

# The mediating role of state anger in the associations between intentions to participate in the criminal trial and psychopathology in traumatically bereaved people

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## ARTICLE INFO

### Keywords:

Grief  
Victims  
Posttraumatic stress  
Anger  
Trial participation

## ABSTRACT

Victims of crimes have been granted increasing procedural rights to participate in the juridical process since the mid 1990s. However, knowledge about the (anti)-therapeutic effect of participation is limited. We examined the associations between symptom levels of persistent complex bereavement disorder (PCBD), posttraumatic stress disorder (PTSD), and depression and the intention to participate in a criminal trial. Furthermore, we investigated the mediating role of state anger in these associations. People who lost loved ones after a plane disaster with flight MH17 ( $N = 203$ ) completed questionnaires within three weeks before the start of the criminal trial. Mediation analyses indicated that people, who did not intend to actively participate in the trial by delivering a written or oral victim statement, were less likely to experience anger, which is, in turn, associated with attenuated psychopathology levels. State anger explains 68% of the effect of the intention to exercise the right to speak on PCBD levels. An important limitation is the cross-sectional study design, which precludes conclusions about temporal associations. More research is needed to improve preparation and support of bereaved people when they intend to exercise their victim rights during a criminal trial.

## 1. Introduction

After the death of a loved one due to natural causes, about 10% of people develop chronic complaints, such as distressing and disabling grief reactions (Lundorff, Holmgren, Zachariae, Farver-Vestergaard, & O'Connor, 2017), depression and/or posttraumatic stress disorder (PTSD) (Onrust & Cuijpers, 2006). In the case of an unnatural loss, such as a violent or sudden loss, almost 50% of the bereaved people develop persistently, distressing, and disabling grief reactions (Djelantik, Smid, Mroz, Kleber, & Boelen, 2020). The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) refers to these grief reactions as Persistent Complex Bereavement Disorder (PCBD) (American Psychiatric Association, 2013). Disabling grief reactions (hereafter referred to as 'PCBD') have shown to be related, yet are distinct from PTSD and

depression (Boelen, van der Schoot, van den Hout, de Keijser, & van den Bout, 2010; Djelantik, Robinaugh, Kleber, Smid, & Boelen, 2020; Lenferink et al., 2017, 2021).

The negative impact of criminal proceedings against the alleged perpetrator(s) is one of the factors that may explain the elevated risk for developing PCBD, PTSD, and depression after a violent death of a loved one (Lens, Pemberton, & Groenhuijsen, 2010). In recent years, many jurisdictions have granted legal rights to crime victims and their relatives, with the aim to increase their participation in the criminal procedures (Kunst, Popelier, & Varekamp, 2015). These rights include, among other rights, the right to deliver a victim statement, in written form or orally, to attend the criminal hearings, and to apply for compensation (Braun, 2019). Victim rights during the legal process have been introduced to promote the emotional recovery of victims (Booth,

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<https://doi.org/10.1016/j.ijlp.2022.101840>

Received 25 July 2022; Received in revised form 3 October 2022; Accepted 12 October 2022

Available online 20 October 2022

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Bosma, & Lens, 2018).

However, there is little empirical evidence for therapeutic effects of participating in the criminal process (Erez, 2004; Kunst, 2015; Kunst, de Groot, Meester, & van Doorn, 2021; Roberts & Erez, 2004). For instance, Lens et al. (2010) assessed self-rated PTSD symptom levels among crime victims on two measurements: two weeks before the treatment of their court case and two weeks afterwards. Three groups were compared: (1) victims who exercised the right to speak, (2) victims who had drawn up a written victim statement, and (3) victims who had not made use of either. On both measurement occasions, victims in the first two groups scored significantly higher on indices of PTSD severity than victims in the third group. Even though the level of symptoms decreased in all three groups, this decrease was not significantly greater for the victims who exercised the right to speak or who had drawn up a written victim statement.

Some research suggests that victim participation in the legal process may actually work anti-therapeutic. Victims may feel secondarily victimized when their expectations do not meet up with how they are treated during the trial, for example by the judge or a defence lawyer (Kunst et al., 2015; Lens et al., 2015; Pemberton & Groenhuijsen, 2012). Another anti-therapeutic effect may occur when a victim is not satisfied with the outcome or the procedure of the trial (Kunst et al., 2015; Lens et al., 2015).

Examining factors that are related to victim's participation in the legal process and its (anti-)therapeutic effects is relevant for offering legal and emotional support to crime victims. Prior research shows that people who intend to exercise the right to speak report more severe PTSD symptoms than people who did not (Lens et al., 2010; Lens, Pemberton, & Bogaerts, 2013). Victims who intend to participate in the legal process, may see their participation as a way to retaliate on the perpetrator(s) (Orth, 2003). Expressing anger (e.g., revenge) may be driven by the idea that it will relieve emotional pain (e.g., 'Once he/she gets what he/she deserves, I will find peace.'). However, research has shown that a desire for revenge and other forms of anger are related to increased, and not reduced, symptomatology in people confronted with loss and/or trauma (Lenferink, Nickerson, Kashyap, de Keijser, & Boelen, 2022; Orth & Maercker, 2009; Orth & Wieland, 2006). Anger is a natural survival response to extreme threat, including threat experienced during traumatic events. Anger activates the sympathetic nervous system ('fight-response'), which may give a sense of control or mastery of a threatening situation. It may also serve to avoid fear (Orth & Wieland, 2006). However, when anger persists, it can become pathological. For instance, ruminative thinking about the injustice of the traumatic event or the perpetrator is directed outwards and might serve as an avoidance strategy for processing of the traumatic event internally (Orth, Cahill, Foa, & Maercker, 2008).

