Fear of COVID-19 and prolonged grief disorder: the association between fear of COVID-19 and PGD symptom levels measured before and during the pandemic

Lena Dethlefsen (6888194)

Faculty of Social and Behavioral Sciences, Utrecht University

Clinical Psychology (M.Sc.)

Master Thesis

Dr. Lonneke Lenferink (Supervisor)

Prof. Paul Boelen (Supervisor)

July 14, 2021

Abstract

Introduction: After the loss of a loved one, a significant minority of bereaved people are at risk of developing prolonged grief disorder (PGD) symptoms. Living with elevated grief symptoms might be especially challenging during a global pandemic because COVID-19 causes fear and anxiety. The aim of this study was twofold, first the new fear of COVID scale (FCV-19S) was validated in order to adequately assess fear of COVID-19. Second, the association between fear of COVID-19 and change scores of PGD symptom levels, measured before and during the pandemic, was investigated.

Material and methods: At T1 (N = 433) and T2 (N = 130) data of bereaved adults were collected, the final sample consisted of 127 participants. Data analyses included a principal component analysis (PCA) of the FCV-19S as well as a correlational analysis between fear of COVID-19 and the change score in PGD symptom levels.

Results: FCV-19S showed high reliability and validity, as demonstrated by its internal consistency (α = .85) and strong one-factor solution. The correlational analysis revealed no significant association between fear of COVID-19 and change scores of PGD symptoms (r_s (125) = .009, $p <$ .923)

Discussion: It can be concluded that the FCV-19S is a reliable and valid measure to assess fear of COVID-19. No conclusion can be made about the association between fear of COVID-19 and the change of PGD symptom severity. This result may be influenced by the low levels of fear of COVID-19 exhibited in the sample or other variables of the pandemic influence individuals with elevated PGD symptom levels.

Fear of COVID-19 and prolonged grief disorder: the association between fear of COVID-19 and PGD symptom levels measured before and during the pandemic

There are certain experiences that everyone will eventually undergo in their lives, the loss of a loved one is among them. A natural human response to this loss is grief, which is associated with different psychological and physiological reactions. Bereaved people often experience feelings of numbness, disbelief, yearning, anger and self-blame (Archer, 2003). Although bereavement can be a very painful process, most individuals have sufficient internal, as well as external, resources to cope with their grief and adapt to the situation with time (Lundorff et al., 2017).

Unfortunately, a significant minority of the population who has lost someone experience abnormal, increased grief reactions that stay persistently (Lundorff et al., 2017). If these enduring grief reactions interfere with daily life, Prolonged Grief Disorder (PGD) might be diagnosed. PGD differs from normal, uncomplicated grief in terms of the distress and disability caused by the grief reactions (Jordan & Litz, 2014). According to the International Classification of Diseases Version 11 (ICD-11), the diagnosis of PGD can be made when the individual shows persistent and pervasive longing for the deceased and/or a persistent and pervasive preoccupation with the deceased. This has to be accompanied by the experience of intense emotional pain in the form of sadness, guilt, anger, denial, or blame among others. The symptoms have to be present for at least six months and must cause significant impairment in important areas of functioning (World Health Organization, 2018).

High levels of PGD can contribute to an elevated risk for several mental- and physical health problems. Cross-sectional and longitudinal studies have shown that it is associated with increased suicidal ideation and reduced quality of life (Boelen & Prigerson, 2007). Several risk factors have been identified which contribute to the development and severity of PGD symptoms. A greater likelihood of developing PGD can be predicted by a history of prior trauma, -mood or

anxiety disorders, insecure attachment styles, as well as by the quality of the relationship to the deceased, circumstances around the death (e.g., unnatural, unexpected) and a lack of social support after the loss (Jordan & Litz, 2014).

Since 2020, there might be another influential variable, a global pandemic called 2019 Corona Virus Disease (COVID-19) (Menzies et al., 2020). COVID-19 is an infectious disease caused by a novel severe acute respiratory syndrome coronavirus (SARS-Cov-2) (Dubey et al., 2020). Commonly reported symptoms are related to the respiratory system and include fever, dry cough, sore throat, and fatigue but also non-respiratory symptoms like vomiting, diarrhea and nausea. So far, worldwide 187.519.798 people have been diagnosed with the disease and over 4.049.372 people have died consequently (WHO COVID-19 Dashboard, 2021). Next to the health consequences, the virus has brought qualitative changes to the lives of humans worldwide. Many countries have implemented quarantine measures in form of lockdown regulations and social distancing, in order to control the spread of the virus (Dubey et al., 2020).

