

The Reliability and Validity Studies of the Turkish Version of Two Track Model of Bereavement Questionnaire



Tuğba AYZAZ¹, A. Nuray KARANCI², A. Tamer AKER³

SUMMARY

Objective: The aim of this study was to determine the reliability and validity of the Turkish version of Two-Track Model of Bereavement Questionnaire (TTBQ-T) (Rubin et al 2009), a 70-item questionnaire for comprehensively evaluating the process of bereavement.

Materials and Methods: The questionnaire was initially translated from English into Turkish, and then back translated. Subsequently, it was administered to 205 bereaved individuals that lost a significant other within the last 5 years. In order to assess the questionnaire's construct validity the Beck Depression Inventory (BDI) and the Impact of Event Scale-Revised (IES-R) were also administered to the participants. The factor structure, reliability, and test-retest reliability of TTBQ-T were evaluated.

Results: Factor analysis yielded results that were, for the most part, similar with those yielded by the original study; however, there were some cross loading items that yielded a 5-factor solution (Relational active grieving, Close and positive relationship with the deceased, Traumatic perception of the loss, Conflictual relationship with the deceased and Social dysfunction). Cronbach's alpha coefficients for these 5 factors were 0.91, 0.88, 0.82, 0.78, and 0.65, respectively. In order to determine if the responses were loaded under 2 tracks, a higher order factor analysis was conducted. The relationships between BDI and IES-R, and TTBQ-T total scores were examined in order to determine the construct validity of TTBQ-T. The present findings indicate that TTBQ-T has construct validity.

Conclusions: The findings indicate that TTBQ-T is a reliable and valid questionnaire for use in Turkey. The findings are discussed in the light of the literature.

Keywords: Two-Track Model of Bereavement Questionnaire, bereavement, reliability and validity.

INTRODUCTION

Bereavement is a universal phenomenon. Many people experience one or more losses during their life, or experience the loss of a significant other during a later period of life; however, the effects of the grieving process and their duration differ, both from culture to culture and from person to person. Relevant research has shown that after the loss of a significant other, people experience both physical and psychological problems (Stroebe et al 2007; Ott 2003). Although the severity of these problems and their effects on the quality of life of the bereaved decrease over time and vary by culture and individual, it was reported that those that grieve pathologically

are at risk of physical and psychological problems, as well as mortality (Stroebe and Stroebe 1993). Therefore, many studies have sought to understand pathological reactions to loss and to classify such reactions. Two research groups generated 2 different diagnostic criteria (with overlapping aspects) for classifying these reactions, namely traumatic grief (Jacobs et al 2000) and complicated grief (Horowitz et al 1997); however, according to the literature the differences between these classification systems will yield differing results regarding assessment, measurement, and treatment of reactions to loss (Stroebe et al 2001).

Received: 29.01.2013 - Accepted: 27.06.2013

1Psychologist/M.S, Ankara University Faculty of Medicine, Consultation Liaison Psychiatry, 2 Psychologist/Professor, Middle East Technical University, Psychology Department Ankara., 3Psychiatrist / Professor, Kocaeli University Faculty of Medicine, Department of Psychiatry, Kocaeli.

e-posta: tugbayaz17@yahoo.co.uk

In the literature, it is still a controversial issue whether these reactions create a different diagnostic criteria or whether they should be included in posttraumatic stress disorder (PTSD) criteria. After reviewing DSM III and IV, Stroebe et al (2001) suggested that pathological grief is acknowledged in DSM and that in the future, it could become a distinct DSM diagnostic criteria or could be added to the existing diagnostic classifications. According to DSM-IV, bereavement is a stressor that triggers normal and expected reactions. DSM-IV does not suggest diagnostic criteria for differentiating people that exhibit common grief reactions from those that experience pathological reactions. In DSM-IV, extreme grief reactions are being assessed according to the other diagnostic criteria that are relevant to the bereavement (American Psychiatric Association 1994). Research on pathological grief as a distinct diagnosis has shown that pathological grief differs from major depression (Jacobsen et al 2010; Ogrodniczuk et al 2003; Horowitz et al 1997) and PTSD (Bonanno et al 2007), which are both commonly comorbid with pathological grief.

Research on diagnostic criteria for pathological reactions to loss yielded 2 different points of view: the first perspective considers the effects of loss on many aspects of an individual's life (Parkes and Prigerson 2010), and the other considers that grief is no different than any other traumatic event or stressor, suggesting that bereavement should be included in the diagnosis of PTSD (Horowitz 1986). Nevertheless, integrative perspectives that emphasize the associated aspects of these 2 perspectives have also been proposed (Rubin et al 2003; Green 2000). The integrative perspective proposed by Rubin (1999, 1981) considers grief reactions in detail by taking into account both trauma related to general functioning and grief associated with social/personal relationships.

The Two-Track Model of Bereavement: An Integrative Perspective

Rubin and Malkinson (2001) and Rubin (1999) developed the Two-Track Model of Bereavement in order to integrate the 2 dominant perspectives in the bereavement literature. They proposed that bereavement should be considered in terms of both general functioning of the bereaved, and the quality and nature of the relationship between the bereaved and the deceased. Although this model does not address the processes or mechanisms by which these 2 dimensions interact with each other, it is important for understanding complicated grief reactions (Stroebe and Schut 1999) and developing effective therapeutic interventions (Malkinson et al 2006).