The current study was concerned with the mediating role of state anger in the associations between intentions to participate in the legal process and PCBD, PTSD, and depression among people confronted with traumatic loss. More specifically, this study included people who experienced loss(es) of loved ones due to a plane disaster. Flight MH17, departing from Amsterdam heading towards Kuala Lumpur, crashed on July 17, 2014 in the Ukraine due to a missile impact. All 298 people on board were killed. This is a unique bereaved sample because all people were exposed to losses that occurred at the same time under the same circumstance. Moreover, all people were exposed to the same legal process. Consequently, confounding effects of loss characteristics (e.g., time and cause since loss) and criminal trial characteristics (e.g., organization of the trial, time between crime and trial) are ruled out.

In this study, several facets of participating in the legal process were considered, including delivering a written or oral victim statement, submitting a claim for compensation, and following the hearings. The first aim of the study was to explore to what extent the *intention* of involvement in the (criminal) legal process, including the intention to deliver an oral or written victim statement, the intention to submit a claim for compensation, and the intention to follow the hearings, is

related to symptom levels of PCBD, PTSD, and depression. Based on prior PTSD research (Lens et al., 2010; Lens et al., 2013), we expected that intentions to participate in the legal process would be related to higher symptom levels of PCBD, PTSD, and depression.

Our second aim was to explore to what extent state anger mediates the association between intentions to participate in the legal process and PCBD, PTSD, and depression levels, while taking relevant correlates of post-loss distress into account (see Fig. 1). We expected that state anger mediates the linkage between intentions to participate in the judicial process and symptom levels, such that intended participation in judicial process is related to increased anger levels, which in turn is related to higher PCBD, PTSD, and depression levels.

## 2. Materials and methods

### 2.1. Participants and recruitment

Data were collected in the context of an on-going longitudinal study on psychopathology following deaths of loved ones due to the MH17 disaster (Lenferink et al., 2017; Lenferink, Nickerson, de Keijser, Smid, & Boelen, 2019, 2020). A survey study among spouses, family members, and friends of MH17 victims, both Dutch and non-Dutch people, was conducted three weeks before the start of the court case in March 2020. Participants were 18 years or older and had to understand the Dutch or English language.

Dutch participants were recruited via an email invitation for the online survey, sent by (1) the MH17 Disaster Foundation ( $n = 337$ ), which is a Dutch peer-support organization for bereaved of the MH17 disaster; (2) the coordination of family liaison officers of the Dutch National Police ( $n = 279$ ), who assisted the families of all MH17 victims; (3) the researchers ( $n = 143$ ), to the participants who had previously participated in a survey-study about the emotional consequences of the MH17 disaster and agreed to be contacted for future research (Lenferink et al., 2019). Participants who preferred a paper-and-pencil survey, were sent a survey by regular mail together with a stamped return envelope ( $n = 12$ ). There is an overlap between the people in the different groups, so some people have received multiple invitations. The coordination of family liaison officers National Police the Netherlands also sent 160 invitations to non-Dutch people bereaved by the MH17 disaster. Non-Dutch people were invited to take part in the online survey study in English. Data collection took place between February 17, 2020 and March 9, 2020. The Ethical Committee of Psychology of the University of Groningen (ID: PSY-1920-S-0171) approved the study. All participants signed written informed consent forms.

### 2.2. Measures

Because of the inclusion of both Dutch and non-Dutch participants, both Dutch and English versions of all instruments have been used.

#### 2.2.1. Persistent complex bereavement disorder (PCBD) symptoms

PCBD severity was measured with the 22-item Traumatic Grief Inventory-Self Report Plus (TGI-SR+; Lenferink, Eisma, Smid, de Keijser, & Boelen, 2022), which includes 17 items measuring PCBD symptoms, as per DSM-5. Items are rated on 5-point scales (1 = never, 5 = all the time). The instruction asks participants to rate the extent to which they experienced the listed symptoms in the past month, in response to the death of their significant other(s) due to the plane crash. Examples of items are 'I had intrusive thoughts or images related to the person who died' and 'I had trouble accepting the loss'. The instructions for the TGI-SR+ were adapted from 'the death of your significant other' to 'the death of your significant other(s) due to the plane crash'. When using 16 items for PCBD (i.e., including all PCBD symptoms except for functional impairment item) a cut-off score of  $\geq 48$  (i.e., mean item score of 3) is indicative of PCBD (Lenferink et al., 2020). Because we included the functional impairment item, a score of  $\geq 51$  (i.e.,  $48 + 3 = 51$ ) was

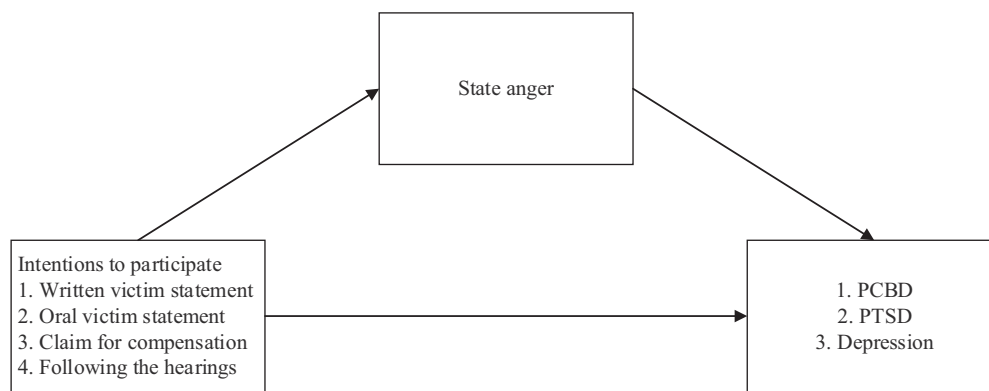


Fig. 1. Illustration of single-mediation models. PCBD = Persistent complex bereavement disorder; PTSD = Posttraumatic stress disorder.

considered as the cut-off. A Dutch validation study showed that the TGI-SR+ is a valid and reliable instrument (Lenferink, Eisma, et al., 2022). Cronbach's alpha of the 17 PCBD items in prior studies was  $\geq 0.90$  (Boelen, Djelantik, de Keijser, Lenferink, & Smid, 2019; Boelen & Smid, 2017). Cronbach's alpha in the current sample was 0.95.

