



Covid-Bereavement in Tertiary students: Predicting loneliness and Prolonged Grief reaction.

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Word Count: 4742

### Abstract

During the Covid-19 pandemic, students faced psychological stress and loneliness. While the mortality rate during the pandemic was high, little is known about bereavement in the tertiary student population and its consequences for complicated grief reactions. A total of 155 students of various nationalities were included in the study and were asked to complete measures of psychological stress, loneliness, complicated grief reactions, and bereavement-related questions. The study examined psychological stress and loneliness in bereaved students and found no significant differences in stress between bereaved and non-bereaved groups. A significant difference in loneliness was found between bereaved and non-bereaved students ( $t(131) = 40,6, p < .01$ ). Furthermore, a linear regression analysis was conducted to predict complicated grief reactions from loneliness, and no significant results were yielded, nor was this relationship moderated by gender. Future studies shall investigate the relationship between loneliness and complicated grief reactions.

*Keywords:* Covid- bereavements, loneliness, complicated grief reactions.

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The Covid-19 pandemic had a significant global impact on many aspects of human life. Besides the pandemic's negative impact on the world in areas of “economic growth, unemployment, and poverty level(s)” (Legese Feyisa, 2020), mortality might be the most significant negative consequence around the world (Noor et al., 2020). The World health organization estimated the excess mortality rate in the pandemic period (1st January 2020- 31st December 2021) at approximately 14.9 million globally (2022). Living in a world that was facing loss at this large scale has shaped our society and its values tremendously (Amis & Janz, 2020). Tertiary education students are one population that has been strongly affected by the pandemic, and the resulting financial and mental health consequences. (Son et al., 2020). It is known that students worldwide faced economic and mental burdens that are associated with the pandemic: A study of a representative college student population in the USA found that 40% of their students lost an internship or job due to the pandemic (Aucejo et al., 2020). A total of 40 % of students delayed graduation and 29% expected to earn less by the age of 35 (Aucejo et al., 2020). Two prominent factors that seem to have increased during the pandemic and affected the mental health of the population are psychological distress and loneliness. In a study conducted on public college students in the USA examining mental health during the Covid-19 pandemic, 71% of the sample experienced increased stress and anxiety. In 86% of this 71% of students, the decrease in social interaction contributed to their elevated stress (Son et al., 2020). In a longitudinal study lasting for 5 weeks during the lockdown, UK students' perceived stress and sedentary behavior showed increases (Savage et al., 2020). Apart from the psychological stress, another consequence that appeared to have increased during the pandemic is loneliness. Social distancing and lockdowns that were issued globally contributed to isolation and increased

loneliness (Hoffart et al., 2020; Bu et al, 2020). Werner et al. (2021) compared the overall mental health of German university students before and during the Covid-19 pandemic and determined that pandemic-related stress and loneliness had the strongest associations with the mental health of students. Further Loneliness has been associated with lower mental health (Vedder et al., 2022).

While the negative impact of the covid 19 pandemic on mental health is established little is known about how the Covid-19 pandemic has affected bereavement in the tertiary student population (Rossi et al., 2020; Liu et al., 2022). Bereavement shall be defined as “The condition of having lost a loved one to death. The bereaved person may experience emotional pain and distress (...) and may or may not express this distress to others (...); individual grief and mourning responses vary. “(American Psychological Association, 2022). Bereavement is positively associated with elevated psychological distress in the general population and has been shown to remain increased up to 6 months after bereavement (Gerra et al., 2003; Buckley et al., 2009). The literature on bereavement in student populations is limited. There is a lack of studies examining the association between bereavement and psychological distress in students (Osterweis et al.,1984; Lord, 2010). However, there is evidence in the literature that proposes children and adolescents might experience the death of a loved one differently from adults, and their reactions to the loss might differ (Osterweis et al.,1984). Many studies on bereavement in the younger populations are based on individuals already presenting psychopathy which does not make them representative of the general bereaved population (Osterweis et al., 1984).

