SOCIAL ISOLATION AND LONELINESS IN THE COVID-19 PANDEMIC

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Abstract

The COVID-19 pandemic is a problem that the world has been facing for just about two and a half years. During this time, governments around the world implemented a variety of mandates – most prevalently lockdowns, quarantines, and other social isolation guidelines – in an attempt to curtail the spread of COVID-19. It makes intuitive sense to expect social isolation to have impacted loneliness levels in the general adult population during the first year of the pandemic, when social isolation related guidelines were widespread. Thus, the present study sought to conduct a search and review of the psychological literature related to the impact of social isolation and other related variables on loneliness in the context of the COVID-19 pandemic. Psychological databases and studies' reference sections were searched until a pool of 11 studies was formed. Aside from loneliness, variables that were examined as predictors of loneliness in at least five of the 11 studies were chosen for discussion in the present literature review. Ultimately, it was found that loneliness was high and widespread during the first year of the COVID-19 pandemic, and that a number of sociodemographic variables were risk factors for loneliness during this time. However, there were some contradictory findings in the studies regarding whether or not loneliness increased in the general population during this time. Thus, further longitudinal research investigating this phenomenon is warranted.

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Social Isolation and Loneliness in the COVID-19 Pandemic

It has been almost two and a half years since COVID-19 emerged in December 2019, resulting in the pandemic that the world has been grappling with ever since (Centers for Disease Control and Prevention, 2022). In this time, there have been more than 508,800,000 confirmed cases of COVID-19 worldwide, and over 6,200,000 individuals have died as a result of the disease (World Health Organization, n.d.).

In an attempt to prevent the spread of COVID-19, countries all over the world implemented various safety precautions, especially in the first year of the pandemic. Restaurants, gyms, movie theaters, and other non-essential business shut their doors; schools and workplaces closed, with students and employees forced to transition to remote learning and working environments; events as small as high school graduation ceremonies and as large as the Olympics were forced to be postponed or held in a virtual manner; and face masking and testing were strongly recommended and even mandated in some places, with frequent hand washing and sanitization encouraged.

Social isolation measures were especially widespread, with grand scale lockdowns implemented by governments around the world in an attempt to decrease unnecessary in-person contact and protect citizens from spreading COVID-19. Size restrictions were placed on gatherings in many countries around the world, and people discouraged – or even prohibited – from seeing their family and friends in person. Therefore, it is plausible that social isolation measures implemented as a result of the COVID-19 pandemic might have had a profound impact on individuals' lives, especially in regard to their experiences of loneliness.

The pool of literature surrounding loneliness and other variables during the COVID-19 pandemic has been growing. Regarding general loneliness, a literature review by Pai and Vella (2021) resulted in evidence supporting an influence of the pandemic on loneliness, although evidence regarding whether or not loneliness had increased as a result of the pandemic was contradictory. Similarly, Mansour et al. (2021) found evidence for a high prevalence of loneliness in "adult men"; Tomaz et al. (2021), Pan et al. (2021) and Kovacs et al. (2021) found evidence for a pandemic-related increase in loneliness in, respectively, older individuals, "older Chinese migrants" (p. 207), and the general population; and, also in older individuals, van Tilburg et al. (2021) found evidence of positive changes in loneliness during the pandemic.

Variables that have been found to be related to higher general loneliness in the pandemic include poorer financial and/or work situation (Stickley & Ueda, 2022) and poorer mental health (Mansour et al., 2021; McDowell et al., 2021). Chernova et al. (2021) found women to be lonelier during the pandemic, while Stickley and Ueda (2022) found men to be lonelier. Additionally, Stickley & Ueda (2022) found age to be inversely related to loneliness in the pandemic; Mansour et al. (2021) and Tomaz et al. (2021) found social support to be inversely related to loneliness in, respectively, "adult men" (p. 1) and older individuals; Tomaz et al. (2020) found social contact and network size to be inversely related to loneliness in older individuals; and Chernova et al. (2021) noted that those not in a relationship were more likely to experience high loneliness.

Regarding pandemic-related changes in levels of loneliness, Pan et al. (2021) found social interaction and a poor financial situation to be related to heightened loneliness in "older Chinese migrants" (p. 207); while Kovacs et al. (2021) similarly

found a lesser likelihood of increased loneliness in those who experienced more social interaction and in those who had a larger network of close relationships. Heightened and/or increasing loneliness were found to have a number of possible negative outcomes, including poor mental health (Laham et al., 2021; McDowell et al., 2021; Pai & Vella, 2021; Stickley & Ueda, 2022), sleep issues in older individuals (Grossman et al., 2021), and greater "PMPU", or "problematic mobile phone use" (Li et al., 2021, pp. 3-4).

