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## Complicated Grief and Post-Traumatic Growth in Traumatically Bereaved Siblings and Close Friends

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### ABSTRACT

Experiencing a loss is hard, and traumatic deaths may add to the strain. However, many bereaved may experience post-loss positive changes, also known as post-traumatic growth. The aim of this paper was to explore the relationship between complicated grief and post-traumatic growth in 131 young adults, either close friends or siblings. Significant differences were found between males and females, where females had higher scores on PTG, but not between siblings and close friends. Most growth was reported for relationship with others and appreciation of life.

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### KEYWORDS

Post-traumatic growth; complicated grief; young adults; siblings; friends

## Introduction

Grief is not a disease, but a natural reaction to the loss of a loved one (Shear et al., 2011). Both national and international studies show that sudden, unexpected and violent losses increase the risk of prolonged grief (ICD-11, 2017), which again can cause comprehensive health problems, with consecutive reduced quality of life and impaired functioning (Boelen et al., 2019; Kristensen et al., 2012; Stroebe et al., 2007). After expected losses, about 10–15% of bereaved develop prolonged grief (Lundorff et al., 2017), compared to 30–70% of bereaved after sudden and violent losses (McDevitt-Murphy et al., 2012). Sudden and violent losses increase the risk of comorbid disorders like PTSD, depression, and anxiety (Heeke et al., 2017).

Violent losses increase the risk of prolonged grief, by disrupting the meaning-making process (Milman et al., 2017). Bereaved after murder often struggle more with revenge thoughts and anger compared to bereaved after other types of losses (Baddeley et al., 2015). In addition, secondary stressors, like media coverage and the trial, often add stressors to the grieving process (Kristensen et al., 2016; van Denderen et al., 2016). A result of a positive integration of the loss can, however, be experiences of

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“post-traumatic growth” (Calhoun & Tedeschi, 2006). Key factors for experiencing post-traumatic growth are the age of the bereaved, social support, time since death, religion, and active cognitive coping strategies (Michael & Cooper, 2013). Traumatic events disrupt both the sense of self and the assumptive world of the bereaved, and the bereaved may struggle with a number of challenges in which they manage their emotional distress and engage in intense cognitive processing of beliefs, goals and life narratives (Bray, 2013; Tedeschi & Calhoun, 2006). However, cognitive changes may occur, including rebuilding a meaningful and coherent view of self and the world, leading to further narrative development (Bray, 2013).

The aim of this paper was to explore the relationship between complicated grief and post-traumatic growth in young adults, and how this was affected by the relationship to the deceased (siblings or close friends), and the gender of the bereaved. Our hypotheses were that (1) too high or too low scores on the ICG predict low PTG (curvilinear relationship), (2) no significant difference between ICG and PTG scores of close friend group and sibling group, and (3) a significant gender difference between ICG and PTG scores. We also wanted to explore in what domains the bereaved experienced post-traumatic growth.

## Materials and methods

### Participants

There were 131 participants recruited and their ages ranged from 12 to 44 ( $M = 21.26$ ,  $SD = 5.86$ ) years. The inclusion criteria for participants in this study was to be a Norwegian citizen, and to be either a close friend or sibling of a deceased at Utøya shooting. The female to male ratio was 3:1, where 99 participants were female, with age range 12–44 ( $M = 20.89$ ,  $SD = 5.32$ ) and 32 participants were male, with age range 12–41 ( $M = 22.50$ ,  $SD = 7.34$ ). The friend to sibling ratio among the participants was 2:1, where 86 of the participants were close friends of the deceased, with their age ranging from 15 to 41 ( $M = 20.77$ ,  $SD = 4.75$ ), whereas 43 were sibling of the deceased, with their age ranging from 12 to 44 ( $M = 22.26$ ,  $SD = 7.58$ ). The occupation of the participants varied. Most of the participants were students (8.4% primary school, 32.1% high school and 19.1% in college or university) whereas 29.0% were working and 4.6% chose other as their occupation.

The gender split was investigated based on previous studies suggesting modest but significant gender differences in posttraumatic growth. They propose further longitudinal investigation to identify gender differences as well as additional factors that may better explain why such difference occurs (Tedeschi & Calhoun, 1996, 2004; Vishnevsky et al., 2010).