Consequently, anxiety and fear of COVID-19 have been affecting individuals across the globe (Kumar & Somani, 2020). The impending sense of threat and fear is on the one hand, created by the quarantine measures which disrupt the psychosocial life of the public (Anjum et al., 2020). On the other hand, the level of fear can be directly linked to the transmission rate and medium of the virus, as well as its morbidity and mortality (Ahorsu et al., 2020). The coronavirus is transmitted rapidly, invisibly and has a high mortality rate, thus creating high levels of uncertainty and therewith fear (Ahorsu et al., 2020). Fear of COVID-19 specifically includes the fear of being infected or infecting loved ones (Bitan et al., 2020). Indeed, results from a German survey confirm that among the 1242 participants 61% agreed that they are generally afraid of the virus, while 28% were afraid of being infected (Gerhold, 2020). Similar results have been observed in other countries. One-third of the 1354 adults in a Canadian survey reported being highly worried about

the coronavirus (Pakpour & Griffiths, 2020). In order to assess the severity of fear levels, the fear of COVID-19 scale (FCV-19S) has been developed by Ahorsu et al. (2020). This relatively new measurement has been proven to be a reliable and valid instrument with a stable unidimensional structure and robust psychometric properties, as reported from validations in multiple countries (Ahorsu et al., 2020; Alyami et al., 2020; Bitan et al., 2020; Martínez-Lorca et al., 2020; Perz et al., 2020; Sakib et al., 2020).

Fear increases anxiety and stress in healthy individuals and exacerbates the symptoms of those who already have pre-existing psychiatric disorders (Ornell et al., 2020). Subsequently, it is expected that individuals with elevated PGD symptom levels are affected by fear of COVID-19. Seeking social support and making new experiences is important for individuals with PGD in order to create a new reality without the deceased (Stroebe & Schut, 2010). High levels of fear of COVID-19 in turn might lead to avoidance reactions and social isolation that goes beyond the specified quarantine measurements (Dubey et al., 2020). If the bereaved stay disengaged from social spheres, it may prevent them from making new experiences and may keep their attention narrowly fixated on the past before the loved one had died (Jordan & Litz, 2014). The thought of the deceased and the worry of losing another loved one during this pandemic on the other hand might in turn lead to more fear of COVID-19.

So far, the FCV-19S scale has been validated in multiple countries except Germany and the Netherlands. Therefore, the first aim of this study is to investigate its internal consistency and dimensionality in these counties' populations. Considering the effects of fear on mental health, it is important to reliably assess fear of COVID-19 levels to predict and control its impact on both healthy and mentally ill individuals (Bitan et al., 2020). The second aim of this study is to investigate whether fear of COVID-19 is associated with changes in severity levels of PGD symptoms measured before and during the pandemic. It is expected that the change score will be

lower for highly anxious individuals than for non-anxious individuals. The null hypothesis is that the Spearman correlation coefficient in the population is equal to zero. By investigating the association between fear of COVID-19 levels and the change score in PGD symptom levels, this research may help to identify those who need extra support during this pandemic and facilitate the introduction of tailored interventions.

Methods

Design

In this longitudinal study, data collection took place at two measurement occasions (T1 & T2) with a 6-month time interval in-between. Between November 2019 and March 2020 data collection for T1 took place, before the official beginning of the COVID-19 pandemic. Self-rated symptoms were assessed with a questionnaire via telephone. During the pandemic at T2 data was collected between May and December 2020 with self-assessment surveys sent to the participants via email.

Participants and Procedure

Research was approved by the Ethics Committee for Psychological Research at the University of Groningen. In order to meet the eligibility criteria for the study, participants had to (a) be older than 18 years, (b) speak German or Dutch and (c) have lost a loved one (partner, family member or friend) at least six months prior to participating in the study. In total, data of 433 and 130 bereaved individuals were collected at T1 and T2, respectively. Participants who only took part in one measurement occasion or who did not complete all questionnaires were not considered in the analyses. The participants were recruited from various platforms, including social media platforms (e.g., Facebook), and organizations as well as students' social networks. At T1, participants took part in a telephone interview which was conducted by master students of Utrecht or Groningen University. Beforehand, all student interviewers have undergone training by

experienced supervisors to perform the clinical interview. Each interview included questions regarding the participants background and loss as well as self-rating questionnaires measuring traumatic grief, depression and PTSD. After six months, at T2, the participants were sent a follow-up survey via email. For this survey the same self-assessment measurements were used as in T1 plus additional corona-virus related scales. Before taking part in the study, all participants signed informed consent forms. No reimbursement was given for participation.