A prevalence study for general student bereavement conducted at a university in the USA indicated that “30% of the sample (students) was within 12 months of experiencing a loss and 39% was within 24 months of experiencing a loss “(Balk et al., 2010). This experience of loss in

the student population can only have increased during the Covid-19 pandemic. This increase in bereaved student individuals may translate to an increase in students who experience abnormal or disordered grief that has remained unaddressed. Fortunately, a high percentage of grieving individuals shall return to their normal lives (Bonanno, 2008). Only a low percentage show grieving symptoms that persist longer than six months after bereavement occurred (Newson et al., 2011). The Percentage of individuals who do show these prolonged grief responses is around 4,8% of the adult general population (Newson et al., 2011), and may qualify for Prolonged grief disorder. This disorder is a new diagnostic entity that has been included in the International Classification of Diseases 11th Revision (ICD-11). It is planned to be added to the new Diagnostic and Statistical Manual of Mental Disorders, fifth edition, text revision (DSM-5-TR) (Pigerson et al., 2021). Symptoms of PGD include among others: “persistent longing (and) preoccupation with the deceased (as well as) extreme emotional pain that persists for an abnormally long period (more than 6 months at a minimum) “(World Health Organization, 2019). In the study of 5741 Rotterdam adults, 25,4 % of 1098 adults were diagnosed with complicated grief disorder (Newson et al., 2011). Research shows to be inconclusive on complicated grief in students: some studies report the disorder to occur predominantly in older adults (Newton et al. 2011) while other recent studies found a similar prevalence to that in adults (Glickman, 2021).

In the frame of the experience of bereavement, loneliness has been shown to demonstrate one of the major challenges following a loss (Vedder et al., 2021). A clear link between loneliness after bereavement in the literature becomes apparent. For instance, in the Meta-analysis by Vedder et al., loneliness has been found to consistently correlate with bereavement and lower mental health. Interestingly, lower social support was associated with loneliness in

individuals (Vedder et al., 2022). Stroebe & Schut (2020) predicted that the lack of physical presence and social support may intensify feelings of loneliness during the pandemic. Already presenting a large mental health risk, loneliness is believed to have “escalated greatly across the world following the introduction of physical distancing measures to control the spread of coronavirus.” (Cunningham et al., 2021). However, most studies that examine loneliness in the frame of the covid 19 pandemic target individuals of higher age, since they are believed to be most isolated (Emerson, 2020; Kotwal et al., 2021; Krendl & Perry, 2021; Stolz, Mayerl, & Freidl, in press; van Tilburg, Steinmetz, Stolte, van der Roest, & de Vries, in press). There is a need to establish if loneliness does associate with the student population. Even though the link between loneliness and bereavement in the literature is evident, studies fail to address associations in the tertiary student population. Based on studies that link bereavement with loneliness, loneliness has been assumed to possibly predict complicated grief (Mancini et al., 2015). However, empirical studies have yet to present evidence to support that view (Mancini et al., 2015). The current study, therefore, aims to find an association between both.

In addition, studies exploring loneliness in the context of bereavement, do not seem to include gender differences nor control for other demographics (Newson et al, 2011; Spino et al., 2016; Pigerson et al., 1995; Reiland et al., 2021). Interestingly, global studies on loneliness do indicate gender differences in some studies, namely younger men were most lonely (Barreto et al., 2021). While other studies do not detect gender differences in loneliness but rather a difference in it being expressed openly rather by females (Rokach, 2018). A reason discussed for these findings was that men are believed to be less likely to express their feelings of loneliness openly (Maes et al., 2019; Rokach, 2018). A meta-analysis by Maes, et al., (2019) investigated

gender differences in loneliness across the lifespan and found these to be strongest for young men aged between 21 and 40 years.

Meanwhile, studies show that women seem more susceptible to intense grief reactions than men. Gender also predicted complicated grief with women suffering greater complications (Stroebe et al., 2013). However, in contrast, a study involving elderly widowers and widows suggests that while both remain with stable symptoms of complicated grief for the first three years of bereavement, widowers' symptoms showed to increase while widows' symptoms decreased (Bierhals et al., 1996).

All in all, while the exact influence remains unclear, gender appears to play a role in both the experience of loneliness and complicated grief. However, since these variables have not been studied together to date, the present study aims to explore the influence of gender on the association between loneliness and complicated grief.

