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The protective role of positive mental health on prolonged grief disorder, anxiety and depression among bereaved refugees: cross-sectional mediation models

Nesreen Dababneh[1] · **Jürgen Margraf**[1,2] · **Xiao Chi Zhang**[1] · **Julia Brailovskaia**[1,2]

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Abstract
Grief is a common reaction to loss; however, its persistence is subject to specific mechanisms related to the context of death, comorbidities with other mental health disorders, and individual coping status. The current study aimed to investigate the cross-sectional link between refugees' positive mental health (PMH) and reduced prolonged grief disorder (PGD) mediated by changes in anxiety and depression and, conversely, between PMH and reduced anxiety and depression symptoms mediated by changes in prolonged grief symptoms. The present cross-sectional study involved 385 bereaved adult Arabic-speaking refugees. Data were collected via an online survey. All participants experienced prolonged grief symptoms a minimum of 6 months from the death event. The parallel mediation model showed that PMH is indirectly linked to PGD, and the significant mediation of anxiety and depression could explain this relationship. Furthermore, two simple mediation models showed that PMH is indirectly linked to anxiety and depression, and the significant mediating effect of PGD could explain this relationship. The current results confirm the role of PMH as a predisposed coping status that could reduce the risk for PGD. Increasing the level of PMH can be considered a protective factor against challenging life events such as persistent grief and related disorders.

Keywords Prolonged grief disorder · Positive mental health · Anxiety · Depression · Refugees

Introduction

Prolonged grief disorder (PGD) is a novel disorder included in the official international diagnostic systems (American Psychiatric Association, 2022; World Health Organization, 2022). Grief after loss is not considered a pathological entity; however, its persistency and intensity constitute the central components of prolonged grief disorder (Duffy & Wild, 2023).

The prevalence of PGD in the general population is limited to a small group of bereaved individuals, with an estimated prevalence of 7–10% (Peinado et al., 2023; Szuhany et al., 2021). However, some traumatic loss contexts, such as forced migration, are associated with an elevated risk of developing persistent grief reactions (Comtesse et al., 2022; Hilberdink et al., 2023). A recent study showed that compared with 38.1% of the bereavement sample, the estimated percentage of probable PGD within the refugee population was 15.8% (Bryant et al., 2020). Existing studies recognize the role of death context as a leading cause of PGD. The estimated percentage of PGD caused by unnatural death events was 49% (Djelantik et al., 2020). The noticeably higher prevalence of PGD within the adult refugee population is linked to traumatic loss characteristics, where unnatural ambiguous (Comtesse et al., 2022), multiple, and violent losses are more frequent, thus increasing the risk of prolonged grief (Boelen et al., 2016; Kokou-Kpolou et al., 2020).

If the grief process is a common reaction to loss, what are the mechanisms behind its persistence? Available research has identified potential risk markers that contribute to the maintenance of grief reactions. The main contributors to PGD are death conditions, such as war (Djelantik et al., 2020); comorbidities, such as anxiety and depression

✉ Nesreen Dababneh
Nesreen.Dababneh@ruhr-uni-bochum.de

[1] Mental Health Research and Treatment Center, Department of Clinical Psychology and Psychotherapy, Ruhr-Universität Bochum, Bochum, Germany

[2] DZPG (German Center for Mental Health), Bochum/Marburg, Germany

(Kokou-Kpolou et al., 2020); and individual factors, such as beliefs and coping status (Boelen et al., 2006). However, in light of recent studies, the nature of sequential risk markers of prolonged grief disorder within the refugee population remains arguable (Bryant et al., 2020, 2021; Killikelly et al., 2021; Kokou-Kpolou et al., 2020; Steil et al., 2019).

The present study aimed to investigate the associations between positive mental health (PMH), that is, emotional, social and psychological well-being (Lukat et al., 2016); grief-related disorders; anxiety and depression symptoms; and PGD. We hypothesize that PMH could reduce the persistence of grief symptoms by reducing grief-related disorders. Conversely, PMH could reduce grief-related disorders by influencing how individuals deal with grief as an adverse life event, which consequently could impact the manifestation of anxiety and depression symptoms.