Instruments

Fear of COVID-19.

Fear of COVID-19 was assessed using the German and Dutch versions of the FCV-19S. The scale contains 7 items (e.g., "Ich habe Angst vor dem Coronavirus"). To each statement participants indicate their level of agreement using a 5-point Likert scale. Answer options were 1 = "strongly disagree", 2 = "disagree", 3 = "neither agree nor disagree", 4 = "agree" and 5 = "strongly agree". The total score is calculated by adding up each item score, giving a range from 7 to 35. The higher the score, the greater the fear of COVID-19 (Ahorsu et al., 2020). The scale has been validated in the populations of different countries and showed a good internal consistency in an Israelian, Spanish and Iranian sample (α = .86) as well as an excellent one in an American sample (α = .91) (Bitan et al., 2020; Martínez-Lorca et al., 2020; Perz et al., 2020).

Prolonged grief disorder symptoms.

The severity of PGD symptoms was assessed using two versions of the traumatic grief inventory (TGI), which are based on the original traumatic grief inventory self-report developed by Boelen and Smid (2017). At T1, the traumatic grief inventory clinically administered (TGI-CA) was used. It consists of 22 questions assessing grief symptoms according to the persistent complex bereavement disorder (PCBD) as proposed by the DSM-5 (APA, 2013), the prolonged grief disorder (PGD) as presented by Prigerson et al. (2009) and the prolonged grief disorder (PGD)

according to the ICD-11 (WHO, 2018). The same 22 items of the TGI-CA were used at T2 in form of the traumatic grief inventory self-report plus (TGI-SR+). Next to the difference that the first version was conducted verbally and the second one in written some formal changes between the two versions were made. First, items were reformulated from statements to questions. Second, in the TGI-CA a time specification (i.e., "in the last month") precedes every question instead of only being mentioned at the beginning of the questionnaire. Lastly, while in the TGI-SR+ it was referred to the "deceased", the latter is addressed by name or relationship (e.g., "your father") in the TGI-CA. In both versions, each item is rated using a 5-point Likert scale. Answer options were 1 = "never", 2 = "rarely", 3 = "sometimes", 4 = "frequently", 5 = "always". An analysis on the 22 items of the TGI-CA and TGI-SR+ conducted in the light of this study revealed an excellent internal consistency of $\alpha = .91$ and $\alpha = .95$, respectively.

For the analysis of PGD scores only the 13 items that assessed PGD according to the ICD-11 were used from both questionnaires. The internal consistencies for these items were also good to excellent with a Cronbach's alpha of $\alpha = .89$ for the TGI-CA and $\alpha = .93$ for the TGI-SR+. Summing up all items, total scores can range from 13 to 65. Research has shown that a score of 40 is the optimal cut-off score in identifying probable PGD cases when applying the liberal scoring rule (Lenferink et al., submitted). For the liberal scoring rule proposed by Killikelly & Maercker (2018) at least one Criterion B symptom (items 1 and 3), one Criterion C symptom (items 2,5,8,9,10, 16, 19, 20, 21, 22) and the Criterion D symptom (item 13) must be fulfilled.

Statistical Analysis

In order to examine demographic characteristics of the participants descriptive statistics were used. Internal consistency and reliability of the FCV-19S were assessed using Cronbach's alpha, inter-item correlations, and corrected item-total correlations. A principal component analysis (PCA) was executed to investigate the dimensionality of the FCV-19S. Therefore, components

yielding an eigenvalue > 1.0 were selected and scree plots were examined to confirm the component selection.

A correlational analysis was conducted in order to investigate the association between fear of COVID-19 and the change in severity levels of PGD from T1 to T2. The independent variable (x) is the fear of COVID-19 and the outcome variable (y) is the change of PGD symptom scores. First, the scores of PGD symptoms according to the items of the ICD-11 at T1 and T2 were calculated and a change score (T1-T2) was established. Second, the total scores on the FCV-19S were calculated. An inspection of linearity revealed a monotonic relationship between the two variables. Therefore, a Spearman's correlation analysis was used. All analyses were conducted using the IBM SPSS Statistics software (IBM, 2020).

