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Trauma type and post-trauma outcomes: Differences between survivors of motor vehicle accidents, sexual assault and bereavement.

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RUNNING HEAD: Trauma type & post-trauma outcomes

Abstract

Research examining post-trauma pathology indicates negative outcomes can differ as a function of the type of trauma experienced. Such research has yet to be published when looking at positive post-trauma changes. Ninety-Four survivors of trauma, forming three groups, completed the Posttraumatic Growth Inventory (PTGI) and Impact of Events Scale-Revised (IES-R). Groups comprised survivors of i) sexual abuse ii) motor vehicle accidents and iii) bereavement. Results indicated differences in growth between the groups with the bereaved reporting higher levels of growth than other survivors and sexual abuse survivors demonstrated higher levels of PTSD symptoms than the other groups. However, this did not preclude sexual abuse survivors from also reporting moderate levels of growth. Results are discussed with relation to fostering growth through clinical practice.

KEYWORDS: trauma, posttraumatic growth, PTSD

Trauma type and post-trauma outcomes: Differences between survivors of motor vehicle accidents, sexual assault and bereavement.

Research supports the notion that different types of traumatic experiences differentiate Post Traumatic Stress Disorder (PTSD) symptoms. To date there does not appear to be any published study that aimed to investigate if differences in dimensions of growth occur for survivors of different kinds of traumatic experience in the one study. As symptoms of pathology have been identified to differ following different traumas, there is reason to expect that positive post-trauma changes may also be influenced by the nature of the event/s experienced. This paper examines both positive post-trauma changes as measured by the PTGI (Tedeschi & Calhoun, 1996) and symptoms of PTSD identified using the IES-R (Weiss & Marmar, 1997) in survivors of three distinct traumatic event types: sexual assault, motor vehicle accident and bereavement.

Population estimates of trauma vary widely, depending on a number of issues including the methodology employed, the definition of trauma used, and the unique set of cultural experiences within the population studied. For example, a national study of Australian's mental health and well-being reported by Creamer, Burgess and McFarlane (2001) found a lifetime prevalence rate of 64.6% in men and 49.5% in women. The 12 month prevalence rate of PTSD in this study was only 1.33% which is much lower than comparable studies from North America (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Studies that examine rates of PTSD as a function of trauma type are much less common.

When examining the prevalence of PTSD in a random sample of the German population ($N = 4093$), nearly 20% of participants reported experiencing a traumatic event (Hapke, Schumann, Rumpf, John, & Meyer, 2006). The trauma sample was further broken down into trauma types including physical assault, sexual assault, serious accidents and vicarious trauma

(witness to a trauma). Results demonstrated that survivors of sexual assault reported significantly higher levels of PTSD than the other groups. A Swedish study demonstrated similar results in which they compared survivors of physical assault, sexual assault, robbery, sudden unexpected bereavement, war exposure and motor vehicle accidents (Frans, Rimmo, Aberg, & Fredrikson, 2005). In this study drawn from the general population, both physical and sexual assault survivors recorded higher levels of PTSD risk than the other groups and motor vehicle accident survivors had the lowest risk of PTSD (Frans et al., 2005). The advantage of such large population studies is that they afford comparisons to be made in PTSD symptoms because they control for the potential for methodological, conceptual and analytic differences.

Other research has investigated prevalence rates of PTSD following various forms of psychological injury. Unlike the above-mentioned studies, populations tend to be specific and again, the results vary greatly. For example, in a longitudinal study of severely injured accident survivors only 1.9% reported experiencing PTSD 12 months following their accident (Schnyder, Moergeli, Klaghofer, & Buddeberg, 2001) whereas in a study PTSD in motor vehicle accident survivors, Ehlers, Mayou and Bryant (1998) found a 16% prevalence rate at the 12 month follow-up time point. Some of the apparent differences in rates reported also relates to if the frequency is being reported as a 12 month prevalence or a lifetime prevalence.