The relation to deceased split was chosen based on previous studies on complicated grief among relatives, suggesting higher PTG among first degree

relatives (Armstrong & Shakespeare-Finch, 2011). Whereas findings of Johnsen et al. (2018) suggest high levels of reported grief and trauma among bereaved friends as well as siblings. Therefore, it is critical to investigate differences in PTG based on relationship to the deceased (sibling vs. friend).

### **Materials—Questionnaire based**

Participants completed a set of questionnaires that included demographic and loss-related questions, and the main questionnaires. The following standardized instruments were analyzed in this paper.

#### ***The Post-traumatic Growth Inventory – Short Form***

Post-traumatic growth was measured using The Post-traumatic Growth Inventory – Short Form (PTGI-SF) devised by Cann and colleagues (2010). It is a 10-item self-report scale derived from the 21-item PTGI scale (Tedeschi & Calhoun, 1996). This inventory contains five factors as in the original form, with 2-items for each factor: relating to others, new possibilities, personal strength, spiritual change and appreciation of life. The items are rated on a 6-point Likert scale with responses ranging from *no change* (0) to *very great degree of change* (5). The domain scores range from 0 to 10, where higher scores indicate a greater positive change (Cann et al., 2010). The cutoff was a mean score of 3, where 3 or higher mean score indicated high post-traumatic growth (Silva et al., 2016).

Cann et al. (2010) found the internal consistency for the PTGI-SF total scores to be equally good as the original PTGI (PTGI-SF total = 0.86, PTGI total = 0.93). Also, the coefficient alphas for the five factors were all above acceptable levels and were as follows: Relating to Others = 0.68, New Possibilities = 0.77, Personal Strength = 0.74, Spiritual Change = 0.80, and Appreciation of Life = 0.68 (Cann et al., 2010). The questionnaire is widely adopted today with versions available in many different languages and has shown good psychometric properties (García & Włodarczyk, 2015; Ho et al., 2004; Maercker & Zoellner, 2004; Qandeel et al., 2014). The PTGI-SF Norwegian version used in previous studies has shown a good internal reliability ( $\alpha = 0.89$ ) (Blix et al., 2013). This is also true for this study where the Cronbach's alpha was 0.83.

#### ***The Inventory of Complicated Grief***

The Inventory of Complicated Grief (ICG-19) was developed by Prigerson et al. (1995) to assess maladaptive reactions to loss that may indicate pathological grief. This inventory is one of the most commonly used instruments to assess complicated grief. The ICG-19 consists of a 19-item self-report questionnaire in form of first-person statements such as “*Memories of the person who*

*died upset me.*” The items are rated on a five-point Likert scale ranging from *never* (0) to *always* (4). The items assess feelings of disbelief, anger and bitterness, preoccupation and yearning for the deceased avoidance, withdrawal and loneliness difficulties accepting the loss of the deceased, and visual and auditory hallucinations (Prigerson et al., 1995). The scores can range from 0 to 76, with a clinical cutoff in the range of 25, where 25 or higher score implies complicated grief (Prigerson et al., 1995; Zetumer et al., 2015).

The measured internal consistency of the original ICG was high ( $\alpha = 0.94$ ) (Prigerson et al., 1995). ICG-19 is a globally used instrument to measure complicated grief, with good psychometric properties, and Cronbach alpha values ranging from 0.87 to 0.95. Translated versions include Korean, Italian as well as Norwegian (Kristensen et al., 2010). Internal consistency was measured to be excellent for the current study ( $\alpha = 0.93$ ).

### **Procedure and ethics**

A full ethical approval from the Regional Committees for Medical and Health Research Ethics (REK) in Norway was obtained for this research. The sensitive nature of the event and questionnaires was taken into consideration, and therefore information of the researchers and other national helplines for trauma victims was provided to all participants.

Names and contact information of the family members was retrieved from public records of the deceased from Utøya shooting. Bereaved after 67 of the 69 victims killed on Utøya on July 22, 2011, were eligible for inclusion on the study (two were foreign citizens and therefore excluded). The youngest participant was of age 12. Written informed consent was collected from all participants and provided by parents/guardians on behalf of children under age 16. The set of questionnaires was sent in mail to the recipients ( $N = 131$ ), with prepaid return-envelopes, or by email with a link to an online survey tool (SurveyMonkey).