Results

Sample Characteristics

The final sample consisted of 127 (29%) participants, including 80% females and 20% males. Table 3 shows sociodemographic characteristics of the study. Participants' age ranged from 18 to 83 years ($M = 46.6$, $SD = 14.73$), the majority of the participants were born in the Netherlands (62%) or Germany (31%). Most participants have either lost their partner (44%) or parent (40%), followed by a loss of their child (15%) or a friend (10%). Relatively few have lost a grandparent (7%), sibling (5%) or other (6%). The most frequent cause of death was physical illness (73%), followed by suicide (17%), accidents (9%) and other (2%). Losses had occurred on average 65 month earlier ($SD = 6.06$). On average, the change score of PGD symptom levels was -2.6 *(SD =* 7.94). Of all participants, 11 (9%) fulfilled the criteria for probable PGD cases at T1 and 22 (18%) at T2. For fear of COVID-19 participants scored 12.4 ($SD = 4.45$) on average (see Table 4).

Internal Consistency and Reliability of the FCV-19S

The FCV-19S had a high level of internal consistency, as determined by a Cronbach's alpha of $\alpha = .85$. Corrected item-total correlations were ranging from rs= .59 to rs = .67 indicating a good reliability. Table 1 shows that inter-item correlations were moderate ranging from $r = .35$ to $r = .74$. Overall, the analysis shows that also the German and Dutch version of the FCV-19S has a high internal consistency and reliability.

Principal Component Analysis (PCA) of the FCV-19S

Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than r = .3. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.83, with all individual KMO measures being greater than .7 (see Table 2) which can be classified as "meritorious" (Kaiser, 1974). Bartlett's Test of Sphericity was statistically significant ($\chi^2 (21) = 416.48$, p < .0005), indicating that the data matrix is appropriate for conducting a PCA.

The PCA revealed one component that had an eigenvalue greater than one. Additionally, visual inspection of the scree plot presented in Figure 1 indicated that one component should be retained (Cattell, 1966). Overall, the one-component solution explained 59% of the total variance. A Varimax orthogonal rotation was not necessary, as only one factor was extracted.

Correlational Analysis

A Spearman's rank-order correlation was run to assess the relationship between fear of COVID-19 and the change score of PGD symptom severity level from T1 and T2. Preliminary analysis showed the relationship to be monotonic, as assessed by visual inspection of a scatterplot. There was no statistically significant correlation between fear of COVID-19 and change scores of PGD symptom severity, $r_{s}(125) = .009$, $p < .923$.

Discussion

COVID-19 represents one of the greatest challenges of the 21st century. High levels of anxiety and uncertainty have spread due to high infection- as well as mortality rates and the implementation of lockdown regulations. The fear of COVID-19 contributes to heightened levels of stress and anxiety (Bitan, 2020). These effects can be observed in the general population, but especially in those who are already struggling with a mental illness (Bitan, 2020). Particularly for those who have previously lost a loved one, the fear may influence the symptoms of PGD. The aim of the current study was therefore to validate the FCV-19S in the bereaved German and Dutch population, and to investigate the association between fear of COVID-19 and the change score of PGD symptom levels between two measurement occasions (i.e., before the pandemic and six months later during the pandemic).

The validation of the FCV-19S in a Dutch and German sample of bereaved adults showed that the scale has sound psychometric properties. Consistent with validations from other samples drawn from multiple countries (Alyami et al., 2020; Ahorsu et al., 2020; Bitan et al., 2020; Caycho-Rodríguez et al., 2020; Martinéz et al., 2020; Perz et al., 2020; Satici et al., 2020; Soraci et al., 2020), the scale shows good internal consistency reliability. Inter-item correlations suggest that all items measure the same construct, namely "fear of COVID-19". Additionally, analyses revealed a one-factor solution, which explained 59% of the total variance. This finding is consistent with most previous studies, which found evidence for a unidimensional structure as well (Alyami et al., 2020; Elemo et al., 2020; Martinéz et al., 2020; Perz et al., 2020; Sakib et al., 2020; Satici et al., 2020; Soraci et al., 2020). Few authors supported a multidimensional structure in which fear of COVID-19 is divided into emotional fear reactions and symptomatic expressions of fear (Andrade et al., 2020; Bitan et al., 2020). However, the current results give sufficient empirical evidence of validity and reliability to use the FCV-19S in assessing fear of COVID-19 levels and support the structure

of the original scale proposed by Ahorsu et al. (2020). So far, most validations of the FCV-19S have been done in mentally healthy samples. Considering the effects of fear of COVID-19 on mentally ill individuals (Bitan et al., 2020), further research should be done on this population.

In contrast to the expectations, the analysis revealed that the relationship between fear of COVID-19 and change scores of PGD levels was non-significant. A possible explanation for this result might be the low levels of fear of COVID-19 within the sample. Varying scores on the FCV-19S have been found in other studies (Ahorsu et al., 2020; Martinéz et al., 2020) which may be related to the way the individual country manages the pandemic and the timing of measurement.