It is evident from the literature that the pandemic has likely impacted loneliness during the pandemic and that other variables might also have impacted loneliness in the context of the pandemic. Studying this topic is important, given the evidence of loneliness leading to other negative outcomes in the pandemic. Thus, the present research conducted a review of the psychological literature to examine the impact of COVID-19-related social isolation on loneliness and to study what other variables may have impacted loneliness in the context of COVID-19-related social isolation at this time. More specifically, in an attempt to increase consistency, the researchers sought to examine these potential relationships within the context of the first year of the pandemic, when social isolation mandates were, intuitively, the most widespread. In addition to providing the psychological community with up-to-date information regarding the psychological impacts of the COVID-19 pandemic, this research was intended to increase the general population's understanding of how experiences of loneliness may have been impacted by social isolation and other variables in the COVID-19 pandemic and to inform clinicians with relevant information about loneliness during the pandemic in an attempt to better equip them to help their clients who have been impacted as a result of the pandemic, especially regarding loneliness.

Methods

Studies selected for analysis in the present research were found primarily using online databases including PsycINFO, PubMed, ScienceDirect, Sage Journals, Gale Academic OneFile, CINAHL Plus with Full Text, and MEDLINE. Initially, an advanced search was performed using terms such as “COVID-19”, “pandemic”, “coronavirus”, “social isolation”, “lockdown”, and “loneliness”. At this time, only peer-reviewed, empirical, scholarly studies that were immediately available in English and were published during the COVID-19 pandemic were considered for inclusion. The result lists were explored, and abstracts reviewed until 20 studies related to social isolation and loneliness in the pandemic were identified. While it is highly likely that additional studies related to this topic and matching the search criteria were available from the databases, the initial search was stopped after 20 studies were found due to time constraints and on the assumption that they were likely the most relevant.

The initial 20 studies were reviewed. While reading one study from the Frontiers in Psychology, two seemingly relevant studies suggested by the journal’s website were added to the pool, increasing the initial number to 22. At this point, it was determined that studies examining loneliness primarily as an indicator variable or in a qualitative or anecdotal context would be eliminated from the pool, leaving 14 studies. An additional three studies with structures inconsistent to all other studies were also excluded. The reference sections of the remaining 11 studies were combed for additional sources. Twenty seemingly relevant studies were reviewed, and as it was determined that the scope of the research needed to be narrowed, two new inclusionary criteria were added: that all included studies must primarily focus on loneliness longitudinally, in terms of

prevalence, or as an outcome-style variable, and that the included studies must focus on the general adult population. After excluding studies not meeting the revised inclusionary criteria, the pool of studies consisted of 13 studies, four from the initial pool and nine from the reference pool.

At this time, two additional studies were removed from the literature review. The first was removed due to the fact that it did not include any of the chosen variables (which will be discussed later in the section) other than loneliness and was thus deemed too tangentially related to warrant inclusion. The second was removed due to significant overlap in data with another study chosen for inclusion and a lack of relevant, unique focuses. Thus, the finalized pool of studies for inclusion consisted of 11 studies, 4 from the initial search and 7 from the reference search.

To determine which variables to include in this literature review, the primary variables included in relation to loneliness in each of these 11 studies were compared by listing them in a spreadsheet by study. In situations in which differently named variables between studies were studying essentially the same or extremely similar constructs, the separate variables were combined into one for the spreadsheet. Variables studied in at least five of the 11 studies – loneliness, gender, age, education level, number of individuals in household, income, employment status, marital status, and social support – were chosen for inclusion in the present literature review.

Results

Summaries of the 11 studies chosen for inclusion are as follows:

In a study conducted by Luchetti et al. (2020), researchers measured loneliness in a group of American adults over the course of the earliest months of the COVID-19

pandemic. Data was collected during three time periods in 2020: late January to early February, before recommendations and restrictions were implemented related to COVID-19; mid-March, when isolating measures began to be recommended to the American population, and mid- to late-April, a few weeks after official guidelines were put in place. Luchetti et al. (2020) were interested in examining two possible loneliness trajectories. One trajectory involved individuals becoming more lonely as a result of COVID-19 related safety measures, with more pronounced increases related to lengthier measures and certain sociodemographic risk factors. Also hypothesized was that increased support resulting from the pandemic could have acted as a protective factor against heightened loneliness.

Overall, Luchetti et al.'s (2020) analyses revealed that loneliness was relatively stable in the population as a whole throughout the study and supported the secondary trajectory regarding social support as a protective factor against loneliness. However, researchers also noted that the three sociodemographic factors studied appear to be associated with varying experiences with loneliness. Specifically, being younger and living without other people appeared to be related to a greater risk for loneliness at each point of data collection, although such variables were not associated with increasing loneliness throughout the study. On the contrary, being older appeared to be a risk factor for increasing loneliness throughout the study, at least around the time of the second data collection period.

