

# Loneliness in Malta During the Covid-19 Pandemic

Andrew Azzopardi<sup>1\*</sup>, Jamie Bonnici<sup>2</sup> and Marilyn Clark<sup>3</sup>

## Abstract

The reduced social contact which became necessary during the outbreak of coronavirus disease 2019 (Covid-19) occurred against a backdrop of elevated levels of loneliness, both in Malta and abroad. The present study used a quantitative online survey to assess levels of loneliness vis-à-vis intensity and frequency amongst a sample of Maltese adults ( $N = 906$ ), as well as exploring any relationships between loneliness and sociodemographic variables. Results showed that frequency of self-reported loneliness was associated with age group, nationality, and occupational group. Younger participants and non-Maltese persons residing in Malta reported more frequent loneliness compared to older age groups and Maltese persons, respectively. Occupation type was significantly associated with both loneliness frequency and loneliness intensity, with participants working in entry-level positions or not in employment reporting more frequent loneliness and being more likely to be severely or very severely lonely. Rates of loneliness intensity were markedly higher across the sample, when compared to findings from the previous year, before the pandemic. These findings highlight the need for loneliness interventions which target specific sociodemographic groups in order to alleviate loneliness during the enforced social distancing measures of a pandemic.

**Keywords:** Loneliness, Malta, Covid-19, prevalence

<sup>1</sup>Faculty for Social Wellbeing, University of Malta, ORCID iD: <https://orcid.org/0000-0002-5294-9803>

<sup>2</sup>Faculty for Social Wellbeing, University of Malta, ORCID iD: <https://orcid.org/0000-0003-4209-1740>

<sup>3</sup>Faculty for Social Wellbeing, University of Malta, ORCID iD: <https://orcid.org/0000-0003-0459-761X>

\*Corresponding author:

Andrew Azzopardi, Faculty for Social Wellbeing, University of Malta

Email: [andrew.azzopardi@um.edu.mt](mailto:andrew.azzopardi@um.edu.mt)

---

Azzopardi et al.

Findings from a 2019 representative survey of Maltese population aged 11 years and above revealed that 43.5% of Maltese people experience some form of loneliness (Clark et al., 2019) - a figure which highlighted the extent of the phenomenon in the Maltese Islands. The study by Clark et al. (2019) used the 11-item De Jong Gierveld Loneliness Scale, which indirectly measures the intensity of loneliness experienced by respondents (De Jong Gierveld & Kamphuis, 1985). The present study used the same research tool as that adopted by Clark et al. (2019) to gauge the prevalence of loneliness in the midst of the Covid-19 pandemic, during a period wherein social distancing directives were issued by the Maltese Government (Caruana, 2020).

During the Covid-19 pandemic, residents in Malta - as well as populations across the globe - were advised to limit their social interactions in order to minimise the spread of the disease. This involved reducing social activities, avoiding any non-essential travel or visits to friends and family, and remaining at home as much as possible (Brooks et al., 2020). The economic impacts of the pandemic also meant that people faced uncertainty about their employment and housing situations, which could potentially increase the risk of a deterioration in health and wellbeing (Brooks et al., 2020).

Loneliness and social isolation have been identified as some of the adverse consequences of the Covid-19 pandemic (Sanders, 2020). Social isolation is a related but distinct concept from loneliness; the former referring to a lack of "social interaction, social support structures and engagement with wider community activities or structures" (Public Health England, 2003, p. 6). On the other hand, loneliness is a more subjective evaluation of one's desired versus actual social connections (Sanders, 2020). Nonetheless, experiencing social isolation can be a significant predictor of experiencing loneliness, and both have been shown to have detrimental effects on physical and psychological wellbeing (Golden et al., 2009). Across the globe, governments advised individuals to limit non-essential activities and practice social distancing in an effort to reduce further infection rates of the virus (Dehning et al., 2020). Moreover, this pandemic occurred in the midst of an international 'epidemic of loneliness' (Sharma et al., 2020, p. 31). Thus, there have been increasing

concerns that the rates of loneliness could worsen due to Covid-19 lockdowns (Bu et al., 2020).

Social connectedness plays a crucial role in an individual's overall wellbeing, wherein studies identifying loneliness as being as damaging to one's health similar to smoking 15 cigarettes per day (Holt-Lunstad et al., 2015). This places loneliness as a higher predictor of mortality than obesity, with an estimated impact which could shorten a person's life by a total of 15 years (Holt-Lunstad et al., 2015), highlighting the importance of addressing this social issue. There is also increasing body of evidence linking loneliness and social isolation to cardiovascular disease, even more so mental health outcomes (Leigh-Hunt et al., 2017), and an increased risk for dementia (Boss et al., 2015; Kuiper et al., 2015), among other negative effects.