The Netherlands as well as Germany have reacted fast to the increasing numbers of cases with the introduction of lockdown regulations and social distancing (Antonides & van Leeuwen, 2020; Nauman et al, 2020). This way, both countries could quickly decrease the number of infected individuals and subsequent deaths (Antonides & van Leeuwen, 2020; Nauman et al, 2020). In this context, a survey conducted in Germany measured COVID-19-fear from March 2020, right at the begin of the lockdown, until the restrictions were loosened, at the end of April 2020 (Hetkamp et al., 2020). Results demonstrate that fear levels increased during the first weeks of lockdown, reached its peak at the end of March when a contact prohibition got announced and declined afterwards (Hetkamp et al., 2020). At the end of April, when all restrictions were released, fear dropped almost to its initial level because people might have habituated to the situation (Hetkamp et al., 2020) and threat as well as risk perception have decreased (Nauman et al, 2020). In this study the second data acquisition started in May 2020, when restrictions were already loosened in Germany and the Netherlands, lasting until December 2020 when a second lockdown started. The rising numbers of infections and deaths as well as the initial phase of the lockdown could have led to an increase in fear of COVID-19 again. As the development of the pandemic creates constant changes in social behavior and rules (Caycho-Rodríguez et al., 2021) timing of measurement seems

critical. Future studies should consider this in order to create valuable statements about the influence of fear of COVID-19.

Another potential explanation for the results could be that PGD symptom levels may be stronger influenced by other factors of this pandemic than fear of COVID-19. In consideration of the Dual Process Model individuals oscillate between the accomplishment of loss-oriented and restoration-oriented tasks after the loss of a loved one (Stroebe & Schut, 1999). Loss-oriented tasks refer to the processing of and dealing with the loss, typically involving rumination about and yearning for the deceased as well as thinking about circumstances and events surrounding the death. Restoration-oriented tasks focus on secondary stressors associated with the loss and how the individual deals with them. This includes the attendance to life changes, distraction from grief, doing new things and getting new roles as well as identities and relationships (Stroebe & Schut, 1999). Chronic grievers are thought to focus on loss-oriented tasks, thereby often avoiding the engagement in activities that could foster adjustment (Stroebe & Schut, 2010). The lockdown regulations brought fears of unemployment, lack of compensation through work, travel or leisure activities and especially social isolation (Strauß, Berger & Rosendahl, 2021). These consequences might facilitate an increased focus on loss-oriented tasks as finding distractions from grief, doing new things as well as acquiring new roles and relationships became more difficult. Furthermore, being confronted with the deaths of people worldwide due to the pandemic might create a constant reminder of the own loss and thus leads to more distress for individuals with heightened levels of PGD symptoms.

The results of this study have to be evaluated in the light of apparent limitations. First, the sample consisted of a convenience sample of Dutch and German speaking bereaved individuals and might not be representative of the whole bereaved population. As the majority of participants were female, there might be an over-representation of those in the sample. Second, findings were

based on self-report measures which might be influenced by biases for social convenience and/or memory effects. Third, PGD scores were calculated according to the liberal cut off criteria proposed by Killikelly & Maercker (2018). Since previous research has suggested that these criteria might be too liberal (Boelen, Lenferink & Smid, 2019). using the conservative scoring rule would have resulted in lower PGD symptom scores. Lastly, regarding the validation of the FCV-19S, the PCA was not run separately for the Dutch and German sample in order to get more power. Accordingly, no inferences can be drawn in terms of validity for each of the two languages. Future research should further test the psychometric properties of the FCV-19S in Dutch and German bereaved samples.

Despite these limitations, the results of this study can provide the foundation for new conclusions. First, a valid instrument to assess fear of COVID-19 allows further research to investigate this construct as outcome measure or explanatory factor. Having an adequate understanding of the potential risk group allows the identification of prevention, as well as intervention programs for individuals with elevated grief levels. It may be especially interesting to use the FCV-19S on individuals who lost someone due to or during COVID-19, as scientists already predicted that the characteristics and circumstances of COVID-19 deaths will lead to an increase in individuals developing PGD (Eisma et al., 2020). Second, additional research should be conducted, to monitor the development and evolution of PGD symptom levels during the pandemic in order to identify the potential stressors. The focus on social isolation, the inability to new experiences and avoidance behaviours as potential stressors might be particularly valuable.