In another study, Li and Wang (2020) analyzed data from a pandemic-related section of the UK Household Longitudinal Study collected towards the beginning of the pandemic in April of 2020; one of the researchers' goals was to assess levels of

loneliness in the country as well as to determine possible risk factors for each variable. Li and Wang (2020) found that experiences of loneliness and mental illness were widespread in the UK during this time. Risk factors for loneliness included gender (being a woman) and age (being a younger adult) while identified protective factors included employment and cohabitation with a significant other.

Groarke et al. (2020) studied lockdown-related loneliness in the UK during March and April of 2020. Researchers analyzed data from a cross-sectional portion of the COVID-19 Psychological Wellbeing Study in an attempt to determine how widespread experiences of loneliness were in the country during the initial lockdown and what variables might contribute to these loneliness levels. Groarke et al. (2020) found that about 27% of study participants had been experiencing loneliness and noted that a plethora of variables appear to have been related – either positively or negatively – to participants' loneliness levels. Such "risk factors" included "younger age" and being "separated/divorced" (p. 10); loneliness was less likely to be experienced by those "married or co-habitating, living with a greater number of adults, and having higher levels of perceived social support" (p. 9), while no relationships were found between gender, education level, employment status and income and loneliness (Groarke et al., 2020).

Bu et al. (2020b) researched which factors were related to a greater chance of adults in the UK feeling lonely both before and during the initial COVID-19 lockdown in the UK. More specifically, these researchers wanted to answer two questions. First, researchers were curious whether, in the context of the lockdown, differences emerged in which groups of individuals were predisposed to feelings of loneliness. Additionally,

researchers wanted to know if context of the lockdown had made it so that certain groups of people who were already predisposed to feelings of loneliness had become even more likely to feel lonely.

Comparing data from the UK Household Longitudinal Study (pre-pandemic and lockdown) and the UCL COVID-19 Social Study (during initial lockdown), Bu et al. (2020b) answered these questions. First, researchers noted that loneliness appeared higher during the pandemic than before it. Additionally, researchers found that many of those groups for which loneliness was more likely in the times before COVID-19 – including "young adults, people living alone, people with lower education or income, the economically inactive, [and] women" – were also more likely to feel lonely during the UK lockdown (Bu et al., 2020b, p. 32). Finally, it was found that some of these groups, specifically "young adults…people with low household income…adults living alone…[and] student[s]" had a higher predisposition to feelings of loneliness during this time than before (Bu et al., 2020b, p. 33).

Another study conducted by Bu et al. (2020a) involved the investigation of UK adults' longitudinal experiences with loneliness throughout the COVID-19-induced lockdown that occurred in the UK between late March and May of 2020. Also examined in this study were a variety of potential "risk factors" (p. 1) and "protective factors" (p. 3) for pandemic-related loneliness, as well as the potential for such variables to influence a hypothesized relationship between mental illness and loneliness (Bu et al. (2020a).

The data used by Bu et al. (2020a) was from the UCL COVID-19 Social Study and was limited to only that which was collected from subjects who participated a few or more times during the seven weeks of lockdown from March to May. Subjects were then

divided based on their loneliness scores into four categories ranging in loneliness severity.

From this data, Bu et al. (2020a) were able to draw many conclusions. First, they observed that a notably large number of participants studies were considered to have experienced high loneliness during the lockdown. Second, they noticed a general lack of variability in subjects' loneliness levels over the course of the lockdown; while there was some positive change in those who experienced the most loneliness and some negative change in those who experienced the least loneliness, such changes only lasted for a short time. Third, factors such as "younger age, being women, low household income… [and] being a student…" were shown to be associated with higher loneliness levels, while factors such as "living with others…and having greater perceived social support" were shown to be associated with lower loneliness levels (Bu et al., 2020a, pp. 4-5). There was, however, insufficient support for all other inquiries of the study.

Losada-Baltar et al. (2021) used survey methodology investigate potential factors related to loneliness in the context of the COVID-19 pandemic and related isolating safety measures. Researchers noted that certain characteristics, such as being a woman, being younger, and living with fewer people were related to a higher incidence of loneliness, while social support was evidently not related to loneliness.

Hansen et al. (2021) used data "from the Norwegian Counties Public Health Survey" (NCPHS) to examine, longitudinally, the possibility that levels of loneliness in the country had changed due to the COVID-19 pandemic and its resulting safety measures, and that certain sociodemographic and psychological health-related variables were related to such possible changes in loneliness (p. 766). Data used in this study was

collected at two time points, one encompassing the months leading up to the pandemic, and the other in June of 2020. For those individuals who reported prior to the COVID-19 pandemic that they experienced "social disconnection (lack of support)", loneliness levels during the pandemic seemed more likely to decrease over the early months of the pandemic, while for "single adults and older women", loneliness increased by a small amount (Hansen et al., 2021, pp. 770-771). Also reported was that lower education levels, unemployment, and low social support before the pandemic were related to generally higher loneliness levels, although the first two variables were not related to changing loneliness levels. However, overall, this study's results did not provide evidence of any significant overall increase in loneliness levels during the early pandemic.