Based on the model, all grief reactions should be evaluated according to 2 dimensions that are related to each, but differ. The first dimension is general (or biopsychosocial) functioning and is associated with how an individual responds to a traumatic event (loss of a significant other), and the effects the event has on the general functioning of the bereaved. Additionally, the model focuses on how a bereaved individual copes with the challenges and changes in his/her life after loss (Malkinson et al 2006). The general functioning dimension

encompasses 10 different factors, including interpersonal, emotional, physical, and psychiatric symptoms, which are determined in the light of research findings and clinical observations. Based on these factors, how bereaved individuals maintain their various life roles and how they cope with the effects of loss on their belief system and self-esteem can be determined (Rubin et al 2009; Rubin 1999). The models' second dimension is "the ongoing relationship with the deceased", which is associated with the nature and quality of the ongoing relationship with the deceased in consideration of the features of the relationship with the deceased before and after loss (Rubin 1999). The dimension includes 10 factors used to evaluate the main features of the relationship with the deceased, including how the deceased is imagined and/or remembered, the emotional tone accompanying memories of the deceased, the features of the stages of grieving and how the bereaved regulate their memories, emotions, and thoughts in order to re-establish an emotional relationship with the deceased (Rubin et al 2009; Rubin and Malkinson 2001, Rubin 1999).

It is important to evaluate bereavement in order to assess grief reactions and increase our knowledge about the grieving process (Michalski et al 2006); however, comprehensive evaluation of the grieving process is complicated because of its different effects on the emotional, physiological, behavioral, and intellectual domains (Hansson et al 1993). Thus, it is thought that an assessment tool that evaluates grief not only in terms of symptoms, but also in terms of the effects of grief on various life domains and the relational aspect of the bond with the deceased would be helpful for understanding the mechanisms that lead to pathological grief reactions, identifying those at risk of pathological reactions and those that will benefit from treatment, and evaluating treatment outcomes (Lichtenthal et al 2004).

The aim of the present study was to determine the reliability and validity of the Turkish version of Two-Track Model of Bereavement Questionnaire (TTBQ-T) (Rubin et al 2009), for use in clinical practice for comprehensively evaluating bereavement in Turkey. In Turkish bereavement literature, there is a limited number of scales measuring bereavement. To the best of our knowledge, there is only 1 valid scale for assessing the severity of grief reactions in Turkey—the Core Bereavement Items Scale (Selvi et al 2011); therefore, it would be helpful for therapists working with bereaved individuals and researchers investigating bereavement to utilize a scale that addresses the effects of loss on both general functioning, and the nature of the relationship between the bereaved and the deceased in order to better understand the grieving process and develop effective therapeutic interventions.

MATERIALS and METHODS

Participants

The study included 205 volunteers that lost a significant other within the previous 5 years. Whereas 130 of the 205

participants answered the questionnaire via the Internet, 75 completed the scale in person. Mean age of the participants was $31,76 \pm 11,59$ years. In all, 77,6% of the participants were female and 22,4% were male. Among the participants, 82,8% had a negative history of psychiatric disorder and 17,2% had a positive history of psychiatric disorder, of which 57,6% were treated with medication only, 15,2% with psychotherapy only, and 27,3% with both psychotherapy and medication. In total, 52% of the participants had a university education and 38,7% had a Master's or Doctorate degree. In addition, 6,4% had a high school education, 0,5% had a middle school education, and 2,5% had a primary school education.

Mean age of the deceased was $59,57 \pm 22,12$ years, and 47,5% of the deceased died due to disease, 29,4% due to a medical emergency, 9,8% due to an accident, 6,4% due to advanced age, 4,4% due to suicide, and 2,5% due to other causes. Among the participants, 43,9% lost a close relative (grandparents, aunt, uncle etc.), 32,2% lost a parent, 10,7% lost a close friend, 6,8% lost a sibling, 1% lost a partner, 1,5% lost a colleague, and 2,4% lost a person not otherwise described.

INSTRUMENTS

Demographic information form

A demographic information form was used to collect data on the participants' sociodemographic characteristics (age, level of education, and work status), religious commitment (answered using a 5-point Likert type scale, as follows: 1: very religious; 5: not religious), history of psychiatric treatment, and the loss of a significant other (i.e. the degree of closeness with the deceased, time of death, and cause of death).

The Two-Track Model of Bereavement Questionnaire (TTBQ)

The Two-Track Model of Bereavement Questionnaire (TTBQ) was developed by Rubin et al (2009) in accordance with the Two-Track Model of Bereavement. The scale includes of 70 items rated on a 5-point Likert-type scale. Track I is the general functioning dimension and measures biopsychosocial functioning of the bereaved, whereas track II is the attachment dimension and assess the ongoing relationship, and associated memories, feelings, and thoughts about the deceased. The factor analysis of the scale yielded 5 factors that accounted for 51% of the variance. In all, 3 factors (Relational active grieving, Close and positive relationship with the deceased, and Conflictual relationship with the deceased) were associated with the attachment dimension (track II) and 2 factors (General biopsychosocial functioning and Traumatic perception of loss) were associated with general functioning (track I). The reliability of the entire scale was indicated by a Cronbach's alpha coefficient of 0,94, indicative of a high level of internal consistency. In the original study, correlations between the 5 factors of TTBQ, and between the scale scores, measuring clinically relevant constructs and

5 factors of TTBQ revealed significant association patterns supporting the scale's construct validity (Rubin et al 2009).