PGD is linked to other mental disorders, including depression and anxiety (Boelen et al., 2016; He et al., 2014; Sardella et al., 2023; Soydas et al., 2021), which are among the most common disorders in adults, internally displaced persons, and refugees. A recent study in a sample of bereaved adults confirmed the positive correlation of PGD with depression and anxiety; PGD leads to a significantly greater risk of developing other mental disorders, including anxiety and depression (Peinado et al., 2023). Despite the comorbidity of PGD with anxiety and depression, the available literature supports the concept of PGD as a distinct disorder. The cooccurrence relationship reflects a crucial key factor in differentiating between PGD and grief-related anxiety and depression symptoms (Boelen & Prigerson, 2007; Boelen et al., 2003). Conversely, preexisting levels of anxiety and depression can also lead to prolonged grief (Marques et al., 2013). While the impact of this bidirectional, sequential, and cooccurring relationship can be debilitating and accumulative, the existing evidence remains ambiguous. Thus, this relationship could be a potential factor in understanding the mechanisms behind grief persistence.

In a study on PGD, depression, and cognition in bereaved adults, two groups of negative perception predictors were identified. First, negative perceptions about grief predicted PGD alone, while negative perceptions about life, self, and the future predicted PGD with depression (Boelen et al., 2016). The results of this study confirm the role of life, self, the future, and grief perception in the manifestation of grief comorbidities.

Another significant association between cognitive perception and PGD has been confirmed in previous research; postloss negative appraisal of the world, self, and others increases social isolation and, consequently, symptoms of prolonged grief (Duffy & Wild, 2023; Smith et al., 2020). Notably, the role of perception within the grief experience overlaps with the concept of PMH, which is linked directly to individuals' cognitive perceptions about life, self, and others (Jahoda, 1958). Furthermore, it can be associated with the coping statuses highlighted in Boelen, Ehlers, and Clark's models as a significant predictor of postchallenge life events and dysfunctional reactions (Boelen et al., 2006; Ehlers & Clark, 2000). PMH can play a crucial role in how individuals deal with adverse life events such as grief and could integrate a comprehensive perspective against the negative unidirectional background of grief persistency.

To date, there is a lack of research on the role of PMH in the grief process. However, PMH contributes to the decline of grief-related disorders. Recent research has suggested that PMH has a protective effect on individuals' mental health and can reduce the risk of developing psychological disorders (Bieda et al., 2017; Truskauskaite-Kuneviciene et al., 2022). Its effect occurs through interpersonal relationships, positive emotions, and personal growth (Vaingankar et al., 2022). Moreover, PMH includes the capacity for problem solving and flexible thinking, life satisfaction, self-acceptance, and efficacy (Brailovskaia et al., 2020). PMH can contribute effectively to the predictive sequential pathway in grief and related disorders, and it buffers against challenging life circumstances such as death.

PMH aligns with other positive frameworks of the grief experience within the refugee context. Although grief experience is related to sad events, it is also dependent on the meaning and the perception of the death event. Furthermore, traumatic adversity during grief in refugees can also lead to positive growth and reframe life meaning (Neimeyer et al., 2002). Posttraumatic growth (PTG) is the development of a positive perspective after the consequences of forced migration in a traumatic context through which grieving individuals develop more coping skills and resilience (Von Arcosy et al., 2023). PTG includes problem solving and emotional coping styles, external security through regular migration status, and new environmental and social support (Von Arcosy et al., 2023). In addition, multiple successful previous mourning experiences can help individuals deal with future loss, promoting acceptance and life satisfaction (Shear, 2012). Furthermore, other studies underlined the positive outcomes from the death event itself; life after the death led to deeper family relationships, new life meaning appraisals, and more insight into personal strength (Frantz et al., 1998; Neimeyer et al., 2002). Thus, positive perceptions within the refugee context could cross-cut the mechanisms of PMH.

Considering the unidimensional negative perspective on the predictors of grief persistency, we aimed to investigate the predictive role of PMH. In addition, we partially integrated PGD into two existing models: Ehlers and Clark's PTSD model and Boalen's complicated grief model. We expected that PMH is negatively associated with PGD (Hypothesis 1a) and anxiety and depression symptoms (Hypothesis 1b) and that PGD is positively linked to anxiety

and depression symptoms (Hypothesis 1c). Furthermore, we hypothesized that anxiety and depression symptoms mediate the association between PMH and PGD (Hypothesis 2a) and that PGD mediates the association between PMH and depression and anxiety symptoms (Hypothesis 2b).

Method

Participants and procedures

This study was a cross-sectional investigation of the associations among PMH, anxiety, depression, and PGD through mediation models. The sample consisted of adult Arabic language speakers who experienced forced migration and had prolonged symptoms of grief after a minimum of 6 months from the death event.