Varga et al. (2021) studied possible relationships between COVID-19-related social isolation measures in the early days of the pandemic and four main outcome variables – "loneliness, worries, anxiety, and precautionary behaviors" – in four different European countries (Denmark, the Netherlands, the UK, and France) (p. 1). The data used in Varga et al.'s (2021) analyses were drawn from several longitudinal studies across these countries and were collected at various points between March and July of 2020.

Varga et al.'s (2021) found that, across countries, younger adults and women, were lonelier than other groups of individuals in the time-period studied and that, generally – in comparison to existing pre-pandemic literature – individuals were more lonely during the time period studied. On the other hand, no relationship was found between education level and loneliness.

Wickens et al. (2021) primarily explored how gender and age may or may not have been jointly related to Canadians experiences of loneliness during the first few

months of the COVID-19 pandemic. Data used in this study came from a survey from "the Centre for Addiction and Mental Health (CAMH) in collaboration with Methodify by Delvinia" (Wickens et al., 2021, p. 104). The specific participants chosen for inclusion in Wickens et al.'s (2021) study consisted of the participant groups from the first "three waves" of the survey (p. 103).

Wickens et al. (2021) made a number of important findings. First, they found that, more than any other adult age group, individuals between the ages of 18 and 29 were lonely towards the beginning of the pandemic, the time at which the data was collected, while individuals older than 60 were the least lonely. Additionally, it was found that women were generally lonelier than men during the beginning of the pandemic, although further analysis showed that this gender difference emerged only in adults aged 18 to 29 and adults older than 60. It was additionally found that pandemic-induced current, being unmarried and living without other people were associated with higher levels of loneliness, while all other inquiries were unsupported.

Tutzer et al. (2021) investigated the relationship between the pandemic and three variables, including loneliness, as well as a variety of possible moderating factors in the investigated relationships. Data was derived from the general adult population of Tyrol, Austria using questionnaires.

Tutzer et al.'s (2021) findings were numerous. First, researchers note that about one in five experienced high loneliness levels. Experiences of loneliness in the pandemic were more common in women, those making less money, those not working, and those not in relationships. Second, the youngest group of adults, followed by the second youngest group, were more likely to experience loneliness. Third, telecommuting for

work was related to greater loneliness. All other relevant inquiries of the study were unsupported.

In a continuation of their aforementioned study, and again using surveys, Losada-Baltar et al. (2022) studied a plethora of variables and their potential relationships with loneliness in psychological distress in the Spanish adult population during the pandemic and its related precautionary measures. This study was longitudinal, and as such involved data collection in four different phases.

Losada-Baltar et al. (2022) found that participants appeared to become lonelier over the course of the study, and that rising loneliness levels were more common in individuals who lived with fewer people and who perceived a lack of support from their families. Age and the quantity of people a participant lived with did not seem to affect changes in loneliness across the study. Living with fewer people was related to generally higher loneliness levels, but there was no significant evidence for a relationship between age and general loneliness levels.

Discussion

Loneliness.

The most common methods used for measuring loneliness were varying forms of the UCLA Loneliness Scale. The Three-Item UCLA Loneliness Scale (Hughes et al., 2004) was used often (Bu et al., 2020a; Bu et al., 2020b; Groarke et al., 2020; Tutzer et al., 2021), but the 11-Item Revised Loneliness Scale (Lee & Cagle, 2017) was used by Luchetti et al. (2020), while Bu et al. (2020b) additionally included an individual, identically scored question regarding participants experiences with loneliness. Other studies used one question to measure loneliness created by the authors or borrowed from

another source (Hansen et al., 2021; Li & Wang, 2020; Losada-Baltar et al., 2021; Losada-Baltar et al., 2022; Wickens et al., 2021), and the studies from which Varga et al.'s (2021) data was derived used various scales, with the Three-Item UCLA Loneliness Scale the most common (Hughes et al., 2004).

All studied included in this literature review studied loneliness in relation to COVID-19 and related isolation, but only eight included significant findings related to loneliness itself. Loneliness was studied in two main contexts in these studies: in terms of general level/prevalence during the time(s) of data collection, and in terms of changes from before to during or throughout data collection. Pre-pandemic-loneliness was also discussed as a predictor of pandemic loneliness in Hansen et al.'s (2021) study, but this will not be discussed here as loneliness is not discussed in this way in any other study and as it involves loneliness in an independent-variable-adjacent context.