The Impact of Event Scale-Revised (IES-R)

The Impact of Event Scale-Revised (IES-R) was developed by Horowitz et al (1979) and consists of 2 dimensions: intrusion and avoidance. Weiss and Marmar (1997) revised the original scale to include a hyperarousal dimension. The revised IES (IES-R) consists of 22 items; the hyperarousal subscale includes 6 items, and both the avoidance and intrusion subscales have 8 items each. Respondents indicate the frequency of each symptom's occurrence during the previous week on a 5-point Likert-type scale (0-4). The IES-R score ranges from 0 to 88. IES-R was adapted for use in Turkey by Corapcioglu et al (2006). IES-R has high internal consistency, with a Cronbach's alpha of 0,94. The scale was modified for the present study in a way that encourages respondents to think about their loss while responding to the items. The Cronbach's alpha of IES-R for the current sample was 0,95

Beck Depression Inventory (BDI)

BDI was developed by Beck et al (1961). Its 21 questions are presented in a multiple-choice, self-report format designed to evaluate the severity of the symptoms of depression. It was adapted for use in Turkey by Hisli-Şahin (1989). Each item has a score range of 0-3. The scale's minimum score is 0 and maximum score is 63. Its reliability was reported by Tegin (1980), with a Cronbach's alpha of 0,65 based on the test-retest technique. Cronbach's alpha for BDI for the current sample was 0,95.

PROCEDURE

Prior to beginning the study permission to use TTBQ was obtained from the authors. TTBQ was translated into Turkish by Aker et al (2011) and administered to a group that presented for treatment due to pathological grief. In order to evaluate the psychometric properties of the the Turkish version of Two-Track Model of Bereavement Questionnaire (TTBQ-T) and validate it for a larger sample of bereaved individuals a comprehensive study was conducted. For this purpose, the scale was initially translated into Turkish, and then the Turkish version was back translated to English by a bilingual psychiatry assistant. The original scale and the back translation were compared and re-organized by 2 bilingual psychiatry and psychology professionals, according to the following criteria: 1. Back-translations that were approximately similar to the original scale remained in the Turkish form; 2. Back-translated items that did not have the same meaning as the original were modified by the 2 bilingual professionals until they were similar in meaning; 3. Initial Turkish translations that were considered the best alternative, although their back translations did not exactly match the original item, remained in their original form. 4. Alternative forms that included both the initial Turkish items and alternative

translations were re-evaluated by the researchers to reach a final decision. After the final version of the scale was completed it was administered, and 2 weeks later it was re-administered to 16 individuals to determine its test-retest reliability.

Data were collected by sending the scales, which were prepared using Survey Monkey, to different mailing lists and via a snowball method to individuals known to have lost a significant other within the last 5 years. Individuals that participated in the study via the Internet were provided a general description of the study's aim at the beginning and those that agreed to participate completed the scales. Those that were administered the scales in person signed an informed consent form. This study protocol was approved by the METU Ethics Research Commission. Data were collected as a part of a Master's thesis between March 2011 and December 2011.

STATISTICAL ANALYSIS

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) v.16.0 for Windows (Green et al 2011).

Prior to analysis data were checked for accuracy and missing values. In all, 4 participants with >10% of data missing from any scale were excluded from the analysis. The reliability of all scales was evaluated via Cronbach's alpha coefficients. The test-retest reliability of TTBQ-T and its correlations with the other scales were determined using Pearson's correlation analysis. The factor structure of TTBQ-T was determined using principal component analysis and direct oblimin rotation.

RESULTS

Factor structure

Factor analysis was conducted to determine the factor structure of the 70 items of TTBQ-T using direct oblimin principal component analysis (Rubin et al 2009). Although the initial solution yielded 18 factors with Eigen values >1, which explained 70,25% of the variance, it was decided that a 5-factor solution was best, as the original scale has 5 factors and the scree plot supported a 5-factor solution. In all, 4 factors exhibited a similar pattern with the original study (but not the general biopsychosocial functioning factor) and were labeled as proposed by Rubin et al (2009). The fifth factor was labeled as social dysfunction.

The relational active grieving factor consisted of 25 items (Table 1) and had a similar item pattern as the original version; however, 7 items that originally belonged to the general biopsychosocial functioning factor and 1 item originally part of the traumatic perception of loss factor were kept as part of the relational active grieving factor, as they had a loading >0,40 and had a content related to this factor (Table 1). In addition, 4 items (A3, A20, D4, and D12) that had a loading >0,40 were included in this factor, differing from the original scale, because they were associated with emotions and the

adaptation process following loss. Thus, the relational active grieving factor involves pathological reactions following the loss of a significant other, difficulties adjusting to life without the deceased, and negative changes to self and the meaning of life after loss. In addition, it includes items associated with painful emotions, depressive mood, anxiety, bad health status, and suicidal ideation in response to the loss of a significant other.

The close and positive relationship with the deceased factor contains 13 items (Table 1) and includes the same 7 items as the original scale; however, this factor has overlapping items with the relational active grieving and traumatic perception of loss factor (Table 1). In addition, 4 items (B9, B12, D5, and D15) that were excluded from analysis in the original study due to having a lower loading remained in this factor because their loadings were >0,40 and they were associated with a positive impact of the deceased on the life of the bereaved. Generally, higher scores for this factor indicate a positive quality of the relationship with the deceased. Moreover, higher scores are indicative of a mutually trusting, emotionally supportive, and soothing relationship with the deceased.

