How do demographic factors and the relationship to the deceased associate with the intensity of Prolonged Grief Disorder (PGD) among bereaved individuals?

Name: Esmée Grob

Student number: s3174565

First supervisor: Lonneke Lenferink, PhD

Second supervisor: Alejandro Domínguez Rodríguez, PhD

Master thesis – Positive Clinical Psychology and Technology

University of Twente

Date: 09/04/2025

Abstract

Introduction: The loss of a loved one may lead to intense grief reactions. While most individuals adapt to their loss over time, some people experience intense and persistent grief that impairs daily functioning, known as Prolonged Grief Disorder (PGD). Identifying grievers at risk of PGD may allow for targeted prevention measures. The current study investigated the association between demographic and loss-related variables on PGD intensity in a large data sample.

Methods: Cross-sectional data from 13,779 participants were analysed. All participants completed the Traumatic Grief Inventory, Self Report Plus (TGI-SR+), a validated measure for assessing grief symptoms, also providing demographic and loss-related information. PGD intensity was calculated using 10 items from the TGI-SR+. Descriptive statistics and normality tests were conducted, followed by correlation analyses, Pearson's correlation, independent t-tests, and one-way ANOVA. A multiple regression analysis was performed to examine the combined effect of these factors on PGD intensity.

Results: After applying the exclusion criteria, the final sample consisted of 4,566 participants (81% women, M = 52.26 years, SD = 15.49), with a mean PGD intensity score of 33.55 (SD = 7.25). PGD intensity was significantly higher among participants who lost a loved one due to murder or manslaughter than those in all other groups ($p < .001$). Participants in the “other” cause of death group reported significantly higher PGD intensity than those who lost someone to physical illness ($p = .019$). Participants who lost a child reported significantly higher PGD intensity than all other groups ($p < .001$). Participants who lost a partner reported significantly higher PGD intensity than those who lost a parent ($p < .001$). Time since loss showed a weak but significant negative correlation with PGD intensity ($r = -0.071$, $p < .001$). Gender and age were not significantly associated with PGD intensity. The regression models explained 2.9% of the variance in PGD intensity.

Conclusion: This study found that PGD intensity was highest among participants who had lost a child, partner, or loved one to murder/manslaughter or other causes. PGD intensity slightly declined with time since loss and age, while gender showed no significant association. Although the findings were statistically significant, they explained only a small proportion of the variance, suggesting that other psychological or contextual factors also contribute to PGD intensity.

Introduction

Bereavement is a universal experience that often has a major emotional and psychological impact on individuals. Although individuals vary in their responses, the majority of individuals are able to cope with loss without requiring professional mental health support (Bonanno & Malgaroli, 2020; Nielsen et al., 2019). However, for a reduced number of persons, the grief persists and intensifies, leading to reactions that are characterized by loss of purpose and identity disturbance, coupled with a persistent, upsetting, and incapacitating longing for or obsession with the deceased person are prevalent (Prigerson et al., 2021). This is now recognized as a distinct mental disorder referred to as Prolonged Grief Disorder (PGD) in both the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) and the International Classification of Diseases, 11th Revision (ICD-11), though they offer slightly different diagnostic criteria (American Psychiatric Association, 2022; World Health Organization, 2022).

According to the DSM-5-TR, a diagnosis of PGD requires the presence of at least one symptom of separation distress and at least three of eight accessory symptoms, e.g. avoidance of things that remind them that the person has died and emotional numbness resulting from the death. Additionally, the death of the person must have occurred at least 12 months ago, and symptoms need to be more severe than what is considered normal for social and cultural grieving (American Psychiatric Association, 2013). According to the ICD-11, a diagnosis of PGD requires several additional symptoms, such as persistent longing for the deceased person or experiencing persistent and pervasive preoccupation with the deceased person, intense emotional pain (such as guilt, anger, or sadness) or trouble accepting the loss. The symptoms must seriously limit functioning above societal norms and persist for at least six months after the loss (World Health Organization, 2022).

Estimates of PGD prevalence vary depending on the diagnostic criteria applied, the measurement instruments used, and the characteristics of the population sampled. For example, Lundorff et al. (2017) conducted a meta-analysis of studies across four continents that used a different definition of persistent grief disorder (with a duration of at least six months after death) they concluded a pooled prevalence of 9.8% (95% CI [6.8, 14.0]) using 14 samples from 7 countries (lowest sample was N = 57, highest N = 1402). Notably, the estimates of PGD prevalence were based on earlier definitions of PGD used in the earlier versions of the DSM and the ICD. In 2024 another meta-analysis found an average prevalence of 13% (95% CI [11, 22]) of PGD according to DSM-5-TR and ICD-11 diagnostic criteria using 34 samples from 16 countries (lowest sample was N = 73, highest N = 1771) (Comtesse et al., 2024). The study of Peinado et al. (2023) showed a 9.95%

prevalence in a large representative sample of Spanish adults (N = 1498). Thus, although prevalence estimates can vary, research consistently suggests that a substantial proportion of bereaved individuals may be at risk for prolonged grief reactions. Given this, understanding the factors that contribute to PGD is crucial for identifying individuals at risk, developing preventive interventions, and improving diagnostics and treatments (Offord & Kraemer, 2000).

Among these factors are the demographic factors, such as gender and age. Some studies have examined these factors, though the findings of these studies remain inconsistent. Some studies suggest that women are more likely to experience higher PGD intensity, more severe grief reactions, or to develop PGD (Kersting et al., 2011; Mizuno et al., 2012; Na et al., 2023). The study by Na et al. (2023) found that women over the age of 61 had a significantly higher prevalence of complicated grief compared to men in the same age group, the difference was significant but modest. However, other research shows no significant association between PGD and gender (He et al., 2014; Newson et al., 2011). These findings underscore the complex relationship between gender and PGD and could indicate that there are potential confounding factors. Another demographic factor that has been examined is age. The study of Kersting et al. (2011) showed a significant association between older individuals and PGD. Stroebe et al. (2006) found that the most frequently empirically examined factors that had a significant effect on PGD were gender and age. However, the findings of Kersting et al. (2011) and Stroebe et al. (2006) are not consistently replicated in these types of studies. The systematic review and meta-analysis of Buur et al. (2023) did not show age as a statistically significant factor in any of their analysis.