Posttraumatic Growth ([PTG], Tedeschi & Calhoun, 1996) is a term currently used to describe perceptions of positive changes that may be construed as a result of the struggle engaged in following a traumatic event or events. This cognitive model has received increasing attention in the literature over the past 15 years and is an exciting area for clinicians to explore in order to assist successful adjustment post-trauma. However to date, research has examined PTG in groups who have experienced various types of trauma (e.g., Calhoun & Tedeschi, 2005;

Shakespeare-Finch & Enders, 2008; Tedeschi & Calhoun, 1996) or in a group of survivors of a specific type of trauma. For example, PTG has been researched in survivors of sexual assault (e.g., Frazier, Tashiro, Berman, Steger & Long, 2004; Shakespeare-Finch & de Dassel, in press), bereavement (Davies, Michael & Verberg, 2007), and in cancer patients (e.g., Morris, Shakespeare-Finch, & Scott, 2008; Weiss, 2002). Linley and Joseph (2004) provide a review of PTG literature in which it is evident that there were no studies at that stage that controlled for differences in methods, concepts, analyses, or culture, when investigating PTG. A review of the literature in 2009 revealed no published papers examining PTG across trauma types.

Further to the research demonstrating trauma type has differentiated PTSD symptoms (e.g., Frans et al., 2005; Hapke et al., 2006); a body of literature suggests that there is a relationship between PTG and PTSD. However, such literature has yielded mixed results. For example, Calhoun and Tedeschi (2006) propose a positive linear relationship between growth and ongoing distress. Ho, Kwong-Lo, Mak, and Wong (2005) found no relationship between PTG and distress and Butler (2007) proposes a curvilinear relationship. Joseph, Linley, Shevlin, Goodfellow and Butler, (2006) also propose the relationship to be independent.

At this stage it is not clear why there is such inconsistency of results. Perhaps it is due to methodological differences, cultural variations, or types of trauma experienced. Morris, Shakespeare-Finch, Rieck, and Newbery (2005) suggested that the lack of consistency may in part be due to studies only examining (or reporting) total PTGI and PTSD scores rather than examining the dimensions of PTSD and growth. For example, Morris et al. found that PTGI factors differed in their relationship with posttraumatic stress outcomes. Specifically, changes regarding the Appreciation of Life dimension of the PTGI were negatively correlated with PTSD symptoms whereas Relationships with Others were positively correlated with PTSD symptoms.

Examining sexual assault survivors' post-trauma outcomes, Shakespeare-Finch and de Dassel (in press) found the strongest relationship was between Hyperarousal and New Possibilities ($r=.41$). Perhaps the relatively constant cognitions regarding the trauma when experiencing hyperarousal prompts conscious reinterpreting of the experience including the potential for new possibilities to be realised.

Butler (2007) asserts that previously conflicting results regarding the relationship between growth and outcomes may have resulted from the previous assumption that such relationships would be linear, which was not supported in her research. Butler (2008) further suggests that some studies may not have tested the assumption of linearity in their results. However, studies that have published assumption testing do not necessarily support this assertion. For example, the Shakespeare-Finch and de Dassel's study (in press) of survivors of serious childhood sexual abuse did not find a curvilinear relationship but rather, a weak positive linear relationship.

Frazier et al. (2004) claim there is evidence supporting the notion of a relationship between positive and negative post-trauma outcomes, but claim that the relationship is time dependent. Again, results are unclear. In the Morris et al. (2005) research cited above, time since event made no difference to reported levels of PTG. What has become clear is that more stringent methodologies are needed in research within this area in order to more clearly establish relationships. Essentially, there is more consensus that the experience of growth does not ameliorate the negative consequences of trauma and that distress and growth can and do coexist (Ai & Park, 2005; Calhoun & Tedeschi, 2006).

Advances in this area of research revolve around the importance of increasing our understanding of both positive and negative outcomes as essential to understanding the whole

experience of trauma rather than fruitlessly attempting to predict outcomes based on such independent constructs. To be useful to clinicians, more studies need to be completed and published that examine groups of survivors more tightly controlled for trauma type and studies that examine the dimensions of post-trauma outcomes rather than total scores on inventories. Therefore, this study sought to examine both PTG and symptoms of PTSD and the relationship between those post-trauma dimensions in three groups of trauma survivors.