The conflictual relationship with the deceased factor contains 7 items (Table 1). Only 1 item that differed from the original study (B8) was included in this factor because it had a higher loading and is associated with regret and guilt feelings about the deceased, which is indicative of the conflictual nature of the relationship. This factor is indicative of the negative and conflictual aspects of the relationship with the deceased both pre loss and post loss, the need to avoid from memories about the deceased, and guilt feelings about the deceased.

The traumatic perception of loss factor consists of 10 items (Table 1) that are precisely the same as in the original scale. Additionally, this factor included 5 overlapping items with the close and positive relationships to the deceased factor. Due to the higher reliability score and with the aim of adherence to the original scale, these items were included in this factor. Higher scores for this factor indicate greater difficulty associated with the loss, the sudden and unexpected nature of the loss, and the perception of the loss as traumatic. Moreover, higher scores are associated with negative changes in the perception of self and the world related to the loss and difficulties in dealing with the loss.

The social dysfunction factor includes 7 items and is the only factor that differs from the original version of the scale (Table 1). In the present study this factor, which is indicative of biopsychosocial functioning in the original scale, was associated with how family and non-family relationships, coping strategies, values, and beliefs can be used as sources of support during the post-loss adaptation process. Thus, higher scores for this factor are associated with more problematic relationships with close family and non-family members, lack of confidence in an ability to cope with loss, and difficulty expressing feelings about loss, accepting help from others, and perceiving values and beliefs as a source of support. The item

Table 1. The factor loadings of TTbQ-T

Factors and Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1: Relational Active Grieving (explained 21,44% of variance) (Cronbach's alpha: 0,91)					
D13. I am tense and not relaxed*.	0,70	-0,21	-0,27	-0,12	-0,30
A7. Thoughts and feelings flood and confuse me,*	0,69	-0,17	-0,22	-0,09	-0,14
A2. My mood is*.	0,66	-0,04	-0,07	0,01	-0,00
B16. I feel pain whenever I recall ____ (the deceased) other)*.	0,66	-0,44	-0,24	-0,27	-0,07
A3. I feel (anxious)*.	0,65	-0,05	-0,80	-0,15	-0,22
D14. I am flooded by thoughts and feelings about the death of_.*.	0,64	-0,41	-0,22	-0,34	0,05
A11. My self-perception this week has been*.	0,64	-0,06	-0,05	-0,04	-0,23
B4. Occasionally I think or act emotionally, as if I don't believe that is gone, This happens to me*.	0,62	-0,29	-0,08	-0,12	0,01
B20. It's possible to define my situation today, following loss, as (I need help)*.	0,61	-0,60	-0,12	-0,43	-0,06
B13. Life without---is too hard to bear*.	0,60	-0,62	0,00	-0,31	-0,06
A9. I function at work.	0,59	0,03	-0,16	0,17	-0,34
A12. I find it difficult to function socially.	0,59	-0,07	-0,07	0,14	-0,26
A20. Following the loss, it is fair to describe my current situation as (I need to receive help)*.	0,57	-0,25	-0,23	-0,15	-0,42
B17. Now I understand people that think about suicide after losing a significant other*.	0,57	-0,18	-0,09	-0,21	-0,28
A6. The directions of the changes in the meaning of my life have been,(how)*.	0,57	-0,21	-0,03	-0,33	-0,22
D11. I see images or pictures of---in my mind*.	0,57	-0,50	-0,15	-0,28	0,07
B15. I yearn strongly for---and miss him/her deeply*.	0,55	-0,71	-0,01	-0,34	0,06
B5. I notice things that remind me of---.For example, people that look like him/her, voices, or the feeling that he/she is physically present, This happens to me. (frequency)*	0,55	-0,48	0,06	-0,18	0,12
B6. I think of---all the time*.	0,54	-0,62	-0,06	-0,18	0,08
D12. I find myself actively avoiding thoughts of ---*.	0,52	-0,08	-0,39	-0,17	-0,08
A8. I am involved and participate in various activities and tasks*.	0,51	0,03	-0,21	0,19	-0,21
D10. I see images or pictures from the death scene in my mind*.	0,50	-0,49	-0,18	-0,34	-0,14
D4.I am angry because of the loss*.	0,47	-0,21	-0,29	-0,46	-0,35
B10. I remember ____*.	0,47	-0,57	0,09	-0,29	0,19

Table 1 (continued)