### **Design**

This study is part of a longitudinal study, “Bereaved parents, siblings and close friends after Utøya, July 22 2011,” conducted by Center for Crisis Psychology 2013–2016. The data has been obtained at three time-points post the mass shooting event that took place on July 22, 2011. The first data was collected 18 months post event (T1), then 28 months post event (T2) and 40 months post event (T3). Only data from the third collection (T3) is investigated in this study, as the post-traumatic growth was first assessed at this point.

The independent variables (IVs) were participants’ gender (male and female) and participants’ relationship to the deceased (sibling and friend). The dependent variables (DV) measured were reported post-traumatic

growth assessed using Post-traumatic Growth Inventory – SF and complicated grief assessed using Inventory for Complicated Grief.

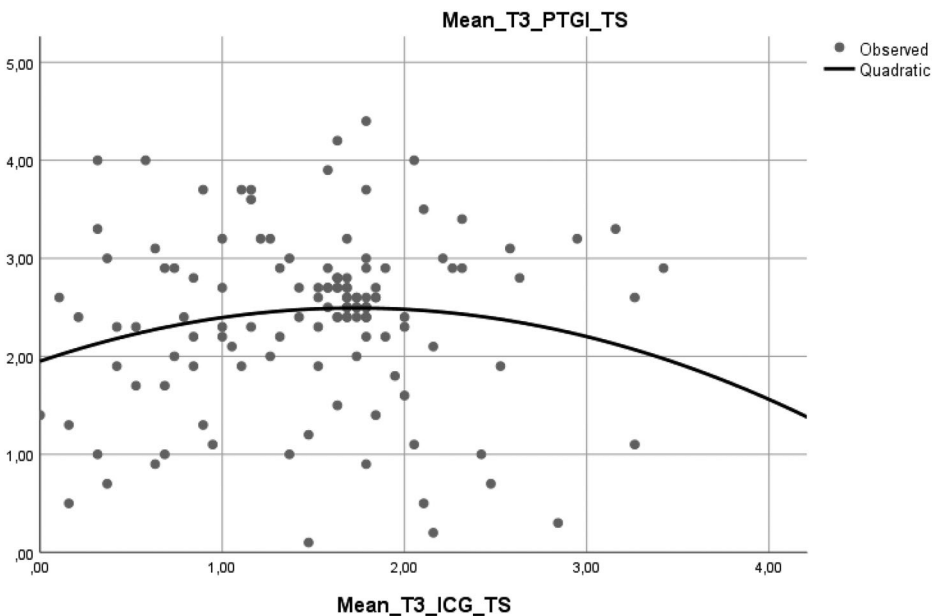
### Statistical analysis

All analyses were performed in IBM SPSS Statistics (version 22.0; SPSS Inc., Chicago, IL, USA). The participants were divided into two groups (gender and relationship to the deceased). The effect of gender (IV) and relationship to the deceased (IV) on post-traumatic growth (DV) and complicated grief (DV) was assessed using independent sample *t*-tests. The homogeneity of variance was controlled using Levene's test, which was of special importance due to difference in group sizes, where the female to male ratio was 3:1 and friend to sibling ratio was 2:1. Curve estimation regression statistics was run to test if levels of complicated grief (low, intermediate, high) could predict levels of post-traumatic growth.

## Results

### Association between post-traumatic growth and complicated grief

Regression analyses with curve estimation showed no significant association between mean total score of post-traumatic growth and complicated grief ( $F(2, 128) = 1.67, p = 0.19$ ), with a  $R^2$  of 0.03. A graph was plotted (see Figure 1), representing the curvilinear association between the two constructs, and although not significant, we found a u-shaped curve consistent



**Figure 1.** Proportion of post-traumatic growth assessed using mean total score of Post-traumatic Growth Inventory – Short Form by mean total score of Inventory for Complicated Grief.

with our hypothesis. The curve shows that relatively low levels of grief was associated with lower levels of PTG, intermediate levels of grief was associated with higher levels of grief, while the highest levels of grief were associated with lower levels of PTG.

### ***Difference in experienced post-traumatic growth and complicated grief based on gender and relationship to the deceased***

Independent samples *t*-test showed no statistically significant differences in post-traumatic growth (mean total score) for siblings and friends at the 0.05 level of significance (see Table 1). No significant difference was found in reported complicated grief (mean total score) for siblings and friends at the 0.05 level of significance. Levene's test for equality of variances was met for the present analysis.