Further exacerbating the negative effects of loneliness are the findings that a person who feels lonely is more likely to engage in harmful health behaviours. A systematic review of 25 studies revealed that half of the studies found a statistically significant link between smoking and loneliness, with loneliness increasing the chances of smoking amongst adolescents (Seo & Huang, 2012; Barbosa Filho et al., 2012) and adults (Dyal & Valente, 2015). Moreover, persons experiencing loneliness are also less likely to reach out to strengthen their social connections, paving way to a vicious cycle of reduced social interaction (Arpin & Mohr, 2019).

### ***Loneliness Across the Lifespan***

The nationally representative study by Clark et al. (2019) which measured loneliness in Malta revealed an association between loneliness and age. Rates of moderate loneliness were found to follow a U-shaped distribution; 33.3% of Maltese individuals aged 11-19 were moderately lonely, followed by lower rates of 24.7% among those aged 20-34, after which rates steadily increased for subsequent age groups. These findings were similar to those found in countries such as the United Kingdom (Victor & Yang, 2012) and Australia (Franklin & Tranter, 2008), where loneliness appears to peak in adolescence, decrease into young and middle adulthood, and increase again in later life (Victor & Yang, 2012).

The higher rates of loneliness in

adolescence and later life have been proposed to occur due to the substantial life changes that occur at such times. In adolescence, there are critical challenges to navigate regarding personal and social development (Laursen & Hartl, 2013). These challenges present a conflict between the adolescent's need to develop a self-concept and their opposing desire for building intimate relationships, which together increase the chances of loneliness (Sippola & Bukowski, 1999). On the other hand, the high prevalence of loneliness in individuals over the age of 55 may occur due to life changes - such as limitations in mobility or the loss of a loved one - that typically happen in later life (Dykstra et al., 2005). Likewise, Luhmann and Hawkey used a three-item version of the UCLA Loneliness Scale (Russell, 1996) to analyse loneliness rates across the life span in a nationally representative sample of German adults. Their findings also suggest that "the late-life increase in loneliness could be explained by lower income levels, higher prevalence of functional limitations, and higher proportion of singles in this age group" (2016, p. 3).

### ***Loneliness and Culture***

Loneliness together with forced social isolation during the Covid-19 pandemic may also have been particularly harmful for foreign nationals residing in Malta, who make up 14% of the population (Eurostat, 2019). Depending on the length of time which non-Maltese residents had been living in the country prior to the pandemic, such individuals may not have had time to form adequate social networks in Malta, potentially worsening their loneliness levels.

### ***Occupational Status and Loneliness***

Several studies have reported a link between employment and loneliness. Pyle and Evans (2018) analysed the results of the United Kingdom's 'Community Life Survey 2016-2017', which asked respondents how often they felt lonely. They found that unemployed individuals who were seeking work reported significantly higher rates of loneliness frequency, compared to those in employment.

Another study which used the University of California, Los Angeles (UCLA) Loneliness Scale to determine loneliness amongst primary care patients in the United States ( $N = 1,235$ ) revealed that unemployed individuals experienced significantly

higher rates of loneliness (Mullen et al., 2019). Moreover, research investigating social loneliness amongst youth ( $N = 148$ ) also revealed that unemployed participants without access to paid work experienced the greatest level of loneliness (Creed & Reynolds, 2001).

### ***Effects of Social Isolation and Social Distancing Measures***

Past pandemics and outbreaks of infectious diseases provide evidence of the damaging effects of social isolation on mental health (Hawryluck et al., 2004; Jeong et al., 2016; Brooks et al., 2020). For instance, during the 2009 influenza A (H1N1) pandemic in the United States, the incidence of post-traumatic stress among children who were quarantined was four times as high as those children who had not been quarantined. During the same pandemic, parents in quarantine reported more symptoms of trauma-related mental health disorders (28%) than parents who were not quarantined (6%) (Sprang & Silman, 2013).

Although the prevalence of loneliness was considered to be a public health issue of epidemic proportions prior to Covid-19 (Sharma et al., 2020), the resulting increase in social isolation imposed by the virus is likely to compound matters (Buecker et al., 2020). This is because loneliness has been linked to a series of other phenomena related to wellbeing, including mental health issues, substance use, problems with interpersonal relationships, and physical health issues such as an increased risk of mortality and cognitive decline (Ingram et al., 2020).

Research to date on the effects of physical distancing directives during Covid-19 have been inconclusive. Some studies reported that loneliness levels increased (e.g. Elmer et al., 2020; Killgore et al., 2020; Sweeny et al., 2020), whilst others found that loneliness levels remained stable (Fancourt & Steptoe, 2020; Folk et al., 2020). The differing sample sizes and sociodemographic variables across these studies may account for contradictory results (Buecker et al., 2020). Nonetheless, the fact that a number of studies' findings show that previously established risk factors for loneliness are different during the pandemic than pre-pandemic point towards a need for the re-evaluation of such risk factors

Azzopardi et al.