Factors and Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
A1. My health is.	0,41	-0,08	-0,06	-0,12	-0,03
Factor 2: Close and Positive Relationship with the Deceased (explained 11,06% of variance) (Cronbach's alpha: 0,88)					
C8. _____ was the person (closeness) *.	-0,22	0,82	-0,11	0,09	-0,10
C2. _____ During his/her life, _____ was a major source of emotional support for me*.	-0,13	0,82	-0,24	0,08	-0,09
C3. I was emotionally dependent on _____ *.	-0,22	0,79	-0,02	0,11	-0,05
C1. My relationship with _____ was (closeness)*.	-0,07	0,78	-0,31	0,08	-0,22
C6. I was emotionally dependent on _____ *.	-0,18	0,76	0,06	0,04	-0,07
C9. Overall, my relationship with _____ was based on a sense of mutual trust*.	0,01	0,69	-0,28	-0,01	-0,20
C10. The relationship between- _____ and me was based on mutual understanding, freedom, and a sense of comfort or "flow"*.	-0,03	0,66	-0,43	-0,04	-0,25
B18. I do things to keep alive and maintain the memory of _____ *.	-0,26	0,59	-0,18	0,36	-0,08
D15. People that are not family are aware of how great my loss is*.	-0,30	0,51	0,04	0,48	-0,24
B12. Thinking of and remembering _____ significantly calms me*.	0,16	0,48	-0,52	0,04	-0,20
D5. I witnessed the death of _____ *.	-0,05	0,44	0,03	0,12	-0,06
D17. Before the loss difficult events affected me only for a short time*.	-0,27	0,43	0,37	0,26	0,16
B9. Thoughts about _____ bring up positive feelings in me*.	0,09	0,37	-0,59	0,03	-0,12
Factor 3: Conflictual relationship with the deceased (explained 4,80% of variance) (Cronbach's alpha: 0,78)					
C7. _____ My relationship with _____ was characterized by sharp changes between being close and being angry, and/or the desire for distance*.	-0,13	-0,00	0,78	0,07	0,12
C5. My relationship with _____ was one of avoidance and distance*.	-0,07	-0,31	0,75	-0,03	0,19
C4. My relationship with _____ had many and strong ups and downs*.	-0,19	0,17	0,72	-0,08	0,07
B2. Our relationship was such that when I think about _____ I usually remember our disagreements.*	-0,12	-0,23	0,63	-0,08	0,14
B8. When I think of _____, I feel strong guilt and regret that I didn't do things differently*.	-0,25	0,20	0,44	0,20	-0,05
B11. I avoid things that remind me of _____ *.	-0,35	-0,07	0,41	0,06	0,17
B14. Since the loss, I've discovered some negative things about _____ that I didn't know before, Those things changed what I think for the worse*.	0,09	-0,14	0,38	0,04	0,22

Table 1 (continued)

Factors and Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 4: Traumatic Perception of Loss (explained 3,46% of variance) (Cronbach's alpha: 0,82)					
A5. Since the loss, the meaning of my life and the world around me has *.	-0,40	0,51	0,15	0,60	0,19
D9. The circumstances that caused the loss I experienced are usually considered as extremely difficult*.	-0,37	0,34	0,29	0,55	0,13
D8. Loss of the kind I encountered is usually experienced as a most difficult event*.	-0,44	0,44	0,28	0,53	0,05
D1. The loss was traumatic for me*.	-0,47	0,54	0,09	0,52	0,13
D7. I continue to experience the loss as a shocking and traumatic life event*.	-0,53	0,40	0,26	0,51	0,23
A4. Since the loss, life seems to me*.	-0,38	0,63	0,07	0,47	0,09
A10. Following the loss, how I think of myself (my self-perception) has (degree of change) *.	-0,39	0,44	0,25	0,40	0,16
D2. The loss occurred suddenly and unexpectedly*.	-0,22	-0,00	0,24	0,32	-0,08
D3. The loss occurred under circumstances of violence or terror (such as an accident or a terroristterroristattack, or self- terrorist attack) or other difficult circumstances.*.	-0,08	-0,08	0,37	0,32	0,29
D20. I believe that I am capable of handling my feelings and reactions to the loss without the support and help of others.	-0,26	0,05	-0,11	0,32	0,38
Factor 5: Social Dysfunction ysfunction (explained 3,25% of variance) (Cronbach's alpha: 0,65)					
A13. My connections with close family are.	-0,17	-0,11	0,19	-0,04	0,71
A14. My relationship with close family is a significant source of support for me*.	-0,12	-0,02	0,19	-0,02	0,69
D19. I have managed to overcome difficult events in my life.	-0,35	-0,07	-0,10	0,08	0,58
A18. My values and beliefs are a significant source of support*.	0,08	-0,09	0,09	0,04	0,57
A19. I believe and trust in my abilities to cope on my own with the tasks of life.	-0,46	-0,05	0,00	0,04	0,51
A15. Connections with others outside my family are a significant source of support for me*.	-0,14	-0,06	0,20	-0,35	0,37
D18. I am able to share my feelings with other people and to receive their help and support.	-0,08	-0,15	0,02	-0,25	0,30

*Reverse-coded items. The responses to these items were reverse scored in order to match the label of the factor.

loadings under 1 of the 5 factors of TTbQ-T are presented in detail in Table 1.

Higher-order analysis of the TTbQ-T factors

In order to determine if the 5 TTbQ-T factors would be divided into 2 factors or tracks, as in the original study, second-order factor analysis with principal component analysis was

conducted. It was determined that a 2-factor solution was best when the criteria for determining the number of factors were taken into account. In the present study, the relational active grieving, close and positive relationship with the deceased, and traumatic perception of the loss factors were loaded under track II, which had an Eigen value of 2,01 and explained 41,13% of the total variance; however, in the

Table 2. TTBQ-T subscale factor loadings

Factors	Track I	Track II
	(Problems in Social Relationships)	Grieving
Traumatic Perception of the Loss	0,11	0,88
Relational Active Grieving	0,20	0,86
Close and Positive Relationship with the Deceased	-0,56	0,69
Social Dysfunction	0,74	-0,02
Conflictual Relationship with the Deceased	0,72	0,22
Eigen values	1,41	2,01
Explained variance	28,29%	41,13%

original study the conflictual relationship with the deceased factor was included in this track. Moreover, the conflictual relationship with the deceased and social dysfunction factors were grouped under the track I, with an Eigen value of 1,41, and explained 28,29% the total variance. The internal consistency coefficients of 2 higher-order factors were as follows: 0,74 and 0,96 for track I and track II, respectively (Table 2).