Four of the eight studies studied the prevalence of loneliness at the time of data collection. Li and Wang (2020) found loneliness to be quite common in participants during the earliest periods of the pandemic, while Bu et al. (2020a) found, similarly, that high levels of loneliness were widespread in participants during the data collection period. Groarke et al. (2020) noted that about 27% of participants had been experiencing loneliness, and Tutzer et al. (2021) reported that about one-fifth of participants had been experiencing high degrees of loneliness, supporting these results. Thus, there is evidence that loneliness – and, particularly, intense feelings of loneliness – were very common during the pandemic.

Six of the eight studies studied loneliness in terms of change. One longitudinal study conducted by Losada-Baltar et al. (2022) found that loneliness seemed to increase

in the sample over the course of the study. Varga et al. (2021) found that, compared to existing pre-pandemic literature, loneliness seemed to be higher during the early months of the pandemic, while Bu et al. (2020b) also found evidence of higher loneliness during the pandemic compared to before it. However, Luchetti et al. (2020) noted that, generally, participant loneliness appeared consistent throughout the early months of the pandemic, while Bu et al. (2020a) and Hansen et al. (2021) corroborated this, while noting that certain specific groups seemed to experience some changes in loneliness during this time. More specifically, Bu et al. (2020a) noted that the groups of individuals who experienced the most and least loneliness, respectively, were more likely to experience a slight but temporary increase and decrease of loneliness at one point during data collection. Overall, it appears that there is some contradiction in the literature regarding whether or not loneliness increased in the first year of the pandemic.

Gender/Sex

All but one study searched for possible links between gender or sex and loneliness during the COVID-19 pandemic. In most studies, this variable was treated as binary, with the only response options being male or female (or woman or man). Tutzer et al. (2021) included an option for other in addition to woman and man.

Eight studies examined gender or sex in relation to general loneliness levels. Li and Wang (2020), Losada-Baltar et al. (2021), Varga et al. (2021), and Tutzer et al. (2021) found a relationship between being a woman and experiencing greater or more frequent loneliness during the time period studied. Wickens et al.'s (2021) findings support this relationship, but only significantly in younger (18 to 29) and older (60+) age groups, while Groarke et al. (2020) found no significant relationship between gender and

loneliness. Bu et al. (2020b) noted that women appeared to be predisposed to feelings of loneliness during the pandemic, while Bu et al. (2020a) supported this notion. While there is some confliction and variation in results, it seems evident that women may have been predisposed to loneliness during the earlier months of the pandemic, although other results raise questions about whether or not this relationship holds for all women and whether or not this risk factor was greater as a result of the pandemic.

Two studies examined gender or sex and loneliness in terms of change during the pandemic. Hansen et al. (2021) found that, around the time that COVID-19 related isolation regulations were implemented, loneliness became a little higher in older adult women in the study. However, Bu et al. (2020b) noted that it didn't seem that the pandemic heightened women's experiences of loneliness. Thus, there is not enough conclusive evidence to indicate that there was any relationship between gender and changing loneliness early in the pandemic.

Age

All studies included studied age in relation to loneliness during the COVID-19 pandemic. Most studies established varying age groups, and measured age by asking participants to indicate to which age group they belonged, but Losada-Baltar et al. (2021), Tutzer et al. (2021), and Losada-Baltar et al. (2022) measured age simply in years.

Ten studies involved the study of age in relation to loneliness levels. Luchetti et al. (2020), Li and Wang (2020), Groarke et al. (2020), Bu et al. (2020a), Bu et al. (2020b), Losada-Baltar et al. (2021), Varga et al. (2021), Wickens et al. (2021), and Tutzer et al. (2020) all found evidence to support greater experiences of loneliness in younger adults during the times of data collection. Wickens et al. (2021) additionally

noted that least lonely were adults over the age of 60, while Tutzer et al. (2021) additionally noted that the second youngest age group studied reported the second highest loneliness levels. Losada-Baltar et al. (2022), however, did not find significant evidence of a relationship between age and general loneliness levels. As the majority of studies point to an inverse relationship between age and loneliness levels in the pandemic, it seems likely that this relationship exists in some form.

Four studies discussed age and loneliness longitudinally, or otherwise in terms of change. Luchetti et al. (2020) noted that older individuals appeared to be more likely to experience increases in loneliness over the course of the study, particularly between the initial onset of widespread COVID-19 and the initiation of isolation-related mandates in the population studied, while Hansen et al. (2021) noted that older women seemed to have an increase in risk for loneliness, also near the implementation of isolation-related mandates. Bu et al. (2020b) found that the predisposition to loneliness in younger adults was even greater during than before the pandemic. Losada-Baltar et al. (2022) found no significant evidence of a relationship between age and changes in loneliness throughout the study. Thus, there is insufficient support to conclude that there is a relationship between age and changing loneliness in the pandemic.