(Buecker et al., 2020).

A recent study in the United States including 1,013 adults identified that the self-isolation measures adopted in response to Covid-19 led to a significant increase in rates of loneliness, which was also associated with a higher risk of depression and suicidal ideation. Participants who reported that they were lonely were also more likely to fulfil the clinical criteria for depression (54.7%) than non-lonely participants (15.3%). Loneliness was also linked to higher rates of suicidal ideation, with lonely participants being more likely to experience some form of suicidal ideation (34.9%) compared to non-lonely participants (4.5%). Findings from this study were consistent with the notion that a severe rise in social disconnection and loneliness are attributed to the prolonged duration of directives to stay at home (Killgore et al., 2020).

Another recent study in the United Kingdom compared data on the sociodemographic risk factors associated with loneliness, before and after the pandemic. The authors revealed that those risk factors associated with loneliness prior to Covid-19 were “near identical” during the pandemic (Bu et al., 2020, p. 1). Specifically, loneliness was more common amongst women, young adults, individuals with lower incomes or education levels, economically inactive persons, as well as those living alone or in urban areas.

Results from other studies have, however, contradicted the findings by Bu et al. (2020). Repeated cross-sectional data, collected daily in the United Kingdom since the 21st March, 2020, indicate that different groups of people were at risk during the pandemic than pre-pandemic. Results revealed that, in addition to young adults, people who lived with children, in overcrowded housing, or in cities were more lonely than other groups (Fancourt & Steptoe, 2020).

### ***Managing the Psychological Impact of the Covid-19 Pandemic***

Razai et al. (2020) noted that primary care physicians may be uniquely placed to identify patients who experience negative psychological effects due to the social isolation imposed during the Covid-19 pandemic. They suggested that patients' social and psychological wellbeing could be improved through social prescribing, which refers to using non-medical interventions in order to

improve wellbeing with existing community-based assets and resources. For example, a physician may suspect that their patient is at a particularly high risk for loneliness and confirm this through validated screening tools, such as a short scale for measuring loneliness. If this screening confirms that a high degree of loneliness is present, then the physician could prescribe social activities such as joining a choir, painting classes, or similar activities (Drinkwater et al., 2019).

More importantly, the World Health Organisation reported that multiple studies found evidence that engaging with the arts, or other forms of social prescribing, offer a cost-effective solution to improve physical and mental health (2019). Although the nature of Covid-19 limits people's ability to physically attend community-based activities, a number of these activities have also become available in digital forms (Razai et al., 2020). Nonetheless, some older adults who may not have access to attend such activities online could be contacted by telephone and given advice about maintaining their health and alternative means of support (Beaney et al., 2020). For example, the provision of emotional support over the telephone have been implemented both locally and abroad (The Malta Independent, 2020; Razai et al., 2020).

## **Method**

### ***Sample***

Participants were recruited through a voluntary sampling method (Setia, 2016), also known as a self-selection sample, whereby an invitation to take part in the study was disseminated through a sponsored post via the Facebook page belonging to the Faculty for Social Wellbeing, University of Malta. The decision to use this form of non-probability sampling was based on the time-sensitive nature of the research topic, whilst considering the cost effectiveness of such a sampling technique.

The invitation to participate in the online survey explained that this was open to any resident of Malta over the age of 18 years. Data collection took place between the 29th April 2020 to the 11th May 2020. The final sample consisted of 906 individuals, aged between 18 and 83 years. The study obtained ethical approval from the University of Malta's Faculty for Social Wellbeing

Azzopardi et al.

Research Ethics Committee. Participants were provided with written information about the purpose of the study as well as the voluntary nature of their participation and their right to quit the study at any time.

### **Research instrument**

An online survey using SurveyMonkey was designed to assess loneliness. The 11-item De Jong Gierveld Loneliness Scale (DJGLS; De Jong Gierveld & Kamphuis, 1985) was employed to determine the intensity of loneliness experienced by participants, as well as to enable comparison of results with those reported by Clark et al. (2019). The DJGLS has shown to be a valid and reliable tool to measure loneliness (De Jong Gierveld & Van Tilburg, 2006; Masi et al., 2011; Penning et al., 2014), with adequate construct and structural validity demonstrated in existing studies (Iecovich, 2013; Uysal-Bozkir et al., 2017). It includes questions which indirectly measure loneliness, by asking participants to rate their agreement with a number of statements using a 3-point Likert scale (e.g. 'There are plenty of people I can rely on when I have problems' Yes, More or less, or No). Responses to the DJGLS were calculated according to the guidelines provided by the original authors (De Jong Gierveld & Van Tilburg, 1999), resulting in each participant being assigned a total loneliness score of between 0 to 11, with a higher score indicating a greater degree of loneliness. Participants scoring between 0 to 2 were classified as 'not lonely', those scoring between 3 to 8 were classified as 'moderately lonely', and a score of 9 to 11 was classified as 'severely or very severely lonely'.