Another factor that often is strongly associated with more intense grief reactions in studies is the age of the deceased at the time of death, a lower age of the deceased at the time of death is significantly associated with stronger grief reactions (Kokou-Kpolou et al., 2021; Lenferink et al., 2020; Shevlin et al., 2023; Wijngaards-de Meij et al., 2005). These demographic factors, including gender and both the age of the bereaved and the deceased, are therefore essential to consider when examining the variability in PGD intensity, as studies repeatedly have shown an association with grief outcomes. Although findings are sometimes inconsistent, the evidence suggests that these variables may influence the severity of grief and could interact with other variables, such as the cause of death. Including them in the data analysis can provide a more nuanced understanding of differences in PGD intensity.

Studies show that loss-related variables, such as the cause of death of the loved one and the relationship to the deceased, play a role in the PGD intensity experienced by bereaved individuals. Research shows that

experiencing a violent or sudden death, such as suicide, accident, or homicide, results in greater PGD intensity than experiencing a natural death (Djelantik et al., 2020; He et al., 2014; Shevlin et al., 2023), death due to a natural disaster was associated with a significantly lower PGD prevalence, with a moderate to large effect size (Djelantik et al., 2020). The meta-analysis of Buur et al. (2023), found that unexpected loss or violent/unnatural death are relatively strong predictors for PGD. Both theoretical and empirical studies suggest that such losses may trigger more negative cognitions about the self, life, and future, and are often accompanied by increased avoidance behaviours, which in turn contribute to more severe and persistent grief reactions (Boelen et al., 2014). However, Quadlander-Goff and Meyer (2024) found no difference in the presence of PGD between the different causes of death; unexpected, violent loss and natural loss. In addition, higher prevalences of PGD are significantly associated with the loss of a spouse or child compared to other types of relationships with the deceased (Doering et al., 2022; Kersting et al., 2011). The study by Mizuno et al. (2012) found that losing a child resulted in more severe grief reactions in women than in men (non-significant in expected death), where they saw that men were more affected by the loss of a spouse. This could be explained by the generally stronger bond between mothers and children, which can lead to differences in gender in the grieving process (Mizuno et al., 2012). These findings underscore the importance of considering both relational and situational factors when investigating the relationship between loss-related variables and PGD intensity.

Many studies have shown that another significant factor that could influence the severity of grief reactions is the time since loss. Several studies have shown that the severity of grief symptoms resulting in PGD is associated with a shorter time since the loss of an individual (Burke & Neimeyer, 2013; Djelantik et al., 2020; He et al., 2014; Heeke et al., 2019). The study of He et al. (2014) showed that individuals who suffered a more recent loss had higher scores on the diagnostic tool used, representing more intense grief reactions that could result in PGD. In line with the studies mentioned above Titlestad and Dyregrov (2022) found that PGD symptoms are significantly associated with a shorter time since the loss. Correspondingly, a longer time since the loss has been associated with fewer PGD symptoms, this is most likely because grief symptoms tend to disappear over time (Lundorff et al., 2021). This is supported by scientific literature, such as different research papers by Kokou-Kpolou et al. (2021) and Lenferink et al. (2020). These findings indicate that time since loss can serve as a significant predictor of PGD, emphasizing the importance of examining its association with PGD symptoms and the grieving process (Lobb et al., 2010).

Understanding the factors that contribute to PGD intensity is crucial for identifying individuals who are at risk of PGD. Although several studies have explored potential risk factors for PGD, the findings remain inconsistent, and the generalizability of these results is often limited. This is partly due to the use of convenience samples, various definitions of PGD, and heterogeneous measurement instruments to assess PGD. The current study uses a large sample of bereaved individuals from the Netherlands and applies the Traumatic Grief Inventory-Self Report Plus (TGI-SR+), a validated instrument for assessing PGD symptoms to address these limitations. This study helps fill in an important gap in the literature, as there are few large-sample studies investigating PGD risk factors. Therefore, it is anticipated that the results will provide a more solid and more universally applicable understanding of the relationships between PGD intensity and demographic and loss-related factors.

Investigating the relationship between multiple variables and PGD may help identify individuals at risk for PGD, while also providing deeper insight into grief reactions, it could for example help identify patterns and variations in grief processes (Weisburd et al., 2021). The present study investigates how demographic factors (age, gender) and loss-related variables (relationship to the deceased, cause of death, and time since loss) are associated with PGD intensity in a large sample of bereaved individuals, using the TGI-SR+.

Based on prior research, the study aims to test the following hypotheses:

1. Gender has a significant association with PGD intensity, women will report significantly higher PGD intensity than men.
2. Higher age will be significantly associated with lower PGD intensity.
3. The cause of death has a significant association with PGD intensity, unnatural and unexpected causes of death will be associated with the highest PGD intensity.
4. Relationship to the loved one was a significant association with PGD intensity, participants who lost a partner or child will report higher PGD intensity than those who lost another type of loved one.
5. A longer time since the loss will be significantly associated with lower PGD intensity.

Methods

This study was approved by the BMS Ethical Committee of the University of Twente (ID: 210674). This study was designed to examine the relationship between demographic and loss-related factors (age, gender, relationship to the deceased, cause of death) and the intensity of prolonged grief symptoms.

Participants and procedure

Cross-sectional data were analysed from 13,779 bereaved individuals who completed the TGI-SR+, a validated self-report instrument for assessing grief reactions. The participants were recruited via a Dutch website which provides information about grief and psychological support and hosts the questionnaire (https://rouwbehandeling.nl/).

The participants were first asked to report demographic and loss-related information. Firstly, participants reported their gender and their age. The next question was about their relationship to the deceased loved one. After that were asked to fill out the date of the passing of their loved one (day-month-year) and lastly, they filled out what the cause of death of their loved one was. Upon completing the questionnaire, people were asked to provide informed consent for the use of their data in research. The data was collected at a single time point for each of the participants.

Inclusion and exclusion criteria

Before the data analysis could be conducted, several inclusion criteria were applied to ensure data relevance and quality. The inclusion criteria were: (1) the age of the participant ≥ 16 years, (2) completion of the TGI-SR+, (3) the individual has experienced the loss of a loved one, (4) the deceased loved one was a person (not, for example, a pet) and (5) the loss occurred ≥ 12 months before participation because the research is about PGD intensity and uses the DSM-5-TR diagnostic scoring rules. The DSM-5-TR only speaks about PGD if the loss is twelve or more months ago, so that is why this research persists.