Level of Education

Six studies involved the assessment of potential relationships between level of education and loneliness in the pandemic. All studies measured level of education by asking participants to indicate which of many educational achievement categories they fell into.

All six studies investigated education level in relation to general loneliness levels, and results were mixed. Bu et al. (2020b) found that lower education level was slightly related to an increased likelihood of being lonely during the pandemic, and Hansen et al. (2021) similarly found that a lower education level was related to higher loneliness at the time of data collection. Groarke et al. (2020) and Wickens et al. (2021) initially found evidence for a relationship between lower education level and higher loneliness prevalence, but further analyses in both studies rendered these findings insignificant. Bu et al. (2020a) and Varga et al. (2021) did not find significant evidence of any relationship between educational level and loneliness prevalence. Thus, evidence more strongly supports the conclusion that there is no relationship between education level and loneliness in the pandemic.

Only two studies were relevant to the discussion of education level and loneliness changes. Hansen et al. (2021) found no relationship between education level and loneliness as it evolved across the study, and Bu et al. (2020b) found no evidence of an increased risk of loneliness based on education level during the pandemic than before. Although this relationship wasn't widely studied, it appears that there was no relationship between these variables at the times studied.

Number of People in Household

Nine studies studied the number of people in one's household in relation to loneliness in the COVID-19 pandemic. Most authors inquired, whether numerically or categorically, about whether participants lived alone or with other individuals, although Li and Wang (2020) inquired specifically about whether participants did or did not live

with a partner, and Groarke et al. (2020) and Bu et al. (2020b) additionally took into consideration whether or not participants lived with children.

All nine studies investigated the number of people in one's household in relation to general loneliness levels. Luchetti et al. (2020), Bu et al. (2020a), Bu et al. (2020b), and Wickens et al. (2021) all noted that living without other people was related to higher loneliness or an otherwise greater risk for loneliness. Losada-Baltar et al. (2021) and Losada-Baltar et al. (2022) similarly agree that the number of people one lived with was inversely related to their loneliness levels, with Li and Wang (2020) and Groarke et al. (2020) each specifying, respectively, that living with a significant other and living with a greater number of adults are protective against loneliness. Unlike all other studies, Tutzer et al. (2021) found no apparent relationship between number of cohabitants and loneliness. Still, however, there is quite convincing evidence that living with other individuals was protective against loneliness during the times of data collection, although whether or not cohabitants being adults or an individual's partner is relevant to this relationship, and whether or not this relationship was altered by the pandemic, are questions that remain to be answered.

Three studies touch upon the relationship between the number of people one lives with and changes in loneliness. Luchetti et al. (2020) found no significant relationship between this variable and increasing loneliness over the period of the pandemic studies, while Losada-Baltar et al. (2022) similarly found that this variable didn't seem to have any relationship with changes in loneliness across their study. However, Bu et al. (2020b) noted that those living alone seemed to be more predisposed to loneliness during the pandemic than before. Thus, there appears to be slightly more evidence for the

conclusion that there is not a significant relationship between cohabitants and changes in loneliness

Income Level

Income level as related to loneliness in the pandemic was explored in five studies and measured in all by having participants choose from a list of income level classes.

Income was studied in relation to general loneliness levels in all five studies. Bu et al. (2020b) found that a lower income was related to higher loneliness levels both before and during the COVID-19 pandemic. Bu et al. (2020a) and Tutzer et al. (2021) also found lower income to be related to greater experiences of loneliness, while Groarke et al. (2020) and Wickens et al. (2021) found initial evidence of a relationship between income and loneliness that was rendered insignificant after multivariate analyses. Thus, evidence points to a relationship between lower income and higher (or more prevalent) loneliness.

Income level as relation to changes in loneliness was examined in one study. Bu et al. (2020b) noted that low-income individuals were even more predisposed to loneliness during COVID-19 than before. However, this evidence on its own is insufficient to conclude that there is a relationship between income level and changing loneliness in the pandemic.

Employment Status

Employment status was discussed in relation to loneliness in the COVID-19 pandemic in seven studies. In all studies, employment status was broken into various categories, and measured by asking participants to indicate which of a variety of

employment statuses best fit them. One study by Wickens et al. (2021) specifically asked about employment status in relation to the pandemic.