In addition to measuring the intensity of loneliness with this standardised tool, another question was included in the survey to assess participants' self-reported loneliness frequency (i.e. 'How often do you feel lonely?' Often/always, Some of the time, Occasionally, Hardly ever, or Never). This measure of loneliness frequency was not included in the 2019 study by Clark et al. Sociodemographic details were also gathered, relating to participants' age, gender, occupation, and nationality.

### **Data Analysis**

Responses for some sociodemographic variables were grouped for purposes of statistical

analysis. The ages of participants were grouped as: 18-19, 20-24, 25-34, 35-44, 45-54, 55-64, and 65+. Participants' occupation type were grouped into the following categories: Professionals (Managers, Professionals, and Technicians and associate professionals); Entry-level (Clerical support workers, Service and sales workers, Craft and related trades workers, Plant and machine operators and assemblers, Elementary occupations, Armed Forces) and; Not working (Unemployed, Student, Retired, Cannot work due to illness and/or disability, and Taking care of the house and/or family). Participants with a country of birth other than Malta, with the most common birth countries being Britain, Sweden, Denmark, and Italy, were categorised as 'Non-Maltese'. Data analysis consisted of performing chi-square tests of association, using the Statistical Package for the Social Sciences (SPSS version 27), to explore any significant associations between measures of loneliness and sociodemographic variables.

### **Results**

Descriptive statistics of the sample, in addition to loneliness rates are presented in Table 1. A total of 94% were classified as lonely according to the DJGLS measure of loneliness intensity, of which 59% were moderately lonely and 35% were severely or very severely lonely. The relationship between loneliness and age followed a U-shaped distribution, with the highest rates of moderate loneliness found among participants aged 65 years and over, and the highest rates of severe or very severe loneliness amongst the 20-24-year olds. However, the 20-24 age group also had the lowest levels of moderate loneliness compared to other age groups. The lowest levels of severe or very severe loneliness were found amongst those aged 65 years and above.

Self-reported loneliness frequency revealed that 13.5% of participants felt lonely often or always during the Covid-19 pandemic. The largest proportion of participants (37%) reported feeling lonely occasionally, whilst 21% reported feeling lonely hardly ever or never.

### **Variables Associated with Loneliness**

Significant associations were found between loneliness frequency and age group, nationality, and occupation type. Loneliness

Azzopardi et al.

intensity, characterised by the DJGLS score, was also significantly associated with participants' occupational type, as well as with loneliness frequency. No associations were evident for gender and loneliness frequency or intensity. Each of the significantly associated variables will be further outlined below.

### ***Loneliness Frequency and Age Group***

Participants' self-reported loneliness frequency was significantly associated with age group ( $X^2(20, N = 904) = 45.3, p = .001$ ). Reports of feeling lonely most frequently decreased with age, with 28% of 18-19-year olds feeling lonely 'often' or 'always', compared to 8% of those aged 65 years and above. Similarly, feeling lonely 'some of the time' was reported by 36% of the 18-19 and 20-24 age groups, steadily decreasing with age to 24% of 65+ year olds.

### ***Loneliness Frequency and Nationality***

An association was found between participants' self-reported loneliness frequency and whether they were of Maltese nationality or non-Maltese ( $X^2(4, N = 906) = 12, p = .018$ ). Non-Maltese respondents were more likely to report frequent feelings of loneliness, with 22% feeling lonely 'often or always' and 36% feeling lonely 'some of the time'. In comparison, 13% of Maltese respondents felt lonely 'often or always' and 28% felt lonely 'some of the time'.

### ***Loneliness Frequency and Occupation Type***

Self-reported loneliness frequency was also significantly associated with participants' occupation ( $X^2(8, N = 904) = 15.7, p = .047$ ). Of those individuals falling under the 'not working' category, 17% reported feeling lonely 'often or always', compared to 11% of the 'professionals' occupation category. Feeling lonely 'some of the time' was most common for those working in the 'entry level' occupational group (36%), followed by participants who were not working (28%). Professionals were most likely to report feeling lonely 'occasionally' (39%), compared to those not working (34%) and those working in entry-level positions (33%).

