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Distinctiveness of prolonged grief disorder symptoms among survivors of the Great East Japan Earthquake and Tsunami

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ABSTRACT

Prolonged Grief Disorder (PGD) has been proposed for diagnostic classification as an independent psychiatric disorder. Previous research has investigated it in relation to other axis I disorders in order to determine whether it could be considered an independent nosological entity. The distinctiveness of this condition was apparent in cases of ordinary bereavement and in those following human-made disasters. However, this disorder may be expanded to include bereavement resulting from natural disasters. The present study aims to explore the differences between this disorder and posttraumatic stress disorder or major depressive disorder as experienced after the Great East Japan Earthquake and Tsunami. The subjects were 82 hospital workers. Each type of disorder was assessed by means of the Inventory of Complicated Grief, the Impact of Event Scale-Revised, and the Center for Epidemiological Studies Depression Scale. Exploratory factor analysis showed 3 dimensions, with PGD items independently clustering in the same dimension. Our findings support the uniqueness of PGD even in a post-natural disaster situation in a non-Western culture and warrant grief intervention for high-risk bereaved survivors.

1. Introduction

The loss of a loved one is a highly stressful event which nearly everyone experiences (Stroebe et al., 2007). Bereavement is generally a natural experience and not considered to be a psychiatric disorder. The Diagnostic and Statistical Manual of Mental Disorders IV Text Revision (DSM-IV-TR) states, "Bereavement is generally diagnosed instead of Adjustment Disorder when the reaction is an expectable response to the death of a loved one", and "The diagnosis of Adjustment Disorder may be appropriate when the reaction is in excess of, or more prolonged than what would be expected". In fact, most bereaved individuals recover from grief-related distress or symptoms in the course of time although a substantial minority remain in intensive distress, suffering from grief-related problems which include mental as well as physical symptoms (Bonanno et al., 2007; Stroebe et al., 2007).

Prolonged Grief Disorder (PGD), variously referred to as "complicated grief" (Prigerson et al., 1995a; Boelen and van den Bout, 2005) and "traumatic grief" (Prigerson et al., 1997; Melhem et al., 2001), has been proposed for inclusion in DSM-5 and ICD-11 as a chronic bereavement-related disorder (Prigerson et al., 2009). However, individuals with PGD often show co-morbidity with DSM-IV axis I disorders such as major depressive disorder (MDD), posttraumatic stress disorder (PTSD), or anxiety disorder (Melhem et al., 2001; Neria et al., 2007; Simon et al., 2007). In order to determine whether PGD should be considered an independent nosological entity, researchers have examined its distinctiveness against other axis I disorders. Similarly, PGD is described in the appendix of DSM-5 as a persistent complex bereavement disorder which merits further study.

Previous studies have demonstrated the distinctiveness of PGD in comparison to MDD (Prigerson et al., 1995a; Boelen and Prigerson, 2007; Boelen et al., 2010; Golden and Dalgleish, 2010), PTSD (Boelen et al., 2010; Golden and Dalgleish, 2010; Barnes et al., 2012; Spuij et al., 2012), and anxiety disorder (Boelen and Prigerson, 2007; Golden and Dalgleish, 2010; Boelen, 2013). In these studies, exploratory factor analysis (EFA) (Prigerson et al.,

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1995b; Barnes et al., 2012) and confirmatory factor analysis (CFA) (Boelen and van den Bout, 2005; Boelen and Prigerson, 2007; Boelen et al., 2010) were used to determine whether PGD should be considered a distinct nosological entity. However, only a few studies have examined the distinctiveness of PGD resulting from sudden and violent loss (Kristensen et al., 2012). The question of the status of PGD as a separate nosological entity originates in the results of research on the mental health of the victims of the September 11 terrorist attacks and its application to analogous cases of bereavement following extraordinary man-made disasters. The results corroborated the theory that PGD was distinct from PTSD and MDD. For example, Shear et al. surveyed, and were able to identify, individuals with PGD, as opposed to PTSD or MDD, following the September 11 attacks (Shear et al., 2006), and Barnes et al. demonstrated the distinctiveness of PGD compared to PTSD 2.5–3.5 years after September 11th using EFA (Barnes et al., 2012). With regard to natural disasters, Johannesson reported on the occurrence of PGD among the victims of the 2004 Indian Ocean Earthquake and Tsunami (Johannesson et al., 2009). However, to date, there has been no factor analysis study on PGD symptoms experienced in the wake of a natural disaster. The present study aims to explore the different symptom dimensions of PGD, PTSD and MDD among the survivors of the Great East Japan Earthquake and Tsunami, which claimed 16,000 lives and displaced 330,000 people from their homes.

2. Method

2.1. Subjects

The subjects were 82 employees of a public general hospital in a small, local city severely damaged by the Great East Japan Earthquake and Tsunami. In this close-knit community, the earthquake and tsunami claimed approximately 1800 lives from among the 24,000 inhabitants. Thus, almost all of the survivors lost at least one or more family members, relatives, friends, colleagues, or neighbors. The tsunami nearly flooded the roof of the hospital, and killed several in-patients and one hospital employee. The hospital employees evacuated to the roof where they remained stranded through the night before they were rescued. Shortly after the event, they began work at medical aid stations in the city or nearby hospitals until the construction of a makeshift hospital 5 months later. Responding to this hospital's request, we conducted a mental health screening of at-risk individuals among the hospital employees to provide a consultation service and advice on coping.

