other assessed outcomes. While this highlights there is some clear overlap between the two loneliness factors, later regression analyses will show differential predictive patterns for the two factors, thereby demonstrating their unique contributions.

Table 8. *Correlations Between SELF-S and SELF-E and Loneliness Measures*

	1	2	3	4	5	6
1 SELF-S	-					
2 SELF-E	.85**	-				
3 ULS-8	.68**	.71**	-			
4 LSCS	-.09	-.11	-.16**	-		
5 LATQ	.79**	.79**	.62**	-.10	-	
6 LAS	-.39**	-.37**	-.31**	.52**	-.42**	-
Alpha	.94	.94	.85	.89	.93	.91

** Correlation significant at .01 level (two-tailed); n = 289. *SELF-S and SELF-E* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *ULS-8* Short-form Loneliness Scale; *LSCS* Loneliness Self-Compassion Scale; *LATQ* Loneliness Automatic Thoughts Questionnaire; *LAS* Loneliness Adaptability Scale

Next, some correlations were computed between severity and chronicity as they relate to outcomes involving psychological vulnerability (Table 9*)* and psychological resilience (Table 10). Some particularly noteworthy correlational findings will be described and discussed. As demonstrated in Table 9, both severity and chronicity were significantly related to feelings of not mattering to others (r = .64, p < .001). The other correlations were also comparable – for instance, social anxiety was positively associated with severity (r = .31, p < .001) and chronicity (r = .38, p < .001), and depression was positively associated with severity (r = .62, p < .001) and chronicity (r = .67, p < .001). There was also a small but still significant link between self-stigma of seeking help with both severity (r = .19, p < .001) and chronicity (r = .25, p < .001). With regards to variables of psychological resilience (Table 10), a general sense of mattering to others

Table 9. *Correlations Between SELF-E and SELF-S and Other Measures of Psychological Risk*

	1	2	3	4	5	6	7	8
1 SELF-S	-							
2 SELF-E	.85**	-						
3 AMS	.64**	.64**	-					
4 SPIN	.31**	.38**	.37**	-				
5 GAD-7	.48**	.47**	.53**	.44**	-			
6 UPA	.66**	.65**	.56**	.37**	.58**	-		
7 SSOSH	.19**	.25**	.11	.27**	.15**	.19**	-	
8 CESD4	.62**	.67**	.60**	.35**	.53**	.64**	.16**	-
Alpha	.94	.94	.88	.83	.91	.88	.84	.75

** Correlation significant at .01 level (two-tailed); *n* = 289. *SELF-S and SELF-E* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *AMS* Anti-Mattering Scale; *SPIN* Mini Social Phobia Inventory; *GAD-7* Generalized Anxiety; U*PA* Unbearable Psychache; *SSOSH* Self-Stigma of Seeking Help; *CESD4* Depression

Table 10. *Correlations Between SELF-S and SELF-E and Measures of Psychological Resilience*

	1	2	3	4
1 SELF-S	-			
2 SELF-E	.85**	-		
3 GMS	-.45**	-.51**	-	
4 RyffWB	-.54**	-.56**	.54**	-
Alpha	.94	.94	.77	.83

** Correlation significant at .01 level (two-tailed); *n* = 289. *SELF-S and SELF-E* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *GMS* General Mattering Scale; *RyffWB* Ryff Well-Being Measure

was negatively associated with severity (r = -.45, p < .001) and chronicity (r = -.51, p < .001), overall psychological well-being was also negatively associated with severity (r = -.54, p < .001) and chronicity (r = -.56, p < .001).

Comparing Those High Versus Low in Chronic and Severe Loneliness

To assess key differences between those with higher versus lower levels of extreme loneliness, the one-item measure of chronic loneliness (see Zhong et al., 2016) was first examined. This one-item measure is consequently associated with scores on the Severe Enduring Loneliness Factors Questionnaire as one would expect. For instance, those with a score of 0 (never) on the one-item chronic loneliness item reported a mean score of 1.63 (*SD* = .87) on the severity scale and a mean score of 1.37 (*SD* = .63) on the chronicity scale. These severity and chronicity scores continue to increase as the score on the one-item chronic loneliness score rises. For instance, for a score of 1 (seldom), the mean was 1.75 (*SD* = .97) for severity and 1.51 (*SD* = .83) for chronicity. For a score of 2 (sometimes), there was a mean score of 3.02 (*SD* = 1.20) for severity and 2.52 (*SD* = 1.08) for chronicity. For a score of 3 (often), there was a mean score of 4.33 (*SD* = 1.43) for chronicity and 3.83 (*SD* = 1.50) for severity. Lastly, for score of 4 (always), there was a mean score of 5.59 (*SD* = 1.17) for severity and 5.87 (*SD* = .89) for chronicity. These numbers provide further support that the severity and chronicity scales are measuring varying degrees of severe and chronic loneliness at appropriate levels, and also provide normative data for the sample that may help provide guidance for future work in research and/or clinical settings.

Next, the sample was split using the one-item chronic loneliness question such that 29 participants were identified as having no chronic loneliness (identifying that they never feel lonely) whereas 84 were identified as having chronic loneliness (identifying that they often or

always feel lonely). Given the unequal sample size, Welch's *t*-tests (two-tailed) were used. Given the unequal sample size, Welch's *t*-tests (two-tailed) were used and revealed that there were significant differences between those with high versus low chronic loneliness for the majority of variables (Table 1), with the exception of self-stigma for seeking help and the loneliness self-compassion scale.

Specifically, those with higher chronic loneliness reported greater levels of not mattering to others (AMS; $t(61.61) = -10.09$, $p < .001$, $g = 1.92$), loneliness (ULS-8; $t(50.10) = -11.89$, $p < .001$, $g = 2.50$), depression (CESD4; $t(58.60) = -11.81$, $p < .001$, $g = 2.30$), loneliness automatic thoughts ($t(110.52) = -16.24$, $p < .001$, $g = 2.34$), social anxiety ($t(50.36) = 5.05$, $p < .001$, $g = 1.06$), general anxiety ($t(46.61) = -5.46$, $p < .001$, $g = 1.19$), experiences of ostracism ($t(88.64) = -6.93$, $p < .001$, $g = 1.13$), preference for solitude ($t(53.23) = -3.78$, $p < .001$, $g = .77$), social hopelessness ($t(46.61) = -8.04$, $p < .001$, $g = 1.76$), and psychache ($t(67.17) = -7.81$, $p < .001$, $g = 1.43$). In contrast, those with higher levels of chronic loneliness also reported lower levels of overall psychological well-being ($t(36.26) = 4.37$, $p < .001$, $g = .99$), general feelings of mattering to others ($t(43.62) = 4.28$, $p < .001$, $g = .98$), and loneliness adaptability ($t(43.04) = 4.03$, $p < .001$, $g = .93$). The Welch's *t*-tests that were significant were all in the expected direction. For instance, within the extremely lonely group, social hopelessness was elevated whereas loneliness adaptability was reduced as compared to the lower loneliness group. These Hedges' *g* point estimates are generally considered to be large effect sizes based on guidelines in the literature (Cohen 1988, 1992), supporting that the group differences above are meaningful.

It is valuable to further contextualize the significant mean difference in social desirability levels between the lower loneliness group and the higher loneliness group ($t(44.74) = 3.66$; $p < .001$, $g = .82$). It is possible and perhaps even likely that those who described themselves as

'never lonely' showed higher levels of positive impression management. The mean for social desirability was 7.37 (*SD* = 2.45) for the lower loneliness group whereas it was 5.48 (*SD* = 2.21) for the higher loneliness group. The direction of the social desirability findings is such that those participants who describe an absence of loneliness are doing so while being much more attuned to that which is societally desirable. On the other hand, the level of social desirability for the high loneliness group was not significantly elevated compared with normative data found in past research (Loo & Loewen, 2004), which found that the mean for social desirability (Ballard, 1992) tends to hover around a value of 4.99 (*SD* = 2.35). Taken together, this suggests that for those who are truly lonely, there is no evidence of response distortion compared with the general population, whereas for those who are describing themselves as not at all lonely, this may reflect in part, some degree of positive impression management. The implications are that within the participant sample, the actual number of lonely people may be under-estimated. In part, this may be reflected by the stigma that is still somewhat associated with loneliness when perhaps it is more of a shared experience than people realize or are readily willing to admit.

Hierarchical Linear Regression Analyses

As can be seen from Tables 11 through 14 below, a decision was made to conduct a few hierarchical linear regression analyses for the purpose of testing whether the severity scale (SELF-S) and the chronicity scale (SELF-E) were uniquely predictive of key outcomes above and beyond the short-form variation of the commonly used UCLA scale (in this study, the ULS-8). Note that some potentially relevant variables such as social media use were not measured (as this was beyond the scope of the current research) and thus were not co-varied out of these analyses. However, importantly, key themes related to use emerged and were explored as part of the qualitative analysis (Study 1). For the regression models, the ULS-8 was entered into the first

predictor block, and the SELF-S and the SELF-E were entered into the second predictor block. The predictors were considered simultaneously to test their relative unique ability to predict these key mental health outcomes.

As presented in Table 11, the overall model predicted 56.2 percent of the variance in depression, $F(3, 277) = 118.16$, $p < .001$. The chronicity scale (SELF-E) but not the severity scale (SELF-S) was found to be a significant positive predictor of depression in addition to the ULS-8. With regards to the next regression model (Table 12), the overall model predicted 28 percent of the variance in anxiety, $F(3, 277) = 35.89$, $p < .001$. The severity scale (SELF-S) but not the chronicity scale (SELF-E) was found to be a significant predictor of generalized anxiety in addition to the ULS-8.

Table 11. *Study two regression with SELF-S, SELF-E, and ULS-8 predicting depression*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.504	283.15			
ULS-8			.710	16.82	<.001
Block Two	.058	118.16[a]			
ULS-8			.460	7.97	<.001
SELF-S			.063	.81	.417
SELF-E			.291	3.62	<.001

Note. [a]*:* $p < 0.001$; ΔR^2: *R*-Squared Change; Dependent variable = depression (CESD4); ULS-8 = Short-form Loneliness Scale; SELF-S = Severe Enduring Loneliness Factors – Severity; SELF-E = Severe Enduring Loneliness Factors – Enduring; $N = 280$

Table 12. *Study two regression with SELF-S, SELF-E, and ULS-8 predicting general anxiety*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.226	81.51[a]			
ULS-8			.476	9.02	<.001
Block Two	.054	35.89[a]			
ULS-8			.239	3.23	<.001
SELF-S			.231	2.33	.020
SELF-E			.112	1.08	.279

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = anxiety (GAD-7); ULS-8 = Short-form Loneliness Scale; SELF-S = Severe Enduring Loneliness Factors– Severity; SELF-E = Severe Enduring Loneliness Factors – Enduring; *N* = 280

As presented in Table 13, the overall model predicted about 34.7 percent of the variance in mattering, $F(3, 277) = 49.05$, $p < .001$. The chronicity scale (SELF-E) but not the severity scale (SELF-S) was found to be a significant positive predictor of mattering in addition to the ULS-8. With regards to the next regression model (Table 14), the overall model predicted 53.8 percent of the variance in anti-mattering, $F(3, 277) = 107.83$, $p < .001$. The severity scale (SELF-S) and the chronicity scale (SELF-E) were found to be a significant predictor of generalized anxiety in addition to the ULS-8. In all regression models, the ULS-8 remained significant within the second step and so the SELF-E and SELF-S were significantly predictive, although not uniquely predictive, of the different outcomes. Overall, the results reveal that the SELF-E and the SELF-S differentially predicted the outcomes described above, illustrating that they are functioning in differential ways depending on the relevant outcome that is being assessed.

Table 13. *Study two regression with SELF-S, SELF-E, and ULS-8 predicting mattering*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.320	131.20[a]			
ULS-8			-.566	-11.45	<.001
Block Two	.027	49.05[a]			
ULS-8			-.411	-5.83	<.001
SELF-S			.056	.594	.553
SELF-E			-.217	-2.767	.006

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = mattering (GMS); ULS-8 = Short-form Loneliness Scale; SELF-S = Severe Enduring Loneliness Factors – Severity; SELF-E = Severe Enduring Loneliness Factors – Enduring; *N* = 280

Table 14. *Study two regression with SELF-S, SELF-E, and ULS-8 predicting anti-mattering*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.475	252.84[a]			
ULS-8			.690	15.90	<.001
Block Two	.063	107.83[a]			
ULS-8			.430	7.26	<.001
SELF-S			.225	2.84	.005
SELF-E			.150	1.82	.069

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = anti-mattering (AMS); ULS-8 = Short-form Loneliness Scale; SELF-S = Severe Enduring Loneliness Factors – Severity; SELF-E = Severe Enduring Loneliness Factors – Enduring; *N* = 280

Discussion

As illustrated by the findings from this second study, the purpose was two-fold: to test the psychometric properties of the newly constructed Severe Enduring Loneliness Factors Questionnaire (SELF) as well as to see how it relates to outcomes related to both psychological vulnerabilities and strengths. Collectively, from the results it is clear to see that the Severe

Enduring Loneliness Factors Questionnaire is composed of one latent factor when all items are assessed simultaneously in a factor analysis model. Initially, before data were analyzed it was thought that the scale would be comprised of two factors, one related to the severity of loneliness and one measuring the chronicity or enduring nature of loneliness. However, empirically, results from the current study demonstrated otherwise. This is perhaps not surprising given that other measures of loneliness such as the UCLA are also thought to reflect a unidimensional construct (Russell et al., 1996). This unidimensional feature has been identified as a criticism of the UCLA scale (Marangoni & Ickles, 1989). Conceptually, it also makes good sense that the items would result in one main factor given the high degree of relationship that the severity and chronicity of loneliness have with one another. For instance, it stands to reason that an individual who is experiencing a chronic degree of loneliness is likely to also be experiencing a severe degree of loneliness given the enduring nature of the experience. Likewise, although an individual with severe loneliness may not necessarily be experiencing persistent and enduring loneliness it is still highly likely this may also be the case.

Although the severity and chronicity of loneliness are thought to be highly related to one another, however, it is argued that they should be considered conceptually distinct. On a conceptual level related to construct validity, it makes good sense that the severity and chronicity of loneliness are distinguishable as severity and chronicity items have ratings and judgments involved that are very different for the participants as relates to an extremity element (severity) and one relates to a temporal element (chronicity). Overall, these are two different routes to unbearable loneliness. As mentioned previously, there is immense value in a clinician or researcher being able to assess both the degree to which an individual is experiencing severe *and* persistent loneliness. Taking these findings and considerations into account, the scale was re-

conceptualized and re-imagined to be composed of two highly related yet separate subscales, deemed the SELF-S (for severity) and the SELF-E (for chronicity). Additional research, such as the next quantitative study, will have to expand upon the results from this exploratory study by re-testing the factor structure of items from the newly developed scale. This is expected to provide further support that the measure is composed of one clear factor and should be divided into two separate subscales to maximize the benefit and usefulness of the scale. Current results from hierarchical linear regression analyses suggest that the subscales are not redundant with one another as when they are put into a regression model with the ULS-8 they were differentially predictive of outcomes such as depression and generalized anxiety, as well as feelings of mattering and not mattering to others.

This study is not solely about filling an important void in the assessment field by addressing current shortfalls of existing loneliness measures and creating a measure that adequately assesses the severity and enduring aspects of loneliness. The research also is motivated by the goal of providing empirical findings which enhance our understanding of chronic loneliness (Rokach; 2019), both during and outside of the era of the pandemic. Few recent empirical studies have examined directly how the severity and enduring nature of loneliness may hinder functioning or put someone at risk for experiencing other adverse psychological outcomes. As mentioned previously, it is well known that the risks of loneliness are not just psychological but also extend to physical health, such as increasing the risk of early mortality (Holt-Lunstad, 2015; see also Rokach, 2012). Although health status did have an impact on the findings by Holt-Lunstad (2015), results remained consistent across gender, world region, and the length of the follow-up period. Findings from this research also supplement current findings, such as those included as part of a recent special issue exploring the themes of

loneliness and its various negative effects (Rokach & Goldberg, 2021).

The SELF-S and the SELF-E were found to be significantly positively correlated with all risk measures assessed in the current study, including for instance social anxiety, unbearable psychache, and the self-stigma of seeking help. It is particularly important to note the small yet statistically significant link between both the SELF-S and the SELF-E with self-stigma of seeking help, as this finding suggests that those who are experiencing more severe and persistent forms of loneliness may be less likely to reach out to others and attain professional help as they may be experiencing a profound sense of shame and isolation which leads them to interpret that their psychological pain is unique rather than shared by others. It is anticipated that a sense of perceived isolation, shame, and disconnection combined with a sense of not mattering to others create conditions in which a person is even less likely to reach out for necessary help. Interestingly, however, those who were identified as experiencing a high degree of loneliness in the present study revealed a lower social desirability score as compared to those with a low degree of loneliness, suggesting perhaps that these individuals are somewhat self-disclosing at least when completing this self-report study. As well, correlational results revealed that in contrast, severe and persistent forms of loneliness are also negatively associated with outcomes related to psychological durability and adaptability such as a sense of mattering to others and overall well-being. It is important that future research investigate not only the deleterious impacts associated with severe and persistent forms of loneliness but also the lack of positive experiences, in keeping with gaining a more complete and nuanced understanding of an individual as well as future areas for targeted intervention.