Based on previous research it was hypothesised that post-trauma outcomes will vary across the different trauma type groups. For example, previous research examining PTSD symptoms in different groups of trauma survivors has found that PTSD symptoms are more prevalent in sexual assault survivors than motor vehicle accident survivors (Frans et al., 2005) and hence, it is expected that trend will be explicated in the present study. However, previous research that examines PTG in survivors of different traumas in the same study has not yet been published so predicting which dimensions of PTG may differ between the trauma groups is not as clear. Based on literature that compares results from a number of different studies examining different trauma groups (Linley & Joseph, 2004) it is suggested that those people in the bereavement group may report higher levels of growth than the other two groups. Consistent with the majority of previous research it is also suggested that there will be a positive linear relationship between measures of growth as measured by the PTGI (Tedeschi & Calhoun, 1996) and measures of PTSD symptoms as measured by the Impact of Event Scale – Revised (Weiss & Marmar, 1997).

Method

Participants

To ensure that participants met stringent requirements regarding trauma type, data belonging to 94 trauma survivors was extracted from a larger data set. The larger data set comprised university students and community participants recruited through advertising in lectures and local news papers. A total sample of 425 trauma survivors from 2 states, participated in the larger study. Participants had experienced a variety of traumatic events and in addition to completing a battery of measures, they described the nature of the most severe traumatic event they had experienced, time since the event, if there had been one or more events of a traumatic nature and other demographic questions. There were no differences in the measures included in the presented study between students and community participants and therefore the data set was examined as a whole.

The large variety of events experienced by participants in the larger data set precluded including all participants being included in the current study for example, only 11 had witnessed homicide which included 6 who were witness in a war zone. Others did not describe an event that would be consistent with the definition of trauma that is included in the DSM-IV-TR criteria for a diagnosis of PTSD (*Diagnostic and Statistical Manual of Mental Disorders, fourth edition-text revision [DSM-IV-TR]*; American Psychiatric Association, 2000). Bereavement, sexual assault and motor vehicle accident survivors were chosen for this study as these were the most common distinct types of trauma described by individuals from the larger sample. Participants were instructed to respond to the questionnaires based on their experience following one trauma. Individuals who chose to describe multiple types of trauma without clearly indicating which trauma was relevant with respect to completion of the PTGI and IES-R, were excluded from this study to maintain the integrity of the trauma groups. Further, a question regarding the survivor's perception of severity was included as a control with scores ranging from 1 (*mild*) to 5 (*very*

severe). Only people who scored their event as a severe or very severe trauma (4 or 5 out of 5 on a likert type response scale) were included in this study.

In order to ensure sufficient power for the analyses, G*Power calculations were used (Faul, Erdfelder, Lang, & Buchner, 2007). Setting power at .95, alpha at .05, and positioning parameters of a small effect size (.25), 51 participants were required. Three groups were created comprising 13 males and 81 females. The mean age of participants was 32.33 years ($SD=13.24$ years) with a range of 18 to 73 years. The first group were survivors of serious sexual assault ($n=32$). The group predominantly included rape victims and victims of incest, all of whom rated their assaults as severe or very severe (age $M=28.26$, $SD=3.37$). The second group were survivors of a death of a first degree relative ($n=43$) and had a mean age of 33.82 years ($SD=13.00$) and the third group had survived a serious motor vehicle accident ($n=19$, age $M=36.11$, $SD=17.69$). Participants comprising the latter group had to have been in the vehicle of a serious accident rather than be witness to a serious accident.