### ***Loneliness Intensity and Occupation Type***

Participants' loneliness intensity, categorised as either 'not lonely', 'moderately lonely' or 'severely or very severely lonely', was associated with occupation type ( $X^2(4, N = 904) = 12.6, p = .013$ ). Participants working in entry-level occupations had the highest rates of severe or very severe loneliness at 44%, followed by participants who were not working (36%). Rates of moderate loneliness were identical for professionals and individuals not in work, with 60% of each occupation type being classified as moderately lonely.

Table 1

## Sociodemographic Characteristics and Loneliness Rates of the Sample

Variable	Loneliness frequency <i>n</i> = 900			Loneliness intensity			
	Often / always	Some of the time / Occas- ion- ally	Hardly ever / Never	Moderately lonely		Severely or very severely lonely	
				2020	2019	2020	2019
<b>Gender</b>							
Female	13%	67%	20%	60%	41%	34%	2%
Male	15%	58%	27%	54%	41%	37%	2%
Other	33%	67%	0%	44%	35%	56%	0%
Total	14%	66%	21%	58%	41%	35%	2%
<b>Nationality<sup>1</sup></b>							
Maltese	13%	65%	22%	59%	42%	34%	2%
Non- Maltese	22%	64%	15%	50%	38%	43%	0%
<b>Age Group</b>							
19 and under <sup>2</sup>	28%	60%	12%	56%	33%	40%	1%
20-24	25%	59%	16%	53%	24%	43%	0%
25-34	14%	70%	16%	59%	27%	37%	1%
35-44	11%	68%	22%	56%	38%	36%	1%
45-54	13%	64%	24%	56%	42%	36%	4%
55-64	10%	68%	22%	64%	49%	31%	3%
65+	8%	59%	33%	70%	58%	20%	2%
Total	13%	65%	21%	59%	41%	35%	2%

<sup>1</sup> The 2019 data for nationality is based on participants' country of birth

<sup>2</sup> The 2019 data includes individuals aged 11-19; 2020 data includes individuals aged 18-19

### ***Comparison of Loneliness Intensity Between 2019 and 2020***

Compared with the results obtained by Clark et al. in 2019, the present study showed a substantial increase in overall loneliness rates as a result of the Covid-19 pandemic. On average, moderate loneliness increased by 18%, whilst severe loneliness increased by 40%. However, the use of a non-probability sampling method precluded the present study's data on loneliness intensity from being statistically analysed in comparison to those from 2019. Furthermore, it was not possible to compare frequency of loneliness found in the present study with findings from Clark et al. (2019), since the latter only measures loneliness intensity.

### **Discussion**

This study revealed that participants experienced substantial increases in rates of loneliness intensity in the midst of the Covid-19 pandemic, when compared to the rates of loneliness reported in the year prior to the pandemic (Clark et al., 2019). The data presented in this study highlights that particular sociodemographic characteristics might play a role in people's vulnerability to experiencing loneliness during the Covid-19 pandemic. Increased loneliness levels in specific sub-groups may cause additional threats to physical and social health in the future; It is therefore crucial to identify those groups who are at particular risk from social distancing measures, so that policy can target interventions to such groups (Buecker et al., 2020), as well as informing clinicians who may encounter individuals at increased risk of loneliness. The increase in rates of loneliness compared to those found in 2019 (Clark et al., 2019) are of particular concern, given other research findings showing that elevated loneliness during the pandemic were associated with significantly higher levels of depression and suicidal ideation (Killgore et al., 2020). Furthermore, the present findings highlight the importance of adequate measures being put in place to address loneliness, particularly to improve preparedness for the eventuality of a second wave of the Covid-19 pandemic (Xu & Li, 2020).

Similar to the findings by Clark et al. (2019), the present study found loneliness frequency to be

associated with participants' age group. The relationship between age and loneliness was also akin to that from the 2019 study, with a complex U-shaped distribution and higher percentages of younger participants feeling lonely 'often' or 'always'. Whilst no significant associations were evident for age group and loneliness intensity, young people between the ages of 18-24 had the highest rates of severe or very severe loneliness compared to other age groups. Taken together, these results point to a potentially higher risk of loneliness amongst younger populations, which may have been worsened due to limited access to socialising during the pandemic. The identification of young adults as particularly vulnerable to loneliness during the pandemic has also been reported in studies from the United Kingdom (Fancourt & Steptoe, 2020; Bu et al., 2020). However, young people had already been identified as demonstrating higher rates of loneliness prior to the pandemic (Bu et al., 2020) and these recent findings therefore serve to confirm existing literature.

Loneliness frequency also demonstrated significant associations with nationality, with non-Maltese participants feeling lonely more frequently than Maltese nationals. Whilst further research is needed in order to explore this finding further, researchers have noted that foreign nationals may be particularly vulnerable during a pandemic, since they might not be aware of how they can access the necessary resources to cope with a deterioration in their mental or physical health (Wickramage et al., 2018).