Another key consideration from this research involves the extent to which the impacts of the pandemic, particularly the effects of social distancing, have impacted rates of loneliness at

least to some degree. During the early stages of the pandemic when there were more restrictions and lockdowns, individuals may have reported a sense of loneliness that was severe although more short-lived. However, as the pandemic continued to evolve and restrictions took longer to lift than many people may have expected, levels of loneliness may have remained as quite severe and enduring. This severe and enduring sense of loneliness may very well have increased particularly as young adults continued to "miss out" on key milestones such as attending school, socializing with friends, and attending significant life events such as convocation. During this pivotal time of development, young adults may very well have been feeling as if they had missed out on some of the prime years of their life, and in the post-secondary context students may have felt they did not get the opportunity for a "classic" or "standard" educational experience as the operation of the world and its institutions were still quite drastically influenced by the global virus. Given the purposes of this research including mainly the need to obtain data from different samples to test the psychometric properties of the SELF, repeated measurements from the same participants were not possible. However, it is interesting to reflect on whether levels of loneliness may have changed from the beginning of the pandemic towards present day or may have shifted within that time period due to the implementation of restrictions based on public health policy.

As a whole, levels of loneliness were fairly low to moderate in this sample. As noted above, the mean for the severity subscale was 3.05 (SD = 1.65), and the mean for the chronicity subscale was 2.68 (SD = 1.61). Future research, including the next quantitative study will explore whether these rates of severe and persistent loneliness remain similar or perhaps even increase slightly. As can be seen from the sample, the vast majority of the sample was composed of females and so it would be interesting for future research to specifically explore severe and persistent depression among males or other gender diverse groups. However, a noteworthy

strength of the present study was the extent to which diverse cultures were represented. As can be expected, there are limitations inherently associated with the methodology of self-report as only so much information and detail can be gleaned from the use of questionnaires. However, it is believed that the results from this self-report study add to and ultimately enhance the qualitative responses provided in Study 1, as a strong advantage of using a mixed methods approach. For the next and final self-report study, the aim is to collect additional data from an entirely different sample of young adults for the purposes of continuing to test the factor structure of the newly developed 'Severe Enduring Loneliness Factors Questionnaire' as well as gather more information about psychological outcomes that are encompassing of both positive and less adaptive forms of mental health.

Chapter Four: Study Three

Objectives

This next and final quantitative study again involved administering a series of self-report questionnaires to undergraduate students to further test the psychometric properties of the newly developed Severe Enduring Loneliness Factors Questionnaire (SELF; see Appendix F), now thought to be composed of two separate subscales measuring severity and chronicity. Importantly, the study also examined how severe and chronic forms of loneliness relate to different psychological risks and strengths that have thus far not been assessed. More broadly, this work continues to fill an important gap in the research literature and the clinical realm as at present, given the lack of a sufficient measure little is known about how the experience of chronic and severe loneliness relates to other noteworthy psychological experiences. This time, data were collected from an entirely different sample of young adults, similarly comprised of individuals meeting the 18 through 24-year age criterion.

As was the case with the measures in Study 2, the measures listed in Table 15 were carefully selected as potentially relevant based on past research and the goal of adding to what is known about the nomological network of loneliness and its link with specific constructs. For instance, rumination was measured in terms of depressive brooding in light of empirical findings linking loneliness with rumination (see Vanhalst et al., 2012b; Zawadzki et al., 2013). Self-critical rumination was also assessed. Rumination is a key correlate because it underscores the cognitive side to loneliness and how it can involve cognitive preoccupations and overthinking (for a discussion, see Vanhalst et al., 2013). It is also relevant to reflecting the experience of the pandemic as a time that could involve extensive rumination while coping with social distancing and isolation. The inclusion of a measure of shame is also a reflection of past working linking loneliness and shame (e.g., Rose & Kocovski, 2021). Regarding potential new findings of substantive and clinical importance, the inclusion of a measure of deficits in emotion regulation in this study sets the stage for a therapeutic focus on the emotion regulation capabilities of people suffer from chronic and severe loneliness. It is also relevant given recent conceptualizations emphasizing the emotion regulation difficulties that underscore loneliness (see Preece et al., 2021) and associated empirical work (e.g., Eres et al., 2020).

As a follow-up to the pilot investigation of the SELF in Study 2, another exploratory factor analysis was conducted to further test the factor structure of the measure and see if it approximates the results obtained in the previous study. Next, for this study independent *t*-tests were run to test group differences for all variables between individuals who report higher versus lower scores of chronic loneliness. Lastly, hierarchical regression analyses also assessed the incremental validity of the SELF by testing whether the newly developed measure adds significant and unique variance above and beyond an established measure that is thought to be

one of the most commonly used measure of loneliness (in this case, the full-length UCLA Loneliness Scale; Russell et al., 1978). These regression analyses evaluated whether the severity and chronicity subscales are significantly and uniquely predictive of newly investigated risk and resilience outcomes. Hypotheses for this study remain relatively the same as the previous study, however with some main modifications. It was expected that another exploratory factor analysis would again result in a unidimensional structure for the SELF, although the benefits of conceptually viewing the aspects of loneliness (severity and chronicity) as related yet distinct from one another still apply. It was anticipated that distinctions related to the function of these subscales would be demonstrated through results from both correlational and hierarchical regression analyses. Comparable to the previous study, it was predicted that the severity and chronicity subscales would be related to outcomes in a manner that would be expected. More specifically, these subscales were expected to correlate negatively with measures that are associated with adaptive psychological health and well-being and positively with measures that are associated with maladaptive psychological thoughts, feelings, and behaviours.

Likewise, it is anticipated that results from independent *t*-tests will reveal significant group differences for all variables between individuals who report higher versus lower scores of chronic and severe loneliness. More precisely, those who report higher levels of severe and chronic loneliness were expected to report a higher degree of psychological distress (i.e., increased difficulties with emotion regulation, shame) and a lower degree of psychological resilience (i.e., decreased levels of hope and general feelings of mattering to others) compared to those with lower levels of severe and chronic loneliness. By contrast, those who report lower levels of severe and chronic loneliness were expected to report a lower degree of psychological distress and a higher degree of psychological resilience compared to those with lower levels of

severe and chronic loneliness.

Methods

Participants and Procedure

The participants for this study were university students recruited through the undergraduate research participant pool at York University during the Winter 2022 semester. Participants received research credit towards selected courses for their participation. The initial sample consisted of 407 students - after removing 12 participants with missing data across measures, 3 participants who responded repetitively, and 21 participants who failed at least 3 or more of the 6 attention checks, the final sample was reduced to $N = 371$. This final sample had a mean age of 19.10 (SD = 1.42), as participants were required to fall within the 18 to 24 age range. Of the 371 students, 275 students identified as female (74.1%), followed by 94 males (25.3%), and two students (0.5%) identified as non-binary. The sample was yet again culturally diverse with 35 (9.4%) of participants identifying as Black/African Canadian, 52 as Middle Eastern (14.0%), 42 as Southeast Asian (11.3%), 15 (4.0%) as Hispanic, 78 (21.0%) as South Asian, 96 (25.9%) as White/European, 19 (5.1%) as East Asian, 11 (3.0%) as Caribbean, 19 (5.1%) with mixed ethnicity, and 4 (1.1%) identifying as ‘Other’ (e.g., Armenian, Punjabi, Central South-Asian).

For living status, 33 (8.9%) reported living alone, 26 (7.0%) with roommates or friends, 6 (1.6%) with a significant other and/or children, 296 (79.8%) with parents and/or siblings, and 7 (1.9%) as ‘Other’ (e.g., relatives like aunt, uncle, cousins, grandparents). Related to the practice of social distancing, 13 (3.5%) reported never leaving the place where they live, 152 (41.0%) go out on rare occasions, 130 (35%) leave the house once per day practicing social distancing, 66 (17.8%) leave the house as often as usual without paying much attention to social distancing, and

10 (2.7%) reported 'Other' (leaving the house for school, work, for walks or essential trips, etc.) Out of 371 participants, 54 individuals (14.6%) self-reported having been diagnosed with a mental health disorder. These diagnoses ranged from anxiety including panic disorder and generalized anxiety disorder as well as social anxiety disorder, depression, post-traumatic stress disorder, obsessive compulsive disorder, anorexia, schizophreniform disorder, attention deficit hyperactivity disorder, and bipolar disorder. The study was administered online through Qualtrics. After participants indicated their informed consent, they then completed a battery of self-report questionnaires, as summarized below.

Measures

Please refer to the table below (Table 15) for an outline of measures used in the present study, including the descriptive statistics for each questionnaire as part of the current research.

Table 15. *Summary of Measures Including Descriptive Statistics for Present Study*

Measure Name	Measure Description	Mean and Standard Deviation (*SD*)
Responses to Depression Scale (Treynor et al., 2003)	Measures two components of rumination – reflective pondering and brooding that differentially relate to depression	Brooding 1.50 (*.76*) Reflection 1.29 (*.69*)
Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).	An instrument measuring emotion regulation problems by asking respondents how they relate to their emotions	96.95 (*23.95*)
Covid-19 State-Anxiety Sources Scale (Bareket-Bojmel et al., 2020)	Assessed the impact of the COVID-19 pandemic in the last week related to health state-anxiety, economic state-anxiety, daily routine change state-anxiety and isolation state-anxiety	Health 8.54 (*5.11*) Economic 9.70 (*5.56*) Routine 9.22 (*5.31*) Isolation 9.43 (*5.65*)
Loneliness Adaptability Scale (LAS; Besser et al., 2022)	Cognitive, behavioral, or affective adjustment in response to the uncertainty of being alone/times spent alone during the Covid-19 period.	41.72 (*10.27*)
Adult Hope Scale (Snyder et al., 1991)	Measures a respondent's total level of hope as well as (1) Agency (i.e., goal-directed	Total 22.82 (*3.86*) Agency 11.21 (*2.27*)

	energy) and (2) Pathways (i.e., planning to accomplish goals)	Pathways 11.61 (*2.00*)
Experience of Shame Scale (Andrews et al., 2002)	Assesses the frequency of shame experiences related to one's character, behaviour, and body over the past year	60.14 (*18.39*)
Short-form Social Desirability (Ballard, 1992)	Measures social desirability bias, otherwise known as *faking good* (responding in culturally and socially approved ways)	5.78 (*2.31*)
Fear of Not Mattering Inventory (Flett, 2020 as cited in Besser et al., 2020)	Brief measure used to evaluate fear of not mattering to others	6.38 (*4.45*)
General Mattering Scale (GMS; Marcus & Rosenberg, 1987)	Evaluates individuals' feelings of generally mattering to others	13.89 (*3.09*)
Anti-Mattering Scale (AMS; Flett et al., 2020)	Inventory assesses feelings of not mattering to other people	11.52 (*4.12*)
UCLA Loneliness Scale (Russell et al., 1978)	Measures one's subjective feelings of loneliness as well as feelings of social isolation	46.01 (*15.09*)
Four-Item UCLA Loneliness Scale (Russell et al., 1980)	Measures frequency, intensity and duration of subjective feelings of loneliness using items from the UCLA Loneliness Scale above	Frequency 8.58 (*4.56*) Intensity 8.23 *(4.08)* Duration 8.90 (*3.07*)
Self-Critical Rumination Scale (Smart, Peters, & Baer, 2016)	Negative self-evaluation in the form of maladaptive, repetitive thinking	2.62 (*.75*)
Attachment Style Questionnaire – Short Form (ASQ-SF; Alexander et al., 2001)	Evaluates the five specific attachment facets: discomfort with closeness, relationships as secondary, confidence, need for approval, and preoccupation with relationships	Discomfort 3.95 (*.57*) Relationships 2.99 (*.84*) Confidence 3.80 (*.60*) Approval 3.73 (*1.03*) Preoccupation 3.77 (*.98*)
COVID-19 Chaos Stress Scale (Prime et al., 2021)	Measures changes that have occurred in the household since the COVID-19 disruption began	7.12 (*2.04*)
Ten Item Personality Inventory (TIPI; Gosling et al., 2003)	A measure of individual personality traits including extraversion, agreeableness, conscientiousness, emotional stability, and openness to experiences	Extraversion 3.65 (*1.58*) Agreeable 4.78 (*1.01*) Conscientious 4.92 (*1.30*) Stability 3.95 (*1.43*) Openness 5.04 (*1.12*)
Brief COPE (Carver, 1997)	Examines the ways in which individuals have coped with hardship in their life,	Problem 2.44 (*.64*) Emotion 2.32 (*.46*)

	through measuring problem-focused coping, emotion-focused coping, and avoidant coping	Avoidant 1.91 (*.51*)
GAD-7 (Spitzer et al., 2006)	Measures disruption from symptoms of worry and anxiety experienced over the last two weeks	9.56 (*5.71*)
Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001)	A brief depression severity measure, which can be used as an indication of major depression	12. 32(*6.59*)

Results

Exploratory Factor Analyses (EFA) To Test Factor Structure

Another EFA was conducted by extracting data with the principal axis factoring method. This extraction was conducted by specifying two factors (one for chronicity items, and one for severity items). The correlation of the factors similarly exceeded 10% at a value of .87 ($p <$ .001). As such, an oblique rather than orthogonal rotation was again used and a promax oblique rotation was employed. The initial results revealed that three factors had eigenvalues greater than one. The factor structure of items from the SELF was also assessed using a scree plot (see Figure 3) and seemed to continue to support that there is one clear factor. One factor accounted for the vast majority of the variance at a percentage of 69.67% whereas the second factor accounted for 4.95% of additional variance and the third factor accounted for 3.58% of additional variance. Note that for the factor loadings for the scale items are presented below in Table 16. As can be seen from the table, items are not loading on each factor in the expected way and some items are cross-loading (for instance, item 12 is loading above .48 on both factor 1 and .42 on factor 2). As well, the high alpha coefficient for the scale ($\alpha = .98$) is again very elevated, suggesting redundancy between the items. When examining inter-item correlations between the items themselves, several items are correlated at a level of .70 or higher. Sampling adequacy was tested

with the Kaiser-Meyer-Olkin (KMO) measure (accepted if greater than .50) which assesses the degree to which each item is explained by others. For this study, the KMO measure resulted in a value of .97. Altogether, these findings again suggest that item content may be redundant with one another, and based on these findings it was decided to view the scale items are composing separate although highly correlated subscales assessing the severity and chronicity of loneliness.