Participants were recruited via advertisement flyers and directed to an online self-administered survey. The survey link was accessed anonymously and directly led to the information sheet, consent form, and survey. After the approval of the responsible Ethics Committee, recruitment took place through organizations that provide services for refugees, web posts, and within refugee communities. Participation was voluntary and not compensated. In addition, at the end of the survey, contact information was made available for further clarifications or any need for psychological first aid to address any possible issues arising due to the population's vulnerability.

This study is part of a research project on the persistence of prolonged grief disorder among refugees. The current data collection took place from November 2021 to January 2022. Our sample consisted of 385 participants (69.4% women, $M_{age} = 40.25$, $SD = 11.31$, M_{years} of refugee status = 7.7, $SD = 3.69$). For 33% of the participants, the cause of death was the refugee experience or violent causes, whereas 67% lost a close family member. There were no missing data.

The self-reporting questionnaire included probable information bias that limits causal conclusions; however, it provides information about the relationships of the study variables and the outcomes of potential indirect effects.

Measures

Traumatic Grief Inventory-Self Report Plus (TI-SR+)

To measure the dependent variable, PGD, the Traumatic Grief Inventory-Self Report Plus (TGI-SR+) was used (Lenferink et al., 2022). It is a 22-item unidimensional instrument rated on a five-point Likert-type scale (1 = never, 5 = always). An example item is "I felt emotionally numb". The TGI-SR+ assesses disturbed grief according to corresponding symptoms derived from the DSM-5 criteria for persistent complex bereavement disorder, the DSM-5 TR criteria for prolonged grief disorder, and ICD-11 (Lenferink et al., 2022). A translation-backtranslation procedure was applied to generate the current Arabic language version (current scale reliability: Cronbach's $\alpha = 0.94$).

Positive Mental Health Scale (PMH-Scale)

Positive mental health was measured using the Positive Mental Health Scale (PMH-Scale) (Lukat et al., 2016). It is a unidimensional self-report 9-item instrument that investigates well-being through psychosocial and emotional factors. A 4-point Likert-type scale is used to measure the level of PMH (0 = disagree, 3 = agree); an example item is "I manage well to fulfill my needs". The PMH-Scale is a well-established instrument that has good psychometric properties, sensitivity to therapeutic improvement, internal consistency, and reliability in different populations and timelines. Cross-national studies have reported its measurement invariance (Almubaddel, 2022; Lukat et al., 2016; Velten et al., 2022). Due to this background and the short length of the scale, the PMH-Scale has been recommended for studies that focus on subjects with traumatic experiences (Naghavi et al., 2022) (current scale reliability: Cronbach's $\alpha = 0.88$).

Depression Anxiety Stress Scale 21 (DASS-21)

Anxiety and depression symptoms were measured by the Depression Anxiety Stress Scale 21 (DASS-21) (Lovibond & Lovibond, 1995). It is a 21-item scale with three subscales: depression, anxiety, and stress. In this study, we used only the depression and anxiety subscales. Each subscale consists of seven items that are rated on a 4-point Likert-type scale (0 = did not apply to me at all, 4 = applied to me very much or most of the time). An example item of the anxiety subscale is "I was close to panic", and an example item of the depression subscale is "I felt downhearted and blue". The scale showed good psychometric proprieties in clinical and nonclinical samples (Mohammad, 2021; Moussa et al., 2017). Cronbach's alpha was $\alpha = 0.86$ for the reliability of the depression subscale and $\alpha = 0.90$ for the anxiety subscale.

Statistical analyses

To investigate the study hypotheses, descriptive and correlational analyses among PMH, depression, anxiety, and PGD were carried out using SPSS 28 and the PROCESS macro 4.2 package, Model 4 (http://www.processmacro.org/index.html: Hayes, 2013). After descriptive analyses, we analyzed the relationships between the study variables by calculating zero-order bivariate correlations (Table 1). Then, a parallel mediation model, including multiple mediators,

Table 1 Descriptive statistics and zero-order correlation coefficients for study variables

	M	*SD*	PMH	Anxiety	Depression	PGD
PMH	2.36	.61	1			
Anxiety	2.74	1.24	-.123*	1		
Depression	2.71	1.12	-.162**	.654**	1	
PGD	2.35	.68	-.182**	.548**	.655**	1