For the sake of the present research, it is distinguished between bereavement in general and covid-related bereavement. The latter addresses student individuals who have lost someone explicitly during the time frame of the Covid-19 Pandemic. The aim is to confirm an association between psychological distress, loneliness, and bereavement for a covid 19 bereaved student sample. Hence, more distress and loneliness in students who experienced covid-related bereavement as compared to non-covid bereaved students (Hypothesis 1). As elaborated earlier loneliness has played a role in individuals' lives since the pandemic, and has been related to bereavement. However, there is no clear evident link in the literature between loneliness and complicated grief, especially concerning the student population. We, therefore, aim to establish the association between loneliness and complicated grief in the student population. We hypothesize more complicated grief reactions in lonely students who experienced covid-related

bereavement (Hypothesis 2). Lastly, studies indicated the possibility of a gender effect in both loneliness and complicated grief. It is of interest for this study if the association between loneliness and complicated grief differs for males and females. Since the previous literature on gender effects in loneliness and complicated grief did show gender differences, we aim to explore whether gender moderates the relationship between loneliness and complicated grief in students who experience a covid- related bereavement. Due to the inconclusive findings pertaining to the exact influence of gender on both loneliness and complicated grief, this question will be kept exploratory.

## **Methods**

### **Design**

In the current study, research was executed as a cross-sectional design with the associations of the variables covid-19 bereavement, psychological distress, loneliness, and complicated grief in a sample of higher education students from various nationalities.

### **Procedures**

This research study was approved by the Facultaire Ethische Toetsings Commissie (FETC; 22-0586). Participants were recruited by using a convenience sample. This sample included students that accessed the study by a link that was shared using different social media platforms such as Whatsapp, Facebook, and LinkedIn. The survey was sent to acquaintances of the researchers and lastly distributed via Sona-systems. This platform represents a university initiative where bachelor students of the faculty of social sciences may gather credits (participation hours) by participating in research. The survey was conducted on the platform Qualtrics, a secured and private online platform where surveys are made and distributed via a



web link. After participants clicked on the link, they were given information and asked for consent and participation. Participants that did not agree to participate or did not complete the survey were excluded from the results. The rest of the participants were asked to fill in multiple questionnaires including demographic variables and concerning factors predicted to influence psychological distress and loneliness. Participants who marked the questions that they have lost someone during the COVID-19 pandemic were asked to fill in additional questionnaires concerning bereavement-related factors such as the form of funeral attendance and the meaningfulness experienced from it. The questionnaires measuring bereavement-related factors were administered for different studies but these were not used in the current study. The expected time to fill in the survey was estimated to last between 15-20 minutes.

### **Participants**

In total 155 Participants filled out the survey of which 153 were included in the results. Of these participants 34% (52) were male and 62% (95) were female. One participant chose not to specify and 3% (5) of participants showed missing values for gender. The average age was 22 with a standard deviation of 2,7. Nationalities included were Dutch (65,3%), Irish (15%), German (8,5%), Greek, Belgian, Canadian, Czech, English, Icelandic, Italian, Japanese, Lesotho, and Luxembourgish students. The sample consisted of 65% (100) Bachelor's degree students, 3% (4) associates degree students, 30% (41) Master's degree students, and 2% (3) students who followed another kind of degree. Lastly, 3% (5) of students did not indicate their current study. In the sample 33% (51) of participants stated they have lost someone during the covid pandemic, the most common relations between participants and lost person were: 55% (28) grandparents, 20% (10) other family members such as mother, uncles, mother-in-law, sister, and (great) aunt. Lastly, 20 % (11) of friends were lost including neighbors, the family of girlfriends and

boyfriends, and roommates. Of the 33% of participants reporting a loss during the pandemic, 65% (33) of the losses occurred more than 6 months, 12% (6) between 3 to 6 months and prior to filling out the survey, and 14% (7) less than 3 months prior to the intake. Out of all 51 losses, 24% (12) were due to the consequences of a Covid-19 infection.

Exclusion criteria were checked such as: if participants did not give informed consent, if the participants were no higher education students, under 18 years old, and if they did not fully complete the survey. Participants that met the exclusion criteria were left out of the current sample. A total of two participants were excluded from the current study (72,77). The reason for exclusion was if participant scores presented as extreme outliers according to the 3 IQR rule (Hoaglin & Ingelwicz, 1978) or did not consent to take part in the study.

### ***Measures***

#### ***Social demographics***

Participants provided answers to various social demographic variables such as Age, gender, and nationality, and their current level of education. Additionally, participants were asked to answer bereavement-related questions. These included questions about the loss of a loved one during the Covid-19 pandemic, how many months ago the loss occurred, who was lost and lastly if the loss was Covid-19 related.