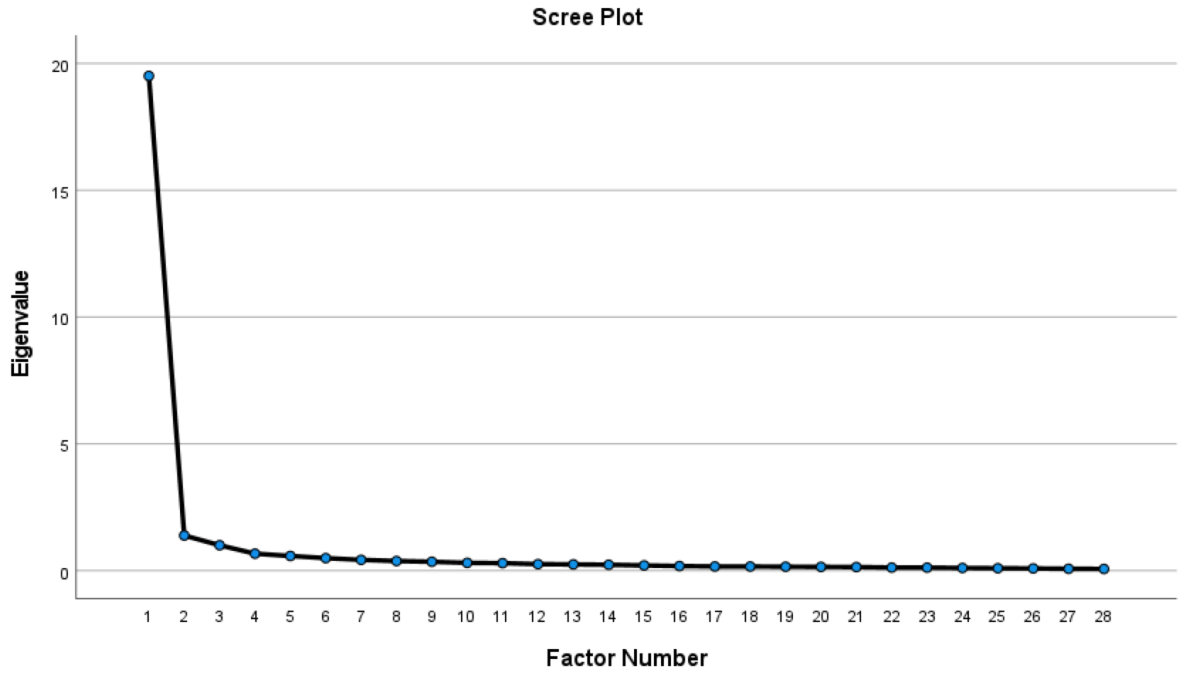

Figure 3. *SSCS Scree Plot Indicating a Two-Factor Solution for Study One*

Table 16. *Study Two Factor Loadings for the SELF Total Score*

Item		First Factor	Second Factor
1	My life is lonelier than most people's lives	.42	.32
2	My loneliness sometimes feels like it is too much to bear	.12	.76
3	My feelings of loneliness can get intense	-.007	.88
4	I have a deep sense of loneliness	.22	.71
5	My feelings of loneliness tend to leave me feeling exhausted	.09	.81
6	My loneliness weighs me down	.09	.83
7	There are times when I feel so alone, I can't stand it	.04	.84
8	I can feel lonely to the point that it causes me emotional pain	-.01	.91
9	My loneliness overwhelms me at times	-.007	.94

10	There are times when I have really suffered due to feeling lonely	-.005	.87
11	At times, my loneliness seems to overpower me	.11	.81
12	My loneliness lasts even when other things in my life improve	.48	.42
13	I feel like my loneliness will always stay with me	.68	.18
14	It is hard to remember times when I have not been lonely	.66	.13
15	My feelings of being lonelier than other people go back to my childhood	.60	.06
16	There have been few times in my life when I have not felt lonely	.22	.06
17	I almost always feel alone from others	.78	.10
18	I always feel at least a little lonely	.58	.22
19	My bouts of loneliness seem to last forever	.72	.20
20	My loneliness never fully seems to go away	.80	.12
21	I feel lonely most of the time	.71	.23
22	When I feel lonely, it seems to last several days or longer	.55	.36
23	Loneliness has become part of who I am	.90	-.02
24	I have been lonely for too much of my life	.90	-.01
25	When I feel lonely, I can't seem to shake it off	.57	.35
26	I can't seem to escape feeling lonely	.63	.32
27	I always feel burdened by loneliness	.51	.41
28	I feel like I am destined to have a lonely life	.99	-.20

Note. Principal Axis Factoring Using Promax with Kaiser Normalization

The inter-item correlations of these selected items are presented in Table 17 (for severity, $\alpha = .95$) and Table 18 (for chronicity, $\alpha = .94$), respectively. Whereas the mean for the severity subscale was 3.24 (*SD* = 1.70), the mean for the chronicity subscale was 2.90 (*SD* = 1.65). Correlations between these retained items and Ballard's social desirability (1992) were also computed, as can be seen in Table 19 (for severity) and Table 20 (for chronicity). As can be seen in Table 19 and Table 20, there are generally modest significant correlations between the SELF subscales and social desirability, although a select few correlations are non-significant. Although these relationships with social desirability are significant, they are of negative directionality and fairly small in magnitude, as expected. Given that the items were not too strongly correlated

(either positively or negatively) with social desirability, none were removed based on these criteria.

Table 17. *Inter-Item Correlations for the Severity Scale (SELF-S)*

	Item 1	Item 2	Item 3	Item 4	Item 6	Item 7	Item 8
Item 1	-						
Item 2	.67	-					
Item 3	.64	.80	-				
Item 4	.69	.83	.85	-			
Item 6	.63	.80	.80	.82	-		
Item 7	.55	.74	.74	.75	.82	-	
Item 8	.59	.76	.79	.77	.81	.84	-

Table 18. *Inter-Item Correlations for the Chronicity Scale (SELF-E)*

	Item 14	Item 18	Item 19	Item 20	Item 23	Item 26	Item 28
Item 14	-						
Item 18	.58	-					
Item 19	.68	.68	-				
Item 20	.66	.75	.84	-			
Item 23	.67	.67	.75	.80	-		
Item 26	.68	.67	.83	.84	.77	-	
Item 28	.64	.55	.73	.71	.74	.74	-

Table 19. *Correlations Between SELF-S (Severity) Items and Social Desirability*

	SDS
Item 1	-0.06
Item 2	-0.14**
Item 3	-0.14**
Item 4	-0.12**
Item 6	-0.12**
Item 7	-0.12**
Item 8	-0.11**

**Correlation significant at .01 level (two-tailed); n = 371. *SDS* Ballard Social Desirability

Table 20. *Correlations Between SELF-E (Chronicity) Items and Social Desirability*

	SDS
Item 14	-0.03
Item 18	-0.12**
Item 19	-0.15**
Item 20	-0.17**
Item 23	-0.10
Item 26	-0.16**
Item 28	-0.16**

**Correlation significant at .01 level (two-tailed); n = 371. *SDS* Ballard Social Desirability

With the selected items from the SELF, the correlation between the subscales is .84 ($p \leq$ .001). Another EFA was conducted using principal axis factoring, specifying two factors (one for chronicity items, and one for severity items) and using a promax (oblique) rotation to allow the

factors to be correlated with one another. There were fairly small cross-loadings between factors (see Table 21), although generally the items loaded on the respective factors as to be expected. However, follow-up regression analyses indicated that the subscales (SELF-S and SELF-E) are not redundant with one another. For instance, when the severity and chronicity subscales were put into a hierarchical linear regression predicting loneliness (UCLA), both subscales remained as significant predictors. Similarly, the severity and chronicity subscales both remained significant predictors of self-critical rumination (SCRS). After a mattering block was entered into a regression model (fear of not mattering, GMS, and AMS), both severity and chronicity still remained highly significant.

Table 21. *Study Three Factor Loadings for Revised Items from SELF*

Item		First Factor	Second Factor
SELF 1	My life is lonelier than most people's lives	.41	.35
SELF 2	My loneliness feels like it is too much to bear	.81	.08
SELF 3	My feelings of loneliness can get intense	.91	-.03
SELF 4	I have a deep sense of loneliness	.77	.17
SELF 6	My loneliness weighs me down	.82	.10
SELF 7	There are times when I feel so alone, I can't stand it	.82	.05
SELF 8	I can feel lonely to the point that it causes me emotional pain	.87	.01
SELF 14	It is hard to remember times when I have not been lonely	.16	.62
SELF 18	I always feel at least a little lonely	.24	.55
SELF 19	My bouts of loneliness seem to last forever	.22	.71
SELF 20	My loneliness never fully seems to go away	.13	.80
SELF 23	Loneliness has become part of who I am	.005	.87
SELF 26	I can't seem to escape feeling lonely	.33	.62
SELF 28	I feel like I am destined to have a lonely life	-.12	.92

Note. Principal Axis Factoring Using Promax with Kaiser Normalization

Correlational Results

To start, some Pearson correlations were computed between the severity and chronicity scales and other measures of loneliness that they should reasonably correlate with, as a means of

evaluating the convergent validity of the construct. For instance, correlations between severity, chronicity and the one-item chronic loneliness measure (mentioned previously) were computed. The association between the one-item chronic loneliness measure and severity was $r = .72$ ($p < .001$) and the association between the one-item chronic loneliness measure and chronicity was $r = .68$ ($p < .001$). Similarly, correlations between the severity, chronicity, and loneliness analogue scale were computed. While the correlation between severity and the loneliness analogue scale was $r = .67$ ($p < .001$), the correlation between chronicity and the loneliness analogue scale was $r = .84$ ($p < .001$). These results illustrate that the positive correlations above are significant and yet not overly strong in magnitude. These results are further supported by the results in Table 22 below, comparing the severity and chronicity subscales to other related measures of loneliness. As can be seen from the table, the vast majority of correlations are of moderate strength. For instance, the severity subscale produced a fairly strong, positive correlation with the UCLA ($r = .73$) and the 4-item UCLA subscales as well as a negative correlation with the loneliness adaptability scale ($r = -.41$), all with significant p-values below the .001 level. Additionally, the chronicity subscale resulted in moderately strong positive correlations with the UCLA ($r = .72$) and the 4-item UCLA subscales as well as a negative correlation with loneliness adaptability ($r = -0.34$). Again, all these correlations were significant with a p-value below the .001 level.

Table 22. *Correlations Between SELF-S and SELF-E and Loneliness Measures*

	1	2	3	4	5	6	7
1 SELF-S	-						
2 SELF-E	.84**	-					
3 UCLA	.73**	.72**	-				
4 LAS	-.41**	-.34**	-.30**	-			
5 UCLA-4-Frequency	.73**	.74**	.84**	-.32**	-		
6 UCLA-4-Intensity	.71**	.69**	.77**	-.29**	.87**	-	
7 UCLA-4-Duration	.59**	.61**	.62**	-.28**	.69**	.67**	-
Alpha	.95	.94	.95	.91	.73	.55	.43

** Correlation significant at .01 level (two-tailed); n = 371. *SELF-E and SELF-S* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *UCLA* Loneliness Scale; *LAS* Loneliness Adaptability Scale; UCLA-4 Four-Item UCLA Loneliness Scale

Next, some correlations were computed between severity and chronicity as they relate to outcomes involving COVID-19 (Table 23*)*, psychological vulnerability (Table 24*)*, and psychological resilience (Table 25). Some particularly noteworthy correlational findings will be described and discussed. As demonstrated in Table 23, severity was positively correlated with COVID-19 isolation state-anxiety (r = .68, p < .001), as well as chaos stress in the household (r = .13, p < .001*)*. By comparison, chronicity was significantly related to COVID-19 isolation state-anxiety (r = .62, p < .001) although was not significantly associated with chaos stress in the household. In Table 24, all correlations between severity, chronicity, and the measures of

psychological risk were statistically significant. For instance, there were significant associations between difficulties in emotion regulation with both severity (r = .55, p < .001) and chronicity (r = .56, p < .001), as well as the experience of shame with severity (r = .53, p < .001) and chronicity (r = .51, p < .001). With regards to the variables involving psychological resilience (Table 25*),* all variables again showed statistical significance. For instance, a sense of overall hope was negatively associated with severity (r = -.35, p < .001) and chronicity (r = -.37, p < .001), a general sense of mattering was negatively associated with severity (r = -. 42, p < .001) and chronicity (r = -.46, p < .001), and problem-focused coping was negatively associated with severity (r = -.13, p < .001) and chronicity (r = -.19, p < .001) as well.

Table 23. *Correlations Between SELF-S and SELF-E and COVID-19 Measures*

	1	2	3	4	5	6	7
1 SELF-S	-						
2 SELF-E	.84**	-					
3 Chaos Stress	.13**	.08	-				
4 Health	.17**	.14**	.48**	-			
5 Economic	.21**	.23**	.23**	.29**	-		
6 Routine	.20**	.19**	.27**	.27**	.34**	-	
7 Isolation	.68**	.62**	.21**	.27**	.34**	.42**	-
Alpha	.95	.94	.66	.93	.94	.93	.93

** Correlation significant at .01 level (two-tailed); n = 371. *SELF-E and SELF-S* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *Chaos Stress* - household COVID-19; *Health* Covid-19 Health State-Anxiety; *Economic* Covid-19 Economic State-Anxiety; *Routine* Covid-19 Routine State-Anxiety; *Isolation* Covid-19 Isolation State-Anxiety

Table 24. *Correlations Between SELF-E and SELF-S and Other Measures of Psychological Risk*

	1	2	3	4	5	6	7	8	9	10	11	12
1 SELF-S	-											
2. SELF-E	.84**	-										
3. DERS	.55**	.56**	-									
4. AMS	.64**	.66**	.55**	-								
5. FNM	.58**	.58**	.53**	.64**	-							
6. ESS	.53**	.51**	.59**	.63**	.66**	-						
7. GAD-7	.49**	.47**	.61**	.53**	.51**	.57**	-					
8. AvCop	.43**	.46**	.53**	.45**	.39**	.43**	.49**	-				
9. PHQ-9	.57**	.57**	.64**	.58**	.49**	.56**	.71**	.60**	-			
10. RDSB	.47**	.46**	.51**	.47**	.58**	.53**	.51**	.40**	.54**	-		
11. RDSR	.32**	.36**	.26**	.36**	.32**	.33**	.34**	.33**	.38**	.57**	-	
12. SCRS	.51**	.53**	.60**	.60**	.61**	.73**	.60**	.44**	.58**	.58**	.37**	-
Alpha	.95	.94	.93	.87	.93	.96	.90	.72	.88	.81	.76	.92

** Correlation significant at .01 level (two-tailed); n = 371. *SELF-E and SELF-S* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *DERS* Emotion Regulation Difficulties; *AMS* Anti-Mattering Scale; *FNM* Fear of Not Mattering; ESS Shame; *GAD-7* Generalized Anxiety; *AvCop* Avoidant Coping (Brief COPE); *PHQ-9* Depression; *RDSB* Brooding; *RDSR* Reflection; *SCRS* Self-Critical Rumination

Table 25. *Correlations Between SELF-E and SELF-S and Measures of Psychological Resilience*

	1	2	3	4	5	6	7
1 SELF-S	-						
2 SELF-E	.84**	-					
3 GMS	-.42**	-.46**	-				
4 Hope	-.35**	-.37**	.37**	-			
5 Agency	-.34**	-.39**	.37**	.91**	-		
6 Pathways	-.28**	-.27**	.29**	.89**	.63**	-	
7 ProbCope	-.13**	-.19**	.33**	.35**	.31**	.32**	-
Alpha	.95	.94	.80	.84	.77	.76	.84

** Correlation significant at .01 level (two-tailed); *n* = 371. *SELF-E and SELF-S* Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *GMS* General Mattering; *Hope* Adult Hope Total; *Agency* Adult Hope Subscale; *Pathways* Adult Hope Subscale; *ProbCope* Problem-Focused Coping (Brief COPE)

Comparing Those High Versus Low in Chronic and Severe Loneliness

To assess key differences between those with higher versus lower levels of extreme loneliness, the one-item measure of chronic loneliness (see Zhong et al., 2016) was first examined. This one-item measure is consequently associated with scores on the Severe Enduring Loneliness Factors Questionnaire as one would expect. For instance, those with a score of 0 (never) on the one-item chronic loneliness item reported a mean score of 1.40 (*SD* = .87) on the severity scale and a mean score of 1.39 (*SD* = .82) on the chronicity scale. These severity and chronicity scores continue to increase as the score on the one-item chronic loneliness score rises. For instance, for a score of 1 (seldom), the mean was 2.03 (*SD* = 1.02) for severity and 1.78 (*SD* = .95) for chronicity. For a score of 2 (sometimes), there was a mean score of 2.96 (*SD* = 1.12) for severity and 2.56 (*SD* = 1.11) for chronicity. For a score of 3 (often), there was a mean score

of 4.75 (*SD* = 1.23) for severity and 4.22 (*SD* = 1.35) for chronicity. Lastly, for score of 4 (always), there was a mean score of 5.52 (*SD* = 1.59) for severity and 5.48 (*SD* = 1.56) for chronicity. These numbers provide further support that the severity and chronicity scales are measuring varying degrees of severe and chronic loneliness at appropriate levels, and also provide additional normative data for future work that incorporates the use of this measure.

Next, the sample was split using the one-item chronic loneliness question such that 33 participants were identified as having no chronic loneliness (all of these individuals self-reported that they never feel lonely) whereas 125 were identified as having chronic loneliness (self-reported that they often or always feel lonely). Given the unequal sample size, Welch's *t*-tests (two-tailed) were used and revealed that there were significant differences between those with high versus low chronic loneliness for the majority of variables (Table 15).