Measurements

Demographic and loss-related data

Participants provided additional information on gender, age, kinship (relationship with the deceased loved one), date of death (day-month-year) and cause of death. There were three response options for gender 1 = men, 2 = women and 3 = other. Age was reported in years. For the relationship to the deceased, participants selected one of the five categories: 1 = partner, 2 = child, 3 = mother/father, 4 = brother/sister, and 5 = other. Cause of death was assessed using six categories: 1 = physical illness, 2 = COVID-19, 3 = accident, 4 = suicide, 5 = murder or manslaughter, 6 = other. For both the 'other' categories for relationship (kinship) and cause of death, participants were allowed to specify their answers in an open text field following their selection. Time

since loss was calculated by subtracting the date of death from the date on which the questionnaire was completed.

Prolonged grief

According to the TGI-SR+, 12 items measure PGD (items; 1, 2, 3, 6, 8, 9, 10, 11, 13, 18, 19, 21). For each item, participants were asked to score their feelings and experiences of losing a loved one in the past month using a five-point Likert-type scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). However, item 13 assesses clinically significant distress or impairment in social, occupational, or other key areas of functioning. The study aims to check for PGD intensity; therefore, this item is omitted for further analysis. In addition, items 2 and 8 both measure the criteria 'intense emotional pain', the item with the highest score is taken for the measurement, so only one item is chosen for further analyses. Although 12 items of the TGI-SR+ correspond to PGD criteria, the current study only uses 10 items to assess PGD intensity. The psychometric properties of the TGI-SR+ are good. The study of Lenferink et al. (2022) demonstrated that the TGI-SR+ has good construct validity, internal consistency, temporal stability, convergent validity, and known-group validity. The study of Treml et al. (2020) showed that the internal consistencies were excellent, and the test-retest reliability was good. Treml et al. (2020) also state that the questionnaire has demonstrated construct and criterion validity. The data from the participants were collected between March 2022 and October 2024. To measure the PGD intensity, we calculated the total sum of the 10 items, the ideal cut-off for differentiating probable PGD cases from non-cases is ≥ 33 for DSM-5-TR PGD (Lenferink et al., 2021). Cronbach's alpha level of the 10 PGD items of the TGI-SR+ was .86 in the current sample.

Statistical Analyses

To analyse the data SPSS version 29 was used. Descriptive statistics were calculated for all demographic variables and loss-related variables to summarize the sample characteristics. In addition, the time since loss and the total score of PGD intensity were calculated. The Cronbach's alpha was examined for the TGI-SR+ scale. The normality of the PDG intensity score was evaluated using visual inspection of histograms and assessment of the skewness and kurtosis. The normal distribution graph is bell-shaped and shows that the PGD data is normally distributed, justifying the use of parametric tests. Pearson's correlation was calculated to examine the association between continuous variables (age and time since loss) and the PGD intensity score. The seven participants who selected 'other' for gender were excluded due to the insufficient sample size for meaningful analysis.

An independent sample t-test was conducted to compare the PGD intensity between male and female participants. To examine the differences in PGD intensity for the categorial variables that have more than two variables (e.g. cause of death and relationship to the deceased) one-way ANOVA were performed.

Ultimately, a multiple regression analysis was conducted to evaluate to what extent these demographic and loss-related factors predicted PGD intensity. To evaluate this analysis the backward method was used. Statistical significance was established at $p < 0.05$ for all analyses, with effect sizes presented as Pearson's correlations (r), Cohen's d for t-tests, and eta squared (η^2) for one-way ANOVA findings.

Results

Characteristics of the participants

Participants were excluded if they were younger than 16 years old (n = 41), had not experienced the death of a loved one (n = 76), or if the time since the loss was less than twelve months (n = 9041). Cases in which the reported age at the time of the loved one's death was negative (n = 28) were excluded due to the inconsistencies. In addition, cases that contained highly unreliable and implausible data based on extreme or inconsistent data were excluded (n = 19). All excluded participants were removed from further data analyses. Additionally, seven participants who selected the option 'other' for gender were excluded from further analysis.

The final sample consisted of 4,566 participants; the sample consisted of 3700 women (81%). Participants had a mean age of 52.26 years (SD = 15.49), with ages ranging from 16 to 100. The most common cause of death was physical illness; this was the case for 3283 (71.9%) participants. For 1907 participants the loved one that passed away was a partner (41.8%). The longest time since loss was 722 months, with a mean of 62.49 months (SD = 88.05). The mean PGD intensity score was 33.55 (SD = 7.25), with 2630 participants (57.6%) scoring precisely at or above the cut-off point.

Table 1
Characteristics of the participants

Variable	Frequency (%)	Mean (SD)
Demographic variables		
Gender		
Women	3700 (81.0)	
Men	866 (19.0)	
Age		52.26 (15.49)

Loss-related variables		
Cause of death of the loved one		
Physical illness	3283 (71.9)	
COVID019	162 (3.5)	
Accident	324 (7.1)	
Suicide	468 (10.2)	
Murder or manslaughter	99 (2.2)	
Other, namely	230 (5.0)	
The deceased was my…		
Partner	1907 (41.8)	
Child	560 (12.3)	
Mother/father	1538 (33.7)	
Brother/sister	300 (6.6)	
Other	261 (5.7)	
Time since loss (months)		62.49 (88.05)
PGD intensity score		33.55 (7.25)
< 33	1936 (42.4)	
≥ 33	2630 (57.6)	

Univariate analyses of background- and loss-related correlates of prolonged grief severity

The independent sample t-test was conducted to examine if there was a difference in PGD intensity between men and women. Levene's test for equality of variances was significant ($F = 4.708$, $p = .030$), these findings suggest that equal variances could not be assumed. However, t-tests assuming equal and unequal variance showed similar results. The t-test revealed no significant difference in PGD intensity between men and women ($t = -.809$, $df = 1252.671$, $p = .419$). The tests show that gender is not significantly associated with PGD intensity in this data sample. The effect size shown was small ($d = -.032$), further indicating a negligible and nonsignificant difference in PGD intensity between men and women.

To examine the association between PGD intensity and age the Pearson's correlation was conducted. No significant association was found between age and PGD intensity scores ($r = .004$, $p = .794$). The 95%

confidence interval ranged from -.025 to .033, this indicates further that there is no meaningful association between age and PGD intensity. In this sample, age does not appear to have a meaningful association with PGD intensity.