The Reliability of TTBQ-T

Reliability analysis was performed to determine the internal consistency of TTBQ-T. The internal consistency of TTBQ-T was 0,93, which indicates that the scale has good internal consistency. According to the reliability analysis of the TTBQ-T

subscales, each had a good internal consistency, except the social dysfunction factor, which had relatively low internal consistency. The Cronbach's alpha coefficients for the TTBQ-T relational active grieving, close and positive relationship with the deceased, traumatic perception of loss, conflictual relationship with the deceased and social dysfunction subscales were 0,91, 0,88, 0,82, 0,78, and 0,65, respectively (Table 2).

Test -Retest Reliability

The test-retest reliability of TTBQ-T was 0,88, and the test-retest reliability coefficients for the relational active grieving, close and positive relationship with the deceased, traumatic perception of loss, conflictual relationship with the deceased, and social dysfunction subscales were 0,80, 0,83, 0,78, 0,76, and 0,62, respectively.

Construct validity

To determine the construct validity of TTBQ-T correlation analysis of the BDI scores, IES-R scores, 5 TTBQ-T subscale scores, and the 2 TTBQ-T tracks were conducted (Table 3). As expected, the participants that had a close and positive relationship with the deceased and perceived loss as traumatic experienced difficulties in adapting to loss. Similarly, there was a positive correlation between the TTBQ-T relational active grieving and, social dysfunction, subscale scores and BDI score. People who had a conflictual relationship with the deceased, perceived loss as traumatic and experienced

Table 3. Correlations between 5 TTBQ-T factors, total BDI score and total IES-R score

	Traumatic Perception of Loss	Relational Active Grieving	Close and Positive Relationship with the Deceased	Conflictual Relationship with the Deceased	Social Dysfunction	Track I	Track II	Total BDI score	Total IES-R score
Traumatic Perception of Loss	1	0,69**	0,48**	0,22**	0,01	0,22**	0,83**	0,22**	0,45**
Relational Active Grieving		1	0,40**	0,24**	0,24*	0,31**	0,90**	0,46**	0,69**
Close and Positive Relationship with the Deceased			1	-0,18*	-0,20**	-0,24**	0,74**	0,07	0,17*
Conflictual Relationship with the Deceased				1	0,21**	0,84**	0,14*	0,16*	0,38**
Social Dysfunction					1	0,71**	0,08	0,41**	0,29**
Track I						1	0,15*	0,34**	0,44**
Track II							1	0,36**	0,57**
Total BDI score								1	0,64**
Total IES-R score									1

*p<0,05, **p<0,01

intense grief showed a higher number of posttraumatic stress symptoms. Individuals that perceived their loss as a traumatic event experienced more intense grief and, similarly, those that had a close and positive relationship with the deceased had more severe reactions to the loss. Additionally, the 2 TTBQ-T tracks were positively correlated with BDI and IES-R scores. Whereas the TTBQ-T relational active grieving, traumatic perception of loss, and close and positive relationship with the deceased subscale scores were correlated with track II of TTBQ-T, TTBQ-T social dysfunction and conflictual relationship with the deceased subscale scores were associated with track I of TTBQ-T (Table 3).

DISCUSSION

The present study examined the psychometric properties of TTBQ-T, which measures both the attachment and functioning dimensions of loss, and it was observed that the scale has adequate psychometric qualities. Moreover, it was determined that the TTBQ-T subscales had high internal reliability. The finding that TTBQ-T and its subscales had adequate test-retest reliability indicate that the scale's total score remains consistent over time. Although the factor structure of TTBQ-T had a similar pattern with the original TTBQ, 10 TTBQ-T items did not load under the same tracks as in the original scale. In addition, 11 items, which were excluded due to having a lower loading in the original study, were included in any of relational active grieving, close and positive relationship with the deceased and conflictual relationships with the deceased factors because they had a loading $>0,40$.

TTBQ-T items that evaluate psychiatric symptoms and the adaptation process of the bereaved post loss loaded under the relational active grieving factor, which is consistent with the literature. It was reported that intense grieving was associated with depression (Zisook et al 1994; Stroebe and Stroebe 1993), symptoms of anxiety (Schut et al 1991; Zisook et al 1990) and health problems (Parkes and Prigerson 2010; Stroebe and Stroebe 1993). Considering the differences in how individuals grieve and react to loss across cultures (Parkes and Prigerson 2010), it was considered that the difference between Israelis and Turks is due to the fact that Turks exhibit grief reactions in terms of psychiatric problems and disruptions in biopsychosocial functioning; however, this finding must be supported with studies conducted with homogenous bereaved groups in Turkey.

In the present study the TTBQ-T relational active grieving, close and positive relationship with the deceased, and traumatic perception of loss factors had cross loading items. For example, while item B15, "I yearn strongly for__and miss him/her deeply," loaded under relational active grieving, it

also had a high loading under the close and positive relationship with the deceased factor. Considering that 47,50 % of the deceased died from a disease, although it is not a sudden reason of death, the loss of a significant other from a disease that require a long term caregiving might have played an important role in the observed reactions to the loss and the perception of the loss as traumatic, because of the traumatic nature of witnessing a close one's dying (Stroebe and Stroebe 1987). Whereas such factors as the cause of death and the time of death might lead to the perception of a death as traumatic and, consequently, intense grief reactions (Kaltman and Bonanno 2003; Murphy et al 1999), such factors as the nature of the relationship with the deceased, attachment style, and degree of closeness play a role in determining the intensity of reactions to loss (Stroebe and Schut 1999). It was reported that loss of a significant other with whom a secure attachment was established results in intense grief reactions (Fraley and Shaver 2008; Bonanno 2001).