Specifically, those with high chronic loneliness showed greater depression (PHQ-9; $t(53.61) = -10.34$, $p < .001$, $g = 1.92$), brooding (RDSB; $t(47.40) = -6.51$, $p < .001$, $g = 1.33$), reflective pondering (RDSR; $t(41.43) = -5.04$, $p < .001$, $g = 1.18$), difficulties in emotion regulation (DERS; $t(50.06) = -6.88$, $p < .001$, $g = 1.34$), shame (ESS; $t(51.13) = -9.4$, $p < .001$, $g = 1.80$), fear of not mattering (FNM; $t(49.99) = -9.17$, $p < .001$, $g = 1.79$), anti-mattering (AMS; $t(71.65) = -14.77$, $p < .001$, $g = 2.33$), self-critical rumination (SCRS; $t(43.01) = -7.29$, $p < .001$, $g = 1.63$), anxiety (GAD7; $t(52.34) = -9.09$, $p < .001$, $g = 1.71$), emotion-focused coping (COPE; $t(40.99) = -3.24$, $p = .002$, $g = .76$), and avoidant coping (COPE; $t(51.94) = -5.49$, $p < .001$, $g = 1.05$). This group also reported higher loneliness (UCLA; $t(50.14) = -14.77$, $p < .001$, $g = 2.88$), loneliness frequency (UCLA-4; $t(59.06) = -14.65$, $p < .001$, $g = 2.56$), loneliness intensity (UCLA-4; $t(51.96) = -12.60$, $p < .001$, $g = 2.39$), and loneliness duration (UCLA-4; $t(57.39) = -7.33$, $p < .001$, $g = 1.28$). In terms of their COVID-19 related experience, this high loneliness

group reported significantly higher levels of covid household stress ($t(51.57) = -2.63$, $p = .01$, $g = .50$), covid economic state-anxiety ($t(52.84) = -2.84$, $p = .006$, $g = .53$), covid routine state-anxiety ($t(44.84) = -2.96$, $p = .002$, $g = .60$), covid isolation state-anxiety ($t(50.03) = -10.78$, $p < .001$, $g = 1.9$), and covid health state-anxiety ($t(42.09) = -2.10$, $p = .041$, $g = .42$). As compared to the group who reported an absence of chronic loneliness, those with higher levels of chronic loneliness also reported significantly lower levels of mattering to others (GMS; $t(44.83) = 4.17$, $p <.001$, $g = .89$), lower loneliness adaptability (LAS; $t(47.65) = 4.66$, $p<.001$, $g = .94$), lower total hope ($t(42.25)$, $= 3.18$, $p = .001$, $g = .72$), lower agency ($t(44.29) = 3.90$, $p < .001$, $g = .84$), and lower pathways ($t(41.94) = 2.06$, $p = .045$, $g = .47$).

With regards to personality characteristics, those with higher levels of chronic loneliness reported lower levels of conscientiousness ($t(48.45)= 3.46$, $p = .001$, $g = .69$) and lower emotional stability ($t(47.59) = 6.08$, $p < .001$), $g = 1.24$). With respect to attachment style, this group reported significantly higher levels of discomfort (ASQ-SF; $t(40.76) = -3.66$, $p < .001$, $g = .87$), needs for approval (ASQ-SF; $t(40.11) = -5.75$, $p < .001$, $g = 1.40$) and pre-occupation (ASQ-SF; $t(39.51) = -8.32$, $p < .001$, $g = 2.06$). There were no significant differences found pertaining to insecure avoidant attachment (as measured by the ASQ-SF, relationships as secondary) and secure attachment (as measured by the ASQ-SF, confidence). Also, no significant differences were found regarding problem-focused coping (as measured by the brief COPE) and the personality traits involving extraversion, agreeableness, and openness to experience. The Welch's *t*-tests that were significant were all in the expected direction. For instance, for the extremely lonely group, shame and self-critical rumination was elevated whereas a sense of hope and general feelings of mattering to others was reduced as compared to

the minimal loneliness group. Again, for each mean difference described above nearly all of the Hedges' *g* point estimates are considered to be large effect sizes (Cohen 1988; Cohen, 1992).

Consistent with the pattern found in the previous study, there were significant mean difference in social desirability levels between the lower loneliness group and the higher loneliness group (t (52.62) = 3.20; p = .002, g = .60). The mean for social desirability was 6.84 (SD = 2.09) for the lower loneliness group whereas it was 5.52 (SD = 2.22) for the higher loneliness group. Again, the level of social desirability for the high loneliness group was not significantly elevated compared with normative data found in past research (Loo & Loewen, 2004), which found that the social desirability mean (Ballard, 1992) tends to equate to a value of about 4.99 (SD = 2.35).

Hierarchical Linear Regression Analyses

As can be seen from Tables 25 through 28 below, a decision was made to conduct a few hierarchical linear regression analyses for the purpose of testing whether the severity scale (SELF-S) and the chronicity scale (SELF-E) were uniquely predictive of key outcomes above and beyond the short-form variation of the commonly used UCLA scale. The UCLA was entered into the first predictor block, and the SELF-S and the SELF-E were entered into the second predictor block. The predictors were once again considered simultaneously to test their relative unique ability to predict these key mental health outcomes.

As presented in Table 26, the overall model predicted 36.9 percent of the variance in depression, F(3, 277) = 76.94, p < .001. The severity scale (SELF-S) and chronicity scale (SELF-E) were both found to be significant positive predictors of depression in addition to the UCLA. With regards to the next regression model (Table 27), the overall model predicted 27.2 percent of the variance in the experience of shame, F(3, 366) = 63.48, p < .001. The severity

scale (SELF-S) but not the chronicity scale (SELF-E) was found to be a significant predictor of the experience of shame in addition to the UCLA.

Table 26. *Study three regression with SELF-S, SELF-E, and UCLA predicting depression*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.302	173.28[a]			
UCLA			.566	13.16	<.001
Block Two	.067	76.94[a]			
UCLA			.269	4.30	<.001
SELF-S			.171	2.10	.036
SELF-E			.237	2.97	.003

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = depression (PHQ-9); UCLA Loneliness Scale; SELF-E and SELF-S Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *N* = 369

Table 27. *Study three regression with SELF-S, SELF-E, and UCLA predicting shame*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.229	156.99[a]			
UCLA			.547	12.53	<.001
Block Two	.043	63.48[a]			
UCLA			.308	4.75	<.001
SELF-S			.215	2.55	.011
SELF-E			.113	1.36	.172

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = shame (ESS); UCLA Loneliness Scale; SELF-E and SELF-S Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *N* = 369

As presented in Table 28, the overall model predicted about 14.5 percent of the variance in total hopelessness, $F(3, 366) = 20.78$, $p < .001$. The chronicity scale (SELF-E) but not the severity scale (SELF-S) was found to be a significant positive predictor of total hopelessness in addition to the UCLA. With regards to the last regression model (Table 29), the overall model predicted 35.5 percent of the variance in emotion regulation difficulties, $F(3, 366) = 67.24$, $p < .001$. Both the severity scale (SELF-S) and the chronicity scale (SELF-E) were found to be significant predictors of difficulties in emotion regulation in addition to the UCLA. Altogether, the UCLA remained significant within the second step of each regression model with the exception of the regression model involving a sense of total hopelessness (Table 28*).* For this regression model in particular, the chronicity scale (SELF-E) uniquely predicted levels of hopelessness over and above the UCLA scale, showing that the subscale was accounting for the prediction of hopelessness in a way that the UCLA scale was not able to capture.

Table 28. *Study three regression with SELF-S, SELF-E, and UCLA predicting hopelessness*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.093	37.77[a]			
UCLA			-.305	-6.14	<.001
Block Two	.052	20.78[a]			
UCLA			-.049	-.669	.504
SELF-S			-.086	-.900	.369
SELF-E			-.267	-2.83	.005

Note. [a]*:* $p < 0.001$; ΔR^2: *R*-Squared Change; Dependent variable = hope (Snyder et al., 1991); UCLA Loneliness Scale; SELF-E and SELF-S Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); $N = 369$

Table 29. *Study three regression with SELF-S, SELF-E, and UCLA predicting emotion regulation difficulties*

	ΔR^2	*F*	β	*T*	*P*-Value
Block One	.280	143.15[a]			
UCLA			.529	11.96	<.001
Block Two	.075	67.24[a]			
UCLA			.215	3.34	<.001
SELF-S			.175	2.09	.037
SELF-E			.259	3.16	.002

Note. [a]*: p* < 0.001; ΔR^2: *R*-Squared Change; Dependent variable = emotion regulation (DERS); UCLA Loneliness Scale; SELF-E and SELF-S Severe Enduring Loneliness Factors Questionnaire (Severity and Chronicity); *N* = 369

Discussion

Overall, results from this research were quite comparable to those in the previous study. For instance, once again from the findings it is evident that the Severe Enduring Loneliness Factors Questionnaire is composed of one latent factor when all items are assessed simultaneously within a factor analysis. This research was investigative in nature, and as such it is recommended that future psychometric development of the measure consider methodologies such as confirmatory factor analysis (CFA), and model building through the use of structural equation modeling (SEM). By extension, results from the current study also further support the high degree of association between the severity and chronicity of loneliness. Keeping this association in mind, however, results also provided further support for the value in viewing the function of the severity and chronicity subscales as operating differently. Most notably, the regression analyses showed in addition to the SELF-S and SELF-E as being predictive of various outcomes in addition to the UCLA, there were also times in which one subscale was found to be

significantly predictive whereas the other subscale was not. In particular, within the second step of the regression model the SELF-S and the UCLA were still both significantly predictive of the experience of shame, however the SELF-E was not. When interpreting this result, it may be that the enduring nature of loneliness is less relevant and impactful with respect to the experience of shame. Rather, results suggest that a highly severe degree of loneliness better accounts for the amount of shame that an individual reports, as this severity and intensity may be front of mind for an individual and may very well be described as agonizing. This severe amount of loneliness likely brings to mind the experience of feeling shame with regards to different areas of one's life such as distress associated with one's behaviour, habits, and abilities.

For another regression model predicting total scores for hopelessness, results revealed that within the second step of the model both the UCLA and the SELF-S were no longer significant and yet the SELF-E was highly significant. This result was the most intriguing, as it showed that there is something characteristically distinct about the chronicity of loneliness as it is a unique predictor of hopelessness for individuals. Indeed, hope is a crucial part of clinical process as it promotes a sense of positive expectancy for the future with recent research also identifying the trait of hope as a promising transdiagnostic mechanism of change with regards to clinical treatment (Gallagher et al., 2020). One could argue that the enduring nature of chronic loneliness as being uniquely predictive of hopelessness is not only important from a psychometric perspective but is as equally if not more important from a clinical perspective. This finding raises the possibility that instilling a sense of hope among those individuals who are chronically lonely is a fruitful avenue for therapeutic progress and change.

It should also be noted that the results from the regression models in this study did not show uniform consistency as compared to the previous study. For instance, in the second study

the ULS-8 and the SELF-E were significantly predictive of depression (as measured by the CES-D-4) within the second step of the model. By contrast, in this study the UCLA and both the SELF-S and SELF-E were all uniquely predictive of depression (as measured by the PHQ-9) within the second step of the model. This shows that as this more in depth research on chronic loneliness is the exploratory and the first of its kind, caution should be taken to not be overly interpretive and definitive about the results. Although the depression measures are different from one another, these differing results support that further research is needed to replicate and understand the pattern of findings that emerged from this research. It could be the case that the CES-D-4 in part produced different results as it contains only four items compared to the PHQ-9, which contains double the amount of items and more closely maps onto diagnostic criteria related to depression. Overall, one should be careful to draw strong conclusions from this data particularly when measures have been used that are fairly brief and contain less item content, as results using these measures may not be truly representative of the construct under investigation.

The SELF-S and the SELF-E were found to be significantly positively correlated with all risk measures assessed in the current study, including for instance self-critical rumination, avoidant coping, and the fear of not mattering. The moderate, positive correlations between the SELF-S, SELF-E and avoidant coping are especially illuminating as they re-iterate findings from the previous study that those who experience severe and chronic forms of loneliness may be less likely to reach out for help possibly due in part to the mechanism of avoidant coping. Interestingly, results revealed a very similar pattern of results with respect to social desirability. Those who were identified as experiencing a high degree of loneliness in the present study revealed a lower social desirability score as compared to those with a low degree of loneliness. Future research should continue to test whether this effect is replicated with different populations

aside from the use of student samples. Results also revealed that the severe and chronic forms of loneliness were also both negatively associated with resilience variables such as hope, general feelings of mattering to others, and adaptive problem focused coping. While this study provides a glimpse into the lack of positive experiences that those with chronic and severe forms of loneliness encounter, future research in this area is also needed.

As a whole, levels of loneliness were again found to be fairly low to moderate in this on-line student sample. For this study, the mean for the severity subscale was 3.24 (*SD* = 1.70) whereas the mean for the chronicity subscale was 2.90 (*SD* = 1.65). The mean levels are actually slightly higher although still comparable to the previous study (conducted a few months earlier), which found the mean for the severity subscale as being 3.05 (*SD* = 1.65) and the mean for the chronicity subscale as being 2.68 (*SD* = 1.61). It is unknown where there was a meaningful reason for this slight increase in means, as this was not a question that was focused on in the present study. This seems to suggest that the levels of severe and chronic loneliness across the two student samples remained fairly consistent and may have been relatively unaffected by the ongoing pandemic.

However, it is important to note that although the level of loneliness was fairly low to moderate, there were still a substantial number of individuals identified as experiencing high levels of chronic loneliness as measured by the one-item chronic loneliness scale. The independent *t*-tests demonstrated that there were significant differences pertaining to all variables for those with higher levels of loneliness versus lower levels of loneliness in the sample. The sheer volume and fairly consistent pattern of these findings suggests that distinguishing features and characterizations between these two groups can be identified. These results provided additional understanding of the ways in which these two groups tend to differ from one another

regarding indicators of risk and resilience, and offered a more comprehensive and thorough understanding for researchers and clinicians alike. The following section will provide a more detailed summary and discussion of the implications of these results including practical applications, limitations, and future directions.

Chapter Five: Summary and Conclusion For All Studies

Collectively, findings garnered from this series of studies provide insight into the phenomenon of more elevated and extensive forms of loneliness, predominantly among a young adult population during the pandemic. A key consideration when focusing on loneliness is how it influences and impacts individual lives (see Rokach, 2004, 2013) and it is hoped that the research described in this dissertation has further illuminated what it is like to be a student with chronic and severe loneliness while undergoing the unique and highly challenging experiences brought about by the COVID-19 global pandemic. Prior to the onset of the pandemic, many scholars already described far-reaching concerns about pervasive feelings of loneliness in North American society (Bierman et al., 2021). It is strongly believed that the social distancing measures during COVID-19 likely heightened these concerns and resulted in higher levels of loneliness (Bierman et al., 2021). Results from the current research suggests that it may be useful to administer the SELF measure in both research and clinical contexts to help identify those who may be most at risk of experiencing severe and chronic loneliness and its associated negative impacts. Clinicians and health professionals could use this fairly brief screening measure to identify or make service referrals for those most vulnerable and susceptible to experiencing these forms of loneliness. Extending beyond this, there may be opportunities to address these forms of loneliness through mediums that focus on providing online support for others. For instance, there could be coordinated efforts to engage individuals from the community to provide online support

for others in the form of social connection. As mentioned by Bierman and colleagues (2021), these services may have as much impact for volunteers as those who receive the service by "instilling a sense of mattering in individuals". As well, as institutions began to re-open and people begin to increasingly interact with services in their community, it is important that organizations continue to receive adequate financial support or donations to bolster services that enhance human connection and engagement. Of course, these efforts may be especially important during the pandemic although they also are relevant beyond the pandemic especially since social connection may not rebound as quickly as may be anticipated (Bierman et al., 2021).

As part of this research, Study One examined the impact of loneliness experienced during one of the initial peaks of COVID-19 through collection of qualitative data which provided rich subjective accounts. Analysis of the responses using a thematic approach (Braun & Clark, 2006) confirmed that two core grouping of themes emerged to help add to our understanding of the impact of experienced loneliness. Specifically, there were internal mental health effects that related to the inner experience of the individual (i.e., despair) versus external mental health effects that related to interactions with other people outside of the self (i.e., social disconnection). The qualitative findings provided a first glimpse at the many contributing and perpetuating factors associated with loneliness especially during a time in which social connections were severed or largely restricted. As well, the qualitative findings provided an especially interesting perspective amongst a largely young adult sample. For instance, even though many young adults today have grown up during the age of social media, many were able to recognize its value for connection while also acknowledging its inherent drawbacks. At this point in the pandemic, social media platforms and other electronic forms of communication were the primary, if not the only medium of communication these young adults were able to make use of. The results

highlighted that this generation was particularly in tune with the limitations of these forms of communication and in fact may be even more starkly aware and troubled by it. In addition to enriching understanding and knowledge related to the experience of loneliness, ultimately findings from the study informed the design of the subsequent studies regarding necessary and pertinent measures. For instance, the subtheme of feeling inconsequential to others further supported the idea of including measures that capture the feeling of mattering (or not mattering) to others. Undoubtedly, the concept of mattering to others as well as the effects of pervasive feelings of loneliness are recurrent themes that not only show their relevance through the research literature but fundamentally resonate with virtually every individual, as their ramifications continually reverberate within clinical treatment settings.