All seven studies examined employment status in relation to general loneliness levels. Li and Wang (2020) found employment to be a protective factor against loneliness while, similarly, Tutzer et al. (2021) found that those who were "unemployed or working from home during the pandemic" to be predisposed to greater loneliness (p. 5), and Hansen et al (2021) found that a lack of employment was "cross-sectionally related to higher loneliness" (p. 769). Groarke et al.'s (2020) findings initially corroborated findings that unemployment is linked to a greater likelihood of loneliness, but multivariate analyses rendered this finding insignificant. Wickens et al. (2021) found that unemployment related specifically to the pandemic at the time of data collection was related to higher loneliness levels, while Bu et al. (2020b) noted that those out of the work force had an increased likelihood of experiencing loneliness both before and during the pandemic. Bu et al. (2020a) found that students were likely to experience higher loneliness. Thus, it appears that not working during the pandemic was related to higher loneliness.

Two studies examined employment status in relation to changing loneliness over the course of the pandemic. Hansen et al. (2021) found some evidence of this relationship in initial, although multivariate analyses rendered it insignificant. Meanwhile, Bu et al. (2020b) found that students had a significant predisposition to loneliness during the pandemic where they did not before. Thus, results are too contradictory to conclude that there is a relationship between employment status and changing loneliness in the pandemic.

Social Support

Social support was studied in relation to loneliness in the context of COVID-19 and its lockdowns in six of the twelve studied chosen for inclusion. Social support was assessed by Luchetti et al. (2020) with a question regarding perceived social support; by Groarke et al. (2020) and Bu et al. (2020a) using abbreviated versions of the Perceived Social Support Questionnaire (Kliem et al., 2015; Lin et al., 2019); by Losada-Baltar (2021) and Losada-Baltar (2022) with a single question regarding perceived social support from one's family; and by Hansen et al. (2021) with a version of the Oslo Support Scale (Bøen et al., 2012).

Five studies studied the relationship between social support and general loneliness levels. Groarke et al. (2020) and Bu et al. (2020a) noted that loneliness seemed to be lower and/or less likely in individuals who felt more socially supported, while Luchetti et al. (2020) noted that, at least in older individuals, support and loneliness seemed to be inversely related. Similarly, Hansen et al.'s (2021) results showed that low social support before the beginning of the pandemic seemed to be "cross-sectionally related to higher loneliness" (p. 769), although Losada-Baltar et al. (2021) did not seem to find significant support for a relationship between social support and loneliness. Still, the fact that four out of five studies did find some support for this inverse relationship provides evidence in support of its existence.

Three of the six studies examined social support and changing loneliness. Hansen et al. (2021) found that low social support before the pandemic appeared indicative of decreasing loneliness during the period of COVID-19 studied, while Losada-Baltar et al. (2022) found evidence that those who felt unsupported by their families experienced

increasing loneliness during the period of COVID-19 studied. Luchetti et al. (2020) found some evidence that increased social support might have been protective against increasing loneliness. There is too much contradiction in these results to conclude that there was a relationship between social support and changing loneliness early in the pandemic.

Marital Status

Marital status was studied in relation to loneliness in the pandemic in five studies. Specific methods of measurement varied between studies, but all involved asking participants to indicate which of a list of marital statuses applied to them.

Four studies focused on potential relationships between marital status and general loneliness levels. Li and Wang (2020) found that having a significant other living in one's household decreased the likelihood of a person feeling lonely, and Tutzer et al. (2021) found that loneliness was more common in single individuals. Similarly, Groarke et al. (2020) found that having previously terminated a marriage in some way was related to an increased likelihood of being lonely, while being married or living with one's partner is related to a decreased likelihood of being lonely. Finally, while it was not a primary inquiry of their study, the results section of Wickens et al.'s (2021) study notes that those who aren't married have a greater likelihood of being lonely. Thus, evidence strongly supports that single individuals were predisposed to loneliness during the early months of the pandemic.

One study did examine the marital status and loneliness link longitudinally. More specifically, Hansen et al. (2021) found that loneliness increased to a small degree in single adults near the time at which isolation regulations were implemented. However,

this is not strong enough evidence to conclude that there is a relationship between marital status and changing loneliness in the pandemic.

Overall, in comparing the literature, it seems that there is currently evidence for a high general prevalence of loneliness during the COVID-19 pandemic and around the time of COVID-19 related social isolation. Additionally, there is notable evidence that being a woman, being younger, being single, being unemployed, having a lower income, living alone and receiving less social support were related to a higher predisposition for general experiences of loneliness during the earlier days of the pandemic.

Based upon the present literature review, it is not possible to draw any conclusions about whether or not loneliness increased during the first year of the pandemic; three of the studies that investigated this question found evidence of an overall increase in loneliness during the pandemic (Bu et al., 2020b; Losada-Baltar et al., 2022; Varga et al., 2021), while three did not (Bu et al. 2020a; Hansen et al., 2021; Luchetti et al., 2020). There are a few possible explanations as to why certain studies found evidence of an increase in loneliness while others did not. For example, different studies used different scales and/or questions to measure loneliness which might have elicited participants to respond differently. Additionally, there may have been some fundamental difference in the participant pools used in these studies that led some to produce data indicating increases in loneliness while others did not. Whatever the case, more research into the effect of pandemic-related social isolation on loneliness is warranted.