Materials

Positive post-trauma changes were measured with the PTGI (Tedeschi & Calhoun, 1996). The inventory consists of 21 items asking respondents to rate the extent to which they perceive their lives and the ways in which they look at the world to have changed as a result of the struggle engaged in following the experience of trauma. The statements are rated on a 6 point likert scale ranging from 0 (*not at all*) to 5 (*very great degree*). These statements then yield a total PTGI score and scores on each of the five factors: *New possibilities*; *relating to others*; *personal strength*; *appreciation of life*; and *spiritual change*. The PTGI has been demonstrated to be a reliable scale indicated by a high degree of internal consistency (e.g., $\alpha = .93$ for total scale

during development, Tedeschi & Calhoun, 1996) and as a valid measure of positive post-trauma changes (Shakespeare-Finch & Enders, 2008; Smith & Cook, 2004; Weiss, 2002).

The three clusters of PTSD symptoms were measured using the IES-R (Weiss & Marmar, 1997). This scale measures symptoms reflecting the DSM-IV-TR (2000) diagnostic criteria for PTSD. Participants report on how distressing they have found symptoms reflecting intrusion, avoidance and hyperarousal on a 5 point likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Weiss and Marmar (1997) reported strong internal reliability in two studies with alphas ranging from .79 to .92 for the three IES-R subscales. This scale has also been found to have a high degree of sensitivity and diagnostic reliability utilising a cut-off of 33 (Creamer, Bell, & Failla, 2003). This cut-off provided positive predictive power of .90, sensitivity of .91 and a specificity of .82 (Creamer et al., 2003). Both the PTGI and the IES-R and all subscales demonstrated adequate reliability in this study with Cronbach's Alphas ranging from .74 (spiritual change) to .92 (total IES-R).

Results

Assumption Testing

Data cleaning, analysis and assumption testing were conducted using the Statistical Package for the Social Sciences (SPSS, version 16). The accuracy of the data were assessed through checking that values of variables and scales fell within expected ranges. Normality was confirmed through visual inspection of the distribution of variables. Missing data were imputed through substituting the mean of an individual's scores on the relevant subscale. Box's test of equality of covariance matrices was not significant $F(72, 10756.21) = .710, p = .97$. The assumption of homoscedasticity was upheld and Levene's test of equality of error variance was

not significant for any of the dependent variables. Through visual inspection of the standardised residual plots the assumption of linearity was also observed to be intact.

Descriptive data

All three groups reported moderate to high levels of total PTG scores (see Table 1). Those in the MVA group reported lower levels of PTG on the new possibilities dimension ($M=9.68$, $SD=6.21$), but relatively higher levels of growth on relating to others ($M=21.58$, $SD=25.60$). Overall, the sexual assault survivor group had the lowest relative levels of PTG ($M=56.53$, $SD=23.60$), as well as eliciting lower scores for the relating to others factor ($M=16.69$, $SD=7.55$), spiritual change ($M=2.66$, $SD=2.91$) and appreciation of life ($M=9.28$, $SD=3.50$). The Bereavement group reported the highest mean total of PTG ($M=71.09$, $SD=20.18$) and the most growth on all subscales of the PTGI.

Utilising the cut-off of 33 suggested by Creamer et al. (2003), all three trauma groups reported potentially clinical mean levels of PTSD symptoms (see Table 1). Of those who experienced a MVA, 73.7% endorsed total IES-R of 33 or higher, indicating the potential for clinical levels of PTSD. The MVA group reported lower scores on the total IES-R ($M=41.74$, $SD=20.22$) as well as the lowest mean for intrusion ($M=16.74$, $SD=7.50$) and hyperarousal ($M=10.53$, $SD=6.92$). The sexual assault survivors reported the highest mean scores on the total IES-R as well as on all of the subscales. Furthermore, 96.9% of this group endorsed total IES-R scores of 33 or greater while 79.1% of the bereavement group endorsed IES-R scores of 33 or greater. The bereavement group also reported the lowest levels of avoidance ($M=13.30$, $SD=7.21$).