Conclusion

In summary, losing a loved one is challenging, and so is coping with grief during a pandemic. Although fear of COVID-19 could not be associated with changes in PGD symptom levels in this study, it is important to measure this construct in order to recognize populations in need of

intervention. The findings demonstrate that the FCV-19S is a valid and reliable instrument to measure fear of COVID-19 in a Dutch and German bereaved sample. Further studies should use and validate the scale to test other potential risk groups, especially individuals with mental health issues. Investigating other factors of this pandemic that impact on PGD symptom levels of individuals who have lost someone before or during the pandemic and struggle to re-adjust to a life without the deceased might lead to valuable insights.

References

Ahorsu, D. K., Lin, C.-Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The Fear of COVID-19 Scale: Development and Initial Validation. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00270-8

Alyami, M., Henning, M., Krägeloh, C. U., & Alyami, H. (2020). Psychometric evaluation of the Arabic version of the Fear of COVID-19 Scale. International Journal of Mental   Health and Addiction. https://doi.org/10.1007/s11469-020-00316-x

Antonides, G., & van Leeuwen, E. (2020). Covid-19 crisis in the Netherlands: "Only together we can control Corona". *Mind & Society*. https://doi.org/10.1007/s11299-020-00257-x

Archer, J. (2003). *The nature of grief: The evolution and psychology of reactions to loss*. Routledge.

Boelen, P. A., Djelantik, A. A. A. M. J., de Keijser, J., Lenferink, L. I. M., & Smid, G. E. (2019). Further validation of the Traumatic Grief Inventory-Self Report (TGI-SR): A measure of persistent complex bereavement disorder and prolonged grief disorder. *Death Studies*, *43*(6), 351–364. https://doi.org/10.1080/07481187.2018.1480546

Boelen, P. A., Lenferink, L. I., & Smid, G. E. (2019). Further evaluation of the factor structure, prevalence, and concurrent validity of DSM-5 criteria for persistent complex bereavement disorder and ICD-11 criteria for prolonged grief disorder. Psychiatry research, 273, 206-210.

Boelen, P. A., & Prigerson, H. G. (2007). The influence of symptoms of prolonged grief disorder, depression, and anxiety on quality of life among bereaved adults: A prospective study. *European Archives of Psychiatry and Clinical Neuroscience*, *257*(8), 444–452. https://doi.org/10.1007/s00406-007-0744-0

Boelen, P. A., & Smid, G. E. (2017a). The Traumatic Grief Inventory Self-Report Version (TGI-SR): Introduction and Preliminary Psychometric Evaluation. *Journal of Loss and Trauma*, *22*(3), 196–212. https://doi.org/10.1080/15325024.2017.1284488

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate behavioral research*, *1*(2), 245-276. https://doi.org/10.1207/s15327906mbr0102_10

Caycho-Rodríguez, T., Tomás, J. M., Barboza-Palomino, M., Ventura-León, J., Gallegos, M., Reyes-Bossio, M., & Vilca, L. W. (2021). Assessment of Fear of COVID-19 in Older Adults: Validation of the Fear of COVID-19 Scale. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00438-2

Di Crosta, A., Palumbo, R., Marchetti, D., Ceccato, I., La Malva, P., Majella, R., Cipi, M., & Di Domenico, A. (2020). Individual Differences, Economic Stability, and Fear of Contagion as Risk Factors for PTSD Symptoms in the COVID-19 Emergency. *Frontiers in Psychology.* https://doi.org/10.3389/fpsyg.2020.567367

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14(5), 779-788. https://doi.org/10.1016/j.dsx.2020.05.035

Eisma, M. C., Boelen, P. A., & Lenferink, L. I. M. (2020). Prolonged grief disorder following the Coronavirus (COVID-19) pandemic. *Psychiatry Research*, *288*, 113031. https://doi.org/10.1016/j.psychres.2020.113031

Elemo, A. S., Satici, S. A., & Griffiths, M. D. (2020). The fear of COVID-19 scale: psychometric properties of the Ethiopian Amharic version. International Journal of Mental Health and Addiction, 1-12.

Fitzpatrick, K. M., Harris, C., & Drawve, G. (2020). Fear of COVID-19 and the mental health consequences in America. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S17–S21. https://doi.org/10.1037/tra0000924

Gerhold, L. (n.d.). *COVID-19: Risk perception and Coping strategies. Results from a survey in Germany.* 11.