Participants' occupation type was associated with both loneliness intensity and frequency, again echoing findings by Clark et al. (2019) who found that loneliness was more likely among Maltese people who were not working. The increased rates of loneliness amongst participants who were not working also confirm those by Bu et al. (2020) which reported that loneliness was more common for economically inactive persons. If one assumes that the occupational groups in the present study are indicative of participants' education and income levels, then the present findings may also provide support for Clark et al. (2019)'s results, whereby individuals were more likely to experience loneliness if they had lower levels of education or lower perceptions of their household income. Our results also demonstrate



similarities with international studies which found that people who are economically inactive (Pinquart & Sörensen, 2003) or have a lower household income are at increased risk of loneliness during Covid-19 (Bu et al., 2020). The protective function of education in loneliness has been proposed to happen due to an enhanced sense of competence (Hensley et al., 2012) or increased opportunities for socialising (Hawkley et al., 2008).

### **Limitations**

Due to the use of a non-probability sampling method, the findings from the present study are not necessarily generalisable to the entire population of adults residing in Malta. The self-selection of participants who volunteered to complete the online survey could also have resulted in an over-representation of those individuals who have strong opinions about the topic (Setia, 2016). The final sample also suffered from an under-representation of male participants, who made up 17% of the sample. In spite of the self-selection bias and possibility of generating findings that are not necessarily representative of the population, the self-selection sampling method offers advantages in that data collection can be completed in a short time period; participating individuals could also have been more willing to provide insight into their experience of loneliness (Lund Research Ltd, 2012).

### **Conclusion and Recommendations**

The present study's findings contribute to the growing corpus of data regarding the social and psychological effects of lockdowns and social distancing measures due to the Covid-19 pandemic. The rates of moderate and severe or very severe loneliness show that a substantial increase in loneliness occurred during the first wave of the pandemic in Malta, indicating the need for public health measures to combat feelings of loneliness. For example, further governmental support for local mental health services may be needed to address individuals' increased need for psychological support. The setting up and implementation of screening tools and social prescribing measures by professionals, such as healthcare professionals, is also warranted. This would enable the identification of individuals experiencing significant levels of loneliness and the provision of advice and assistance on how to

improve their situation.

This study was also the first attempt to measure how often people in Malta self-report feelings of loneliness, in contrast to previous studies which used indirect measures of assessing loneliness. Associations between loneliness frequency and age, nationality, and occupation highlight the importance of implementing targeted interventions that address the specific needs of particular 'at-risk' groups. Further research is needed to assess long-term outcomes for individuals who experienced heightened levels of loneliness during the pandemic, as well as to investigate the efficacy of any interventions undertaken to reduce loneliness.

### **References**

- Arpin, S. N., & Mohr, C. D. (2019). Transient loneliness and the perceived provision and receipt of capitalization support within event-disclosure interactions. *Personality and Social Psychology Bulletin*, 45(2), 240-253.
- Barbosa Filho, V. C., Campos, W. D., & Lopes, A. D. S. (2012). Prevalence of alcohol and tobacco use among Brazilian adolescents: a systematic review. *Revista de saude publica*, 46(5), 901-917.
- Beaney, T., Salman, D., Vishnubala, D. (2020). The effects of isolation on the physical and mental health of older adults. *BMJ Opinion* 2020. <https://blogs.bmj.com/>.
- Boss, L., Kang, D. H., & Branson, S. (2015). Loneliness and cognitive function in the older adult: a systematic review. *International Psychogeriatrics*, 27(4), 541.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*.
- Bu, F., Steptoe, A., & Fancourt, D. (2020). Who is lonely in lockdown? Cross-cohort analyses of predictors of loneliness before and during the COVID-19 pandemic. *medRxiv*.
- Buecker, S., Horstmann, K. T., Krasko, J., Kritzler, S., Terwiel, S., Kaiser, T., & Luhmann, M. (2020). Changes in daily loneliness during the first four weeks of the Covid-19 lockdown in Germany.
- Caruana, C. (2020, March 17). What are Malta's