Independent samples *t*-test showed that the mean total score of post-traumatic growth and complicated grief differs between males and females (see Table 2). For post-traumatic growth, a difference at 0.05 level was found between male and female participants. Similarly, significant difference was also found for reported complicated grief between male and female participants at the 0.05 level of significance. Levene's test for equality of variances was met for the present analysis.

### ***Difference in reported growth in the five domains of PTGI-SF based on gender and relationship to the deceased***

Independent samples *t*-test showed that a difference at 0.05 level of significance was found for the first and fifth domains, and the mean total score

**Table 1.** Results of independent samples *t*-test and descriptive statistics for mean total scores of post traumatic growth and complicated grief by relationship to the deceased.

Outcome	Group						95% CI for Mean difference	<i>t</i>	<i>df</i>
	Sibling			Friend					
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>			
PTGI mean total score	2.32	0.92	43	2.44	0.83	88	−0.44, 0.19	−0.77	129
ICG mean total score	1.56	0.72	43	1.49	0.63	88	−0.18, 0.33	0.58	129

\**p* < 0.05.

**Table 2.** Results of independent samples *t*-test and descriptive statistics for mean total scores of post traumatic growth and complicated grief by relationship to the deceased.

Outcome	Group						95% CI for Mean difference	<i>t</i>	<i>df</i>
	Male			Female					
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>			
PTGI mean total score	2.03	0.93	32	2.52	0.80	99	−0.83, −0.16	−2.93*	129
ICG mean total score	1.23	0.66	32	1.61	0.67	99	−0.64, −0.10	−2.73*	129

\**p* < 0.05.

**Table 3.** Results of independent samples *t*-test and descriptive statistics for mean total scores for five domains of post traumatic growth and total mean score for the Post-traumatic Growth Inventory – Short Form by gender.

Outcome	Group						95% CI for Mean difference	<i>t</i>	<i>df</i>
	Male			Female					
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>			
I_PTGI	5.78	2.32	32	6.77	2.23	99	–1.89, –0.08	–2.15*	129
II_PTGI	1.91	2.10	32	2.55	2.10	99	–1.48, –0.21	–1.50	129
III_PTGI	3.47	2.14	32	4.01	2.24	99	–1.43, –0.35	–1.20	129
IV_PTGI	4.44	2.76	32	5.45	2.28	99	–1.98, –0.05	–2.10	129
V_PTGI	4.66	2.65	32	6.42	2.52	99	–2.79, –0.74	–3.41*	129
PTGI mean total score	2.03	0.93	32	2.52	0.80	99	–0.83, –0.16	–2.93*	129

\**p* < 0.05.**Table 4.** Results of independent samples *t*-test and descriptive statistics for mean total scores for five domains of post traumatic growth and total mean score for the Post-traumatic Growth Inventory – Short form by relationship to the deceased.

Outcome	Group						95% CI for Mean difference	<i>t</i>	<i>df</i>
	Sibling			Friend					
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>			
I_PTGI	6.16	2.36	32	6.70	2.24	99	–1.38, 0.30	–1.28	129
II_PTGI	2.30	2.29	32	2.43	2.02	99	–0.91, 0.65	–0.33	129
III_PTGI	3.49	2.20	32	4.07	2.22	99	–1.40, –0.23	–1.41	129
IV_PTGI	5.19	2.78	32	5.22	2.26	99	–1.00, 0.94	–0.06	129
V_PTGI	6.02	2.76	32	5.00	2.62	99	–0.93, 1.03	0.09	129
PTGI mean total score	2.32	0.92	32	2.44	0.83	99	–0.44, 0.19	–0.77	129

\**p* < 0.05.

of Post-traumatic Growth Inventory – Short Form (see Table 3) between males and females. Females scored higher in domains assessing appreciation of life and personal strength. Similar trend was true for the overall total mean score of the inventory, suggesting significantly higher post-traumatic growth among female participants. Levene's test for equality of variances was met for all variables in the present analysis.

Independent samples *t*-test showed no statistically significant difference in mean scores for each post-traumatic growth domain or total mean score for post-traumatic growth between siblings and friends (see Table 4), *p* > 0.05 with a small effect size ranging from *d* = –0.25 to *d* = 0.02. Levene's test for equality of variances met for all variables, except variable IV, for which homogeneity of variance was violated,  $F(70.02) = 5.11$ , *p* = 0.03 (for which a *t* statistic not assuming homogeneity of variance was computed for this variable).