Notes. $N = 385$; M = means; SD = standard deviations; PGD = prolonged grief disorder; PMH = positive mental health; $^{**}p < .01$, $^{*}p < .05$

and a simple mediation model, including one mediator, were applied. The included models allow for investigation of the inference about the indirect effect through mediation analysis. Next, bootstrapping confidence intervals (Hayes & Rockwood, 2017) were used to investigate the indirect effects of the mediation hypothesis. All confidence intervals (CIs) were 95%. The number of bootstrap samples used for percentile bootstrap confidence intervals was 5000, and heteroscedasticity-consistent standard errors and covariance matrix estimators were used. Figure 1 shows the parallel mediation model and its relevant equation through a path diagram. The parallel model investigates the relationship between the independent variable (PMH) and the dependent variable (PGD) through multiple mediators (M1, depression; M2, anxiety) together and separately. The total effect c is equivalent to the sum of the direct effect c' between PMH and PGD and the specific indirect effects a1b1 and a2b2 through multiple mediators: $c = a1b1 + a2b2 + c'$. The total indirect effect is the sum of a1b1 and a2b2. Figure 2 shows the two simple mediation models and their relevant equations through the path diagram in Panels A and B. The first simple mediation model (Fig. 2, Panel A) shows the relationship between PMH and depression through the mediator PGD. The second simple mediation model (Fig. 2, Panel B) shows the relationship between PMH and anxiety through the mediator PGD. The total effect is represented through the c path, which is the sum of the direct effect c' and indirect effects ab: $ab + c' = c$. The direct effect is represented through the c' path, which reflects the calculation of the effect between the predictor and the outcome without the mediator. Path a represents the calculation of the effect between PMH and the mediators, and Path b represents the calculation of the effect between the meditators and the dependent variables. The outcome, ab, represents the indirect effect of the predictor on the outcome through the mediator. The adopted models and Fig. 3, which shows the models-related regression equations, are cited and summarized from Hayes and Rockwood (2017).

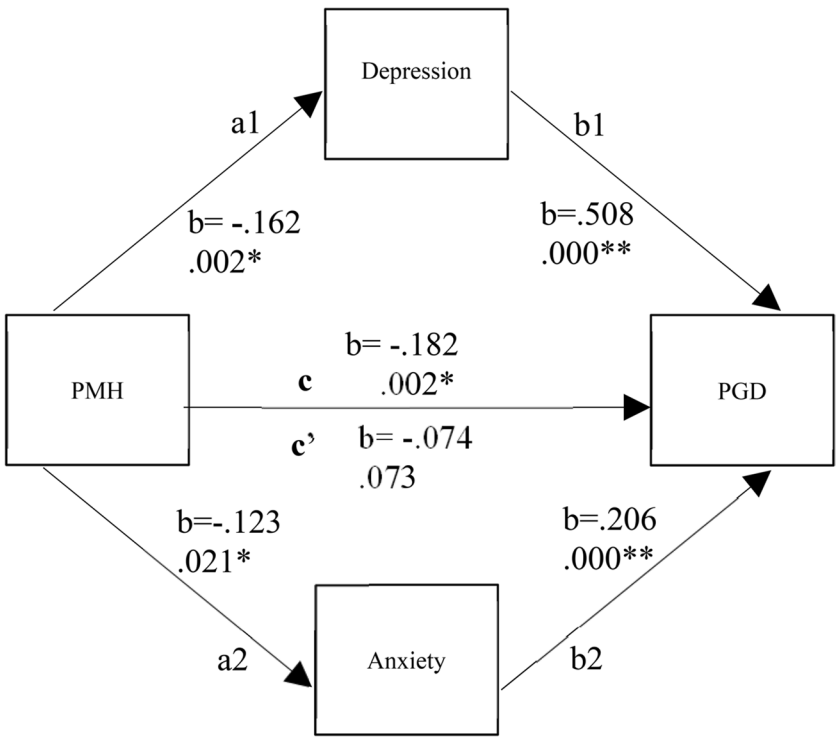

Fig. 1 Parallel mediation pathway analysis model reflecting the indirect effect of PMH on PGD through the mediators of depression and anxiety symptoms. Notes. $N = 385$; c = total effect; c' = direct effect; b = standardized regression coefficient; CI = confidence interval; SE = standard error; PGD = prolonged grief disorder; PMH = positive mental health