The higher order factor structure of TTBQ-T yielded a 2-factor solution, as did the original version of the scale; however, the 2 TTBQ-T tracks exhibited slightly different patterns than in the original study. In the original study the relational active grieving, close and positive relationship with the deceased, and conflictual relationship with the deceased factors compromised track II, and the traumatic perception of loss and general biopsychosocial functioning factors were loaded under track I, whereas in the present study, the traumatic perception of loss factor was loaded under track II and the conflictual relationship with the deceased factor was loaded under track I. In the present study, social dysfunction factor (general biopsychosocial functioning factor in the original study) compromised of items associated with problematic relationships with close family and non-family members, lack of confidence in the ability to cope with loss, difficulty expressing emotions about loss and accepting help from other people, and lack of perceiving values and beliefs as a source of support. The inclusion of the conflictual relationships with the deceased factor in the first track along with social dysfunction factor could be due to the fact that people who have ambivalent feelings toward the deceased could experience inhibited or delayed grief because of having difficulty in handling these emotions; therefore, they could not try to find a social support or have difficulty in receiving the social support in order to adapt to the loss. It was reported that the perception of the accessibility of social support and the tendency to seek social support vary according to the attachment style. Specifically, people with an insecure attachment style have a negative perception of receiving social support in stressful situations (Florian et al 1995). Thus, disruption of a conflictual relationship, which is an indicator of an insecure attachment style, due to death or any other reason could cause individuals with

a negative perception of social support to have difficulty using existing social support resources effectively following loss. Nevertheless, in the present study the traumatic perception of the loss factor was loaded under track II, differing from the original study. Considering the content of this factor, this finding is consistent with the literature suggesting that the traumatic nature of a loss is associated with complicated grief reactions (Parkes and Prigerson 2010; Van der Houwen et al 2010; Kersting et al 2007; Kaltman and Bonanno 2003). Moreover, individuals that lost a significant other with whom he/she had a positive and close relationship perceive loss as more traumatic (Kaltman and Bonanno 2003).

The present study has some limitations, including a small study population and differences in the causes of death of a significant other between the participants. The present findings must be supported by those of studies conducted with larger samples and with more homogenous groups of bereaved. It is apparent that as a validated scale TTbQ-T can be used for clinical assessment of grief. The observed psychometric properties of TTbQ-T support its use for determining the nature of the relationship with the deceased and difficulties in adaptation to the loss in bereaved Turkish individuals. As such, we think the scale's use as a clinical assessment tool can help clinicians better understand the specific difficulties of bereaved individuals in Turkey and inform the counseling and therapeutic process.

Acknowledgement

We thank Pınar Önen for her contribution to this study in translation of the scale and collecting data.