Hetkamp, M., Schweda, A., Bäuerle, A., Weismüller, B., Kohler, H., Musche, V., & Skoda, E. M. (2020). Sleep disturbances, fear, and generalized anxiety during the COVID-19 shut down phase in Germany: relation to infection rates, deaths, and German stock index DAX. Sleep medicine, 75, 350-353. https://doi.org/10.1016/j.sleep.2020.08.033

Jordan, A. H., & Litz, B. T. (2014). Prolonged grief disorder: Diagnostic, assessment, and treatment considerations. *Professional Psychology: Research and Practice*, *45*(3), 180–187. https://doi.org/10.1037/a0036836

Kabasakal, E., Özpulat, F., Akca, A., & Özcebe, L. H. (2021). COVID-19 fear and compliance in preventive measures precautions in workers during the COVID-19 pandemic. *International Archives of Occupational and Environmental Health*. https://doi.org/10.1007/s00420-021-01682-2

Killikelly, C., & Maercker, A. (2017). Prolonged grief disorder for ICD-11: The primacy of clinical utility and international applicability. *European Journal of Psychotraumatology*, *8*(sup6), 1476441. https://doi.org/10.1080/20008198.2018.1476441

Kumar, A., & Somani, A. (2020). Dealing with Corona virus anxiety and OCD. Asian Journal of Psychiatry, 51, 102053. https://doi.org/10.1016/j.ajp.2020.102053

Lenferink, L. I. M., Eisma, M. C., Smid, G. E., de Keijser, J., & Boelen, P. A. (submitted). Valid measurement of DSM-5 persistent complex bereavement disorder and DSM-5-TR and

ICD-11 prolonged grief disorder: The Traumatic Grief Inventory-Self Report Plus (TGI-SR+).

Lundorff, M. (2017). Prevalence of prolonged grief disorder in adult bereavement_ A systematic review and meta-analysis. *Journal of Affective Disorders*, 12.

Martínez-Lorca, M., Martínez-Lorca, A., Criado-Álvarez, J. J., Armesilla, M. D. C., & Latorre, J. M. (2020). The fear of COVID-19 scale: Validation in spanish university students. *Psychiatry Research*, *293*, 113350. https://doi.org/10.1016/j.psychres.2020.113350

Menzies, R. E., Neimeyer, R. A., & Menzies, R. G. (n.d.). *Death Anxiety, Loss, and Grief in the Time of COVID-19*. 5.

Menzies, R. E., Sharpe, L., & Dar-Nimrod, I. (2019). The relationship between death anxiety and severity of mental illnesses. *British Journal of Clinical Psychology*, *58*(4), 452–467. https://doi.org/10.1111/bjc.12229

Naumann, E., Möhring, K., Reifenscheid, M., Wenz, A., Rettig, T., Lehrer, R., & Blom, A. G. (2020). COVID-19 policies in Germany and their social, political, and psychological consequences. *European Policy Analysis*, *6*(2), 191-202.

Ornell, F., Schuch, J. B., Sordi, A. O., & Kessler, F. H. P. (2020). "Pandemic fear" and COVID-19: Mental health burden and strategies. *Brazilian Journal of Psychiatry*, *42*(3), 232–235. https://doi.org/10.1590/1516-4446-2020-0008

Pakpour, A. H., & Griffiths, M. D. (2020). The fear of COVID-19 and its role in preventive behaviors. *Journal of Concurrent Disorders*, *2*(1), 58-63.

Perz, C. A., Lang, B. A., & Harrington, R. (2020). Validation of the Fear of COVID-19 Scale in a US College Sample. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00356-3

Sakib, N., Bhuiyan, A. I., Hossain, S., Al Mamun, F., Hosen, I., Abdullah, A. H., ... & Mamun, M. A. (2020). Psychometric validation of the Bangla Fear of COVID-19 Scale: Confirmatory factor analysis and Rasch analysis. International Journal of Mental Health and Addiction, 1-12.

Satici, B., Gocet-Tekin, E., Deniz, M. E., & Satici, S. A. (2020). Adaptation of the Fear of COVID-19 Scale: Its association with psychological distress and life satisfaction in Turkey. International journal of mental health and addiction, 1-9.

Schut, M. S. H. (1999). The dual process model of coping with bereavement: Rationale and description. Death studies, 23(3), 197-224. https://doi.org/10.1080/074811899201046

Soraci, P., Ferrari, A., Abbiati, F. A., Del Fante, E., De Pace, R., Urso, A., & Griffiths, M. D. (2020). Validation and psychometric evaluation of the Italian version of the Fear of COVID-19 Scale. International journal of mental health and addiction, 1-10.