### 2.2.2. Posttraumatic stress disorder symptoms

Symptoms of PTSD were measured with the PTSD Checklist for DSM-5 (PCL-5) (Boeschoten, Bakker, Jongedijk, & Olf, 2014; Weathers et al., 2013). Its 20 items correspond to the DSM-5 symptoms of PTSD (e.g. 'In the past month, how much were you bothered by repeated, disturbing, and unwanted memories of the stressful experience?'). Participants rated to what extent they experienced PTSD symptoms during the preceding month on 5-point Likert scales (0 = not at all, 4 = extremely). The loss of loved one(s) in the plane crash was referred to as the anchor event. By summing the scores of the different items, total scores were obtained. A cut-off score of  $>32$  is indicative of probable PTSD (Krüger-Gottschalk et al., 2017). Based on the high internal consistency ( $\alpha = 0.94$ ) and good convergent and discriminant validity, the PCL-5 has adequate psychometric properties (Morrison, Su, Keck, & Beidel, 2021). Cronbach's alpha in this sample was 0.95.

### 2.2.3. Depression symptoms

Depression symptoms were measured using the 16-item Quick Inventory of Depressive Symptomatology, Self-Report version (QIDS-SR; Rush et al., 2003). The 16 items (e.g. 'falling asleep') are rated on 4-point scales ranging from 0 (e.g., 'I never take longer than 30 minutes to fall asleep') to 3 (e.g., 'I take more than 60 minutes to fall asleep, more than half the time'), indicating how frequently one experienced a symptom during the past 7 days. Following the original scoring rule, the item scores on the nine aggregated items were summed to obtain total scores. A score of  $\geq 16$  was considered as indicative of severe depression (Rush et al., 2003). The internal consistency ( $\alpha = 0.86$ ) and concurrent validity was found to be adequate in prior research (Rush et al., 2003). Cronbach's alpha in this sample was 0.80.

### 2.2.4. State anger

State anger was measured using the 15-item State-Trait Anger Expression Inventory 2 (STAXI-2) (Spielberger, Sydeman, Owen and Marsh, 1999). Participants rated the degree to which statements reflecting anger (e.g., 'I am furious') applied to them at that moment, on 4-point Likert scales, ranging from 1 ('Not at all') to 4 ('Very much so'). Based on the high internal consistency of the subscale state anger ( $\alpha = 0.96$ ) and good convergent and divergent validity, the STAXI-2 has adequate psychometric properties (Lievaart, Franken, & Hovens, 2016). Cronbach's alpha in the current study was 0.95.

### 2.2.5. Intentions to participate in the criminal proceedings

For the purpose of the present study, we constructed several

questions to assess to what extent the participants intended to participate in the criminal proceedings. The questions that were asked were: (i) 'Are you going to prepare a written victim statement prior to the criminal proceedings?', (ii) 'Are you going to exercise your right to speak during the criminal proceedings?', (iii) 'Are you going to join the criminal proceedings with a claim for compensation?', (iv) 'Are you going to visit the hearings of the criminal proceedings?', and (v) 'Are you going to watch the hearings of the criminal proceedings via the live stream on www.court17.com?'. Except for the question about the claim for compensation, all other questions had three response options (1 = 'yes', 2 = 'no' and 3 = 'I do not know yet'). To avoid small group sizes that could lead to computational difficulties, we dichotomized all response options; we collapsed answers 'yes', and 'I don't know yet' into one category, because these answers suggest a certain degree of intention to participate in the criminal trial. The two questions referring to visiting or watching the hearings were merged, and a new variable 'follow hearings' was created. The questions about compensation had five possible answers, i.e., 1 = 'Yes, I am going to try to get compensation for the pain and suffering I experienced due to the loss of my loved one(s)', 2 = 'Yes, I am going to try to get compensation for the material damages I sustained as a result from the disaster', 3 = 'Yes, I will try to receive compensation for both the pain and suffering I experienced and the material damages I sustained', 4 = 'No', and 5 = 'I do not know yet'. Answer options 1 through 3 and 5 were collapsed into one response category, yielding a 0 = no, vs 1 = yes/I don't know yet dichotomy.

### 2.3. Statistical analyses

To meet our research aims, we examined the extent to which PCBD, PTSD, and depression levels varied as a function of socio-demographic, loss-related, and factors related to participants' intentions to participate in the criminal trial (hereafter: 'participation-related variables'), using multiple *t*-tests. Following prior research (Lenferink et al., 2017, 2019, 2020), we dichotomized all demographic (gender, educational level) and loss-related (number of losses, kinship to closest deceased) variables. The participation-related variables (intentions to deliver a written victim statement, exercise right to speak, claim compensation, follow the hearings) were also scored dichotomously. The alpha level was set to 0.006 to correct for multiple testing ( $0.05/8 = 0.006$ ). Associations between state anger and PCBD, PTSD, and depression levels were examined using Spearman's rho correlations. Scores on PCBD, PTSD, and depression were non-normally distributed. We ran *t*-tests and non-parametric tests and because the results did not differ meaningfully we only report the results of the *t*-tests.

The mediation analyses were performed by using the PROCESS plugin for SPSS (Hayes, 2013). Twelve single-mediation models were estimated. The independent variables were the four participation-related variables. Dependent variables were PCBD, PTSD, or depression levels, separately. The mediator was the state anger total score. Relevant

background- and loss-related variables that, based on the performed *t*-tests and correlation analyses, were found to be significantly associated with PCBD, PTSD, and/or depression, were included in the mediation models as covariates.