REFERENCES

- American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed, Washington, DC.
- Aker AT, Çelik F, Olgun N et al (2011) İki Boyutlu Yas Ölçeği Geçerlik ve Güvenilirlik Çalışması (poster presentation). 47. Ulusal Psikiyatri Kongresi, Antalya.
- Beck AT, Ward CH, Mendelson M et al (1961) An Inventory for measuring depression. *Arch Gen Psychiatry* 7:151-69.
- Bonanno G (2001) Grief and emotion: A social-functional perspective. *Handbook of Bereavement Research: Consequences, Coping, and Caring*, 2nd ed, MS Stroebe, R Hansson, W Stroebe ve H Schut (Ed), American Psychological Association, Washington, DC.
- Bonanno, GA, Neria Y, Mancini A et al (2007) Is there more to complicated grief than depression and posttraumatic stress disorder? A test of incremental validity. *J Abnorm Psychol* 116: 342-51.
- Çorapçıoğlu A, Yargıcı I, Geyran P et al (2006) Olayların Etkisi Ölçeği (IES-R) Türkçe versiyonunun geçerlik ve güvenilirliği. *Yeni Symposium* 44:14-22.
- Florian V, Mikulincer M, Bucholtz L (1995) Effects of attachment style on the perception and search for social support. *The J Psychol* 129:665-76.
- Fraley RC, Shaver PR (2008) Loss and bereavement: Attachment theory and recent controversies concerning grief work and the nature of detachment. *Handbook of attachment: Theory, research, and clinical applications*, 2nd ed, J Cassidy, PR Shaver (Ed.), New York. Guilford Press, p. 48-78.
- Green B (2000) Traumatic Loss: Conceptual and empirical links between trauma and bereavement. *J Personal and Interpersonal Loss* 5:1-17.
- Green SB, Salkind NJ, Akey TM et al (2011) *Using SPSS for Windows*. 6th ed, New Jersey, Prentice Hall.
- Hansson RO, Carpenter BN, Fairchild SK (1993) Measurement issues in Bereavement. *Handbook of bereavement research: Consequences, coping and care*. M Stroebe, W Stroebe, R Hansson (Ed.), Cambridge University Press, UK.
- Hisli-Şahin N (1989) Beck Depresyon Envanteri'nin üniversite öğrencileri için geçerliliği güvenilirliği. *Psikoloji Dergisi* 7:3-13.
- Horowitz M (1986) *Stress Response Syndromes*. 2nd ed, Northvale, NJ: Aronson.
- Horowitz MJ, Siegel B, Hohen A et al (1997) Diagnostic criteria for complicated grief disorder. *The Journal of lifelong learning in psychiatry* 1: 290-8.
- Horowitz M, Wilner NJ, Alvarez W (1979) Impact of events scale: A measure of subjective stress. *Psychosom Med* 41:209-18.
- Jacobs S, Mazure C, Prigerson H (2000) Diagnostic criteria for traumatic grief. *Death Studies* 24:185-99.
- Jacobsen JC, Zhang B, Block SD et al (2010) Distinguishing symptoms of grief and depression in a cohort of advanced cancer patients. *Death Studies* 34: 257-73.
- Kaltman S, Bonanno GA (2003) Trauma and bereavement: Examining the impact of sudden and violent deaths. *J Anxiety Disord* 17: 131-47.
- Kersting A, Kroker K, Steinhard J et al (2007) Complicated grief after traumatic loss. *Eur Arch Psychiatry Clin Neurosci* 257:437-43.
- Lichtenthal WG, Cruess DG, Prigerson HG (2004) A case for establishing complicated grief as a distinct mental disorder in DSM-V. *Clin Psychol Rev* 24:637-62.
- Malkinson R, Rubin S, Witztum E (2006) Therapeutic issues and the relationship to the deceased: Working clinically with the Two-Track Model of Bereavement. *Death Studies* 30:797-816.
- Michalski MJ, Vanderwerker LC, Prigerson HG (2006) Assessing grief and bereavement: observations from the field. *Omega* 54:91-106.
- Murphy S, Braun T, Cain K et al (1999) PTSD among bereaved parents following the violent deaths of their 12 to 28-year-old children: A longitudinal prospective analysis. *J Trauma Stress* 12: 273-91.
- Ogrodniczuk JS, Piper WE, Joyce AS et al (2003) Differentiating symptoms of complicated grief and depression among psychiatric outpatients. *The Can J Psychiatry* 48:87-93.
- Ott CH (2003) The impact of complicated grief on mental and physical health at various points in the bereavement process. *Death Studies* 27:249-72.
- Parkes CM, Prigerson HG (2010) *Bereavement: Studies of Grief in Adult Life*. 4th ed, New York, Routledge.
- Rubin S (1981) A two-track model of bereavement: Theory and research. *The Am J Orthopsychiatry* 51:101-9.
- Rubin S (1999) The Two-Track Model of Bereavement: Overview, retrospect and prospect. *Death Studies* 23:681-714.
- Rubin S, Malkinson R (2001) Parental response to child loss across the life-cycle: Clinical and research perspectives. *Handbook of bereavement research: Consequences, coping and care*. 2th ed, MS Stroebe, R Hansson, W Stroebe, H Schut (Ed), American Psychological Association, Washington, DC.
- Rubin S, Malkinson R, Witztum E (2003) Trauma and bereavement: Conceptual and clinical issues revolving around relationships. *Death Studies* 27: 667-90.
- Rubin SS, Nadav OB, Malkinson R et al (2009) The Two-Track Model of Bereavement Questionnaire (TTbQ): Development and validation of a relational measure. *Death Studies* 33:305-33.
- Schut H, deKeijser J, van den Bout J et al (1991) Post-traumatic stress symptoms in the first years of conjugal bereavement. *Anxiety Research* 4:225-34.
- Selvi Y, Öztürk Rİ, Ağargün MY et al (2011) Temel Yas Unsurları Ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. *Nöropsikiyatri Arşivi Dergisi* 48:129-34.
- Stroebe MS, Schut HW (1999) The dual process model of coping with bereavement: Rationale and description. *Death Studies* 23:197-224.

- Stroebe M, Schut H, Finkenauer C (2001) The traumatization of grief? A conceptual framework for understanding the trauma-bereavement interface. *Isr J Psychiatry Relat Sci* 38:185-201.
- Stroebe MS, Schut H, Stroebe W (2007) Health outcomes of bereavement. *Lancet* 370:1960-73.
- Stroebe W and Stroebe MS (1987) Bereavement and Health: The Psychological and Physical Consequences of Partner Loss. Cambridge University Press.
- Stroebe MS, Stroebe W (1993) The Mortality of Bereavement: A Review. *Handbook of Bereavement Research: Consequences, Coping and Care*. M Stroebe, R Hansson, W Stroebe, H. Schut (Ed.), Washington, DC: American Psychological Association, p. 3-22.
- Tegin B (1980) Depresyonda bilişsel süreçler: Beck modeline göre. Yayınlanmamış Doktora Tezi, Hacettepe Üniversitesi, Psikoloji Bölümü, Ankara.
- Weiss DS, Marmar CR (1997) The Impact of Event Scale-Revised. *Assessing Psychological Trauma and PTSD*, JP Wilson, TM Keane (Ed), New York. Guilford Press, p.399-411.
- Van der Houwen, K, Stroebe M, Stroebe W et al (2010) Risk factors for bereavement outcome: A multivariate approach. *Death Studies* 34:195-220.
- Zisook S, Mulvihill M, Shuchter SR (1990) Widowhood and anxiety. *Psychiatric Medicine* 8:425-30.
- Zisook S, Shuchter SR, Sledge PA et al (1994) The spectrum of depressive phenomena after spousal bereavement. *J Clin Psychiatry* 55:29-36.