A one-way ANOVA was conducted to examine the association between PGD intensity and cause of death. Based on the results of the analysis, the cause of death had a significant association with PGD intensity ($F(4,4560) = 10.725$, $p < .001$). Post hoc tests (Tukey HSD) show that losing a loved one to murder/manslaughter was associated with significantly higher PGD intensity than the participants in all the other groups ($p < .001$ for all other group comparisons). In addition, the participants in the group other reported significantly higher PGD intensity than those who lost a loved one due to physical illness ($p = .019$). There were no other significant differences found between the groups. Although the association was statistically significant, the effect size was small. The outcome of the analysis indicates that the cause of death only explains 1.2% of the variance in PGD intensity ($\eta^2 = .012$). Overall, the analysis suggests that the cause of death is significantly associated with PGD intensity, with losses due to murder/manslaughter showing the highest level of PGD intensity.

Additionally, the one-way ANOVA was also performed for the relationship that the participants had with the deceased loved one. The result indicated a significant association ($F(4,4561) = 13.64$, $p < .001$). These findings suggest that the PGD intensity was not the same across the different groups. Post hoc tests (Tukey HSD) indicated that participants who lost a child reported significantly higher PGD intensity compared to all other groups ($p < .001$ for all group comparisons). Additionally, those who had lost a partner reported significantly higher PGD intensity than those who had lost a parent ($p < .001$). There were no significant differences found between the groups of individuals who lost a parent, a sibling or another loved one. The effect size was small, this variable also explains 1.2% of the variance within the PGD intensity scores ($\eta 2 = .012$). The results suggest that PGD intensity is highest among the participants who had lost a child, followed by the individuals who had lost a partner, while the participants who had lost other loved ones reported lower PGD intensity scores.

In addition, for the variable time since loss data, we conducted a Pearson's correlation analysis. Pearson's correlation revealed a small but significant negative association between PGD intensity and time since the loss ($r = -.092$, $p < .001$). This suggests that after more time has passed since the loss the intensity of the grief decreases slightly. However, the correlation coefficient shows that the association that exists in this sample

is weak, suggesting that the variable time since loss only clarifies a minimal percentage of the variation in PGD intensity. This indicates that other factors are more likely to play a substantial role in influencing PGD intensity.

Table 2

Means and standard deviation for Kinship and cause of death groups.

Variable	Mean PGD intensity scores	Standard deviation
Kinship		
Partner	33.81	7.06
Child	35.28	7.02
Mother/father	32.84	7.38
Brother/sister	33.01	7.34
Other	32.72	7.64
Cause of death		
Physical illness	33.19	7.12
COVID-19	34.17	7.30
Accident	34.05	7.81
Suicide	34.03	7.02
Murder or manslaughter	37.79	8.44
Other	34.75	7.48

Multiple regression on background and loss-related correlates of prolonged grief severity

To further investigate the correlations between the variables and PDG intensity, multiple linear regression was conducted. All demographic-, background- and loss-related variables were entered as independent variables. The dependent variable was PGD intensity.

The first model included all the variables mentioned above. The overall model was statistically significant ($F(12.4553) = 11.975$, $p < .001$), but only accounted for a small variance of 3.1% in PGD intensity ($R^2 = .031$, adjusted $R^2 = .028$). Significant predictors included time since loss, age, losing a partner (cause of death, group 1) or a child (cause of death, group 2), and losing a loved one due to murder/manslaughter (kinship, group 5) or another cause not included in the answer options (kinship, group 6). PGD intensity decreased slightly as the death of a loved one happened longer ago ($\beta = -.081$, $p < .001$). The model showed that older participants reported slightly lower PGD intensity ($\beta = -.051$, $p = .006$). The participant whose loved one

died due to murder/manslaughter reported significantly higher PGD intensity (β = .094, $p < .001$). The group whose loved one died of another cause also reported a slightly higher PGD intensity (β = .041, $p = .005$). Participants who lost a partner reported higher PGD intensity (β = .122, $p < .001$), and participants who lost a child also reported higher PGD intensity (β = .125, $p < .001$). Gender, cause of death groups 1, 2, 3 and 4, and kinship groups 3, 4 and 5 did not show significant associations. Multicollinearity was not an issue, according to collinearity diagnostics (all VIF values < 6). No autocorrelation was observed in the residuals, according to the Durbin-Watson statistic (1.924).

In model 4 all the non-significant variables were removed from the analysis. The results showed that the R^2 did not differ significantly from the previous models. The model only consisted of the significant variables, this model shows that after elimination, 2.9% of the variance in PGD intensity is explained by the variables age, time since loss, cause of death being murder/manslaughter and other and the deceased loved one being a partner and child. The overall regression model was statistically significant, F = 22.775, $p < .001$, although the model only explained approximately 2.9% of the variance in PGD intensity ($R^2 = .029$), which is low.

Additional explorative analyses were conducted. To further examine potential interaction among variables, several interaction effects were assessed. Several significant interaction effects emerged from the analysis. The interaction between age and losing a child (β = -.163, $p < .026$) indicated that PGD intensity was higher among younger participants who had lost a child, compared to the older participants who lost a child. Similarly, the interaction between time since loss and age (β = .152, $p = .024$) suggested that a decline in PGD intensity over time was more pronounced for older participants. The other interactions did not show significant effects. In model 6 the significant interactions were included in the analysis. This resulted in an explained variance of 3.1% ($p <$,001). However, when running this model, the interaction between time since loss and age became non-significant (β = .119, $p = .058$). Removing this interaction resulted in model 7, explaining 3% of the variance in PGD intensity, which is significant ($p <$,001), though the percentage remains small.

Model 4 is the most appropriate model for explaining PGD intensity. This model included only the predictors that were statistically significant in the initial model (Model 1). Although the explained variance remained low ($R^2 = .029$), it did not differ significantly from the other models (Model 1: $R^2 = .031$; Model 7: $R^2 = .030$). Therefore, Model 4 is selected as the most appropriate.