The present research then proceeded by investigating severe and chronic forms of loneliness (along with their correlates) using quantitative methodology in Studies Two and Three. Study Two and Three consisted of collecting data during later stages of the pandemic to test the psychometric properties of a newly developed scale (the Severe Enduring Loneliness Factors Questionnaire; SELF) and then subsequently tested the degree to which it was predictive of risk and resilience indicators among samples exclusively composed of emerging adults. Overall, findings suggested that it would be beneficial to approach the administration of the scale as being composed of two individual subscales measuring the severity and chronicity of loneliness, respectively. As well, regression analyses showed that the SELF was predictive of the majority of risk and resilience variables that were evaluated. However, in the majority of cases the SELF did not show incremental validity in that it did not predict above and beyond other measures of general loneliness such as the ULS-8 in Study Two and the UCLA in Study Three. This suggests that the SELF may have some overlapping content with established measures of

loneliness in that it captures common aspects of the loneliness experience. However, for many regression models, within the second step the SELF and these established measures of loneliness were simultaneously both predictive of many of these outcomes suggesting that the SELF is able to capture and assess differential conceptual features of loneliness, in this case severity and chronicity. This distinctiveness was further supported by the independent *t*-tests which found significant, predictable group differences in risk and resilience indicators between those with higher versus lower levels of severe and chronic loneliness.

There were some surprising results related to the self-stigma of seeking help in particular within Study Two that seem to suggest some broader implications about the phenomenon of severe and chronic loneliness. For instance, it was expected that the independent *t*-tests would reveal that there would be a significant group difference pertaining to the self-stigma of seeking help. More specifically, it was predicted that there would be higher levels of self-stigma in the group reporting higher chronic loneliness versus those reporting lower chronic loneliness and yet no significant difference was found. This may make more sense in light of the social desirability findings from Studies Two and Three which seemed to identify that there were participants characterized as self-reporting minimal to a complete absence of chronic loneliness who actually reported *higher* levels of social desirability compared to those higher in chronic loneliness. For these participants, it is possible that they were self-conscious about disclosing loneliness, consistent with the direction of the findings of their higher levels of stigma. In turn, it was suggested that for others, that is, those with more enduring loneliness, perhaps the self-report format of the study lent itself to those participants feeling more comfortable disclosing more chronic forms of loneliness (bearing in mind that the overall levels of loneliness across both studies were quite mild to moderate). However, the small yet significant positive correlations

among severe and chronic forms of loneliness and self-stigma of seeking help suggest that while the relationships between these variables is not as strong as initially believed, it is still present and worthy of further investigation.

While participants may have felt more comfortable with disclosure during these self-report studies, it does not preclude the possibility that they would still feel a level of stigma that would make it difficult for them to reach out to their peers, colleagues, family members, and especially mental health professionals. Given the exploratory nature of this research as a whole, it is recommended that future research continue to explore the complexities that may underlie more severe and chronic forms of loneliness and self-stigma of seeking help, which may impact the extent to which these more vulnerable individuals reach out to others for much needed support and assistance. Future work may also want to investigate the extent to which self-stigma among this group could perhaps be alleviated by drawing awareness to common, shared experiences of loneliness both within the media and as part of public health initiatives. As has been noted by Jeste (2020), loneliness is more common among racial, ethnic, and sexual orientation minorities and the degree to which stigma and other social factors contribute to this finding needs to be examined in more detail.

With the growing use of telehealth which became amplified during the pandemic, there is reason to believe that young adults feeling this sense of shame and self-stigma may be more amenable to the concept of engaging in the use of online interventions (Neavel et al., 2022). Indeed, there have been virtual treatment groups for older adults designed to address COVID-related worry and social isolation (Weiskittle et al., 2021). As such, there may be promise in adapting similar group treatments for use with younger adults who may especially benefit to a greater degree from relationally connecting with other clients and sharing their experiences of

loneliness as compared to one-on-one sessions held with a mental health professional. Of course, time will tell with regards to the extent to which telehealth services or a hybrid combination of in-person and telehealth services will continue to be provided to clients when emerging from the pandemic. Additionally, as time progresses more data will be collected and information released surrounding the efficacy and ethical practices (such as privacy concerns) of these interventions that are offered in an online format.

The current study is impacted by the typical limitations associated with self-report research designs. The studies included in this research were cross-sectional and as such one cannot infer or make interpretations about causality. Ideally, for Studies Two and Three it would be best to assess severe and chronic loneliness across time to be able to establish the cause and effects of the associations that were found. At present, it is unknown the directionality of the variables assessed or the degree to which they are bidirectional. For instance, it is unknown the extent to which depression as well as anxiety lead to chronic loneliness and vice versa. Further, the samples employed in the present research also limit the generalizability of the findings. All of the participants who are part of this research were recruited from the same research participant pool of undergraduate students, which rules out the ability to draw inferences on individuals in different age groups and stages of life. However, Studies Two and Three were specifically designed with the intention of collecting data from the young adult population. Additionally, although there were participants in the current research who endorsed high levels of chronic loneliness such that clinically high levels of distress are likely present, additional research should re-run these studies with clinical samples as the effects are likely to be more prominent.

As a whole the sample groups were ethnically diverse, however multicultural factors

were not specifically assessed in the current research. There is an ever-growing necessity to better understand how multicultural factors influence individuals' lives and so future research would also benefit from investigating the influence of cultural backgrounds and beliefs on individuals' experience of loneliness to better understand how these concerns manifest cross-culturally. It is well known that cultural differences do indeed affect the experience and meaning of loneliness (Rokach et al., 2001), with other research alternatively suggesting there are no fundamental qualitative differences in loneliness definitions, causes, or perceived remedies (Heu et al., 2021). However, another recent large scale examination of over 45,000 participants ranging in culture, age, and gender found that levels of loneliness increased with a societal focus on individualism, decreased with age, and was greater in men rather than women (Barreto et al., 2021). Although it was beyond the scope of the current research, it would be worthwhile for future research to continue to assess the extent to which young men in particular are impacted by the experience of loneliness as well as individuals from countries that favour individualist versus collectivist ideals and values.

With regards to future research directions for this work, it is recommended that research continue to investigate loneliness measures and test their psychometric properties, as well as compare their function and use. As Jeste et al. (2020) note, with loneliness being a subjective construct it is crucial that the assessment of loneliness is both reliable and valid. As well, it will be interesting to see how technology may be helpful in monitoring levels of severe and chronic loneliness overtime, such as by monitoring other indicators related to psychomotor activity, sleep, and changes in mood (Jeste et al., 2020). Although experience sampling methods (ESM) in loneliness research are scarce (Reissmann et al., 2021), it may also be useful to use ESM to assess how severe and chronic loneliness overtime may shift in response to situational changes

such as a shift in an interpersonal context or a notable life transition. As well, one line of work not addressed by the current research is exploring which individuals may be more genetically predisposed to experiencing loneliness, as this is associated with the occurrence of cardiovascular, metabolic, and psychiatric disorders (Jeste et al., 2020). If this area of research is understood in more depth, it could perhaps provide more insight with regards to identifying individuals (through both psychosocial and physiological indicators) who may be at higher risk of experiencing these physical and mental health concerns. As Jeste et al. (2020) notes, this will increase knowledge related to the mechanisms that are implicated with these associations.

A key direction for future research is to further explore the nomological networks associated with severe loneliness and chronic loneliness. It would be revealing, for instance, to examine the five-factor model correlates. It is known generally that loneliness is associated with elevated levels of neuroticism and low levels of extraversion (see Abdellaoui et al., 2019; Saklofske et al., 1986; Saklofske & Yackulic, 1989). Another key issue to explore is how chronic loneliness relates to a focus on trait loneliness versus state loneliness.

In terms of interventions for severe and chronic loneliness, it would be helpful for future interventions to focus on reducing loneliness through various avenues, which typically consist of one-on-one interventions such as mentoring or befriending, and group therapy whereby lonely individuals connect with each other (Cacioppo et al., 2015). Altogether, efforts to reduce loneliness focus on improving social skills and addressing maladaptive social cognition, as well as efforts alluded to previously such as enhancing social support and increasing opportunities for social interaction (Cacioppo et al., 2015; Perissinotto et al., 2019). However, research has reported mixed results regarding the effectiveness of some of these interventions (Rokach, 2019). Hawkley and Cacioppo (2010) have argued that cognitive-behavioural therapeutic interventions

that are aimed at identifying and modifying maladaptive social conditions are far more advantageous than approaches that focus on trying to improve social skills and increase social support. Although more empirical research on the effectiveness of loneliness interventions is needed overall, results from meta-analytic research suggest that challenging and correcting maladaptive social cognition is the most favourable approach for reducing loneliness (Masi et al., 2011). This result is consistent with loneliness being considered a regulatory loop (Cacioppo & Hawkley, 2009), whereby lonely individuals have increased sensitivity to and surveillance for social threats, tend to me more attuned to negative social information (Cacioppo et al., 2009), remember more of the negative aspects of social events (Duck et al., 1994), hold more negative social expectations (Cacioppo & Hawkley, 2005), and are more likely to behave in ways that confirm their negative expectations. Additionally, mindfulness meditation may signify another fruitful area of intervention to address loneliness, with Creswell et al. (2012) being the first study to illustrate that mindfulness meditation training can reduce feelings of loneliness.

As Friedman (2007) mentioned, “achieving insight, transforming attitudes, and changing problematic thoughts and behaviours are important goals in therapy, but cannot replace our need for human connection and belonging” (p. 77). Psychological theory and practice need to be aware of the need to also integrate a sense of community into the everyday life of clients (Rokach, 2019). Although the therapy room can very well become a setting whereby clients start to generate a sense of belonging, and one could argue a sense of mattering, clients can also be encouraged and supported in actively seeking out opportunities to interact with the larger community (Friedman, 2007; Rokach, 2019). As one example, in narrative therapy the client is invited to re-author their life to create new or preferred stories and then “audiences” may be

invited to share those re-authored stories, which in turn provides new lenses to interpret experiences (Friedman, 2007). It will be imperative for future research to assess whether efforts to address loneliness (that have thus far been described above) are similarly effective for individuals who are experiencing more severe and chronic forms of loneliness. It is possible that certain interventions, such as narrative therapy, may be particularly vital in instilling a newfound sense of identity and hope in clients who are suffering from loneliness that is characterized as more extreme. In contrast, it is also possible these same interventions efforts may be more challenged or resisted by clients experiencing severe and pervasive forms of loneliness. Altogether, however, it is important to consider that fairly recent research (Masi et al., 2011) asserts that loneliness interventions (specifically randomized group comparison studies) have tended to yield low mean effect sizes, and have thus far not attained the degree of efficacy achieved by interventions addressing other social and behavioural outcomes.

It is important to bear in mind that much of this research on loneliness interventions has been tested using adult samples, and these efforts could be adapted to be developmentally suitable and age appropriate for emerging adults. For example, research suggests that therapist-guided internet-based cognitive behaviour therapy (iCBT) is effective for a range of clinical conditions (Andersson et al., 2013) such as social anxiety disorder, which is strongly related to loneliness (Teo et al., 2013). It stands to reason, then, that loneliness interventions may benefit from a similarly designed program. Although at present there are no known cognitively based programs to reduce loneliness (Rokach, 2019), the existing literature thus far suggests that these online interventions can be effective. A loneliness intervention offered in this service delivery format could potentially resonate quite strongly with emerging adults in particular, especially after the increasing rise of virtual treatment that has occurred since the start of the pandemic.

Additionally, to address the high prevalence of loneliness and anxiety on college campuses coupled with low access to services, an innovative and creative approach may involve the inclusion of animal-assisted therapy (AAT), which is gaining in traction and popularity among this population (Stewart et al., 2013). This approach involves incorporating specially trained and evaluated pets as therapeutic agents in the treatment process (Chandler, 2012).

It would also be interesting for future research to explore the degree to which variables assessed in this study may be focused on in treatment and then assess the degree to which benefits are derived from intervention efforts. For instance, current research has found that individuals who score high on wisdom do not report feeling lonely (Lee et al., 2019) and wisdom includes many facets such as empathy, emotion regulation, and the ability to self-reflect. In the current research, there was a pretty large, significant correlation between severe and chronic forms of loneliness and issues with emotion dysregulation, as well as a significant group difference in that those who reported higher (rather than lower) in chronic loneliness reported being more emotionally dysregulated. The literature suggests that a promising future direction for those who are lonely may be to target individual components such as emotion regulation with behavioural interventions (Jeste et al., 2020), however currently there is a very limited amount of research in this area with clients who experience serious mental illnesses. One could argue that given the relevance of mattering (and feelings of not mattering) across all three studies, that it would be advantageous for behavioural interventions to also incorporate a focus on bolstering levels of individual and community mattering among those who are experiencing chronic and severe forms of loneliness. Clients may also foster a sense of feeling interpersonally connected with others through developing a strong therapeutic alliance with a mental health professional.

There has also been increasing alarm surrounding the number of suicides in society (Jeste

et al., 2020). As echoed by findings from the current research, there is a significant link between psychache (which as mentioned previously is a risk factor for suicide when it reaches an unbearable degree) and the severity and chronicity of loneliness. As a whole, results from the current research suggest that the Severe Enduring Loneliness Factors Questionnaire is composed of two facets of loneliness (severity and chronicity), which may be different facets of a higher order loneliness construct which is more extreme than it often thought of and described in the present literature. Perhaps these facets of loneliness comprise an "unbearable loneliness" higher order construct given the notable, large link with unbearable psychache and psychological anguish more broadly.

In response to increasing levels of psychological distress within the population, there are also key ways in which societal-level interventions may be helpful with regards to addressing severe and chronic loneliness. As Rokach (2019) describes, as more research highlights the risks of loneliness to mental and physical health, researchers and communities are beginning to explore interventions to assess chronic loneliness. As one key example, five partner organizations in the United Kingdom have in recent years launched campaigns designed to increase recognition of the increasing problem of loneliness and isolation (https://www.campaigntoendloneliness.org/about-the-campaign/). Although effective treatments for loneliness are needed, these campaigns are an important step in raising awareness about loneliness and reducing its stigma (Cacioppo et al., 2015). As Rokach (2019) also notes, while these national campaigns are largely focused on the elderly, hopefully efforts will also extend to other groups. It would be ideal, for instance, if the focus of these campaigns was also extended to young adults who are also clearly suffering the pain of loneliness.

Although treatment is clearly a primary way to assist those experiencing more severe and

chronic forms of loneliness, prevention efforts are also extremely important. For instance, educational institutions (high schools, post-secondary schools) could implement prevention strategies with regular courses based on stress reduction, emotion regulation, empathy and self-compassion (Jeste et al., 2020). Preventative efforts such as these could reach individuals who are perhaps experiencing mild to moderate levels of loneliness before their feelings of loneliness become increasingly aggravated and amplified over time. As well, it is vital to keep in mind that the effects of social media, especially for young adults, act as a double-edged sword. On one hand social media platforms can be invaluable with regards to uniting and connecting people, and this became even more evident during the period of social distancing throughout the pandemic. At the time, social media platforms may very well have alleviated, or at least somewhat eased feelings of social isolation. However, these platforms can also have vulnerable effects on young people and as the qualitative findings showed, these methods of communication are not necessarily sufficient for addressing concerns of social isolation and loneliness. As society continues to evolve and regulations and policies shift regarding technologies and social media platforms, mental health professions will need to ensure that individuals, especially young people, who suffer from loneliness and mental illnesses are provided appropriate assistance and are protected from increased risk.

Altogether, if efforts to address severe and chronic forms of loneliness are to be maximally effective then it is advised that future work focus on advancements not only with respect to research, but also with regards to the individual and societal level. There is no doubt that before the pandemic, many people struggled with loneliness and these rates have likely increased over the course of the pandemic or even as we are continuing to emerge from it. As Murthy (2020) notes, it is also a reality that forces much large than us are influencing the nature

of our interactions with one another and “often to our detriment” (p. 284). However, the universal need to belong, to connect, and to matter to others continually persists and these needs are highlighted perhaps most during these times of crisis when connection is made all the more important. As mentioned in Murthy’s (2020) book, the quote (p. 53) by novelist Jane Howard perhaps summarizes the importance of these needs in the most uncomplicated and yet astute of ways: “call it a clan, call it a network, call it a tribe, call it a family. Whatever you call it, whoever you are, you need one. You need one because you are human”.

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APPENDIX A: STUDY 1 CONSENT

Online Consent Form

Study Name:

Relating to Others and Coping During the COVID-19 Pandemic

Researcher names:

Dr. Joel Goldberg (principal investigator), Department of Psychology, Faculty of Health, York University.
Alison L. Rose (investigator), Master of Arts, York University
Sarah E. McComb (investigator), Master of Arts, York University
Dr. Gordon L. Flett (investigator), Department of Psychology, Faculty of Health, York University.
Contact: alirose@yorku.ca or mail correspondence addressed to Alison L. Rose, Department of Psychology, York University, Toronto, ON, M3J 1P3.

Purpose of the Research:

The purpose of this study is to examine how different personality types are relating to others as well as coping themselves during the COVID-19 pandemic. To achieve this aim, up to 300 individuals will be invited to participate in this online research study.