#### ***Revised UCLA-Loneliness***

The UCLA-loneliness scale was used to measure loneliness by using a 4-point Likert scale of 20 statements. Participants rated how descriptive a statement was for them. An example of a statement is “*There is no one I can turn to*”. Items are scored from 1 (Never) to 4 (Often) (Russel et al., 1980). Scores can range from 0 to 60, by summing up the scores of each item. The measure showed high internal consistency with  $\alpha = .94$  and discriminant validity (Russel et al.,

1980). The UCLA loneliness scale in the current study reported a Cronbach's alpha of  $\alpha = .90$  and shows high reliability as in previous psychometric studies (Russel, 1996; Knight et al., 1988).

### ***K10***

The K10 consists of 10 questions about distress in the past four weeks. Participants answered questions such as *'About how often did you feel that everything is an effort?'* (Kessler et al., 2002) using a 5-point Likert scale (1 = *None of the time* to 5 = *All of the time*). The scoring on the K10 is divided into several groups. Total scores will range from 10 to 50. The total scores may indicate the severity of psychological distress. For instance, individuals who completed the questionnaire in primary care and who score below 20 are likely to be well, whereas scores of 20-24 might indicate a mild mental disorder. Finally, scores of 25-29 indicate a moderate mental disorder, and scores of 30 likely point to severe mental disorders (Kessler et al., 2002). The K-10 has been found to present robust psychometrics to measure distress in the general population with high reliability,  $\alpha = .93$  (Silva et al. 2021; Kessler et al., 2002). The current study reported a Cronbach's alpha of  $\alpha = .88$  and bivariate correlation showed consistent validity ( $p < 0.001$ ) which confirms the above findings showing high reliability.

### ***PG-13***

The PG-13 consists originally of 13 questions, based on the criteria of Prolonged grief disorder as introduced by the ICD-11 (World Health Organization, 2019). In the frame of the current study. The survey included questions such as *'In the past month, how often have you felt yourself longing or yearning for the person you lost?'*, using a 5-point Likert scale (1 = *Not at all* to 5 = *Several times a day*). To meet the diagnosis of PGD, an individual must meet each requirement for criteria A-E. Hence, the individual must have experienced a loss, and separation

distress, which has lasted for at least 6 months after the loss occurred. The individuals must score high (“once a day” or “quite a bit”) on at least 5 items representing cognitive, emotional, and behavioral symptoms. Lastly question 13 “Have you experienced a significant reduction in social, occupational, or other important areas of functioning (e.g., domestic responsibilities)?” shall be answered positively. Since this study is examining grief reactions rather than the disorder itself, these criteria did not influence the interpretation of scores. Due to that only 9 of 13 items were included in the analysis. In consequence the total scores may range between a minimum of 9 and a maximum of 45. Internal consistency was high with  $\alpha = .89$  and concurrent validity was tested by comparing various measures yielding significant results ( $p \leq 0.001$ ) (Pohlkamp et al., 2018). The current study reported high reliability with a Cronbach’s alpha of  $\alpha = .82$

### ***Statistical analyses***

#### ***Power analysis***

A power analysis was performed before data collection to decrease the chance of mistakenly adopting the  $H_0$  (type 1 error) and mistakenly rejecting the  $H_0$  (type 2 error). The power analysis revealed that a sample size of at least 48 participants was necessary.

#### ***Data inspection***

First, the dataset was inspected using SPSS statistics 27 Analytical software. Exclusion criteria and outliers were checked. Secondly, the following assumptions were tested: Linearity, Gaussian distribution, absence of outliers, multicollinearity, reliability of measurement, and Homoscedasticity. To support the Gaussian distribution histograms for all variables were checked. Outliers were detected by drawing scatterplots and boxplots. Outliers that did not fall within the estimated standardized residuals on the y-axis, ( $<-3.3, 3.3->$ ) were excluded. In addition, the Cooks distance on the XY-axis was considered. Homoscedasticity was checked by

examining scatterplots. Multicollinearity was checked by the VIF value, hence examining if it lays between 1 and 10 with a tolerance equal to or higher than 0.2 (Field 2018). It was concluded that there was little to no multicollinearity. Lastly, a reliability analysis was done to check Cronbach's Alpha of the K10, UCLA, and PG-13.