## Discussion

Even though pain and distress are expected reactions to a loss, Tedeschi et al. (1998) argue that bereaved can also experience positive changes, or



“post-traumatic growth” (PTG). When coping with grief, part of the process can be to try to assimilate the loss into existing worldviews, or changing those worldviews in congruence with the new reality. This can lead to loss of faith and meaning, but may also provide a struggle that leads to growth (Tedeschi & Calhoun, 2006).

### ***No association between post-traumatic growth and complicated grief***

Regression analysis showed no significant association between post-traumatic growth and complicated grief in our sample. The trend of the curvilinear association between post-traumatic growth and complicated grief was however as hypothesized—intermediate levels of grief was associated with higher levels of PTG, while both high and low levels of grief were associated with lower levels of PTG.

When exposed to significant life challenges, including bereavement, with psychological distress and great suffering, post-traumatic growth may occur for many, but not *all* persons confronted with major stressors (Calhoun et al., 2010). An active, purposeful processing of cognitions and affect related to the loss may be painful for the bereaved, but may also lead to gains as meaning is found in the event and a sense of growth develops out of the experience (Michael & Snyder, 2005). Meanwhile, failing in finding a meaning may leave the bereaved dwelling on the painful aspects of loss, continued rumination about death and its impact on their lives (Michael & Snyder, 2005). According to Gillies and Neimeyer (2006) a problem with the operational definition of PTG, is the polar distinction between PTG and grief distress, since the empirical evidence is inconclusive on the relationship between the constructs (Tedeschi & Calhoun, 2004). A conclusion on this may be that the two dimensions are separate, but often related, constructs suggesting that personal growth processes are initiated when a certain level of distress is experienced (Gillies & Neimeyer, 2006; Tedeschi & Calhoun, 2004).

### ***High scores for both complicated grief and post-traumatic growth***

Independent samples *t*-test showed no statistically significant differences for neither post-traumatic growth or complicated grief for siblings and friends. Siblings have a slightly higher complicated grief score, while close friends have a slightly higher score of posttraumatic growth. Not many previous studies have compared complicated grief in bereaved siblings and close friends. Mash et al. (2013) also found that bereaved siblings were more likely to develop complicated grief reactions, but the scores were 57% for siblings compared to 15% of those who lost a friend. An explanation

for the high scores in our sample, and the non-significant difference, could be that friends in our sample had a very close relationship to the deceased. All bereaved from the Utøya shootings 2011 had high scores on complicated grief (Dyregrov et al., 2015), and were a very homogenous sample, which can also contribute to less differences between siblings and friends.

According to Calhoun et al. (2010) it is important to consider the individual's world views, since some deaths cause greater psychological challenges than others. Unexpected deaths that are less consistent with most assumptive world views, often leads to both greater distress and more growth. In their model, distress is expected regardless of the challenge to assumptive beliefs, but for those whose beliefs have been seriously challenged cannot as easily move on and the disruption of world views requires attention to the rebuilding effort at the same time the distress of the death is being experienced (Calhoun et al., 2010).

### ***Females experience more post-traumatic growth and complicated grief***

In concordance with previous findings of Tedeschi and Calhoun (1996) and Park et al. (1996), independent samples *t*-test showed significant differences between males and females for both post-traumatic growth and complicated grief, where females have higher scores than males on both constructs.

According to findings of Tolin and Foa's (2006) quantitative meta-analysis over 25 years, women in general tend to have higher risk for experiencing post traumatic stress disorder (PTSD), regardless of exposure to type of trauma and rather due to their cognitive or affective approach to processing the trauma. Treynor et al. (2003) suggest that women engage significantly more in deliberate as well as brooding rumination than men. In contrast to brooding rumination, deliberate rumination, which involves productive and contemplative thought processes, is considered a positive way of processing a traumatic event. Also, findings of a meta-analysis conducted by Helgeson et al. (2006) suggest higher levels of benefit finding among women when processing a traumatic event than men. The female tendency to engage more in processing traumatic event than men, and thus also engaging more in deliberative rumination as well as benefit finding than men, may explain significant gender differences in our findings.