The mediation model consists of different paths, where for each path unstandardized regression coefficients were estimated. Path *a* shows the effect of the independent variable (i.e., intention to deliver a written victim statement) on the mediator (i.e., state anger) while controlling for the covariates, path *b* is the effect of the mediator on the dependent variable (i.e., PCBD symptom levels) while controlling for the independent variable and covariates, path *c* presents the direct effect of the independent variable on the dependent variable, and path *c'* shows the direct effect of the independent variable on the dependent variable while controlling for the effect of the mediator and covariates. The indirect effect (*a\*b*) of the independent variable on the dependent variable through the mediator where shown by bias-corrected 99% bootstrap confidence intervals (99 BCE% CI) and computed based on 5000 bootstrap resamples. An indirect effect was considered statistically significant when zero was not included in the CI. MacKinnon effect size ( $1 - c' / c$ ) was used to calculate the proportion of the association of the independent variable with the dependent variable explained by the mediator (MacKinnon, Fairchild, & Fritz, 2007).

A maximum of 6% of the data was missing. Listwise deletion was used for missing data.

Six participants (3%) did not complete the PTSD measure. Eleven participants (5%) did not complete the participation-related variables.

### 3. Results

#### 3.1. Background participants

Prior to the start of the MH17 trial on March 9, 2020, a total of 203 people completed the questionnaires. The participants ranged in age from 20 to 92 ( $M = 53.71$ ,  $SD = 15.72$ ). Most of the participants filled in the Dutch questionnaires (81.8%), were mostly women (62.9%), highly educated (69.8%), and most lost more than one relative (57.9%). Table 1 displays the sample characteristics.

#### 3.2. Severity of PCBD, PTSD, and depression in relation to demographic, loss-related and participation-related variables

Participants reported a mean score of 41.8 ( $SD = 15.3$ ) on PCBD, 19.4 ( $SD = 16.1$ ) on PTSD, and 7.5 ( $SD = 5.3$ ) on depression. A total of 31 participants (15%) scored above the cut-off for clinically relevant PCBD levels, 37 (19%) for PTSD, and 24 participants (12%) for depression.

Mean scores for indices of PCBD, PTSD, and depression are presented in Table 2 for different subgroups of participants, categorized according to socio-demographic and loss-related characteristics. People who reported that they did not want to write a victim statement reported significantly lower PCBD, PTSD, and depression symptom levels than their counterparts. The same applies to people who reported that they did not intend to exercise their right to speak. People who reported that they did not want to join with a claim for compensation reported significantly lower PCBD and PTSD symptom levels compared to people who did want to join with a claim for compensation. Symptom levels did not differ between participants who did vs. did not consider to follow the hearings.

#### 3.3. Associations between state anger and PCBD, PTSD, and depression levels

The associations between state anger and PCBD ( $r = 0.60$ ), PTSD ( $r = 0.66$ ), and depression ( $r = 0.44$ ) were all significant ( $p < .001$ ).

**Table 1**

Socio-demographic and loss-related characteristics of the participants ( $N = 203$ ).

Socio-demographic variables	Total
Language questionnaire, <i>N</i> (%)	
Dutch	166 (81.8)
English	37 (18.2)
Gender, <i>N</i> (%)	
Men	75 (37.1)
Women	127 (62.9)
Age in years, <i>M</i> ( <i>SD</i> )	53.7 (15.7)
Educational level, <i>N</i> (%)	
Primary or elementary school	1 (0.5)
High school	36 (17.8)
College or applied sciences	24 (11.9)
University	141 (69.8)
Number of losses, <i>N</i> (%)	
One	85 (42.1)
Two	60 (29.7)
Three	24 (11.9)
Four	30 (14.9)
Five	2 (1.0)
Six	1 (0.5)
Closest deceased person was ... of the participant, <i>N</i> (%)	
Spouse	9 (4.4)
Child	57 (28.1)
Parent	21 (10.3)
Sibling	67 (33.0)
Indirect family member	31 (15.3)
Friend/acquaintance	12 (5.9)
Other	6 (3.0)
<b>Intentions to participate in the criminal proceedings</b>	
Written victim statement, <i>N</i> (%)	
Yes	44 (23.0)
No	101 (52.9)
I do not know yet	46 (24.1)
Speak in court, <i>N</i> (%)	
Yes	23 (12.0)
No	133 (69.3)
I do not know yet	36 (18.8)
Claim for compensation, <i>N</i> (%)	
Yes, for the pain and suffering	27 (14.1)
Yes, for material damages	0 (0.0)
Yes, for both pain and suffering and material damages	28 (14.6)
No	66 (34.4)
I do not know yet	71 (37.0)
Visiting hearings, <i>N</i> (%)	
Yes	54 (28.1)
No	104 (54.2)
I do not know yet	34 (17.7)
Watching hearings via live stream, <i>N</i> (%)	
Yes	93 (48.7)
No	36 (18.8)
I do not know yet	62 (32.5)

For some variables, there were occasional missing values. In case people lost multiple loved ones, the 'closest deceased' was reported, ordered from child, through partner/spouse, to parent, to sibling, to other relatives.

#### 3.4. Single-mediation analyses

Table 3 shows the results of the mediation analyses with relevant covariates taken into account. The socio-demographic and loss-related characteristics educational level (0 = university, 1 = other than university), kinship to the closest deceased (0 = other than child or spouse, 1 = child or spouse), and number of losses due to the disaster (0 = single loss, 1 = multiple losses) were included as covariates in the analyses. These characteristics were chosen based on the performed *t*-tests, which showed that levels of PCBD, PTSD, and/or depression differed as a function of these variables (see Table 2).

##### 3.4.1. Intention to submit a written victim statement, anger, and psychopathology levels

It was found that wanting to write a victim statement (or considering that) vs. not wanting to write a statement was significantly associated



**Table 2**  
Associations between PCBD, PTSD, depression and Socio-demographic and participation-related variables (N = 203).