Table 3

First and final model of the multiple regression of demographic and loss-related variables on PGD intensity

	B	SE	β	T	*p*	R^2	F	*df*	*p*
Model 1						.031	11.975	12	<,001
Constant	33.395	.790		42.278	<,001				
Gender	.120	.272	.007	.442	.658				
Age	-.024	.009	-.051	-2.733	.006				
Time since loss	-.007	.001	-.081	-5.355	<,001				
Covid-19[a]	.818	.578	.021	1.414	.157				
Accident[a]	.710	.434	.025	1.635	.102				
Suicide[a]	.588	.376	0.25	1.566	.117				
Murder/manslaughter[a]	4.657	.746	.094	6.246	<,001				
Other[a]	1.374	.492	.041	2.794	.005				
Partner[b]	1.795	.513	.122	3.497	<,001				
Child[b]	2.759	.562	.125	4.911	<,001				
Mother/Father[b]	.529	.486	.034	1.089	.276				
Brother/Sister[b]	.417	.609	.014	.686	.493				
Model 4						.029	22.775	6	<,001
Constant	34.283	.397		86.349	<,001				
Age	-.026	.009	-.055	-3.003	.003				
Time since loss	-.007	.001	-.080	-5.319	<,001				
Murder/manslaughter[a]	4.376	.734	.088	5.965	<,001				
Other[a]	1.197	.486	.036	2.464	.014				
Partner[b]	1.339	.287	.091	4.667	<,001				
Child[b]	2.527	.368	.114	6.867	<,001				
Model 7						.030	20.229	7	<,001
Constant	34.003	.417		81.594	<,001				
Age	-.019	.009	-.041	-2.091	.037				
Time since loss	-.007	.001	-.081	-5.377	<,001				
Murder/manslaughter[a]	4.407	.733	.089	6.009	<,001				
Other[a]	1.189	.486	.036	2.448	.014				
Partner[b]	1.207	.293	.082	4.123	<,001				

Child[b]	5.844	1.552	.264	3.766	<,001
Age*child	-.059	.027	-.159	-2.200	.028

Note. [a] reference category physical illness

[b] reference category other

Discussion

This study examined the association between demographic factors (age, gender), loss-related variables (relationship to the deceased, cause of death, and time since loss) and PGD intensity in bereaved adults. Data were gathered from people who had lost a loved one and filled out the TGI-SR+ on the website (https://rouwbehandeling.nl/). In this sample the following variables were predictors of higher PGD intensity according to the models: age, death due to murder/manslaughter and the category other, the loved one was a partner or child and time since loss. However, when examined in isolation, age was not significantly associated with PGD intensity. This may be due to the ability of regression models to account for potential confounding variables. By adjusting for the other variables, the unique association between age and PGD intensity becomes apparent. This highlights the importance of using multivariate models in grief research, as observed associations may be confounded by interrelated variables.

Furthermore, the main interest of this study was to examine which of the variables had a significant association with PGD intensity. Firstly, the association between gender and PGD intensity was examined. Our results demonstrated that there were no significant associations with PGD intensity. This was a surprising outcome because, in multiple studies, the female gender has been identified as a risk factor for PGD (Kersting et al., 2011; Mizuno et al., 2012; Na et al., 2023). Although the association reported in these studies were statistically significant, their effect sizes were small. Some studies reported the same outcome as in this data sample, they showed no significant association between gender and PGD (He et al., 2014; Newson et al., 2011). The overrepresentation of female participants in both the current and previous studies may have limited the ability to detect gender-related differences in PGD intensity.

The age of the participants did not show a significant association with PGD intensity in the univariate analyses. However, it did show a significant negative association between the multiple regression model and the generalized linear model. As stated before, this may be due to the ability of regression models to account for potential confounding variables. The first outcome is in line with prior systematic reviews, which reported non-significant findings (Djelantik et al., 2020). The latter outcome is in line with the research of Kersting et al.,

(2011). It is important to state that instead of using age as a continuous variable, Kersting et al. (2011) examined the relationship between age groups and PGD prevalence and found that PGD was more common in those aged 61 and older than in other age groups. An important distinction is the difference in the way age was measured across studies, the study of Kersting et al. (2011) used age categories with wide variations; for instance, people between the ages of 61 and 94 were placed in a single category. In contrast, in this data sample, we used age as a continuous variable. This difference may account for the variation in findings regarding the role of age in PGD intensity.

We also investigated the association between the cause of death and PGD intensity. According to our results, the cause of death has a significant effect on PGD intensity, with the highest mean and median PGD intensity observed in the 'murder/manslaughter' group (group 5). The lowest PGD intensity was observed in group 1: physical illness. However, the effect size was small, suggesting that while the cause of death contributes to PGD intensity, it is not the only contributing factor. Despite the small effect size, this finding is in line with prior research indicating that violent and unnatural deaths such as murder/manslaughter are often associated with higher PGD intensity compared to natural deaths (He et al., 2014; Shevlin et al., 2023). The study by Djelantik et al. (2020) found that unnatural and unexpected deaths are linked to a higher risk of PGD. This may be explained by the sudden and traumatic nature of such deaths, which can complicate the grieving process by intensifying feelings of injustice, shock, or unresolved questions. Understanding the impact of the cause of death is therefore crucial in identifying individuals who are at risk for PGD and providing tailored support (Boelen et al., 2014). The effect sizes are significant, but it remains a low effect size, which is in line with previous research where the effect sizes of all the reviewed research also remained significant but small (Buur et al., 2023).

Another variable that from prior research has been shown to have a significant association with PGD intensity is the relationship to the deceased (kinship). Our results suggest that PGD intensity is associated with the relationship the participant had with the deceased, with participants who lost a child experiencing the highest levels of PGD intensity, with participants who lost a partner experiencing the second highest PGD intensity. These findings are consistent with previous research indicating that the loss of a spouse or child is associated with higher levels of PGD (Doering et al., 2022; Kersting et al., 2011; Stroebe et al., 2006). The effect size however is small, which is also in line with prior research, Stroebe et al. (2006) found that the death of a child or partner was a significant predictor of higher PGD, these effect sizes were also small-to-medium, indicating that

other factors may also be important for developing PGD. Another study by Mizuno et al. (2012) found that losing a child resulted in more severe grief reactions in women than in men, and men were more affected by the loss of a spouse. This shows that these two categories are important to keep in mind when looking at PGD intensity and associated variables. While there are significant differences between specific kinship groups, it should be noted that the overall effect size suggests that kinship explains a small portion of the variance in PGD intensity.