Stănculescu, E. (2021). Fear of COVID-19 in Romania: Validation of the Romanian Version of the Fear of COVID-19 Scale Using Graded Response Model Analysis. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00428-4

Strauß, B., Berger, U., & Rosendahl, J. (2021). Folgen der COVID-19-Pandemie für die psychische Gesundheit und Konsequenzen für die Psychotherapie – Teil 1 einer (vorläufigen) Übersicht. *Psychotherapeut*, *66*(3), 175–185. https://doi.org/10.1007/s00278-021-00504-7

Stroebe, M., & Schut, H. (2010). The Dual Process Model of Coping with Bereavement: A Decade on. *OMEGA - Journal of Death and Dying*, *61*(4), 273–289. https://doi.org/10.2190/OM.61.4.b

Tang, W., Hu, T., Hu, B., Jin, C., Wang, G., Xie, C., Chen, S., & Xu, J. (2020). Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the

COVID-19 epidemic in a sample of home-quarantined Chinese university students.

Journal of Affective Disorders, *274*, 1-7. https://doi.org/10.1016/j.jad.2020.05.009.

Bitan, D. T., Grossman-Giron, A., Bloch, Y., Mayer, Y., Shiffman, N., & Mendlovic, S. (2020).

Fear of COVID-19 scale: Psychometric characteristics, reliability and validity in the

Israeli population. *Psychiatry Research*, *289*, 113100.

https://doi.org/10.1016/j.psychres.2020.113100

World Health Organization. (2018). International classification of diseases for mortality and

morbidity statistics (11th Revision). Retrieved from https://icd.who.int/browse11/l-m/en

WHO Coronavirus (COVID-19) Dashboard. (2021, July 14). World Health Organization.

https://covid19.who.int/.

Tables & Figures

Table 1
Measures of Internal Consistency and Reliability of the Dutch and German Versions of the Fear of COVID-19 Scale (FCV-19S)

FCV-19S Item	Inter-Item Correlation Range	Corrected Item-Total Correlation
1. I am most afraid of coronavirus-19.	.41 - .62	.66
2. It makes me uncomfortable to think about coronavirus-19.	.35 - .62	.67
3. My hands become clammy when I think about coronavirus-19.	.38 - .68	.59
4. I am afraid of losing my life because of coronavirus-19.	.38 - .53	.62
5. When watching news and stories about coronavirus on social media, I become nervous or anxious.	.40 - .57	.64
6. I cannot sleep because I am worrying about getting coronavirus.	.41 - .74	.66
7. My heart races or palpitates when I think about getting coronavirus.	.35 - .74	.63

Note. N = 127.

Table 2

Results from the Principal Component Analysis of the Fear of COVID-19 Scale (FCV-19S)

FCV-19S Item	Factor loading
1. I am most afraid of coronavirus-19.	.74
2. It makes me uncomfortable to think about coronavirus-19.	.74
3. My hands become clammy when I think about coronavirus-19.	.73
4. I am afraid of losing my life because of coronavirus-19.	.72
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.	.75
6. I cannot sleep because I am worrying about getting coronavirus-19.	.79
7. My heart races or palpitates when I think about getting coronavirus-19.	.79

Note. N = 127.

Table 3

Demographic characteristics of the study (n=127)

Variable	N (%)
Gender	
Male	25 (19.7%)
Female	102 (80.3%)
Education	
High school	21 (16,5%)
Vocational education	30 (23.6%)
(applied) University	76 (59.8%)
Cause of death	
Physical illness	93 (73.2%)
Accident	11 (8.7%)
Suicide	21 (16.5%)
Other	2 (1.6%)
Kinship	
Partner	44 (34.6%)
Child	15 (11.8%)
Father/Mother	40 (31.5%)
Brother/ Sister	5 (3.9%)
Friend	10 (7.9%)
Other	6 (4.7%)

Table 4

Descriptive statistics of the sociodemographic- and research variables

Variable	Minimum	Maximum	Mean	Std. Deviation.	N
1. PGD[b] levels T1	13.00	51.00	26.08	9.40	127
2. PGD[b] levels T2	13.00	57.00	28.66	10.18	127
3. Fear of COVID-19	7.00	24.00	12.39	4.49	127
4. Change Score PGD[b]	-30.00	25.00	-2.58	7.94	127
5. Gender [a]	1	2	1.80	0.40	127
6. Age in years	18	83	46.6	14.73	127
7. Time since loss [c]	6	351	64.94	6.06	127

[a] 1 = male and 2 = female.

[b] PGD = prolonged grief disorder

[c] Time since loss in months

Figure 1
Scree Plot of Principal Component Analysis