Please insert table 1 approximately here

Hypothesis testing

An Analysis of Variance (ANOVA) revealed that there was a significant difference in total PTG based on trauma type $F(2,91)=3.82, p<.05$. There was also a significant difference on total IES-R scores based on trauma type $F(2,91)=11.08, p<.01$. Having established that there were significant differences in reports of total PTGI and IES-R, a subsequent Multivariate Analysis of Variance (MANOVA) was performed without the total scale scores as it was the subscales that were the focus of this research. The Wilks' Lambda test of multivariate differences indicated that there were statistically significant differences among the groups $F(16,168)=5.19, p<.01$. The effect size of the relationship was moderate as reflected by a partial eta-squared of .33. Initial univariate tests indicated that trauma type was significantly related to scores on relating to others, appreciation of life, avoidance, intrusion, and hyperarousal (see Table 2). New possibilities, personal strength, and spiritual change were not univariately significantly related to trauma type; however, observed power was quite low for these variables. Hochberg was used to run post hoc comparisons as it is the most appropriate when controlling for uneven sample sizes (Field, 2005). The bereavement group reported significantly more growth than the sexual assault group on relating to others ($p<.01$) and appreciation of life ($p<.05$). There was a trend for the bereavement group to score higher than the MVA group on new possibilities although this did not reach significance ($p=.06$). All three groups scored similarly on personal strength and spiritual change. The sexual assault group was higher than both the MVA group ($p<.01$) and the bereavement group ($p<.01$) on avoidance and hyperarousal (MVA $p<.01$; bereavement $p<.01$). The MVA group were significantly lower on intrusion than both the sexual assault survivors ($p<.01$) and the bereavement group ($p<.02$).

A correlation analysis was run in order to assess the relationship between the IES-R and the PTGI (see Table 3). Two significant correlations were found with new possibilities

significantly correlated to both intrusion ($r = .24$) and hyperarousal ($r = .24$). Scatterplots were also inspected to ensure the relationship between PTGI and IES-R scores was not curvilinear.

Discussion

Results support the hypothesis that there are differences in post-trauma adjustment following the experience of different types of trauma. The bereavement group reported significantly higher levels of growth in the appreciation of life domain of PTG when compared to the sexual abuse group. It stands to reason that the death of a first degree family member will engender thoughts and behaviours around the frailty of life and the importance of appreciating life. There were no significant differences on the new possibilities dimension of the PTGI although there was a trend for those in the bereavement group to report higher levels of growth in new possibilities than those in the MVA group.

It is possible that the death of a loved one may prompt individuals to consider things in their life that the deceased was unable to pursue or finish due to their death, which in turn may prompt thoughts about the future possibilities in their own lives. Notions of new possibilities may therefore arise in an attempt to avoid unfinished business, whereas these types of thoughts are less likely to occur following a MVA that was not fatal despite participants in the MVA group rating their severity of trauma no differently than the bereavement group. This is consistent with research conducted by Harms and Talbot (2007) that found new possibilities was not highly endorsed following road trauma.

Those in the bereavement group reported significantly higher levels of growth in the relating to others domain than those who experienced sexual assault. The loss of trust and interpersonal trauma experienced by sexual assault survivors may account for the relatively lower level of growth within this domain. This is contrasted to bereavement which can often

prompt individuals to reach out and focus on their relationships with others. All three groups scored similarly within the personal strength domain. This suggests that the experience of sexual assault, bereavement and MVA all lead to similar increases in the perception of personal strength. Consistent with previous research, there were no significant differences among the groups in the spiritual change domain. Such findings may have a cultural relativity as populations other than the US reporting uniformly lower levels of spiritual change growth (e.g., Morris, et al., 2005; Shakespeare-Finch & Enders, 2008; Znoj, 2005).

Overwhelmingly, those who reported experiencing SA endorsed higher levels of PTSD symptoms than those who experienced either Bereavement or MVA. This result is not surprising given the high levels of PTSD following SA reported in the literature (e.g., Frans et al., 2005; Hapke et al., 2006). The relatively high levels of PTSD symptomatology within the SA group could be seen as reflecting the very personal, individual nature of this trauma. The direct threat to personal physical integrity and the fact that sexual assault is a trauma which is intentionally perpetrated by another person, adds another dimension to the trauma experience beyond that which is experienced in Bereavement or MVA (Shakespeare-Finch & De Dassel, in press).