Prior research shows that time since loss is significantly associated with PGD intensity (Burke & Neimeyer, 2013; Djelantik et al., 2020; Dyregrov & Titlestad, 2022; Heeke et al., 2019; He et al., 2014; Lundorff et al., 2021). In the current study, the results show a weak negative association between time since loss and PGD intensity. Indicating that on average PGD intensity tends to decrease very slightly over time. However, the effect size is small, meaning that only a small percentage of the variation in PGD intensity can be explained by the time that has passed since the loss. This suggests that, although time since loss is a relevant variable in understanding PGD intensity, it is insufficient on its own to explain the complexity of PGD intensity. Nevertheless, these findings are consistent with prior studies, underlining the need to further research factors that may influence PGD intensity.

Strengths and Limitations

This study has several limitations that must be acknowledged. First, due to its cross-sectional design, causal inferences about the relationships between risk factors and PGD intensity cannot be made (Wang & Cheng, 2020). Although the study identified associations, it is not possible to determine the directionality or temporal movement of these effects. Second, while the time since the loss was accounted for, other temporal dynamics, such as changes in grief over time, were not captured. This limitation restricts insights into how grief trajectories evolve over time and vary based on the point of assessment (Wang & Cheng, 2020). Third, the multiple regression model explains only a small proportion of the variance in PGD intensity, which suggests that other relevant factors were not measured, such as coping styles, social support, and mental health history. The fourth limitation involves the gender distribution in the sample. There was a notable overrepresentation of women compared to men, which may influence the outcomes. Specifically, 81% of the participants were women (n = 3700), while only 19% were men (n = 866). It takes away from the generalizability of the findings for men and may have inflated the overall PGD intensity scores in this sample.

Despite the limitations, this study has some notable strengths. One of the key strengths is the large sample size (N = 4566), which enhances the statistical power and allows subgroup analyses (Khalilzadeh & Tasci, 2017). In previous meta-analyses can be seen that research has an average sample size of 513 to 573 people (Buur et al., 2023; Lundorff et al., 2021). This sample is approximately eight times larger than those typically used in previous studies. Additionally, the intensity of grief symptoms was measured using the TGI-SR+, a validated instrument for measuring the intensity of grief symptoms. This ensures a reliable and consistent measurement of the participant's level of PGD intensity, which strengthens the validity of the findings and increases the accuracy of the results (Treml et al., 2020). Moreover, the study includes a broad range of loss-related variables, which allows for a better and more nuanced understanding of relevant factors.

Implications and further research

The results of this research have important implications for both future research and clinical practice. A general better understanding of the risk factors for PGD can enhance the early identification of bereaved individuals who may be at risk for PGD, allowing for more timely interventions and improving grief-specific therapies. Specifically, this study highlights age, time since loss, death due to murder/manslaughter and category other, the loss of a child and partner as small but significant predictors of PGD intensity. These variables can be further researched and can be integrated into screening procedures or integrated into assessment tools.

Even though our research identified certain established risk factors for PGD intensity, the relatively small effect size indicates that grief is a highly multifaceted process. The weak association suggest that, although the variables contribute to PGD intensity, they account for only a small portion of the variance of PGD intensity. Future research should therefore investigate additional factors such as personality traits, prior mental health history, quality of the relationship with the deceased, cultural background, and available social support to deepen our understanding of what influences PGD intensity.

Future research should also strive for more balanced group sizes and employ representative sampling strategies to enhance the generalizability. In the current study, some groups were underrepresented, which may have influenced the power to detect stronger effects or to compare groups reliably.

In summary, the study identified age, time since loss, death due to murder/manslaughter and category other, and the loss of a child and partner as significant risk factors for PGD intensity. Although the results suggest that age could be a risk factor, because the finding was not consistent across all analyses age needs to be examined more to come to a better conclusion. The findings reinforce that the loss of a child and violent causes

of death (murder/manslaughter) are particularly associated with higher grief severity. The weak correlations of the associations do suggest that grief remains a complex process influenced by numerous factors.

Conclusion

This study aimed to identify demographic and loss-related variables associated with PGD intensity, using a large dataset and a broad range of variables, including age, gender, time since loss, cause of death, and relationship to the deceased. The results confirmed that losing a loved one to murder or manslaughter and the category other, as well as the loss of a child or partner, were significantly associated with higher PGD intensity. In addition, a slight decline in PGD intensity over time was found, as well as a modest negative association with age. Interestingly, gender showed no significant relationship with grief intensity in this sample. Importantly, the statistical models only explained a small portion of the variance in PGD intensity. This suggests that other unmeasured psychological or contextual factors likely contribute to PGD intensity. These findings underscore the multifaced nature of grief, particularly in the context of PGD intensity. This highlights the need for future research on PGD intensity and incorporating broader psychosocial and interpersonal variables to better understand and support individuals who experience prolonged grief.

References

American Psychiatric Association. (2013). Trauma- and Stressor-Related Disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596.CautionaryStatement

American Psychiatric Association. (2022). Prolonged grief disorder. American Psychiatric Association Publishing. https://www.psychiatry.org/Patients-Families/Prolonged-Grief-Disorder

Aoyama, M., Sakaguchi, Y., Morita, T., Ogawa, A., Fujisawa, D., Kizawa, Y., Tsuneto, S., Shima, Y., & Miyashita, M. (2018). Factors associated with possible complicated grief and major depressive disorders. *Psycho-oncology*, *27*(3), 915–921. https://doi.org/10.1002/pon.4610

Boelen, P. A., De Keijser, J., & Smid, G. (2014). Cognitive–behavioral variables mediate the impact of violent loss on post-loss psychopathology. *Psychological Trauma Theory Research Practice And Policy*, *7*(4), 382–390. https://doi.org/10.1037/tra0000018

Boelen, P. A., Reijntjes, A., Djelantik, A. M. J., & Smid, G. E. (2016). Prolonged grief and depression after unnatural loss: Latent class analyses and cognitive correlates. *Psychiatry Research*, *240*, 358–363. https://doi.org/10.1016/j.psychres.2016.04.012

Bonanno, G. A., & Malgaroli, M. (2020). Trajectories of grief: Comparing symptoms from the DSM-5 and ICD-11 diagnoses. *Depression and Anxiety, 37*(1), 17–25. https://doi.org/10.1002/da.22902

Burke, L. A., & Neimeyer, R. A. (2013). Prospective risk factors for complicated grief: A review of the empirical literature. In M. Stroebe, H. Schut, & J. van den Bout (Eds.), *Complicated grief: Scientific foundations for health care professionals* (pp. 145–161). Routledge/Taylor & Francis Group.