### *Analysis conducted*

Hypothesis 1 was tested by conducting two t-tests. The dependent variables psychological distress and loneliness were compared in a bereaved group versus a non-bereaved group. The values of the t-statistics ( $p < 0.05$ ) were examined and the means for both the bereaved versus non-bereaved groups were compared.

To test Hypothesis 2, simple regression analysis was calculated to predict the dependent variable of complicated grief based on loneliness.

The Regression equation and the value of F were examined ( $p < 0.05$ ). The effect size was estimated by  $R^2$ .

Additionally, a moderation analysis using Hayes process macro version 4.1 for SPSS (Hayes, 2017) was conducted: Loneliness was included as the independent variable, gender as the moderator, and the PG-13 total score as the dependent variable.

## **Results**

### *Descriptive statistics*

Table 1 demonstrates the mean psychological distress for bereaved and non-bereaved participants in this cross-sectional sample ( $N = 139$ ). Due to a Qualtrics processing error, 14 of the participants' responses were incomplete and therefore excluded from the analysis. The majority of participants (95) were non-bereaved, compared to the remaining number of participants who were bereaved (44). The two groups score quite similarly on the psychological distress measure with the bereaved group showing a slightly higher score. ( $M = 22.7$   $SD = 6.8$ ).

Table 1

*Summary of the data collection displaying the means and standard deviations for psychological distress (K-10) in bereaved versus non-bereaved students.*

## K10TOTAL

Bereavement	Mean	N	Std. Deviation	Minimum	Maximum
No	22.5263	95	6.74749	12.00	50.00
Yes	22.6591	44	6.81634	10.00	38.00
Total	22.5683	139	6.74489	10.00	50.00

Table 2 highlights mean scores for bereaved students' UCLA loneliness (N = 132) scores. The maximum score of the UCLA measure is 60. The present group means of bereaved and non-bereaved remain similar. Bereaved participants (M = 34.2, SD= 9.3) scored closely to non-bereaved students (M = 33.9 SD= 10.4).

Table 2

*Summary of the data collection displaying means and standard deviation for bereaved participants' total PG-13 and UCLA scores.*

## UCLATOT

Bereavement	Mean	N	Std. Deviation	Minimum	Maximum
No	33.9070	43	10.49221	22.00	67.00
Yes	34.2135	89	9.28155	20.00	56.00
Total	34.1136	132	9.65326	20.00	67.00

Table 3 highlights mean scores for bereaved students' complicated grief reaction (N = 45) scores. The maximum score in the sample is 28 and lies well below the possible maximum score of the questionnaire (45). Although there is no officially recommended cut-off score (Pohlkamp et al., 2018), the mean scores of the bereaved students (M = 13.9 SD= 4.1) are quite close to the minimum and therefore speak for less severe grief reactions.

*Summary of data collection displaying means and standard deviation for bereaved participants' total complicated grief scores.*

Bereavement	Mean	N	Std. Deviation	Minimum	Maximum
Yes	13.9111	45	4.08891	9.00	28.00

**Hypothesis 1:** More distress and loneliness in students who experienced bereavement as compared to non-bereaved students.

A significant difference in participants' total K10 and UCLA scores was hypothesized for covid bereaved students. To test this hypothesis, two independent t-tests were conducted. The difference between bereaved and non-bereaved based on the K10 scores was not significant ( $t(137) = -.108, p = .914$ ). The difference in the bereaved group based on the UCLA scores was significant ( $t(131) = 40,6, p < .01$ ). Due to the difference in sample sizes and variances for the K-10 for the two groups a Welch- Test was conducted additionally which yielded no significance K10 ( $p = .915$ ). To conclude, the hypothesis of more distress in bereaved students was rejected. The hypothesis for more loneliness in bereaved students was not rejected.

**Hypothesis 2:** More complicated grief reactions in lonely bereaved students than in those who did not experience bereavement.

To test the hypothesis a simple linear regression was conducted to predict complicated grief reactions based on loneliness. The analysis yielded no significant increase in PG-13 scoring  $F(1,41) = 0.294, p = .591, (R^2 = .007)$ . Participants' loneliness did not predict PG-13 scores ( $SE = .059, p = .591$ ). Therefore, the hypothesis of more complicated grief reactions in lonely bereaved students than non-bereaved students was rejected.