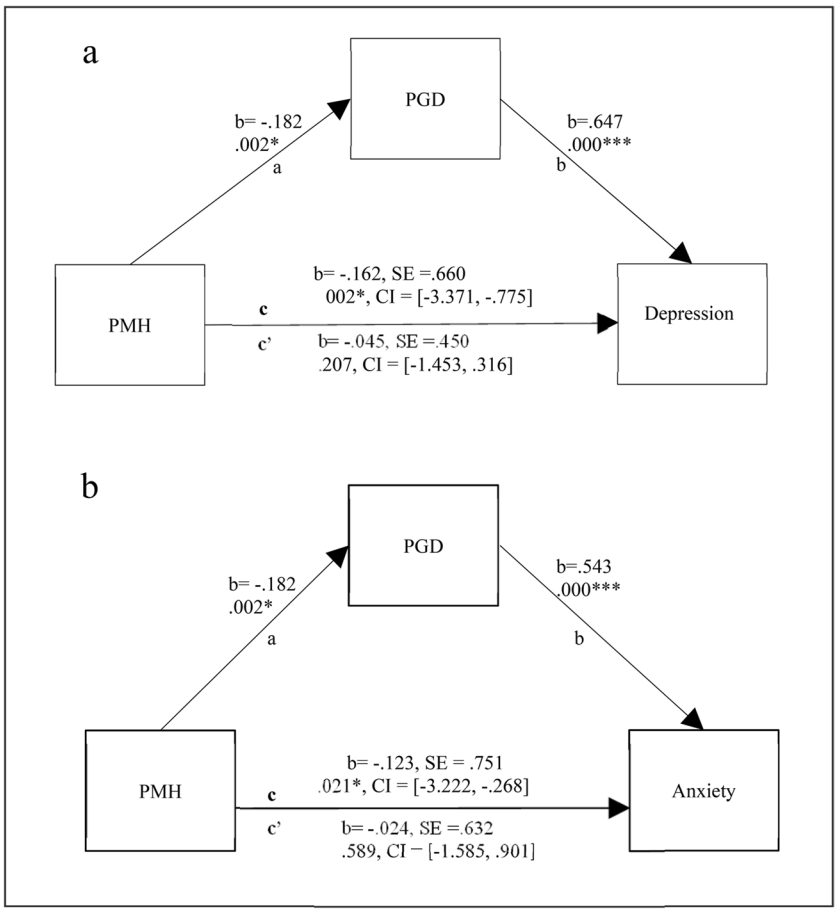

Fig. 2 Simple mediation path analysis models reflecting the indirect effect of positive mental health on (A) depression symptoms and (B) anxiety symptoms through the mediator PGD. Notes. N = 385; c = total effect; c' = direct effect; b = standardized regression coefficient; CI = confidence interval; SE = standard error; PGD = prolonged grief disorder; PMH = positive mental health

Simple mediation model-related regression equations:

$$\widehat{Y} = i_Y + cX$$

$$\widehat{M} = i_M + aX$$

$$\widehat{Y} = i_Y + c'X + bM$$

Parallel mediation model-related regression equations:

$$\widehat{M}_j = i_{M_j} + a_j X$$

$$\widehat{Y} = i_Y + c'X + \sum_{j=1}^{k} b_j M_j$$

Fig. 3 The models-related regression equations, cited and summarized from Hayes and Rockwood (2017)

Results

Table 1 shows the descriptive statistics of the study variables. The correlations among PMH, anxiety, depression and PGD are presented in Table 1. PMH was significantly

negatively correlated with PGD, anxiety, and depression. Anxiety and depression were significantly positively associated with PGD.

The parallel mediation analysis of the association between PMH and PGD through two mediators, anxiety and depression, indicated that PMH is indirectly linked to PGD through its negative association with anxiety and depression.

The total indirect effect shown in Fig. 1 (paths a1b1 and a2b2), which was mediated collectively by the two mediators of depression and anxiety, was significant (b = -0.108, SE = 0.034, 95% CI [-0.175, -0.040]). Moreover, the indirect effect through each mediator separately indicated a significant indirect effect of path a1b1 mediated by depression (b = -0.082, SE = 0.027, 95% CI [-0.137, -0.030]) and a significant indirect effect of path a2b2 mediated by anxiety (b = -0.025, SE = 0.013, 95% CI [-0.053, -0.004]).

The contrast between the indirect effect mediated by the first mediator and the second mediator was significant, which indicates two different indirect effects between the two mediators (b = -0.057, SE = 0.025, 95% CI [-0.110, -0.010]), where the indirect effect for depression (b = -0.082) is significantly greater than that for anxiety (b = -0.025).