What You Will Be Asked to Do in the Research:

If you decide to participate in the research, you will be asked to complete a series of online studies, which will last approximately 45 minutes. You will begin by providing your informed consent. Then you will complete questionnaires about your thoughts, mood, and feelings about yourself. In addition, you will complete questionnaires about your reactions to the current COVID-19 pandemic as well as how you have been relating to others during this unique time. Upon request, the findings from this research will be made available to you when we have finished collecting the data and close the study. You will receive course credit as specified in the course syllabus for your undergraduate psychology class.

Risks and Discomforts:

This is a minimal risk study. However, there is the possibility that you may become uncomfortable thinking about or talking about your personality, mood or self-perceptions. You may choose to refuse to participate in any aspect of the research. Any discomfort experienced is not expected to be greater than you might experience in a typical day. If any aspect of this study makes you feel uncomfortable, you may temporarily or permanently discontinue your participation and still receive your full participation credit.

Benefits of the Research and Benefits to You:

There is no direct benefit to you in this study. However, you may benefit from developing self-awareness or insight into your personality. You will also have the opportunity to learn about psychological research as well as contribute to it. The future results from this study

may be presented in papers and talks related to this research, may be used in subsequent research projects in the future, and will benefit psychological research.

Voluntary Participation and Withdrawal:

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with the researchers or study staff, or the nature of your relationship with York University either now, or in the future.

If you decide to stop participating, you may withdraw without penalty, financial or otherwise, and you will still receive the promised inducement.

In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

Confidentiality:

Dr. Joel Goldberg (primary investigator), members of his research lab (including Alison L. Rose), Sarah E. McComb (investigator), and Dr. Gordon L. Flett will have sole access to the data collected in this study for research purposes only. You will not put your name or student number on any materials. You will be asked to indicate your consent (if you decide to participate), and it will be saved separately from your data. Data will be entered into a password-protected electronic database for data analysis. Your name will not be included in this database; you will be identified only by a unique ID number.

Any de-identified statistical files will be destroyed in 2027. All statistical information will be presented in aggregate form. That is, when we analyze and present the results, there will be no way for anyone to tell which data belong to you, specifically.

Unless you choose otherwise, all information you supply during the research will be held in confidence and your name will not appear in any report or publication of the research.

Confidentiality will be provided to the fullest extent possible by law.

The data collected in this research project may be used – in an anonymized form - by members of the research team in subsequent research investigations exploring similar lines of inquiry. Such projects will still undergo ethics review by the HPRC, our institutional REB. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

The researcher(s) acknowledge that the host of the online survey (e.g., Qualtrics, Survey Monkey etc.) may automatically collect participant data without their knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researchers system. Further, "Because this project employs e-based collection techniques, data may be subject to access by

third parties as a result of various security legislation now in place in many countries and thus *the confidentiality and privacy of data cannot be guaranteed during web-based transmission.*

Questions About the Research?

If you have questions about the research in general or about your role in the study, please feel free to contact us at alirose@yorku.ca. You may also contact the Graduate Program in Psychology at gradpsyc@yorku.ca and/or (416) 736-5290.

This research has received ethics review and approval by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.

If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Resources:

If completing any of these measurements or participating in this study raises psychological concerns that you would like to discuss, please contact one of the following resources:

Canadian Mental Health Association
BounceBack Ontario
Free, guided self-help program for coping with COVID-19
https://bouncebackontario.ca/?_ga=2.40112868.77138619.1591698471-342079146.1561490875

Toronto Distress Centre, 416-408-4357

Legal Rights and Signatures:

I consent to participate in *Relating to Others and Coping During the COVID-19 Pandemic* conducted by Dr. Joel Goldberg, Alison L. Rose, Sarah E. McComb, and Dr. Gordon L. Flett.

I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. Checking the box below indicates my consent.

☐ I have read the consent form and I agree to participate in this study

APPENDIX B: STUDY 1 DEMOGRAPHICS FORM AND QUALITATIVE QUESTIONS

Demographics

1. How old are you in years?
2. What is your gender?
    1. Female
    2. Male
    3. Non-binary
3. What is your ethnicity?
4. Who are you living with during COVID-19?
    1. Alone
    2. Roommates or friends
    3. My parents and/or siblings
    4. My significant other and/or children
5. Have you ever been diagnosed with a mental illness; if so please specify:

Qualitative Questions:

1) "What effect, if any, COVID-19 has had on your mood or mental health."

2) "Whether you feel supported and connected during COVID-19 or isolated."

APPENDIX C: STUDY 2 AND 3 CONSENT FORM

Online Consent Form

Study Name: Exploring Feelings of Unity and Connection to Others/Exploring Social Relationships and Connections to Others

Researcher names:

Alison L. Rose (principal investigator), Master of Arts, York University
Dr. Joel Goldberg (investigator), Department of Psychology, Faculty of Health, York University.
Contact: alirose@yorku.ca or mail correspondence addressed to Alison L. Rose, Department of Psychology, York University, Toronto, ON, M3J 1P3.

Purpose of the Research:

The purpose of this study is to examine how different personality types are relating and connecting to others as well as coping themselves. To achieve this aim, up to 300 individuals will be invited to participate in this online research study.

What You Will Be Asked to Do in the Research:

If you decide to participate in the research, you will be asked to complete a series of online questionnaires, which will last approximately 45 minutes. You will begin by providing your informed consent. Then you will provide some basic demographics information and complete various questionnaires about your thoughts, mood, and feelings about yourself. Upon request, the findings from this research will be made available to you when we have finished collecting the data and close the study. You will receive 1.0 URPP credits for your participation.

Risks and Discomforts:

This is a minimal risk study. However, there is the possibility that you may become uncomfortable thinking about or talking about your personality, mood or self-perceptions. You may choose to refuse to participate in any aspect of the research. Any discomfort experienced is not expected to be greater than you might experience in a typical day. If any aspect of this study makes you feel uncomfortable, you may temporarily or permanently discontinue your participation and still receive your full participation credit.

Benefits of the Research and Benefits to You:

There is no direct benefit to you in this study. However, you may benefit from developing self-awareness or insight into your personality. You will also have the opportunity to learn about psychological research as well as contribute to it. The future results from this study may be presented in papers and talks related to this research, may be used in subsequent research projects in the future, and will benefit psychological research.

Voluntary Participation and Withdrawal:

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with the researchers or study staff, or the nature of your relationship with York University either now, or in the future.

If you decide to stop participating, you may withdraw without penalty, financial or otherwise, and you will still receive the promised inducement.

In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

Confidentiality:

Alison Rose (primary investigator) and Dr. Joel Goldberg (investigator) will have sole access to the data collected in this study for research purposes only. You will not put your name or student number on any materials. You will be asked to indicate your consent (if you decide to participate), and it will be saved separately from your data. Data will be entered into a password-protected electronic database for data analysis. Your name will not be included in this database; you will be identified only by a unique ID number.

Any de-identified statistical files may be kept indefinitely. All statistical information will be presented in aggregate form. That is, when we analyze and present the results, there will be no way for anyone to tell which data belong to you, specifically.

Unless you choose otherwise, all information you supply during the research will be held in confidence and your name will not appear in any report or publication of the research.

Confidentiality will be provided to the fullest extent possible by law.

The data collected in this research project may be used – in an anonymized form - by members of the research team in subsequent research investigations exploring similar lines of inquiry. Such projects will still undergo ethics review by the Faculty of Graduate Studies. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

The researcher(s) acknowledge that the host of the online survey (Qualtrics) may automatically collect participant data without their knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researchers system. Further, "Because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus *the confidentiality and privacy of data cannot be guaranteed during web-based transmission.*

Questions About the Research?

If you have questions about the research in general or about your role in the study, please feel free to contact us at alirose@yorku.ca. You may also contact the Graduate Program in Psychology at gradpsyc@yorku.ca and/or (416) 736-5290.

This research has received ethics review and approval by York University's Faculty of Graduate Studies Ethics Review Committee and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.

If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Resources[1]:

If completing any of these measurements or participating in this study raises psychological concerns that you would like to discuss, please contact one of the following resources:

Canadian Mental Health Association
BounceBack Ontario
Free, guided self-help program
https://bouncebackontario.ca/?_ga=2.40112868.77138619.1591698471-342079146.1561490875

Toronto Distress Centre, 416-408-4357

ConnexOntario – Addiction, Mental Health, and Problem Gambling Services, 1-866-531-2600
https://www.connexontario.ca/en-ca/

Legal Rights and Signatures:

I consent to participate in *Exploring Feelings of Unity and Connection to Others/Exploring Social Relationships and Connections to Others* conducted by Alison L. Rose, and Dr. Joel Goldberg.

I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. Selecting the box below indicates my consent.

☐ I have read the consent form and I agree to participate in this study

[1] For Ethics Application - Please note: Resources will be repeated for participants at end of study

APPENDIX D: STUDY 2 AND STUDY 3 DEMOGRAPHICS FORM

Demographics

1. How old are you in years?
2. What is your gender?
    1. Female
    2. Male
    3. Non-binary
3. Which ethnicity do you most closely identify with?

Black/African □ South Asian □ Middle Eastern □ White/European □ Southeast Asian □

Latin/Hispanic □ First Nations □ East Asian □ Caribbean □

□ Mixed, please specify: _____

□ Other, please specify: _____

4. What is your occupational status? Please check all that apply.

Full time Student	□	Part time Student	□	Full time Employee	□
Part time Employee	□	Unemployed	□	Other _____ (Please specify)	

5. During the past month, with whom have you been living with?

    1. Living alone
    2. Living with roommates or friends
    3. Living with my parents and/or siblings
    4. Living with my significant other and/or children

6. Choose the one that best fits with your practice this week:

a. I never leave the place where I live
b. I go out on rare occasions
c. I leave my house more than once per day, practicing social distancing
d. I leave my house pretty much as often as usual, without paying much attention to social distance
e. Other, please specify _____

7. Have you ever been diagnosed with a mental illness:

□ Yes □ No

If yes, please specify: _____

APPENDIX E: STUDY 2 MEASURES

Severe Enduring Loneliness Factors Questionnaire (SELF)

For each statement below, please consider your personal feelings. Please select to what extent you agree with the following statements:

Use the scale: 1 = Strongly Disagree to 7 = Strongly Agree. Please read each statement carefully.

Severity (SELF-S):

1. My life is lonelier than most people's lives
2. My loneliness sometimes feels like it is too much to bear
3. My feelings of loneliness can get intense
4. I have a deep sense of loneliness
5. My feelings of loneliness tend to leave me feeling exhausted
6. My loneliness weighs me down
7. There are times when I feel so alone, I can't stand it
8. I can feel lonely to the point that it causes me emotional pain
9. My loneliness overwhelms me at times
10. There are times when I have really suffered due to feeling lonely
11. At times, my loneliness seems to overpower me

Chronicity (SELF-E):

1. My loneliness lasts even when other things in my life improve
2. I feel like my loneliness will always stay with me
3. It is hard to remember times when I have not been lonely
4. My feelings of being lonelier than other people go back to my childhood
5. There have been few times in my life when I have not felt lonely
6. I almost always feel alone from others
7. I always feel at least a little lonely
8. My bouts of loneliness seem to last forever
9. My loneliness never fully seems to go away
10. I feel lonely most of the time
11. When I feel lonely, it seems to last several days or longer
12. Loneliness has become part of who I am
13. I have been lonely for too much of my life
14. When I feel lonely, I can't seem to shake it off
15. I can't seem to escape feeling lonely
16. I always feel burdened by loneliness
17. I feel like I am destined to have a lonely life

CES-D-4

Below is a list of the ways you might have felt or behaved. Please select how often you have felt this way **during the past week**.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I felt sad	0	1	2	3
I felt happy	0	1	2	3
I felt hopeful about the future	0	1	2	3
I felt lonely	0	1	2	3

Melchior, L. A., Huba, G. J., Brown, V. B., & Reback, C. J. (1993). A short depression index for women. *Educational and Psychological Measurement, 53*(4), 1117–1125.

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, *166*(10), 1092–1097.

The Loneliness Automatic Thoughts Questionnaire (LATQ)

Flett, G. L., Nepon, T., Besser, A., & Rose, A. L. (Manuscript in Preparation). *Alone in my mind: Development, validity, and applications of the Loneliness Automatic Thoughts Questionnaire*.

Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you ***over the last week***. Please read each item carefully and select the appropriate answers (1 = "*not at all*", 2 = "*sometimes*", 3 = "*moderately often*", 4 = "*often*", and 5 = "*almost all the time*").

1. Why am I so lonely?
2. I can't stand to feel this alone
3. It's weak to be this lonely
4. I feel helpless being by myself for too long
5. Will this loneliness ever end?
6. I can't escape this loneliness
7. Something must be wrong with me to feel this alone
8. I can't handle feeling alone
9. Other people are not this alone

ULS-8 (Hays & DiMatteo, 1987)

INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you.

Rating Scale:
Never
Rarely
Sometimes
Always

1. I lack companionship
2. There is no one I can turn to
3. I am an outgoing person
4. I feel left out
5. I feel isolation from others
6. I can find companionship when I want it
7. I am unhappy being so withdrawn
8. People are around me but not with me

Hays, R. D., & DiMatteo, M. R. (1987). A short-form measure of loneliness. *Journal of personality assessment*, *51*(1), 69–81.

Loneliness Self-Compassion Scale (LSCS; Rose et al., Manuscript in Preparation)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				Almost always
1	2	3	4	5

1. I try to see my loneliness as part of the human condition
2. I try to be understanding and patient towards myself when I am feeling lonely these days
3. When I find myself feeling lonely these days, I try to give myself the caring and tenderness I need
4. I tend to be kind to myself when I'm suffering from feeling alone
5. When I'm feeling lonely these days I remind myself that there are so many other people in the world feeling like I am
6. When feeling especially alone, I tell myself that I am not the only one experiencing this difficulty these days
7. When my loneliness gets painful these days, I try to be understanding of myself
8. When I feel bad about feeling lonely, I remind myself that most people are experiencing this feeling now too
9. I tolerate my feelings of loneliness these days because I know they too will eventually pass

MINI-SPIN (Social Phobia Inventory; Connor et al., 2001)

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

0 = Not at all 1 = A little bit 2 = Somewhat 3 = Very much 4 = Extremely

Social Phobia Inventory items

- Fear of embarrassment causes me to avoid doing things or speaking to people
- I avoid activities in which I am the center of attention
- Being embarrassed or looking stupid is among my worst fears

Connor, K. M., Kobak, K. A., Churchill, L. E., Katzelnick, D., & Davidson, J. R. (2001).

Mini-SPIN: A brief screening assessment for generalized social anxiety

disorder. *Depression and Anxiety*, *14*(2), 137–140.

General Mattering Scale (GMS; Marcus & Rosenberg, 1987)

Please choose the rating that you feel is best for you:

1 = Not at all

2 = A little

3 = Somewhat

4 = A lot

1. How much do other people depend on you?

2. How much do you feel other people pay attention to you?

3. How important do you feel you are to other people?

4. How much do you feel others would miss you if you went away?

5. How interested are people generally in what you have to say?

Rosenberg, M., & McCullough, B. C. (1981). Mattering: Inferred significance and mental health among adolescents. *Research in Community & Mental Health, 2*, 163–182.

Anti-Mattering Scale

Flett, G. L., Nepon, T., Goldberg, J. O., Rose, A. L., Atkey, S., & Zaki-Azat, J. (2020). *The Anti-Mattering Scale: Development, psychometric properties, and associations with depression, loneliness, and social anxiety*. Manuscript submitted for publication.

Please choose the rating that you feel is best for you:

1 = Not at all
2 = A little
3 = Somewhat
4 = A lot

1. How much do you feel like you don't matter?
2. How much do you feel like you will never matter to certain people?
3. How often have you been made to feel by someone that they don't care about what you think or what you have to say?
4. How often have you been treated in a way that makes you feel like you are insignificant?
5. To what extent have you been made to feel like you are invisible?

A Brief Measure of Unbearable Psychache (Pachkowski et al., 2019)

ITEMS FROM THE PSYCHACHE SCALE (HOLDEN ET AL., 2001) USED TO ASSESS UNBEARABLE PSYCHACHE

The following statements refer to your psychological pain, not your physical pain. Please indicate the extent to which you disagree or agree with each of the statements using the following scale:

1 = Strongly disagree 2 = Disagree 3 = Unsure 4 = Agree 5 = Strongly agree

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
1. I can't take my pain any more	1	2	3	4	5
2. Because of my pain, my situation is impossible	1	2	3	4	5
3. My pain is making me fall apart	1	2	3	4	5

Pachkowski, M., May, A. M., Tsai, M., & Klonsky, E. D. (2019). A brief measure of unbearable psychache. *Suicide and Life-Threatening Behavior, 49,* 1721-1734.

Self-Stigma of Seeking Help (SSOSH) Scale (Vogel, Wade, & Haake, 2006)

INSTRUCTIONS: People at times find that they face problems that they consider seeking help for. This can bring up reactions about what seeking help would mean. Please use the 5-point scale to rate the degree to which each item describes how you might react in this situation.