	PCBD	t (DF), p value	PTSD	t (DF), p value	Depression	t (DF), p value
Gender, (n total)						
Men, M (SD) (n = 75)	40.2 (14.7)	t (200) = -1.19,	17.3 (14.7)	t (194) = -1.48,	7.2 (4.9)	t (200) = -0.52,
Women, M (SD) (n = 127)	42.8 (15.7)	p = .235	20.8 (16.8)	p = .140	7.6 (5.5)	p = .606
Educational level						
University, M (SD) (n = 141)	39.1 (15.3)	t (200) = -4.03,	17.0 (15.6)	t (194) = -3.48,	6.6 (5.2)	t (200) = -3.59,
Other than university, M (SD) (n = 61)	48.2 (13.4)	p < .001	25.5 (15.8)	p = .001	9.5 (5.1)	p < .001
Number of losses						
Single, M (SD) (n = 85)	45.9 (16.2)	t (200) = 3.30,	23.2 (17.4)	t (194) = 2.79,	8.7 (5.8)	t (200) = 2.76,
Multiple, M (SD) (n = 117)	38.9 (13.9)	p = .001	16.8 (14.6)	p = .006	6.6 (4.7)	p = .006
Kinship						
Deceased is other, M (SD) (n = 137)	39.5 (15.4)	t (201) = -3.11,	18.2 (15.9)	t (195) = -1.55,	6.8 (5.2)	t (201) = -2.81,
Deceased is child/spouse, M (SD) (n = 66)	46.5 (14.1)	p = .002	21.9 (16.3)	p = .122	8.9 (5.3)	p = .005
Written victim statement <sup>a</sup>						
No, M (SD) (n = 101)	35.4 (12.6)	t (189) = -6.20,	13.6 (12.1)	t (189) = -5.57,	5.6 (4.0)	t (189) = -5.35,
Yes/I don't know yet, M (SD) (n = 90)	47.8 (14.8)	p < .001	25.4 (17.0)	p < .001	9.3 (5.5)	p < .001
Speak in court <sup>a</sup>						
No, M (SD) (n = 133)	38.4 (13.7)	t (190) = -4.04,	16.2 (13.6)	t (190) = -4.05,	6.4 (4.6)	t (190) = -3.76,
Yes/I don't know yet, M (SD) (n = 59)	47.5 (15.9)	p < .001	25.7 (18.1)	p < .001	9.3 (5.7)	p < .001
Claim for compensation <sup>a</sup>						
No, M (SD) (n = 66)	35.9 (12.8)	t (190) = -3.62,	14.4 (12.4)	t (190) = -3.04,	6.1 (4.0)	t (190) = -2.43,
Yes/I don't know yet, M (SD) (n = 126)	43.9 (15.4)	p ≤ 0.001	21.5 (16.7)	p = .003	7.9 (5.5)	p = .016
Following hearings <sup>a</sup>						
No, M (SD) (n = 32)	37.2 (17.1)	t (189) = -1.61,	15.3 (14.1)	t (189) = -1.48,	6.5 (5.3)	t (189) = -0.97,
Yes /I don't know yet, M (SD) (n = 159)	41.9 (14.5)	p = .109	19.8 (16.0)	p = .140	7.4 (5.1)	p = .333

PCBD = Persistent complex bereavement disorder; PTSD = Posttraumatic stress disorder.

<sup>a</sup> The intention to participate in the criminal proceedings.

**Table 3**  
Mediation analyses between PCBD, PTSD, and depression and state anger (N = 203).

Dependent variable	Independent variable <sup>a</sup>	a	b	Total effect c	Direct effect c'	Unique indirect effect a*b (BC 99% CI)	MacKinnon effect size
PCBD	Written victim statement	4.88***	0.85***	11.11***	6.98***	4.13 (1.33, 7.49)	0.37
	Speak in court	5.65***	0.92***	7.67***	2.47	5.19 (1.25, 9.58)	0.68
	Claim for compensation	2.41	0.92***	7.86***	5.65***	2.21 (-0.68, 5.36)	0.28
	Following hearings	0.55	0.95***	1.00	0.47	0.52 (-2.94, 3.86)	0.53
PTSD	Written victim statement	4.88***	1.05***	11.05***	5.92***	5.14 (1.84, 9.12)	0.46
	Speak in court	5.65***	1.11***	8.49***	2.20	6.28 (1.66, 11.53)	0.74
	Claim for compensation	2.41	1.12***	7.03**	4.34*	2.69 (-0.76, 6.44)	0.38
	Following hearings	0.55	1.13***	2.03	1.41	0.63 (-3.36, 4.95)	0.31
Depression	Written victim statement	4.88***	0.24***	3.36***	2.20***	1.16 (0.35, 2.23)	0.35
	Speak in court	5.65***	0.26***	2.49**	1.04	1.45 (0.39, 2.81)	0.58
	Claim for compensation	2.41	0.26***	1.84*	1.20	0.64 (-0.18, 1.61)	0.35
	Following hearings	0.55	0.27***	0.17	0.02	0.15 (-0.81, 1.11)	0.87

Mediator = STAXI (State-Trait Anxiety Inventory); PCBD = persistent complex bereavement disorder; PTSD = posttraumatic stress disorder; a = the effect of X on M while controlling for the covariates; b = the effect of the mediator on Y, while controlling for X, other mediators, and covariates; c = the effect of X on Y; c' is the direct effect of X on Y while controlling for the mediator(s) and covariates; \* p < .05; \*\* p < .01; \*\*\* p < .001.

<sup>a</sup> The intention to participate in the criminal proceedings.

with higher state anger and higher symptom levels of PCBD, PTSD, and depression. Additionally, higher feelings of state anger were significantly related to higher levels of PCBD, PTSD, and depression, when taking the intention to submit a written victim statement and relevant covariates into account. State anger significantly mediated the associations.