- coronavirus quarantine rules? Times of Malta. [timesofmalta.com](https://www.timesofmalta.com).
- Clark, M., Azzopardi, A., & Bonnici, J. (2019). The Prevalence of Loneliness in Malta.
- Creed, P. A., & Reynolds, J. (2001). Economic deprivation, experiential deprivation and social loneliness in unemployed and employed youth. *Journal of Community & Applied Social Psychology*, 11(3), 167-178.
- De Jong-Gierveld, J., & Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied psychological measurement*, 9(3), 289-299.
- De Jong Gierveld, J., & Van Tilburg, T. (1999). *Manual of the loneliness scale*. Amsterdam: Department of Social Research Methodology.
- De Jong Gierveld, J., & Van Tilburg, T. (2006). A 6-item scale for overall, emotional, and social loneliness: Confirmatory tests on survey data. *Research on aging*, 28(5), 582-598.
- Dehning, J., Zierenberg, J., Spitzner, F. P., Wibral, M., Neto, J. P., Wilczek, M., & Priesemann, V. (2020). Inferring COVID-19 spreading rates and potential change points for case number forecasts. *arXiv preprint arXiv:2004.01105*.
- Drinkwater, C., Wildman, J., & Moffatt, S. (2019). Social prescribing. *Bmj*, 364, l1285.
- Dyal, S. R., & Valente, T. W. (2015). A systematic review of loneliness and smoking: small effects, big implications. *Substance use & misuse*, 50(13), 1697-1716.
- Dykstra, P. A., Van Tilburg, T. G., & Gierveld, J. D. J. (2005). Changes in older adult loneliness: Results from a seven-year longitudinal study. *Research on aging*, 27(6), 725-747.
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Assessing change in students' social networks and mental health during the COVID-19 crisis.
- Eurostat. (2019). People on the move - statistics on mobility in Europe. European Commission. [ec.europa.eu](https://ec.europa.eu).
- Fancourt, D., & Steptoe, A. (2020). COVID-19 social study. <https://www.nuffieldfoundation.org/project/covid-19-social-study>
- Folk, D., Okabe-Miyamoto, K., Dunn, E., & Lyubomirsky, S. (2020). Have Introverts or Extraverts Declined in Social Connection During the First Wave of COVID-19?. *Collabra: Psychology*.
- Franklin, A. & Tranter, B. (2008). Loneliness in Australia, Paper No 13, Housing and Community Research Unit, University of Tasmania, Hobart.
- Golden, J., Conroy, R. M., Bruce, I., Denihan, A., Greene, E., Kirby, M., & Lawlor, B. A. (2009). Loneliness, social support networks, mood and wellbeing in community-dwelling elderly. *International Journal of Geriatric Psychiatry: A journal of the psychiatry of late life and allied sciences*, 24(7), 694-700.
- Hawkley, L. C., Hughes, M. E., Waite, L. J., Masi, C. M., Thisted, R. A., & Cacioppo, J. T. (2008). From social structural factors to perceptions of relationship quality and loneliness: the Chicago health, aging, and social relations study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 63(6), S375-S384.
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging infectious diseases*, 10(7), 1206.
- Hensley, B., Martin, P., Margrett, J. A., MacDonald, M., Siegler, I. C., Poon, L. W., & The Georgia Centenarian Study 1. (2012). Life events and personality predicting loneliness among centenarians: Findings from the Georgia Centenarian Study. *The Journal of Psychology*, 146(1-2), 173-188.
- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on psychological science*, 10(2), 227-237.
- Iecovich, E. (2013). Psychometric properties of the Hebrew version of the de Jong Gierveld loneliness scale. *Educational Gerontology*, 39(1), 12-27.
- Ingram, I., Kelly, P. J., Deane, F. P., Baker, A. L., Goh, M. C., Raftery, D. K., & Dingle, G. A. (2020). Loneliness among people with substance use problems: A narrative systematic review. *Drug and Alcohol Review*.
- Jeong, H., Yim, H. W., Song, Y. J., Ki, M., Min, J. A., Cho, J., & Chae, J. H. (2016). Mental health status of people isolated due to