The overall model total effect shown in Fig. 1 (path c) was significant ($p = 0.002$; b = -0.182, SE = 0.067, 95% [CI -0.335, -0.072]). After the inclusion of the mediators, the direct effect path *c'* was not significant ($p = 0.073$; b = -0.074, SE = 0.046, 95% CI [-0.174,0.008]), which indicated a full mediating effect of anxiety and depression on the relationship between PMH and PGD.

The results from the first simple mediation model shown in Fig. 2, Panel A, indicated that PMH is indirectly linked to depression through its negative association with PGD. The total effect of the relationship between PMH and depression through the mediator PGD (path c) was significant. After the inclusion of the mediator PGD, the direct effect of PMH on depression (path c´) was not significant (Fig. 2, Panel A). The indirect effect of PMH on depression through the mediator PGD (path ab) was significant (ab: b = -0.118, SE = 0.038, 95% CI [-0.193, -0.044]), indicating a fully significant mediation effect.

The results from the second mediation model shown in Fig. 2, Panel B, revealed that PMH is linked indirectly to anxiety through its negative association with PGD. The total effect of the relationship between PMH and anxiety through the mediator PGD (path c) was significant. After the inclusion of the mediator PGD, the direct effect of PMH on anxiety (path c') was not significant (Fig. 2, Panel B). The indirect effect of PMH on anxiety through the mediator PGD (path ab) was significant (ab: b = -0.099, SE = 0.032, 95% CI [-0.163, -0.038]), indicating a fully significant mediation effect.

Discussion

Grief caused by a traumatic loss, such as in a forced migration context, can transform the normal grief reaction into a more persistent, unfunctional state. However, other factors buffer this association. A predisposed coping method, such as PMH, can influence the mechanisms underlying grief persistence. The current study investigated the relationships among PMH, anxiety, depression, and PGD in refugees through mediation models. No causal pathway can be identified based on our significant cross-sectional outcomes; however, these outcomes indicate robust findings regarding the indirect effects of PMH and PGD.

PMH is negatively linked to PGD and grief-related disorders, anxiety, and depression. The present study findings confirm the negative association between PMH and PGD (confirming Hypothesis 1a), as well as between anxiety and depression symptoms (confirming Hypothesis 1b). These results contribute to the limited available evidence about the potential effect of PMH on grief. Consistent with these previous findings, PMH has been linked to decreased symptoms of psychological disorders and decreased negative effects of adverse life events. It increases adaptability by efficiently conferring resilience and problem solving (Brailovskaia et al., 2020; Truskauskaite-Kuneviciene et al., 2022). Furthermore, the importance of social and emotional support in the successful mourning process is consistent with PMH's interpersonal relationships and positive emotional components (Kobau et al., 2011). Bereaved individuals receiving social support are more likely to have a functional mourning experience (Harrison et al., 2022).

Moreover, the present study showed that PMH could indirectly and negatively influence PGD and grief-related disorders, anxiety, and depression through a mediating mechanism. The parallel model indicated that the symptoms of anxiety and depression explain the indirect effect of PMH on PGD (confirming Hypothesis 2a). Conversely, simple mediation models showed that the indirect effect of PMH on anxiety and depression was explained by PGD (confirming Hypothesis 2b). PMH could buffer the maintenance of grief symptoms by decreasing the symptoms of anxiety and depression; therefore, PMH is considered to be a protective factor against mental health disorders. Notably, the greater the level of PMH was, the lower the grief, anxiety and depression-related symptoms. This association can be explained by investigating the role of PMH in increasing the ability to deal with and interpret adverse life events (Truskauskaite-Kuneviciene et al., 2022) and promoting the capacity to adapt to grief event consequences. This negative association could contribute to explaining how PMH indirectly and negatively affects

the manifestation of grief-related disorder symptoms. The significant association and bidirectional mediation shown through the parallel and simple mediation models emphasize the role of comorbidities in grief persistence. Comorbidities are crucial aspects of grief; considering the firmly established literature about the bidirectional nature of grief, our findings are consistent with robust previous findings about the role of grief-related disorders as the driving factors in maintaining grief, as frequent comorbid disorders, and as a consequence of prolonged mourning (Boelen & Prigerson, 2007; Marques et al., 2013; Morina et al., 2018). Anxiety and depression, both together and separately, mediated the indirect effect between PMH and PGD. However, the contrast between the two mediators indicated that depression has a greater indirect effect; this finding is consistent with previous findings in which PGD and depression were the results of perceptions about life and the world and grief (Boelen et al., 2016).