In order to explore whether Gender moderates the relationship between loneliness and complicated grief in students who experienced bereavement, a moderation analysis was conducted by using Process version 4.1 (Hayes, 2017). The overall model was insignificant  $R^2 = .066, F(3, 39) = .918, p = .633.$ , Loneliness ( $\beta = -0.35, SE = 0.23, p = .14$ ) and Gender ( $\beta = -4.54, SE = 4.19, p = .29$ ) did not account for significant variance in total PG-13 scores. Gender did not moderate the relationship between loneliness and complicated grief reactions ( $\beta = 0.15, SE = 0.115, p = .179$ ).

## Discussion

The current study aimed to understand covid-related bereavement of students and its association with psychological distress and loneliness. Further, it was hypothesized that loneliness would predict complicated grief reactions in students and that this effect would be moderated by gender.

Previous literature substantiated that, students suffered from loneliness and psychological distress during the Covid- 19 pandemic (Savage et al.;2020 Hoffart et al., 2020; Bu et al, 2020 ). Psychological distress and loneliness have been shown to increase after bereavement and were therefore hypothesized to be higher in students who faced a loss during the pandemic (Vedder et



al., 2021; American Psychological Association, 2022). This hypothesis was only confirmed for loneliness which indeed showed to be significantly higher in bereaved students.

If a significant stressor such as bereavement did not account for a difference in distress, it might be due to the bereaved group not having processed the loss yet. It has been established above that students faced not only psychological distress but also financial strains that might have hindered their ability to process the death (Son et al., 2020; Aucejo et al., 2020). Studies showed additionally that an individual's ability to tolerate uncertainty may become impaired after a loss and play a role in the grief process (Boelen, 2010). However, students had to face existential uncertainties surrounding their future in the exact time frame of the pandemic, for instance, job loss or nationwide lockdowns (Aucejo et al., 2020). Since the time of the covid-19 pandemic was marked by uncertainties about financial and health aspects of life, experiencing stress in matters of existence and survival might not have increased with bereavement. Especially, when considering that most students in the present sample have lost a grandparent which might have been anticipated as the mortality risk for the elderly increased during the pandemic (Bonanad et al., 2020).

The second hypothesis was testing the prediction of complicated grief reactions from loneliness- Further the moderation of this association by gender was investigated. Both analyses yielded insignificant results. Bereavement was linked to loneliness in research (Vedder, et al. 2021; Pitman et al. 2020). Factors such as previous loss, trauma, and most interestingly the nature of the death of the deceased do show to have an impact on the development of complicated grief (Lobb et al., 2010). For instance, traumatic violent deaths and suicides have been related to complicated grief (Nakajima et al., 2012). It seems plausible that the experiences during the Covid-19 period including nationwide lockdowns and social isolation were of a more

significant traumatic nature than the deaths that resulted from the pandemic (Masiero et al., 2020; Andreescu, 2021). As for future directions, the cause of death could be further investigated. In our sample, only a small percentage of students experienced bereavement due to the direct consequences of a covid-19 infection. Various studies, however, researched traumatic deaths exclusively when investigating complicated grief reactions (Lobb et al., 2010; Kersting et al., 2007). Furthermore, the Prolonged Grief questionnaire chosen in this study focuses primarily on complicated grief symptoms and is used for the classification of prolonged grief disorder (Prigerson et al., 2021).

Finally, since the study was focused on grief reactions rather than symptomology, a different instrument might have yielded different results. For instance, the Grief-Present Scale is one of the most widely used grief measures to date (Futterman et al., 2010).

### ***Limitations***

The first limitation of the study is the inequality of the group sizes for bereaved students (compared to the non-bereaved) could have confounded the results. The number of bereaved students was not only smaller but as mentioned above more than half of the Covid bereaved participants have lost a grandparent. Since the mortality risk for the elderly during the Covid-19 Pandemic was globally known (Yanez, 2020), the death of a grandparent for the student participant might have not elicited a traumatic grief response as it was feared or even anticipated in advance. There was also no information gathered on the attachment to the deceased which influences to what extent grief is experienced by the participants (Lobb et al., 2010; Shear & Shair, 2005) representing another limitation. Future studies might include more data concerning the bereavement experience and the nature of the relationship with the deceased.