1 = Strongly Disagree 2 = Disagree 3 = Agree & Disagree Equally 4 = Agree 5 = Strongly Agree

1. I would feel inadequate if I went to a therapist for psychological help.
2. My self-confidence would NOT be threatened if I sought professional help.
3. Seeking psychological help would make me feel less intelligent.
4. My self-esteem would increase if I talked to a therapist.
5. My view of myself would not change just because I made the choice to see a therapist.
6. It would make me feel inferior to ask a therapist for help.
7. I would feel okay about myself if I made the choice to seek professional help.
8. If I went to a therapist, I would be less satisfied with myself.
9. My self-confidence would remain the same if I sought professional help for a problem I could not solve.
10. I would feel worse about myself if I could not solve my own problems.

Vogel D. L., Wade N. G., Haake S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counselling Psychology, 53,* 325–337.

RYFF'S PSYCHOLOGICAL WELL-BEING SCALES (PWB), 18 ITEM VERSION

PLEASE INDICATE YOUR DEGREE OF AGREEMENT TO THE FOLLOWING SENTENCES.
STRONGLY DISAGREE → STRONGLY AGREE

1. I LIKE MOST PARTS OF MY PERSONALITY
2. When I look at the story of my life, I am pleased with how things have turned out so far.
3. Some people wander aimlessly through life, but I am not one of them.
4. The demands of everyday life often get me down.
5. In many ways I feel disappointed about my achievements in life.
6. Maintaining close relationships has been difficult and frustrating for me.
7. I live life one day at a time and don't really think about the future.
8. In general, I feel I am in charge of the situation in which I live."
9. I am good at managing the responsibilities of daily life.
10. I sometimes feel as if I've done all there is to do in life.
11. For me, life has been a continuous process of learning, changing, and growth.
12. I think it is important to have new experiences that challenge how I think about myself and the world.
13. People would describe me as a giving person, willing to share my time with others.
14. I gave up trying to make big improvements or changes in my life a long time ago
15. I tend to be influenced by people with strong opinions
16. I have not experienced many warm and trusting relationships with others.
17. I have confidence in my own opinions, even if they are different from the way most other people think.
18. I judge myself by what I think is important, not by the values of what others think is important.

Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, *69*(4), 719–727.

The Loneliness Adaptability Scale (LAS)

The Loneliness Adaptability Scale (LAS) comprises nine items, each item reflecting the following criteria: (a) appropriate cognitive, behavioral, or affective adjustment in response to (b) novelty/uncertainty of being alone/times spent alone during the Covid-19 period that has (c) a constructive purpose or outcome. The LAS is patterned after a modified version of the Adaptability Scale created by Martin, Nejad, Colmar, and Liem (2013) that was altered to assess adaptability to the uncertainty and novelty of the pandemic. This modified nine-item adaptability measure was featured in recently published research conducted to evaluate individual differences in university students' adaptability to the pandemic (see Besser, Flett, Nepon, & Zeigler-Hill, 2020; Besser, Flett, & Zeigler-Hill, 2020). This updated version focuses on the social isolation brought about by the pandemic.

Besser, A., Flett, G. L., Nepon, T., & Zeigler-Hill, V. (2020). Personality, cognition, and adaptability to the COVID-19 pandemic: Associations with loneliness, distress, and positive and negative mood states. *International Journal of Mental Health and Addiction*, 1-25. DOI: 10.1007/s11469-020-00421-x

Besser, A., Flett, G. L., & Zeigler-Hill, V. (2020). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. *Scholarship of Teaching and Learning in Psychology.* Advance online publication. https://doi.org/10.1037/stl0000198

Martin, A. J., Nejad, H. G., Colmar, S., & Liem, G. A. D. (2013). Adaptability: how students' responses to uncertainty and novelty predict their academic and non-academic outcomes. Journal of Educational Psychology, 105, 728–746. https://doi.org/10.1037/a0032794.

Items are rated on a 1 (‘*Strongly Disagree*’) to 7 (‘*Strongly Agree’*) continuum.

Please complete the following items with reference to how you have been experiencing times **you have been alone** during the Covid-19 period. We are interesting in your typical reactions to being alone.

1. I am able to think through a number of possible options to assist me during the times spent alone

2. I am able to revise the way I think about these times spent alone to help me through it

3. I am able to adjust my thinking or expectations to assist me during times spent alone

4. I am able to seek out new information, or useful resources or approaches to effectively deal with the times spent alone

5. I am able to develop new ways of going about things (e.g. distracting myself) to help me through times spent alone

6. To assist me during times spent alone, I am able to change the way I do things when necessary

7. I am able to reduce negative emotions (e.g., experiences of fear, loneliness) to help me deal with the times spent alone

8. When I am feeling uneasy or lonely while alone, I am able to minimize these feelings so I can deal with times spent alone

9. To help me through times spent alone, I am able to draw on positive feelings (e.g., enjoyment, satisfaction) and memories

Social Hopelessness Questionnaire (SHQ; Flett, Hewitt, & Gayle, 1997)

The following scale contains statements that tap people's observations and expectations about their social worlds. Please indicate the extent of your agreement or disagreement with each of the following statements. Select a "**1**" if you **disagree strongly** with the statement, a "**3**" if you **neither agree nor disagree** with the statement, and a "**5**" if you **agree strongly** with the statement.

1 **strongly disagree**	**2** **slightly disagree**	**3** **neutral**	**4** **slightly agree**	**5** **strongly agree**

1. I will always be powerless to get away from the people who bother me.	1	2	3	4	5
2. I sometimes can't help thinking that I will never be able to regain or replace the people I have lost in my life.	1	2	3	4	5
3. I will always have a hard time coping with some people.	1	2	3	4	5
4. People are bound to get angry at me, no matter what I do.	1	2	3	4	5
5. I will never be able to do things as well as other people can.	1	2	3	4	5
6. I sometimes feel that certain people will never want to help me.	1	2	3	4	5
7. I sometimes feel certain that I am destined to have few friends.	1	2	3	4	5
8. Some people do little to inspire hope in me.	1	2	3	4	5
9. When it comes to matching my friends' accomplishments, I am pessimistic about my chances.	1	2	3	4	5
10. In the future, people will probably take advantage of me more than they should.	1	2	3	4	5
11. I sometimes feel that no one will ever truly understand my problems.	1	2	3	4	5
12. I will always find it hard to get along with some people.	1	2	3	4	5
13. I am bothered by the fact that some people will never change their negative views of me.	1	2	3	4	5
14. My world will always be full of unfair people.	1	2	3	4	5

1 strongly disagree	2 slightly disagree	3 neutral	4 slightly agree	5 strongly agree

15. I am pessimistic about my chances of ever “falling in love” with someone special. 1 2 3 4 5

16. It is unlikely that I will ever be the “life of the party”. 1 2 3 4 5

17. I expect that some people will always be mean to me. 1 2 3 4 5

18. My social relationships will never be as good as I would like them to be. 1 2 3 4 5

19. It is impossible for me to avoid being hurt by others. 1 2 3 4 5

20. I sometimes have the feeling that other people will never be able to help me with my problems. 1 2 3 4 5

Flett, G. L., Hewitt, P. L., & Gayle, B. (1997). The Social Hopelessness Questionnaire:

Development of a domain-specific measure of outcome expectancies.

Short-form Version of Social-Desirability (Ballard, 1992)

Listed below are a number of statements concerning personality attitudes and traits. Read each item carefully and select whether the statement is *true* or *false* as it pertains to you personally.

1. I sometimes feel resentful when I don't get my way.

2. On a few occasions, I have given up doing something because I thought too little of my ability.

3. There have been times when I felt like rebelling against people in authority even though I knew they were right.

4. No matter who I'm talking to, I'm always a good listener.

5. I can remember "playing sick" to get out of something.

6. There have been occasions when I took advantage of someone.

7. I'm always willing to admit it when I make a mistake.

8. I sometimes try to get even rather than forgive and forget.

9. When I don't know something I don't at all mind admitting it.

10. I am sometimes irritated by people who ask favors of me.

11. I have never deliberately said something that hurt someone's feelings.

Ballard, R. (1992). Short forms of the Marlowe-Crowne Social Desirability Scale. *Psychological Reports, 71*(3, Pt 2), 1155–1160.

Visual Analogue Scale of Mood - State Loneliness Measures

Please rate your current feelings on the following items:

a) "I feel lonely"

|----------|

Not at all Very Much

Ostracism Experiences Scale (8-item Version)

Carter-Sowell, A. R. (2010). Salting a wound, building a callous, or throwing in the towel? The measurement and effects of chronic ostracism experiences [Unpublished doctoral dissertation]. Purdue University, West Lafayette, IN, United States.

Instructions: For each of the statements below, please consider your personal feelings. Determine how often, in general, the following experiences happen to you. Just give your gut response.

Use the scale: 1 = Hardly ever to 7 = Almost always. Please read each statement carefully.

1	2	3	4	5	6	7
Hardly ever			Some of the time			Almost always

1. In general, others leave me out of their group.
2. In general, others keep me out-of-the-loop on information that is important to my close relationships
3. In general, others treat me as if I am invisible.
4. In general, others give me the cold shoulder treatment.
5. In general, others physically turn their backs to me when in my presence.
6. In general, others treat me as if I'm in solitary confinement
7. In general, others do not look at me when I'm in their presence
8. In general, others ignore me during conversation

Preference for Solitude Scale (Burger, 1995)

For each of the following pairs of statements, select the one that best describes you. In some cases neither statement may describe you well or both may describe you somewhat. In those cases, please select the statement that best describes you or that describes you more often.

1. a. I enjoy being around people.

   b. I enjoy being by myself.

2. a. I try to structure my day so that I always have some time to myself.

   b. I try to structure my day so that I always am doing something with someone.

3. a. One feature I look for in a job is the opportunity to interact with interesting people.

   b. One feature I look for in a job is the opportunity to spend time by myself.

4. a. After spending a few hours surrounded by a lot of people, I usually find myself stimulated and energetic.

   b. After spending a few hours surrounded by a lot of people, I am usually eager to get away by myself.

5. a. Time spent alone is often productive for me.

   b. Time spent alone is often time wasted for me.

6. a. I often have a strong desire to get away by myself.

   b. I rarely have a strong desire to get away by myself.

7. a. I like to vacation in places where there are a lot of people around and a lot of activities going on.

   b. I like to vacation in places where there are few people around and a lot of serenity and quiet.

8. a. When I have to spend several hours alone, I find the time boring and unpleasant.

   b. When I have to spend several hours alone, I find the time productive and pleasant.

9. a. If I were to take a several-hour plane trip, I would like to sit next to someone who was pleasant to talk with.

   b. If I were to take a several-hour plane trip, I would like to spend the time quietly.

10. a. Time spent with other people is often boring and uninteresting.

    b. Time spent alone is often boring and uninteresting.

11. a. I have a strong need to be around other people.

    b. I do not have a strong need to be around other people.

12. a. There are many times when I just have to get away and be by myself.

    b. There are rarely times when I just have to get away and be by myself.

Burger, J. M. (1995). Individual differences in preference for solitude. *Journal of Research in Personality, 29*, 85-108.

One-Item Chronic Loneliness Question
(from Zhong, Chen, & Conwell, 2016)

How often do you feel lonely?

0 = Never

1 = Seldom

2 = Sometimes

3 = Often

4 = Always

Zhong, B.-L., Chen, S.-L., & Conwell, Y. (2016). Effects of transient versus chronic loneliness on cognitive function in older adults: Findings from the Chinese Longitudinal Healthy Longevity Survey. *The American Journal of Geriatric Psychiatry, 24*, 389–398.

APPENDIX F: STUDY 3 MEASURES

Severe Enduring Loneliness Factors Questionnaire (SELF)

For each statement below, please consider your personal feelings. Please select to what extent you agree with the following statements:

Use the scale: 1 = Strongly Disagree to 7 = Strongly Agree. Please read each statement carefully.

Severity (SELF-S):

1. My life is lonelier than most people's lives
2. My loneliness feels like it is too much to bear
3. My feelings of loneliness can get intense
4. I have a deep sense of loneliness
5. My feelings of loneliness tend to leave me feeling exhausted
6. My loneliness weighs me down
7. There are times when I feel so alone, I can't stand it
8. I can feel lonely to the point that it causes me emotional pain
9. My loneliness overwhelms me at times
10. There are times when I have really suffered due to feeling lonely
11. At times, my loneliness seems to overpower me

Chronicity (SELF-E):

1. My loneliness lasts even when other things in my life improve
2. I feel like my loneliness will always stay with me
3. It is hard to remember times when I have not been lonely
4. My feelings of being lonelier than other people go back to my childhood
5. There have been few times in my life when I have not felt lonely
6. I almost always feel alone from others
7. I always feel at least a little lonely
8. My bouts of loneliness seem to last forever
9. My loneliness never fully seems to go away
10. I feel lonely most of the time
11. When I feel lonely, it seems to last several days or longer
12. Loneliness has become part of who I am
13. I have been lonely for too much of my life
14. When I feel lonely, I can't seem to shake it off
15. I can't seem to escape feeling lonely
16. I always feel burdened by loneliness
17. I feel like I am destined to have a lonely life

Responses to Depression Scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003)

Instructions: People think and do many things when they feel depressed. Please read each item below and indicate whether you never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed. Please indicate what you generally do, not what you think you should do by selecting a number for each item shown below.

	Almost Never	Sometimes	Often	Almost Always
1. Think "What I am doing to deserve this?"	0	1	2	3
2. Analyze recent events to try to understand why you are depressed	0	1	2	3
3. Think "Why do I always react this way?"	0	1	2	3
4. Go away by yourself and think about why you feel this way	0	1	2	3
5. Write down what you are thinking and analyze it	0	1	2	3
6. Think about a recent situation, wishing it had gone better	0	1	2	3
7. Think "Why do I have problems other people don't have?"	0	1	2	3
8. Think "Why can't I handle things better?"	0	1	2	3
9. Analyze your personality to try to understand why you are depressed	0	1	2	3
10. Go someplace alone to think about your feelings	0	1	2	3

Treynor, W., Gonzalez, R. & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*, 247–259.

Difficulties In Emotion Regulation Scale (DERS)

Gratz, K. L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41-54.

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

1 – almost never (0-10%)
2 – sometimes (11-35%)
3 – about half of the time (36-65%)
4 – most of the time (66-90%)
5 – almost always (91-100%)

_____ 1) I am clear about my feelings.
_____ 2) I pay attention to how I feel.
_____ 3) I experience my emotions as overwhelming and out of control.
_____ 4) I have no idea how I am feeling.
_____ 5) I have difficulty making sense out of my feelings.
_____ 6) I am attentive to my feelings.
_____ 7) I know exactly how I am feeling.
_____ 8) I care about what I am feeling.
_____ 9) I am confused about how I feel.
_____ 10) When I'm upset, I acknowledge my emotions.
_____ 11) When I'm upset, I become angry with myself for feeling that way.
_____ 12) When I'm upset, I become embarrassed for feeling that way.
_____ 13) When I'm upset, I have difficulty getting work done.
_____ 14) When I'm upset, I become out of control.
_____ 15) When I'm upset, I believe that I will remain that way for a long time.
_____ 16) When I'm upset, I believe that I will end up feeling very depressed.
_____ 17) When I'm upset, I believe that my feelings are valid and important.
_____ 18) When I'm upset, I have difficulty focusing on other things.
_____ 19) When I'm upset, I feel out of control.
_____ 20) When I'm upset, I can still get things done.
_____ 21) When I'm upset, I feel ashamed at myself for feeling that way.
_____ 22) When I'm upset, I know that I can find a way to eventually feel better.
_____ 23) When I'm upset, I feel like I am weak.
_____ 24) When I'm upset, I feel like I can remain in control of my behaviors.
_____ 25) When I'm upset, I feel guilty for feeling that way.
_____ 26) When I'm upset, I have difficulty concentrating.

_____ 27) When I'm upset, I have difficulty controlling my behaviors.
_____ 28) When I'm upset, I believe there is nothing I can do to make myself feel better.
_____ 29) When I'm upset, I become irritated at myself for feeling that way.
_____ 30) When I'm upset, I start to feel very bad about myself.
_____ 31) When I'm upset, I believe that wallowing in it is all I can do.
_____ 32) When I'm upset, I lose control over my behavior.
_____ 33) When I'm upset, I have difficulty thinking about anything else.
_____ 34) When I'm upset I take time to figure out what I'm really feeling.
_____ 35) When I'm upset, it takes me a long time to feel better.
_____ 36) When I'm upset, my emotions feel overwhelming.