Finally, the role of PMH can explain unexpected functional reactions when multiple adverse life events occur, such as forced migration and loss. The way PMH influences individuals' perceptions about life (Jahoda, 1958; Smith et al., 2020) can indirectly influence their personal perception of grief as an adverse life event and how to address its long-lasting impact. Our results on this negative association corroborate the importance of positive perceptions in buffering against adverse life events (Von Arcosy et al., 2023). In accordance with these findings, a recent study on bereaved individuals within the context of an unnatural loss confirmed the role of life, self, the future, and grief in the manifestation of grief and depression symptoms (Boelen et al., 2016). The importance of life, self, the future, and grief perception explains how predisposed factors such as perceptions (Duffy & Wild, 2023; Smith et al., 2020) can explain the unexpected positive impact of a loss within a traumatic context.

Increased grief persistence is expected when loss happens within a forced migration traumatic context (Djelantik et al., 2020). However, after loss events, some refugees develop PTG, resiliency, positive meaning, and advanced coping skills (Neimeyer et al., 2002). Understanding the role of a predisposed status can explain the contradictory relationships between adverse events and positive outcomes; PMH levels could buffer the negative impact of challenging life events (Kobau et al., 2011).

The findings of the present investigation suggest that decreasing levels of anxiety and depression represent a potential pathway through which to strengthen the negative association between PMH and PGD symptomatology. Ultimately, PMH provides protective predictors that can foster any deterioration in mental health status caused by persistent grief reactions. The role of PMH extends the knowledge about refugees' PGD risk markers in negative unidirectional and bidirectional pathways.

This study is subject to noteworthy limitations. First, the results and interpretation of our study outcome are based on a cross-sectional study design, which explicitly should not be used in establishing causality pathways. Thus, our findings need to be replicated in a longitudinal design to address the gap in the sequential relation among PMH, grief-related disorders and PGD. Furthermore, tracking changes over different time points can provide additional data about the association between PMH, a predisposed coping state, and PGD. Second, we recommend that future research include a sample with a shorter time since death to address any temporal bias. Third, the scope of the present investigation is limited to actual coping status, and alternative potential pathways can include previous psychological coping status and actual PGD symptomatology. Thus, retrospective and longitudinal study designs should be used to identify the role of past coping states and the mechanisms behind grief persistence. Fourth, it is desirable that future studies replicate our findings by using instruments other than the PMH-Scale, such as the Psychological Well-Being Scale (Ryff, 1989).

Our findings about PGD as a novel disorder add to the limited body of related research. This study provides a comprehensive investigation that includes negative and positive predictors to understand the mechanism behind PGD symptomology; moreover, this is one of the leading studies on the association between PMH and PGD within the refugee population. Furthermore, this study enhances the understanding of grief mechanisms within a context at higher risk of PGD, such as forced migration. This study confirms the role of coping status in grief persistence and its complications. Thus, this approach integrates PGD into the Ehlers and Clark (2000) model and the Boelen et al. (2006) model.

In conclusion, the present study emphasizes the importance of PMH as a positive predictor and a protective factor against dysfunctional reactions to persistent grief. A positive predictor can be a potential resource against deterioration in individual mental health when sequential challenging life events such as death and forced migration occur. Future studies that include PMH can be beneficial for advancing comprehensive causality pathways.

Authors' contributions All authors (Nesreen Dababneh, Jürgen Margraf, Xiao Chi Zhang, Julia Brailovskaia) contributed to the study design. Nesreen Dababneh conducted data collection and statistical analysis. Manuscript writing was performed by Nesreen Dababneh and Julia Brailovskaia and revised by Jürgen Margraf and Xiao Chi Zhang. All authors (Nesreen Dababneh, Jürgen Margraf, Xiao Chi Zhang, Julia Brailovskaia) approved the final version of the manuscript.

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Data availability The dataset and further material analyzed during the current study will be available from the corresponding author upon reasonable request.

Declarations

Competing of interests The authors declare that they have no conflicts of interest.

Ethics approval Ethics approval No.(741) was obtained from the ethics committee of the faculty of Psychology at Ruhr University Bochum. The study complies with ethical standards and includes informed consent requested for research that involves human participants.

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