When regarding the nature of the relationship between students and the deceased, it was solely distinguished between students who faced loss and those that did not. However, the questions regarding the loss did not leave the option to choose the number of people that were lost. Hence, if a student lost more than one person and was asked to indicate only one loss, that person might have felt less inclined to answer bereavement-related questions or fill out the PG-13. It is therefore advisable to create a bereavement variable that measures if somebody was lost, how many individuals were lost, and the relationship between participant and deceased.

Thirdly, considering the PG-13 measure, a researcher error led to two missing items on the questionnaire distributed. Specifically, items 11 (“Do you feel emotionally numb since your loss?”) and 12 (“Do you feel that life is unfulfilling, empty, or meaningless since your loss?”) which could have influenced the analysis further. Additionally, a fourth limitation was presented during data collection: Some of the participants' scores on measures were either not registered by the Qualtrics software or not answered by the participants, which led to a total of 45 scores being included in the data analysis. That in turn had negative consequences namely decreasing the sample size which led to difficulties in generalizing and interpreting the results (Harry & Lipsky, 2014; Thompson, 2011). One could argue that these scores could have given further insight into complicated grief reactions.

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## *Appendices*

### Appendix A: Participant Information Letter

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## Participant Information Letter

Dear participant,

We hereby would like you to participate in the study of Psychological Distress in Tertiary Students amidst the Covid-19 Pandemic.

What is the purpose of this study?

The purpose of this study conducted by students from the Utrecht University is to research how the COVID-19 pandemic has affected the social life, communication and the psychological health of adult tertiary education students. (Particular focus will be placed on the potential psychological effects of experiencing a bereavement during the COVID-19 pandemic for third level students).

What will happen if I take part in this study?

By taking part in this study, you will be asked to complete multiple questionnaires. First, a questionnaire about demographic variables will be asked, after this Bereavement and risk factors related questionnaires and

lastly a questionnaire about overall psychological distress will be asked to be completed.

How long will this study last for me?

The study will approximately take between 10-15 minutes to complete.

Am I allowed to participate in this study?

Current students of tertiary education and who are over the age of 18 are allowed to participate.

What are the advantages/disadvantages of participating in this study?

There is no expected adverse consequences of participating in or interrupting this study at any point. You will always be able to opt out of the study. Bachelor students from Utrecht University who participate in this study are eligible for 0.5 PPU.

Confidentiality

Collected data and information will be made anonymous and confidential. You will not be able to withdraw information once it has been submitted as



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Bereavement experienced by tertiary students during COVID-19: Risk factors for Prolonged Grief and Psychological Distress.

there will be no way of identifying personal data and information. The collected data will only be visible to the members of this research project. No other parties will view this data.

Would you like further information?

Do you have any further questions concerning the study? Please contact one of the researchers of this project listed below.

(( Please Note

The purpose of this study is for educational purposes only. The data obtained will not be used for scientific publications.

Some of the questions in this survey are of a sensitive nature ( regarding bereavement, coping mechanisms etc. ) and may lead to potential discomfort. Below you will find details of a number of organisations should you find the content of this survey distressing. ))

Telefonseelsorge (Germany) - 0800 111 0 111 or 0800 111 0 222

Aware (Ireland) - 1800 80 48 48

113Online (Netherlands) - 0800 0113

### Participant Informed Consent

Please tick the box below to give consent to the following information:

- I have read and understood the information letter and consent form of this study. I understand that I can contact the researchers if I have any questions about the study.
- I understood that by participating in this study I will have to fill out this questionnaire fully and answer all questions that make up the questionnaire.
- I hereby understand that my participation in this study is voluntary and that I am free to withdraw at any time without giving any reason, and without my legal rights being affected.
- I understand that the researchers of this study will collect and hold the data securely and in confidence. I understand that the information I provide will be made entirely confidential and anonymous.

• I understand that this study is anonymous and thus I will not be able to withdraw with my data once it has been submitted.

• I understand that disclosed information that could prevent injury or harm to other people or to prevent damage or loss to property, would need to be passed on to the appropriate authorities.

• I agree to participate in this study of Psychological Distress in tertiary Students amidst the Covid-19 Pandemic.

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Please tick the box to accept and indicate that you have understood this form and give consent to be a part of this study

We thank you for your participation.

Kind regards, Mark Krijt, Ian Watkins & Jasmin Friedrich Contact:

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i.j.watkins@students.uu.nl j.friedrich@students.uu.nl