- Middle East Respiratory Syndrome. *Epidemiology and health*, 38.
- Killgore, W. D., Cloonen, S. A., Taylor, E. C., & Dailey, N. S. (2020). Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry Research*, 113117.
- Kuiper, J. S., Zuidersma, M., Voshaar, R. C. O., Zuidema, S. U., van den Heuvel, E. R., Stolk, R. P., & Smidt, N. (2015). Social relationships and risk of dementia: A systematic review and meta-analysis of longitudinal cohort studies. *Ageing research reviews*, 22, 39-57.
- Laursen, B., & Hartl, A. C. (2013). Understanding loneliness during adolescence: Developmental changes that increase the risk of perceived social isolation. *Journal of Adolescence*, 36(6), 1261-1268.
- Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*, 152, 157-171.
- Luhmann, M., & Hawkley, L. C. (2016). Age differences in loneliness from late adolescence to oldest old age. *Developmental psychology*, 52(6), 943.
- Lund Research Ltd. (2012). Self-selection sampling. [statistics.laerd.com/](http://statistics.laerd.com/).
- Masi, C. M., Chen, H. Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, 15(3), 219-266.
- Mullen, R. A., Tong, S., Sabo, R. T., Liaw, W. R., Marshall, J., Nease, D. E., ... & Frey, J. J. (2019). Loneliness in primary care patients: a prevalence study. *The Annals of Family Medicine*, 17(2), 108-115.
- Penning, M. J., Liu, G., & Chou, P. H. B. (2014). Measuring loneliness among middle-aged and older adults: the UCLA and de Jong Gierveld Loneliness Scales. *Social Indicators Research*, 118(3), 1147-1166.
- Pinquart, M., & Sörensen, S. (2003). Risk factors for loneliness in adulthood and old age--a meta-analysis. Nova Science Publishers.
- Public Health England. (2003). *Public Health Approaches to Social Isolation and Loneliness: A Health and Wellbeing Directorate Seminar*. [campaigntoendloneliness.org](http://campaigntoendloneliness.org).
- Pyle, E., & Evans, D. (2016). Loneliness-what characteristics and circumstances are associated with feeling lonely. Analysis of characteristics and circumstances associated with loneliness in England using the community life survey. Office for National Statistics. [ons.gov.uk](http://ons.gov.uk).
- Razai, M. S., Oakeshott, P., Kankam, H., Galea, S., & Stokes-Lampard, H. (2020). Mitigating the psychological effects of social isolation during the covid-19 pandemic. *bmj*, 369.
- Sanders, R. (2020). ESSS Outline: Covid-19, social isolation and loneliness. Iriss. <https://doi.org/10.31583/esss.20200422>
- Setia, M. S. (2016). Methodology series module 5: Sampling strategies. *Indian Journal of Dermatology*, 61(5), 505.
- Seo, D. C., & Huang, Y. (2012). Systematic review of social network analysis in adolescent cigarette smoking behavior. *Journal of School Health*, 82(1), 21-27.
- Sharma, R. A., Maheshwari, S., & Bronsther, R. (2020). COVID-19 in the era of loneliness. *Current Psychiatry*, 19(5), 31-33.
- Sippola, L. K., & Bukowski, W. M. (1999). 14 Self, Other, and Loneliness From A Developmental Perspective. In *Loneliness in childhood and adolescence* (pp. 280-295). Cambridge University Press New York.
- Sprang, G., & Silman, M. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster medicine and public health preparedness*, 7(1), 105-110.
- Sweeny, K., Rankin, K., Cheng, X., Hou, L., Long, F., Meng, Y., ... & Zhang, W. (2020). Flow in the Time of COVID-19: Findings from China. *The Malta Independent*. (2020, April 10). Covid-19: 24/7 mental health helpline launched. *The Malta Independent*. [Independent.com.mt](http://Independent.com.mt).
- Times of Malta. (2020, May 3). COVID-19 helplines - May 3, 2020. *Times of Malta*. [timesofmalta.com](http://timesofmalta.com).
- Uysal-Bozkir, Ö., Fokkema, T., MacNeil-Vroomen, J. L., van Tilburg, T. G., & de Rooij, S. E. (2017). Translation and validation of the De Jong Gierveld Loneliness Scale among older migrants living in the Netherlands. *The Journals of Gerontology: Series B*, 72(1), 109-119.
- Victor, C. R., & Yang, K. (2012). The prevalence of

loneliness among adults: a case study of the United Kingdom. *The Journal of psychology*, 146(1-2), 85-104.

Wickramage, K., Gostin, L. O., Friedman, E., Prakongsai, P., Suphanchaimat, R., Hui, C., ... & Harper, D. R. (2018). Missing: where are the migrants in pandemic influenza preparedness plans?. *Health and human rights*, 20(1), 251.

World Health Organisation. (2019). What is the evidence on the role of the arts in improving health and well-being?. *Apps.who.int*.

Xu, S., & Li, Y. (2020). Beware of the second wave of COVID-19. *The Lancet*, 395(10233), 1321-1322.

## Author Bios

**Andrew Azzopardi** is Associate Professor in Community Development and Disability Studies. He is currently Dean of the Faculty for Social Wellbeing and member of the Department of Youth and Community Studies at the University of Malta. His research interests are disability politics, youth activism and community development. He was a pioneer in starting the first Master degree in Malta on Community Action and

Development.

**Jamie Bonnici** is a Researcher and Casual Lecturer within the Faculty for Social Wellbeing at the University of Malta. Her research has focussed on addiction studies, cyberpsychology, social psychology, quantitative methods and gender issues.

**Marilyn Clark** is an Associate Professor within the Department of Psychology, within the Faculty for Social Wellbeing at the University of Malta. Her research interests relate to Addiction, crime, victimisation and youth.