Buur, C., Zachariae, R., Komischke-Konnerup, K., Marello, M., Schierff, L., & O'Connor, M. (2023). Risk factors for prolonged grief symptoms: A systematic review and meta-analysis. *Clinical Psychology Review*, *107*, 102375. https://doi.org/10.1016/j.cpr.2023.102375

Comtesse, H., Smid, G. E., Rummel, A., Spreeuwenberg, P., Lundorff, M., & Dückers, M. L. (2024). Cross-national analysis of the prevalence of prolonged grief disorder. *Journal Of Affective Disorders*, *350*, 359–365. https://doi.org/10.1016/j.jad.2024.01.094

Djelantik, A. M. J., Smid, G. E., Mroz, A., Kleber, R. J., & Boelen, P. A. (2020). The prevalence of prolonged grief disorder in bereaved individuals following unnatural losses: Systematic review and meta regression analysis. *Journal Of Affective Disorders*, *265*, 146–156. https://doi.org/10.1016/j.jad.2020.01.034

Doering, B. K., Barke, A., Vogel, A., Comtesse, H., & Rosner, R. (2022). Predictors of Prolonged Grief Disorder in a German Representative Population Sample: Unexpectedness of Bereavement Contributes to Grief Severity and Prolonged Grief Disorder. *Frontiers in Psychiatry*, *13*. https://doi.org/10.3389/fpsyt.2022.853698

He, L., Tang, S., Yu, W., Xu, W., Xie, Q., & Wang, J. (2014). The prevalence, comorbidity and risks of prolonged grief disorder among bereaved Chinese adults. *Psychiatry Research*, *219*(2), 347–352. https://doi.org/10.1016/j.psychres.2014.05.022

Heeke, C., Kampisiou, C., Niemeyer, H., & Knaevelsrud, C. (2017). A systematic review and meta-analysis of correlates of prolonged grief disorder in adults exposed to violent loss. *European Journal Of Psychotraumatology*, *8*(sup6). https://doi.org/10.1080/20008198.2019.1583524

Kersting, A., Brähler, E., Glaesmer, H., & Wagner, B. (2011). Prevalence of complicated grief in a representative population-based sample. *Journal Of Affective Disorders*, *131*(1–3), 339–343. https://doi.org/10.1016/j.jad.2010.11.032

Kokou-Kpolou, C. K., Park, S., Lenferink, L. I. M., Iorfa, S. K., Fernández-Alcántara, M., Derivois, D., & Cénat, J. M. (2021). Prolonged grief and depression: A latent class analysis. *Psychiatry Research*, *299*, 113864. https://doi.org/10.1016/j.psychres.2021.113864

Lenferink, L., Eisma, M. C., Smid, G. E., de Keijser, J., & Boelen, P. A. (2022). 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+). *Comprehensive psychiatry*, *112*, 152281. https://doi.org/10.1016/j.comppsych.2021.152281

Lenferink, L., Eisma, M., Smid, G., De Keijser, J., & Boelen, P. (2021). 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+). *Comprehensive Psychiatry*, *112*, 152281. https://doi.org/10.1016/j.comppsych.2021.152281

Lenferink, L. I. M., Nickerson, A., de Keijser, J., Smid, G. E., & Boelen, P. A. (2020). Trajectories of grief, depression, and posttraumatic stress in disaster-bereaved people. *Depression and anxiety*, *37*(1), 35–44. https://doi.org/10.1002/da.22850

Lobb, E. A., Kristjanson, L. J., Aoun, S. M., Monterosso, L., Halkett, G. K. B., & Davies, A. (2010). Predictors of Complicated Grief: A Systematic Review of Empirical Studies. *Death Studies*, *34*(8), 673–698. https://doi.org/10.1080/07481187.2010.496686

Lundorff, M., Holmgren, H., Zachariae, R., Farver-Vestergaard, I., & O'Connor, M. (2017). Prevalence of prolonged grief disorder in adult bereavement: A systematic review and meta-analysis. *Journal Of Affective Disorders*, *212*, 138–149. https://doi.org/10.1016/j.jad.2017.01.030

Lundorff, M., Johannsen, M., & O'Connor, M. (2021). Time elapsed since loss or grief persistency? Prevalence and predictors of ICD-11 prolonged grief disorder using different applications of the duration criterion. *Journal of affective disorders*, *279*, 89–97. https://doi.org/10.1016/j.jad.2020.09.116

Mizuno, Y., Kishimoto, J., & Asukai, N. (2012). A nationwide random sampling survey of potential complicated grief in Japan. *Death Studies*, *36*(5), 447–461. https://doi.org/10.1080/07481187.2011.553323

Na, P. J., Fischer, I. C., Shear, K. M., & Pietrzak, R. H. (2023). Prevalence, Correlates, and Psychiatric Burden of Prolonged Grief Disorder in U.S. Military Veterans: Results From a Nationally Representative Study. *American Journal Of Geriatric Psychiatry*, *31*(7), 543–548. https://doi.org/10.1016/j.jagp.2023.02.007

Newson, R. S., Boelen, P. A., Hek, K., Hofman, A., & Tiemeier, H. (2011). The prevalence and characteristics of complicated grief in older adults. *Journal Of Affective Disorders*, *132*(1–2), 231–238. https://doi.org/10.1016/j.jad.2011.02.021

Nielsen, M. K., Carlsen, A. H., Neergaard, M. A., Bidstrup, P. E., & Guldin, M. (2018). Looking beyond the mean in grief trajectories: A prospective, population-based cohort study. *Social Science & Medicine*, *232*, 460–469. https://doi.org/10.1016/j.socscimed.2018.10.007

Offord, D. R., & Kraemer, H. C. (2000). Risk factors and prevention. *Evidence-Based Mental Health*, *3*(3), 70–71. https://doi.org/10.1136/ebmh.3.3.70

Peinado, V., Valiente, C., Contreras, A., Trucharte, A., Butter, S., Murphy, J., & Shevlin, M. (2023). ICD-11 prolonged grief disorder: Prevalence, predictors, and co-occurrence in a large representative sample. *International Journal Of Psychology*, *59*(1), 86–95. https://doi.org/10.1002/ijop.12951

Prigerson, H. G., Boelen, P. A., Xu, J., Smith, K. V., & Maciejewski, P. K. (2021). Validation of the new DSM-5-TR criteria for prolonged grief disorder and the PG-13-Revised (PG-13-R) scale. *World Psychiatry*, *20*(1), 96–106. https://doi.org/10.1002/wps.20823