Limitations.

A number of limitations may have impacted the results of this literature review. First, this literature review only focused on certain types of studies. Qualitative studies,

anecdotal studies, studies that focused on loneliness as a predictor variable, and studies that did not focus on general populations were not included in the present literature review. Thus, some information pertinent to the impact of social isolation and other variables on loneliness in the pandemic was likely omitted.

Other potential limitations of this literature review concern the studies chosen for inclusion. All studies have limitations of their own that may impact findings, and thus the conclusions drawn in this literature review based on the findings of the included studies might not be completely accurate. For example, a number of studied used rather subjective measures of loneliness (Hansen et al., 2021; Li & Wang, 2020; Losada-Baltar et al., 2021; Losada-Baltar et al., 2022; Varga et al., 2021; Wickens et al., 2021), some of which were quite qualitative in nature (Li & Wang, 2020; Varga et al., 2021; Wickens et al., 2021). Thus, results based on these measures might be less valid, which may have impacted the conclusions of the present literature review.

Also, there was some overlap in the data used in the studies chosen for inclusion. For example, it appeared that Bu et al.'s (2020a), Bu et al.'s (2020b), and Varga et al.'s (2021) data were all partially or completely derived from the UCL COVID-19 Social Study, and it appeared that Losada-Baltar et al.'s (2021) and Losada-Baltar et al.'s (2022) studies may also have used overlapping data collected by the authors. Both complete sets of studies were included in this literature review because it appeared that they provided enough unique information from the others using the same or similar data to warrant inclusion. However, there is still the possibility that some similar conclusions were drawn from the same or an extremely similar set of participants in these sets of studies and, subsequently, that certain conclusions have been overrepresented in this literature review.

Additionally, a major limitation of this literature review concerns its primary goals. This literature review was conducted to assess the relationship between social isolation and loneliness in the pandemic as well as the relationships between other variables and pandemic loneliness in the context of social isolation measures. However, it would be near impossible to create true experiments to try and answer these questions. Generally, in the included studies, the best that authors could do was to assess loneliness (and potential related variables) during times of social isolation, compare experiences with loneliness (and potential related variables) from before the pandemic to during the pandemic, and/or follow loneliness (and potential related variables) longitudinally for a portion of the pandemic, including times of social isolation. Thus, the conclusions of this literature review cannot be treated as absolute determinations of the impact of social isolation on loneliness or on relationships between other variables and loneliness as much as they can be considered snapshots into how individuals were (or were not) experiencing loneliness during key moments early in the pandemic.

Finally, there are many potentially relevant variables such as race and/or ethnicity, that were not examined in many of the studied chosen for inclusion (Groarke et al., 2020; Hansen et al., 2021; Li & Wang, 2020; Losada-Baltar et al., 2021; Losada-Baltar et al, 2022; Luchetti et al., 2020; Tutzer et al., 2021; Varga et al., 2021; Wickens et al., 2021), and such as sexuality and gender identity, which were not studied at all (Bu et al., 2020a; Bu et al., 2020b; Groarke et al., 2020; Hansen et al., 2021; Li & Wang, 2020; Losada-Baltar et al., 2021; Losada-Baltar et al, 2022; Luchetti et al., 2020; Tutzer et al., 2021; Varga et al., 2021; Wickens et al., 2021). Thus, these and other underrepresented

variables, while possibly relevant in the study of loneliness in the times of COVID-19-related social isolation, could not be examined in the present literature review.

Conclusion

Although this literature review was limited in scope, it does provide an important insight into how many individuals' experiences of loneliness likely were during early moments of the COVID-19 pandemic. This information is extremely beneficial, as it indicates which subgroups of the human population may need greater assistance in managing loneliness as this pandemic continues; if other similar, isolation-requiring situations come about in the future; and in general. As there are contradictory findings in the literature concerning whether or not loneliness increased during the pandemic, additional longitudinal research on this topic is warranted and would ideally be conducted over a period of time encompassing varying intensities of the COVID-19 pandemic. Additionally, researchers might seek to expand research on experiences of loneliness during the COVID-19 pandemic by studying variables – particularly, loneliness – in a more objective and quantifiable way; investigating possible differences in the effects of social isolation on evolving loneliness in different population subgroups; paying greater attention to certain population subgroups that appeared underrepresented in the studies included in this literature, such as members of the LGBTQIA+ community and members of diverse races/ethnicities; exploring the impact of loneliness in the pandemic on other variables; exploring the potential lasting impacts of the pandemic situation on loneliness; and focusing research on any upcoming, isolation-requiring situations on those individuals shown to be at greatest risk of loneliness.

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