**3.4.2. Intention to speak in court, anger, and psychopathology levels**

People who reported that they considered or intended to speak during the trial reported significantly higher state anger and higher PCBD, PTSD, and depression levels than those who said they would not exercise the right to speak. Higher feelings of state anger were also significantly related to higher levels of PCBD, PTSD, and depression, when taking intentions to speak and relevant covariates into account. The mediation effect of state anger was statistically significant.

**3.4.3. Intention to join with a claim for compensation, anger, and psychopathology levels**

Joining with a claim for compensation was not significantly associated with higher feelings of state anger. It was, however, significantly associated with higher symptom levels of PCBD, PTSD, and depression. Higher feelings of state anger were significantly related to higher levels of PCBD, PTSD, and depression, when taking the plan of joining with a claim for compensation and covariates into account. State anger did not significantly mediate the associations.

**3.4.4. Intention to follow the hearings, anger, and psychopathology levels**

Having the intention to follow the hearings, live or via the online livestream, or considering that, was not significantly associated with higher feelings of state anger, or higher symptom levels of PCBD, PTSD, or depression. Moreover, higher feelings of state anger were significantly related to PCBD, PTSD, and depression, when taking the intention to follow the hearings and covariates into account. There was no

significant mediation of state anger.

#### 4. Discussion

The first aim of this study was to examine the associations between participation in the legal process and symptom levels of PCBD, PTSD, and depression in people bereaved by the MH17-disaster. In doing so, we included four indicators of intention to participate in the legal process, namely: 1) delivering a written victim statement, 2) delivering an oral victim statement, 3) joining with a claim for compensation, and 4) following the hearings. Our second aim was to examine to what extent the associations between these four participation-indicators and symptom levels were mediated by state anger.

Regarding our first aim (i.e., to explore to what extent the intention of involvement in the legal process is related to symptom levels of PCBD, PTSD, and depression), we found that three out of four indicators of intentions to participate in the legal process were positively and significantly related to levels of psychopathology. More specifically, we found that people who intended to submit a written or oral victim statement reported significantly higher PCBD, PTSD, and depression levels. Furthermore, intention of joining with a claim for compensation was significantly and positively associated with PCBD and PTSD levels, but was not with depression. These findings are in line with previous research indicating that victims with higher psychopathology levels were more likely to deliver an oral victim statement (Lens et al., 2010; Lens et al., 2013). The intention of following the hearings versus not following the hearings was unrelated to PCBD, PTSD, and depression levels. A possible explanation is that this is the only variable that involves passive, instead of active, participation in the trial. Moreover, very few participants indicated that they would not follow the hearings. This small group size makes it difficult to find an effect.

Concerning the second aim (i.e., exploring to what extent state anger mediates the association between intentions to participate in the legal process and PCBD, PTSD, and depression levels), the mediation models showed that the associations between the intention to (perhaps) submit a written or oral victim statement on the one hand and PCBD, PTSD, and depression levels on the other hand were partially mediated by state anger. This indicates that people, who did not intend to actively participate in the trial, were less likely to experience anger, which is, in turn, associated with attenuated psychopathology levels. The associations between the (possible) intention to join with a claim for compensation or to follow the hearings and PCBD, PTSD, and depression levels were not mediated by state anger.

The strongest mediation effect was found for the intention to exercise the right to speak; state anger explained 68% of the effect of right to speak on PCBD levels. State anger did not mediate the association between the intention of joining with a claim for compensation and PCBD and PTSD levels. This could possibly be explained by the more active participation of delivering a victim statement, in comparison with joining the claim for compensation (Booth et al., 2018). The mediation effect of state anger was significant in the association of the intention of following the hearings and psychopathology levels. Based on these results, intentions to participate in the trial seems to be associated with distress, which is (partly) explained by state anger. However longitudinal research, including more measurement occasions (preferably measurements prior, during, and after a criminal trial), are needed to gain insights into the therapeutic impact of participation in a criminal trial (Explanatory Memorandum of the Oral Victim Impact Statement Act, 2005, 2012).

An important note is the partial mediation of state anger in this study. This indicates that other factors may also explain the found associations between intentions of involvement in the trial and psychopathology levels, like for instance rumination (Lenferink et al., 2017; Orth et al., 2008) or feelings of revenge (Orth & Maercker, 2009; Orth, Montada, & Maercker, 2006). More research is needed to further examine the potential mediational effect of anger on the associations

between participation in a criminal trial and psychopathology levels.

Several other limitations of this study should be considered while interpreting the results. First, the cross-sectional study design precludes to draw conclusions about time-dependent change in psychopathology and feelings of anger and the directionality of the associations between psychopathology and anger levels. Once we are finished collecting data from this longitudinal study, we aim to examine temporal associations between feelings of anger and psychopathology using cross-lagged panel modelling (cf. Orth et al., 2008). Second, we collected data about the intention to participate in the trial three weeks before the start of the trial. Consequently, we did not know if they actually participated in the trial. One of our aims for future research is to examine to what extent actual participation in the trial relates to psychopathology levels. Third, the use of self-rated questionnaires may have resulted in overestimation of severity levels of PCBD, PTSD, and depression in comparison with diagnostic interviews (Engelhard et al., 2007). Related to this, we reported on 'probable' PCBD, PTSD, and depression prevalence rates, instead of formal diagnoses because the latter is not justified given we used self-report measures. Fourth, we used a generic instrument to assess state anger, instead of a context-specific (e.g. the Posttraumatic Anger Questionnaire; Orth & Maercker, 2009) instrument. We chose to use the STAXI-2 because, to the best of our knowledge, a validated state context-specific anger measure was not available at the time of conducting this study. We preferred a state measure because we aim to examine associations between anger and psychopathology levels over time in our future longitudinal research that is planned in the context of this project. Fifth, due to the uniqueness of the research group (e.g., a large group of bereaved people involved in the same criminal trial), the results may be limitedly generalizable to victims of other crimes or disasters. Also, the MH17 trial has unique characteristics, e.g., it was expected that suspects would not be present during the hearings. It is therefore difficult to generalize the results to studies involving individual lawsuits with the presence of suspects. While barely studied in prior research, the presence and behaviors of suspects likely plays a role in to what extent participating in the trial is perceived as therapeutic. For instance, when a suspect shows remorse this may facilitate the adjustment process of victims (Szmania & Mangis, 2005).