### ***Most growth reported for relationship with others and appreciation of life***

According to Calhoun et al. (2010), post-traumatic growth tends to be reflected in changes experienced in five different areas: *self-perception*, the

loss of a loved one, especially after to violent or sudden deaths, can both lead to the bereaved feeling vulnerable, or feeling stronger and more self-confident; *changed relationships with others*, often positive changes where the bereaved feels an increased sense of closeness with, e.g., family and close friends; *new possibilities*, e.g., new roles or new relationships; appreciation of life, e.g., new habits of living or wanting to make the most of the time one have; and *spiritual or religious beliefs*, where the bereaved may experience changes in the way they understand themselves, their existence, and feelings of increased meaning and purpose. Independent samples *t*-test showed significant differences between males and females for the first domain (relating to others), the fifth domain (appreciation of life) and total score of post-traumatic growth, with higher scores for females. Independent samples *t*-test showed no significant difference in any of the post-traumatic growth domains, or total score, between siblings and friends.

Typical effects of PTG are a changed sense of self, more resilience, more independence and confidence, taking on new roles, developing a greater awareness of life's fragility and becoming more vulnerable to subsequent losses, changes in social relationships, increased capacity for empathy and becoming emotionally closer to others, and experiencing a spiritual or existential growth (Tedeschi et al., 1998). Identity reconstruction and personal growth can also take the form of wanting to live each day to the fullest, and feeling that the experience have taught one to appreciate life more (Neimeyer, 2001). Posttraumatic growth may lead to better management of distress, developing new personal narratives, acquiring wisdom and new understanding, adopting of new beliefs and values, viewing oneself and the world differently and having an increased appreciation of life (Bray, 2013).

Especially when it comes to spiritual growth, the degree of this may be dependent on the social acceptance, the willingness of others to discuss religious or spiritual issues and supportive responses. When this is not available for the bereaved, they must attempt the difficult task of working through these spiritual issues on their own (Tedeschi & Calhoun, 2006). In their later work, less emphasis has been on religion, and more focus has been on addressing that existential questions by demonstrating that bereaved can experience considerable spiritual post-traumatic growth regardless of spiritual or religious beliefs (Bray, 2013; Calhoun et al., 2010; Tedeschi & Calhoun, 2006, 2007). Calhoun et al. (2010) emphasize that bereaved may experience post-traumatic growth as a result of existential questioning, irrespective of specific spiritual or religious beliefs, especially in areas where organized religion is less important, as e.g., in certain parts of Europe.

### ***Strengths and weaknesses***

The results must however be considered critically due to both the sample size and female to male ratio in this study. A meta-analysis conducted by Vishnevsky et al. (2010) explored the gender difference in reported PTG and conclude that most studies investigating PTG have a rather small sample size. In addition to small sample size, the 3:1 female to male ratio, may be an additional weak indicator of gender differences when assessing for PTG. A strength of the results are the unique homogenous sample of young adults that all have experienced a similar traumatic loss. There are also quite large groups of both siblings and close friends in the sample, both groups of bereaved that often are in the minority in other studies.

### **Conclusion**

Experiencing a loss is hard, and traumatic deaths of young people can be especially hard to process, with potential for many additional stressors that add to the loss. In addition, our sample was young. Many bereaved may however experience positive changes after the loss, also known as post-traumatic growth.

We found significant differences between males and females for both post-traumatic growth and complicated grief, where females had higher scores than males on both constructs. We did not find significant differences between bereaved siblings and close friends. This is explained by women having greater potential for benefit finding after a loss due to their grief processing style and a more emotional coping style. It may be of interest for future studies to explore which type of rumination people engage in at different levels of grief. It may be assumed that intermediate level of grief allows for deliberative rumination and thus PTG, whereas brooding rumination may be associated with higher levels of grief hindering PTG. An explanation for the high scores in our sample, and the non-significant difference between siblings and close friends, could be the close relationships the friends in our sample had to the deceased. This may also be of interest for future studies.

### **Disclosure statement**

No potential conflict of interest was reported by the author(s).

### **Notes on contributors**

*Iren Johnsen*, Ph.D., is a postdoctoral fellow in the faculty of Psychology at University of Bergen, Norway. She completed her Ph.D. on the grief of close friends. Her research

interests include the grief and bereavement, especially after traumatic losses, trauma reactions, and the grief of adolescents and young adults.

*Kaaynat Afgun* is an MBPsS candidate for Cand Psychol at University of Bergen. She previously obtained a Masters of Science (MSc) degree in Clinical Applications of Psychology at Kingston University. MSc Thesis: researched the effect of trauma on cognitive performance among refugees.

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