Quadlander-Goff, E., & Meyer, J. (2024). Risk Factors of Prolonged Grief Disorder. *OMEGA - Journal Of Death And Dying*. https://doi.org/10.1177/00302228241272601

Shevlin, M., Redican, E., Murphy, J., Hyland, P., & Karatzias, T. (2023). Testing the latent structure of ICD-11 prolonged grief disorder symptoms in the U.K. adult population: An exploratory structural equation modeling approach. *Journal Of Traumatic Stress*, *36*(6), 1077–1089. https://doi.org/10.1002/jts.22972

Stroebe, M. S., Folkman, S., Hansson, R. O., & Schut, H. (2006). The prediction of bereavement outcome: Development of an integrative risk factor framework. *Social Science & Medicine*, *63*(9), 2440–2451. https://doi.org/10.1016/j.socscimed.2006.06.012

Titlestad, K. B., & Dyregrov, K. (2022). Does 'Time Heal all Wounds?' The Prevalence and Predictors of Prolonged Grief Among Drug-Death Bereaved Family Members: A Cross-Sectional Study. *OMEGA - Journal Of Death And Dying*, 003022282210985. https://doi.org/10.1177/00302228221098584

Revet, A., Bui, E., Benvegnu, G., Suc, A., Mesquida, L., & Raynaud, J. (2020). Bereavement and reactions of grief among children and adolescents: Present data and perspectives. *L'Encéphale (Paris. En Ligne)/L'Encéphale*, *46*(5), 356–363. https://doi.org/10.1016/j.encep.2020.05.007

Treml, J., Kaiser, J., Plexnies, A., & Kersting, A. (2020). Assessing prolonged grief disorder: A systematic review of assessment instruments. *Journal Of Affective Disorders*, *274*, 420–434. https://doi.org/10.1016/j.jad.2020.05.049

Weisburd, D., Wilson, D. B., Wooditch, A., & Britt, C. (2021). *Advanced Statistics in Criminology and Criminal Justice*. Springer.

Wijngaards-de Meij, L., Stroebe, M., Schut, H., Stroebe, W., van den Bout, J., van der Heijden, P., & Dijkstra, I. (2005). Couples at risk following the death of their child: predictors of grief versus depression. *Journal of consulting and clinical psychology*, *73*(4), 617–623. https://doi.org/10.1037/0022-006X.73.4.617

World Health Organization. (2022). *ICD-11: International classification of diseases* (11th revision). https://icd.who.int/

Appendices

During the preparation of this work, I used Grammarly to help with spelling and grammar. With my dyslexia I do not always see everything, so this helps me filter out the spelling and grammar mistakes. I used ChatGPT to help shorten the abstract. After using this tool, I thoroughly reviewed and edited the content as needed, taking full responsibility for the final outcome.

Appendix A

Figure 1.

TGI-SR+

Rouwreacties na verlies

Hieronder staan een aantal verschillende rouwreacties. Geef aan in hoeverre u deze reacties hebt gehad **in de afgelopen maand** naar aanleiding van het overlijden van uw dierbare.

		nooit	zelden	soms	vaak	altijd
1	Ik had plots opkomende gedachten en beelden die te maken hadden met zijn/haar dood.					
2	Ik had intense gevoelens van emotionele pijn, verdriet, of golven van rouw.					
3	Ik voelde een zeer sterk verlangen naar hem/haar.					
4	Ik voelde verwarring over mijn rol in het leven of een verminderd gevoel van eigenwaarde.					
5	Ik had moeite om zijn/haar dood te aanvaarden.					
6	Ik vermeed plaatsen, voorwerpen, of gedachten die mij eraan herinneren dat hij/zij dood is.					
7	Ik had moeite om mensen te vertrouwen.					
8	Ik voelde me bitter gestemd of boos over zijn/haar dood.					
9?	Ik had moeite om door te gaan met mijn leven (bijvoorbeeld door nieuwe vrienden te maken, nieuwe interesses te ontwikkelen).					
10	Ik voelde mij verdoofd.					
11	Ik vond het leven leeg en zonder betekenis zonder hem/haar.					
12	Ik voelde me geschokt of verbijsterd over zijn/haar dood.					
13	Ik merkte dat mijn functioneren (in mijn werk, privéleven en/of sociale leven) ernstig is verslechterd ten gevolge van zijn/haar dood.					
14	Ik had plots opkomende gedachten en beelden die te maken hebben met de					

	omstandigheden waaronder hij/zij is overleden.					
15	Het lukte mij niet goed om stil te staan bij positieve herinneringen aan hem/haar.					
16	Ik had negatieve gedachten over mijzelf die verband houden met zijn/haar dood (bijvoorbeeld gedachten over zelfverwijt).					
17	Ik had de wens om zelf te sterven, om bij hem/haar te kunnen zijn.					
18	Ik voelde mij alleen of voelde afstand tot andere mensen.					
19	Het voelde onwerkelijk dat hij/zij dood is.					
20	Ik voelde intens verwijt naar anderen vanwege zijn/haar dood.					
21	Het voelde alsof een deel van mij samen met hem/haar is gestorven.					
22	Ik had moeite om positieve gevoelens te ervaren.					
		nooit	**zelden**	**soms**	**vaak**	**altijd**

Appendix B

Table 4

Correspondence between TGI-SR+ items and symptoms of disturbed grief

TGI-SR+ item	**Persisterende complexe rouwstoornis DSM-5 (APA, 2013)**	**Prolonged grief disorder DSM-5-TR (APA, 2020)**	**Prolonged grief disorder ICD-11 (WHO, 2018)**	**Prolonged grief disorder Prigerson et al. (2009)**
1	B3	B2	B2	
2	B2	C4*	C1	
3	B1	B1	B1	B1
4	C11			C1
5	C1		C6	C2
6	C6	C3		C3
7	C8			C4
8	C4	C4*	C3	C5
9	C12	C5	C10	C6
10	C2	C6	C9	C7
11	C10	C7		C8
12				C9
13	D	D	E	E
14	B4			
15	C3			

16	C5		C2	
17	C7			
18	C9	C8		
19		C2	C4	
20			C5	
21		C1	C7	
22			C8	

*Note. *This symptom is measured with two items. The highest score of the two items is used as an indication of the severity of the symptom.*