However, arguably, the uniqueness and magnitude of this criminal trial is also one of the major strengths of this study. All participants were exposed to the same kind of losses and were part of the criminal trial at the same time and under the same circumstances. Possible confounding effects related to the circumstances of the loss (e.g., relationship to the perpetrator, cause of death) and participation-related factors (e.g., timing and duration of, preparation for, and possible legal support during the trial) did not affect our outcomes. Another advantage of the uniqueness of this study is that there are hardly any empirical studies that investigated the associations between the intention of participating in a trial and distress levels (while many statements are made about it), in which the participation-related variables have been asked so precisely at the same time during the trial among so many relatives.

To our knowledge, this is the first study that examines the associations between intended participation in a legal process and psychopathology levels, and the mediating role of anger, before the start of the trial. We found some support for an association between participation and anger, where the intention of participation in the trial is associated with more feelings of anger and that in turn is associated with higher psychopathology levels. This offers new insights into the relation between intentions to participate in legal procedures and psychopathology levels, resulting in starting points to improve the preparation and support of bereaved people when they intend to exercise their victim rights. The high psychopathology levels in people who opt to actively participate in the trial point to the importance of more research in traumatically bereaved people to examine possible positive and negative effects of participating in the judicial process.

## Funding

This work was supported by Fonds Slachtofferhulp.

## Data availability statement

Due to the nature of this research, some participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

## Declaration of Competing Interest

The authors declare no conflicts of interest.