Most of the subjects enrolled in our study were women (81.7%, 67 out of 82), with a mean age of 45.8 years (S.D.=10.3, range 23–69). For our screening procedure, we requested the subjects to answer a questionnaire about their reactions to the Great East Japan Earthquake and Tsunami. In October, 2011 (8 months after the disaster), we sent the questionnaire with an explanatory leaflet to all 88 hospital employees, of whom 93% (82 out of 88) eventually responded. On the basis of these responses, we provided advice tailored to each subject to help enhance their coping skills, while also inviting high-risk respondents to visit us for a mental health evaluation. We also included information about our study and asked the subjects for permission to use their data.

This study was approved by the institutional review board of the Tokyo Metropolitan Institute of Medical Science.

2.2. Measures

The questionnaire included three self-report scales: the Inventory of Complicated Grief (ICG), the Impact of Event Scale-Revised (IES-R), and the Center for Epidemiological Studies Depression Scale (CES-D), to evaluate the symptoms of PGD, PTSD, and MDD, respectively.

The ICG is a well-validated, 19-item scale developed to distinguish PGD from bereavement-related depression and anxiety, and to predict long-term functional impairments in the bereaved (Prigerson et al., 1995b). The frequency of symptoms related to the death of a loved one in the month prior to the 8-month mark set for the administration of the questionnaire was rated on the following scale: 'Never'=0; 'Rarely'=1; 'Sometimes'=2; 'Often'=3; 'Always'=4. In accordance with the protocol of the original study, respondents who scored 26 or higher on the ICG were defined as PGD-positive (Prigerson et al., 1995b).

The IES-R, a 22-item scale, was likewise used to evaluate PTSD symptoms one week prior to the 8-month mark set for the administration of the questionnaire. The intensity of the PTSD symptoms was rated on the following scale: 'None'=0; 'A little'=1; 'Moderate'=2; 'Quite a bit'=3; 'Extremely'=4 (Weiss, 2007). The cut-off of 25 for the total score in the Japanese version of the IES-R showed good sensitivity and specificity for identifying PTSD and partial PTSD (Asukai et al., 2002). Thus respondents who scored 25 or higher on the IES-R were considered posttraumatic stress-positive (PTS).

The CES-D (Radloff, 1977) is a 20-item scale used to evaluate MDD symptoms. The frequency of MDD symptoms in the week prior to the 8-month mark set for the administration of the questionnaire was rated on a scale of 0–3. According to the original article, respondents who scored 16 or higher on the CES-D were defined as MDD-positive.

2.3. Statistical analysis

We conducted EFA to identify the underlying factor structure in post-natural disaster situations using promax rotation because of the possibility of substantial correlation among the symptoms. Due to the small sample size available, we selected 15 symptoms in total to limit the number of items entered in the analysis. We selected four items from the ICG (No. 5, 8, 13, 17), six from the IES-R (including 3 re-experience items and 3 avoidance items: No. 1, 6, 16, 11, 12, 17), and three from the CES-D (No. 6, 7, 9). The selected items were among those which correlated most highly with the total score for each scale as demonstrated in the previous research (Boelen et al., 2003; Golden and Dalgleish, 2010). We then added two items from ICG (No. 3 shock and disbelief and No. 4 yearning and preoccupation) which represented the core symptoms of PGD. The data were analyzed using IBM SPSS Statistics 20.

3. Results

3.1. Characteristics of the samples

The mean scores of the ICG, IES-R, and CES-D were 10.5 (S.D.=10.1), 17.3 (S.D.=14.1), and 15.9 (S.D.=11.1), respectively (Table 1). On the ICG, 9.8% (8 out of 82) of the subjects scored above the cut-off of 25, defined as PGD^{+}. On the IES-R, 29.3% (24 out of 82) of the subjects scored above the cut-off of 25, defined as PTS^{+}. On the CES-D, 37.8% (31 out of 82) of the subjects scored above the cut-off of 16, defined as DEP^{+}. The overlap of the number of PGD^{+}, PTS^{+} and DEP^{+} subjects is shown in Fig. 1.

3.2. Exploratory factor analysis (EFA)

The EFA resulted in the emergence of 3 dimensions with eigenvalues greater than 1.00 after rotation (7.4, 1.9 and 1.5). The scree plot also showed three dimensions because of brae between the steep slope of the fourth dimension and a gradual trailing of the variance.

Each loading factor is shown in Table 2. Factors 1, 2 and 3 accounted for 50%, 12% and 11% of the variance, respectively. All of the items on the PGD were loaded highly on factor 1 (from 0.68 to 0.90), and divided from the PTSD and the MDD items. All of the MDD items loaded highly on factor 2 (from 0.52 to 1.00) and all of the re-experience items from the IES-R also loaded on factor 2 (from 0.41 to 0.52). All of the avoidance items from the IES-R loaded highly on factor 3 (from 0.63 to 0.99). The correlation between factors 1 and 2, factors 1 and 3, and factors 2 and 3 was 0.53, 0.50, and 0.47, respectively.

The communalities of the 15 items ranged from 0.581 to 0.826 with a mean of 0.70. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy indicated a value of 0.844.

4. Discussion

The aim of this research was to examine the distinctiveness of PGD symptoms against those of PTSD and MDD in the wake of the Great East Japan Earthquake and Tsunami, a large-scale natural disaster. In keeping with previous findings (Melhem et al., 2001; Neria et al., 2007; Simon et al., 2007), our results suggested