COVID-19 State-Anxiety Sources Scale
(Bareket-Bojmel, Shahar, & Margalit, 2020)

Here are some sentences people usually use to describe their feelings. Read each sentence and circle a digit to the left of each sentence. Select the rating that best describes your feeling for the past week, in relation to the COVID-19 pandemic. There are no right or wrong answers here. Do not dwell too long on any sentence, rather give the answer that seems to best describe your current feelings (1 = not at all, 7 = very much).

1. I am tense about the possibility of getting sick or that I already was sick with Corona.
2. I feel upset about the possibility the possibility of getting sick or that I already was sick with Corona.
3. I am worried about the possibility of getting sick or that I already was sick with Corona.
4. I am tense about my economic situation.
5. I feel upset about my economic situation
6. I am worried about my economic situation.
7. I am tense by the fact that my routine has changed
8. I feel upset by the fact that my routine has changed
9. I am worried by the fact that my routine has changed.
10. I am tense about my loneliness.
11. I feel upset about my loneliness.
12. I am worried about my loneliness.

- Items 1-3 = health state-anxiety, Items 4-6 = economic state-anxiety, Items 7-9: daily routine change state-anxiety, 10-12 = isolation state-anxiety.

Bareket-Bojmel, L., Shahar, G., & Margalit, M. (2021). COVID-19-related economic anxiety is as high as health anxiety: Findings from the USA, the UK, and Israel. *International Journal of Cognitive Therapy*, *14*(3), 566–574.

The Loneliness Adaptability Scale (LAS)

The Loneliness Adaptability Scale (LAS) comprises nine items, each item reflecting the following criteria: (a) appropriate cognitive, behavioral, or affective adjustment in response to (b) novelty/uncertainty of being alone/times spent alone during the Covid-19 period that has (c) a constructive purpose or outcome. The LAS is patterned after a modified version of the Adaptability Scale created by Martin, Nejad, Colmar, and Liem (2013) that was altered to assess adaptability to the uncertainty and novelty of the pandemic. This modified nine-item adaptability measure was featured in recently published research conducted to evaluate individual differences in university students' adaptability to the pandemic (see Besser, Flett, Nepon, & Zeigler-Hill, 2020; Besser, Flett, & Zeigler-Hill, 2020). This updated version focuses on the social isolation brought about by the pandemic.

Besser, A., Flett, G. L., Nepon, T., & Zeigler-Hill, V. (2020). Personality, cognition, and adaptability to the COVID-19 pandemic: Associations with loneliness, distress, and positive and negative mood states. *International Journal of Mental Health and Addiction*, 1-25. DOI: 10.1007/s11469-020-00421-x

Besser, A., Flett, G. L., & Zeigler-Hill, V. (2020). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. *Scholarship of Teaching and Learning in Psychology.* Advance online publication. https://doi.org/10.1037/stl0000198

Martin, A. J., Nejad, H. G., Colmar, S., & Liem, G. A. D. (2013). Adaptability: how students' responses to uncertainty and novelty predict their academic and non-academic outcomes. Journal of Educational Psychology, 105, 728–746. https://doi.org/10.1037/a0032794.

Items are rated on a 1 (‘*Strongly Disagree*’) to 7 (‘*Strongly Agree’*) continuum.

Please complete the following items with reference to how you have been experiencing times **you have been alone** during the Covid-19 period. We are interesting in your typical reactions to being alone.

1. I am able to think through a number of possible options to assist me during the times spent alone

2. I am able to revise the way I think about these times spent alone to help me through it

3. I am able to adjust my thinking or expectations to assist me during times spent alone

4. I am able to seek out new information, or useful resources or approaches to effectively deal with the times spent alone

5. I am able to develop new ways of going about things (e.g. distracting myself) to help me through times spent alone

6. To assist me during times spent alone, I am able to change the way I do things when necessary

7. I am able to reduce negative emotions (e.g., experiences of fear, loneliness) to help me deal with the times spent alone

8. When I am feeling uneasy or lonely while alone, I am able to minimize these feelings so I can deal with times spent alone

9. To help me through times spent alone, I am able to draw on positive feelings (e.g., enjoyment, satisfaction) and memories

Adult Hope Scale (Snyder et al., 1991)

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1=Definitely False 2=Mostly False 3=Mostly True 4=Definitely True

_____ 1. I can think of many ways to get out of a jam.

_____ 2. I energetically pursue my goals.

_____ 3. I feel tired most of the time.

_____ 4. There are lots of ways around any problem.

_____ 5. I am easily downed in an argument.

_____ 6. I can think of many ways to get the things in life that are most important to me.

_____ 7. I worry about my health.

_____ 8. Even when others get discouraged, I know I can find a way to solve the problem.

_____ 9. My past experiences have prepared me well for my future.

_____10. I've been pretty successful in life.

_____11. I usually find myself worrying about something.

_____12. I meet the goals that I set for myself.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., Yoshinobu, L., Gibb, J., Langelle, C., & Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology, 60*(4), 570–585.

Experience of Shame Scale (ESS)
(Andrews, Qian, & Valentine, 2002)

Instructions: Everybody at times can feel embarrassed, self-conscious or ashamed.
These questions are about such feelings if they have occurred at any time in the past year. There are no 'right' or 'wrong' answers.

Please indicate the response which applies to you.

1 = not at all 2 = a little 3 = moderately 4 = very much

1. Have you felt ashamed of any of your personal habits?
2. Have you worried about what other people think of any of your personal habits?
3. Have you tried to cover up or conceal any of your personal habits?
4. Have you felt ashamed of your manner with others?
5. Have you worried about what other people think of your manner with others?
6. Have you avoided people because of your manner?
7. Have you felt ashamed of the sort of person you are?
8. Have you worried about what other people think of the sort of person you are?
9. Have you tried to conceal from others the sort of person you are?
10. Have you felt ashamed of your ability to do things?
11. Have you worried about what other people think of your ability to do things?
12. Have you avoided people because of your inability to do things?
13. Do you feel ashamed when you do something wrong?
14. Have you worried about what other people think of you when you do something wrong?
15. Have you tried to cover up or conceal things you felt ashamed of having done?
16. Have you felt ashamed when you said something stupid?
17. Have you worried about what other people think of you when you said something stupid?
18. Have you avoided contact with anyone who knew you said something stupid?
19. Have you felt ashamed when you failed at something which was important to you?
20. Have you worried about what other people think of you when you fail?
21. Have you avoided people who have seen you fail?
22. Have you felt ashamed of your body or any part of it?
23. Have you worried about what other people think of your appearance?
24. Have you avoided looking at yourself in the mirror?
25. Have you wanted to hide or conceal your body or any part of it?

Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The Experience of Shame Scale. *British Journal of Clinical Psychology, 41*(1), 29–42.

Short-form Version of Social-Desirability (Ballard, 1992)

Listed below are a number of statements concerning personality attitudes and traits. Read each item carefully and select whether the statement is *true* or *false* as it pertains to you personally.

1. I sometimes feel resentful when I don't get my way.

2. On a few occasions, I have given up doing something because I thought too little of my ability.

3. There have been times when I felt like rebelling against people in authority even though I knew they were right.

4. No matter who I'm talking to, I'm always a good listener.

5. I can remember "playing sick" to get out of something.

6. There have been occasions when I took advantage of someone.

7. I'm always willing to admit it when I make a mistake.

8. I sometimes try to get even rather than forgive and forget.

9. When I don't know something I don't at all mind admitting it.

10. I am sometimes irritated by people who ask favors of me.

11. I have never deliberately said something that hurt someone's feelings.

FEAR OF NOT MATTERING INVENTORY (Flett, 2020)

Please indicate your response to each of the following items by circling a number between "1" to "4" according to the response options shown below.

0 1 2 3
not at all some of the time much of the time almost all of the time

How frequently:

Are you afraid that you will not matter to other people?

0 1 2 3
not at all some of the time much of the time almost all of the time

Do you worry that as you get older you will be someone who no longer matters to others?

0 1 2 3
not at all some of the time much of the time almost all of the time

Do you worry that others will see you as unimportant or insignificant?

0 1 2 3
not at all some of the time much of the time almost all of the time

Are you afraid of becoming someone who doesn't seem to count to others?

0 1 2 3
not at all some of the time much of the time almost all of the time

Do you worry that others will stop taking an interest in you?

0 1 2 3
not at all some of the time much of the time almost all of the time

Flett, G. L. (2020). *The fear of not mattering: development and correlates of a new measure*. Manuscript in preparation.

General Mattering Scale (GMS; Marcus & Rosenberg, 1987)

Please choose the rating that you feel is best for you:

1 = Not at all
2 = A little
3 = Somewhat
4 = A lot

1. How much do other people depend on you?
2. How much do you feel other people pay attention to you?
3. How important do you feel you are to other people?
4. How much do you feel others would miss you if you went away?
5. How interested are people generally in what you have to say?

Anti-Mattering Scale

Flett, G. L., Nepon, T., Goldberg, J. O., Rose, A. L., Atkey, S., & Zaki-Azat, J. (2020). *The Anti-Mattering Scale: Development, psychometric properties, and associations with depression, loneliness, and social anxiety*. Manuscript submitted for publication.

Please choose the rating that you feel is best for you:

1 = Not at all
2 = A little
3 = Somewhat
4 = A lot

1. How much do you feel like you don't matter?

2. How much do you feel like you will never matter to certain people?

3. How often have you been made to feel by someone that they don't care about what you think or what you have to say?

4. How often have you been treated in a way that makes you feel like you are insignificant?

5. To what extent have you been made to feel like you are invisible?

UCLA Loneliness Scale (Russell, Peplau, & Ferguson, 1978)

INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you.

O indicates "I often feel this way"
S indicates "I sometimes feel this way"
R indicates "I rarely feel this way"
N indicates "I never feel this way"

1. I am unhappy doing so many things alone O S R N
2. I have nobody to talk to O S R N
3. I cannot tolerate being so alone O S R N
4. I lack companionship O S R N
5. I feel as if nobody really understands me O S R N
6. I find myself waiting for people to call or write O S R N
7. There is no one I can turn to O S R N
8. I am no longer close to anyone O S R N
9. My interests and ideas are not shared by those around me O S R N
10. I feel left out O S R N
11. I feel completely alone O S R N
12. I am unable to reach out and communicate with those around me O S R N
13. My social relationships are superficial O S R N
14. I feel starved for company O S R N
15. No one really knows me well O S R N
16. I feel isolated from others O S R N
17. I am unhappy being so withdrawn O S R N
18. It is difficult for me to make friends O S R N
19. I feel shut out and excluded by others O S R N
20. People are around me but not with me O S R N

Scoring:

Make all O's =3, all S's =2, all R's =1, and all N's =0. Keep scoring continuous.

Four-Item UCLA Loneliness Scale
(Qualter et al., 2021; Items Derived from Russell, Peplau, & Cutrona, 1980)

1. Do you feel a lack of companionship?

Never (0)–Very often (5)

How intense is that feeling? Not intense at all (1)–Very intense (5)

How long does that feeling last when it occurs?
1 = hours, 2 = days, 3 = weeks, 4 = months, 5 = longer

2. Do you feel left out?

Never (0)–Very often (5)

How intense is that feeling? Not intense at all (1)–Very intense (5)

How long does that feeling last when it occurs?
1 = hours, 2 = days, 3 = weeks, 4 = months, 5 = longer

3. Do you feel isolated from others?

Never (0)–Very often (5)

How intense is that feeling? Not intense at all (1)–Very intense (5)

How long does that feeling last when it occurs?
1 = hours, 2 = days, 3 = weeks, 4 = months, 5 = longer

4. Do you feel in tune with people around you?

Never (0)–Very often (5)

How intense is that feeling? Not intense at all (1)–Very intense (5)

How long does that feeling last when it occurs?
1 = hours, 2 = days, 3 = weeks, 4 = months, 5 = longer

Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39*(3), 472–480.

Visual Analogue Scale of Mood - State Loneliness Measure

Please rate your current feelings on the following items:

b) "I feel lonely"

|----------|

Not at all Very Much

Self-Critical Rumination Scale (Smart, Peters, & Baer, 2016)

Please indicate the extent to which each statement below describes you.

4-point scale (1 = not at all, 4 = very well).

1. My attention is often focused on aspects of myself that I'm ashamed of
2. I always seem to be rehashing in my mind stupid things that I've said or done
3. Sometimes it is hard for me to shut off critical thoughts about myself
4. I can't stop thinking about how I should have acted differently in certain situations
5. I spend a lot of time thinking about how ashamed I am of some of my personal habits.
6. I criticize myself a lot for how I act around other people.
7. I wish I spent less time criticizing myself.
8. I often worry about all of the mistakes I have made
9. I spend a lot of time wishing I was different.
10. I often berate myself for not being as productive as I should be.

Smart, L. M., Peters, J. R., & Baer, R. A. (2016). Development and validation of a measure of self-critical rumination. *Assessment*, *23*(3), 321–332.

Attachment Style Questionnaire – SHORT FORM (ASQ-SF)

Attachment Style Questionnaire Show how much you agree with each of the following items by rating them on this scale:
1 = totally disagree
2 = strongly disagree
3 = slightly disagree
4 = slightly agree
5 = strongly agree
6 = totally agree

4. I prefer to depend on myself rather than other people.
5. I prefer to keep to myself.
16. I find it hard to trust other people.
17. I find it difficult to depend on others.
20. I find it easy to trust others.
21. I feel comfortable depending on other people.
23. I worry about getting too close.
25. I have mixed feelings about being close to others
34. Other people have their own problems, so I don't bother them with mine
8. Achieving things is more important than building a relationship.
9. Doing your best is more important than getting on with others
10. If you've got a job to do, you should do it no matter who gets hurt.
14. My relationships with others are generally superficial.
3. I feel confident that other people will be there for me when I need them.
19. I find it relatively easy to get close to other people.
37. If something is bothering me, others are generally aware and concerned.
33. I often worry that I do not really fit in with other people.
38. I am confident that other people will like and respect me.
31. I feel confident about relating to others.
11. It's important to m e that others like me.
13. I find it hard to make a decision unless I know what other people think.
15. Sometimes I think I am no good at all
24. I worry that I won't measure up to other people
27. I wonder why people would want to be involved with me.
18. I find that others are reluctant to get as close as I would like.
22. I worry that others won't care about me as much as I care about them.
29. I worry a lot about my relationships.
30. I wonder how I would cope without someone to love me
32. I often feel left out or alone.

Karantzas, G. C., Feeney, J. A., & Wilkinson, R. (2010). Is less more? Confirmatory factor analysis of the Attachment Style Questionnaires. *Journal of Social and Personal Relationships*, *27*(6), 749–780.

COVID-19 Family Stressor Scale: Chaos Stress Factor

(Prime, Wade, May, Jenkins, & Browne, 2021)

Since the COVID-19 disruption, have any of the following changes occurred in your household?"

"Not True" (1)
"Somewhat True" (2)
"Very True" (3)

a) Could not access essential supplies (e.g., sanitizer, soap, toilet paper, etc.)
b) Overwhelmed by the amount of COVID-19 news coverage
c) Became stressed by crowded grocery stores and shopping centers
d) Significant anxiety/panic about danger to myself or loved ones

Note: Sum items for total score

Prime, H., Wade, M., May, S. S., Jenkins, J. M., & Browne, D. T. (2021). The COVID-19 Family Stressor Scale: Validation and measurement invariance in female and male caregivers. *Frontiers in psychiatry*, *12*, 669106.

Ten Item Personality Inventory (TIPI)

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A Very Brief Measure of the Big Five Personality Domains. *Journal of Research in Personality, 37, 504-528.*

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

1 = Disagree strongly
2 = Disagree moderately
3 = Disagree a little
4 = Neither agree nor disagree
5 = Agree a little
6 = Agree moderately
7 = Agree strongly

I see myself as:

1. _____ Extraverted, enthusiastic.

2. _____ Critical, quarrelsome.

3. _____ Dependable, self-disciplined.

4. _____ Anxious, easily upset.

5. _____ Open to new experiences, complex.

6. _____ Reserved, quiet.

7. _____ Sympathetic, warm.

8. _____ Disorganized, careless.

9. _____ Calm, emotionally stable.

10. _____ Conventional, uncreative.

TIPI scale scoring (“R” denotes reverse-scored items):

Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness; 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.

Brief COPE

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100.

The following questions ask how you have sought to cope with a hardship in your life. Read the statements and indicate how much you have been using each coping style.

1 = I haven't been doing this at all
2 = I've been doing this a little bit
3 = I've been doing this a medium amount
4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real.".
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

From Spitzer, Kroenke, Williams, & Lowe, 2006

Patient Health Questionnaire (PHQ-9)
(Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues)

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____
=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	**Somewhat difficult**	**Very difficult**	**Extremely difficult**
☐	☐	☐	☐

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613.

One-Item Chronic Loneliness Question

(from Zhong, Chen, & Conwell, 2016)

How often do you feel lonely?

0 = Never

1 = Seldom

2 = Sometimes

3 = Often

4 = Always