## Acknowledgments

We would like to thank Arlette Schijns for insights in the progress of the trial.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Boelen, P. A., Djelantik, 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., & Smid, G. E. (2017). 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>
- Boelen, P. A., van der Schoot, R., van den Hout, M. A., de Keijser, J., & van den Bout, J. (2010). Prolonged grief disorder, depression, and posttraumatic stress disorder are distinguishable syndromes. *Journal of Affective Disorders*, 125(1–3), 374–378. <https://doi.org/10.1016/j.jad.2010.01.076>
- Boeschoten, M. A., Bakker, A., Jongedijk, R. A., & Olff, M. (2014). *PTSD checklist for DSM-5–Dutch* (version. ed.). Diemen: Arq Psychotrauma Expert Groep.
- Booth, T., Bosma, A., & Lens, K. (2018). Accommodating the expressive function of victim impact statements: The scope for victims' voices in Dutch courtrooms. *British Journal of Criminology, Delinquency and Deviant Social Behavior*, 58(6), 1480–1498. <https://doi.org/10.1093/bjc/azy001>
- Braun, K. (2019). *Victim participation rights: Variation across criminal justice systems*. Palgrave MacMillan.
- Djelantik, A. A. M. J., Robinaugh, D. J., Kleber, R. J., Smid, G. E., & Boelen, P. A. (2020). Symptomatology following loss and trauma: Latent class and network analyses of prolonged grief disorder, posttraumatic stress disorder, and depression in a treatment-seeking trauma-exposed sample. *Depression and Anxiety*, 37(1), 26–34. <https://doi.org/10.1002/da.22880>
- Djelantik, A. A. M. J., Smid, G., Mrocz, A., Kleber, R., & 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>
- Engelhard, I. M., van den Hout, M. A., Weerts, J., Arntz, A., Hox, J. J., & McNally, R. J. (2007). Deployment-related stress and trauma in Dutch soldiers returning from Iraq: Prospective study. *The British Journal of Psychiatry*, 191(2), 140–145. <https://doi.org/10.1192/bjp.bp.106.034884>
- Erez, E. (2004). Integrating restorative justice principles in adversarial proceedings through victim impact statements. In E. Cape (Ed.), *Reconcilable rights? Analysing the tension between victims and defendants*. Legal Action Group.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: The Guilford Press.
- Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Dyer, A., Schäfer, I., Schellong, J., & Ehring, T. (2017). Prolonged grief, depression, and posttraumatic stress in disaster-bereaved individuals: Latent class analysis. *European Journal of Psychotraumatology*, 8(1), 1298311. <https://doi.org/10.1080/20008198.2017.1298311>
- Kunst, M. (2015). De therapeutische werking van slachtofferdeelnamen aan het strafproces: een kritische beschouwing vanuit een psychotrauma perspectief. *Beleid en Maatschappij*, 42(1), 32–45. <https://doi.org/10.5553/BenM/138900692015042001003>
- Kunst, M., de Groot, G., Meester, J., & van Doorn, J. (2021). The impact of victim impact statements on legal decisions in criminal proceedings: A systematic review of the literature across jurisdictions and decision types. *Aggression and Violent Behavior*, 56. <https://doi.org/10.1016/j.avb.2020.101512>
- Kunst, M., Popelier, L., & Varekamp, E. (2015). Victim satisfaction with the criminal justice system and emotional recovery: A systematic and critical review of the literature. *Trauma, Violence & Abuse*, 16(3), 336–358. <https://doi.org/10.1177/1524838014555034>
- Lenferink, L. I. M., de Keijser, J., Smid, G. E., Djelantik, A. A. M. J., & Boelen, P. A. (2017). Prolonged grief, depression, and posttraumatic stress in disaster-bereaved individuals: Latent class analysis. *European Journal of Psychotraumatology*, 8(1), 1298311. <https://doi.org/10.1080/20008198.2017.1298311>
- Lenferink, L. I. M., 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.comppsy.2021.152281>
- Lenferink, L. I. M., Nickerson, A., de Keijser, J., Smid, G. E., & Boelen, P. A. (2019). Reciprocal associations among symptom levels of disturbed grief, posttraumatic stress, and depression following traumatic loss: A four-wave cross-lagged study. *Clinical Psychological Science*, 7(6), 1330–1339. <https://doi.org/10.1177/2167702619858288>
- 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, 35–44. <https://doi.org/10.1002/da.22850>
- Lenferink, L. I. M., Nickerson, A., Kashyap, S., de Keijser, J., & Boelen, P. A. (2022). Associations of dimensions of anger with distress following traumatic bereavement. *Psychological trauma: Theory, research, practice and policy*. <https://doi.org/10.1037/tra0001275>
- Lenferink, L. I. M., van den Munckhof, M. J. A., de Keijser, J., & Boelen, P. A. (2021). DSM-5-TR prolonged grief disorder and DSM-5 posttraumatic stress disorder are related, yet distinct: confirmatory factor analyses in traumatically bereaved people. *European Journal of Psychotraumatology*, 12(1), 1–14. <https://doi.org/10.1080/20008198.2021.2000131>
- Lens, K. M., Pemberton, A., Brans, K., Braeken, J., Bogaerts, S., & Lahlah, E. (2015). Delivering a victim impact statement: Emotionally effective or counter-productive? *European Journal of Criminology*, 12(1), 17–34. <https://doi.org/10.1177/1477370814538778>
- Lens, K. M. E., Pemberton, A., & Bogaerts, S. (2013). Heterogeneity in victim participation: A new perspective on delivering a victim impact statement. *European Journal of Criminology*, 10(4), 479–495. <https://doi.org/10.1177/1477370812469859>
- Lens, K. M. E., Pemberton, A., & Groenhuijsen, M. S. (2010). *Het spreekrecht in Nederland: Een bijdrage aan het emotioneel herstel van slachtoffers?* (INTERVICT).
- Lievaart, M., Franken, I. H. A., & Hovens, J. E. (2016). Anger assessment in clinical and nonclinical populations: Further validation of the state-trait anger expression Inventory-2. *Journal of Clinical Psychology*, 72(3), 263–278. <https://doi.org/10.1002/jclp.22253>
- 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>
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593–614. <https://doi.org/10.1146/annurev.psych.58.110405.085542>
- Morrison, K., Su, S., Keck, M., & Beidel, D. C. (2021). Psychometric properties of the PCL-5 in a sample of first responders. *Journal of Anxiety and Distress*, 77. <https://doi.org/10.1016/j.janxdis.2020.102339> [102339].
- Onrust, S. A., & Cuijpers, P. (2006). Mood and anxiety disorders in widowhood: A systematic review. *Aging & Mental Health*, 10(4), 327–334. <https://doi.org/10.1080/13607860600638529>
- Orth, U. (2003). Punishment goals of crime victims. *Law and Human Behavior*, 27(2), 173–186. <https://doi.org/10.1023/A:1022547213760>
- Orth, U., Cahill, S. P., Foa, E. B., & Maercker, A. (2008). Anger and posttraumatic stress disorder symptoms in crime victims: A longitudinal analysis. *Journal of Consulting and Clinical Psychology*, 76, 208–218. <https://doi.org/10.1037/0022-006X.76.2.208>
- Orth, U., & Maercker, A. (2009). Posttraumatic anger in crime victims: Directed at the perpetrator and at the self. *Journal of Traumatic Stress*, 22, 158–161. <https://doi.org/10.1002/jts.20392>
- Orth, U., Montada, L., & Maercker, A. (2006). Feelings of revenge, retaliation motive, and posttraumatic stress reactions in crime victims. *Journal of Interpersonal Violence*, 21, 229–243. <https://doi.org/10.1177/0886260505282286>
- Orth, U., & Wieland, E. (2006). Anger, hostility, and posttraumatic stress disorder in trauma-exposed adults: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 74(4), 698–706. <https://doi.org/10.1037/0022-006X.74.4.698>
- Pemberton, A., & Groenhuijsen, M. S. (2012). Developing victims' rights within the European Union. Past, present, future. In H. Morosawa, J. Dussich, & G. Kirchhoff (Eds.), *Victimology and human security: New horizons. Proceedings of the 13th symposium of the world society victimology* (pp. 538–559). Wolf Legal Publishers.
- Roberts, J. V., & Erez, E. (2004). Communication in sentencing: Exploring the expressive function of victim impact statements. *International Review of Victimology*, 10(3), 223–244. <https://doi.org/10.1177/026975800401000302>
- Rush, A. J., Rush, A. J., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., ... Keller, M. B. (2003). The 16-item quick inventory of depressive symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): A psychometric evaluation in patients with chronic major depression. *Biological Psychiatry*, 54, 573–583. [https://doi.org/10.1016/S0006-3223\(02\)01866-8](https://doi.org/10.1016/S0006-3223(02)01866-8)
- Spielberger, C. D., Sydeman, S. J., Owen, A. E., & Marsh, B. J. (1999). Measuring anxiety and anger with the state-trait anxiety inventory (STAI) and the state-trait anger expression inventory (STAXI). In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment* (pp. 993–1021). Lawrence Erlbaum Associates Publishers.
- Szmania, S. J., & Mangis, D. E. (2005). Finding the right time and place: A case study comparison of the expression of offender remorse in traditional justice and restorative justice contexts. *Marquette Law Review*, 335(89).
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The PTSD checklist for DSM-5 (PCL-5). Questionnaire is available at National Center for PTSD via: <http://www.ptsd.va.gov>.