In essence, the experience of particular clusters of PTSD symptoms is not unilaterally related to particular domains of growth among those who report the severity of the trauma to be very high. There are however, clear differences in post-trauma outcome which can be understood as being related to the particular type of trauma experienced.

There has been limited support for the notion of a curvilinear relationship between positive and negative outcomes in previous research (e.g., Butler, 2008) but this notion was not supported in this study. The relative lack of significant correlations between the PTGI and the IES-R may be a result of the stringent control of severity in this study. Specifically, this data

only encapsulated those individuals on the higher end of the distress/severity spectrum and as such there may have not been a sufficient range of severity to reflect a curvilinear relationship. However, this result may simply reflect the absence of a relationship between these positive and negative post-trauma outcomes lending support to the notion that there is either only a small linear relationship (Calhoun & Tedeschi, 2006; Morris et al., 2005) or that there is in fact no relationship between positive and negative post-trauma outcomes (Joseph et al., 2006).

Clinical applications

This research has expanded our awareness of the richness of post-trauma experiences and suggests we may need to broaden our response to clients presenting post-trauma. For example, becoming more aware that the type of trauma experienced may influence the focus or techniques used in therapy in order to facilitate growth and/or reduce negative outcomes. Specifically, this research suggests that while personal strength may be a domain that is experienced in many types of trauma, there are differences in the domains of appreciation of life and relating to others. At this point it is not possible to hypothesise how best to facilitate growth in response to different trauma types. However, when working with individuals who have experienced sexual assault, based on the lower levels of growth within the relating to others domain, a therapist may initially focus on areas other than their relationships with others. As therapy progresses it may be warranted to suggest that a lack of growth in relationships with others appears to be a common and hence, a normal post-trauma outcome in this group which may then act as a catalyst for such a discussion.

Limitations and suggestions for future research

Based on the low power observed in those post hoc analyses which failed to yield significant results, larger samples and more even group sizes may be important in order to

maximise the power available to find differences. Whilst uneven group sizes could be considered a limitation within this study, this was controlled for during analysis by following Field's (2005) recommendation to use Hochberg's adjusted post-hoc analyses for dealing with uneven group sizes.

A common limitation of cross-sectional research is in asking participants to retrospectively report trauma and reactions. Memory is fallible and time may have coloured perceptions of adaptation. Cross-sectional designs do not allow for casual inferences but are a useful initial step in elucidating relationships between variables and identifying potential differences between categories.

Although there were clearly articulated reasons for the stringent controls of severity of trauma within this research, if the aim of future research is to investigate the possible relationship between positive and negative symptoms, such tight methodological control in this way may not be appropriate. In other words, future research examining a variety of events that range from being perceived as stressful to severely traumatic, may have enough variability in the data to uncover a curvilinear relationship.

In sum, this research is the first of its kind to examine the dimensions of PTG in three tightly controlled groups of trauma survivors within the same study (i.e., controlling for potential confounds such as method, measures, and cultural context). Just as has been found in research examining PTSD symptoms (Frans et al., 2005; Hapke et al., 2006), this research has demonstrated that trauma type can differentiate between various factors of growth and distress. It appears that some areas of growth are more frequently endorsed following particular types of trauma than others for example, relating to others and appreciation of life dimensions are more frequently reported in the bereaved whereas changes in perceptions of personal strength were

similar for all survivors. Such results may be useful in the clinical setting as clinicians seek to foster various dimensions of growth in their clients.

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Table 1

Mean and Standard Deviation of PTGI and IES-R Scores for the Different Trauma Groups

Scale (range)	MVA (n=19)	SA (n=32)	Bereave (n=43)	α
PTG Total (9-115)	60.95 (25.60)	56.53 (23.60)	71.09 (20.81)	.91
Relating to others (3-35)	21.58 (7.96)	16.69 (7.55)	22.58 (7.69)	.84
New possibilities (0-25)	9.68 (6.21)	12.00 (5.99)	13.51 (5.61)	.81
Personal strength (0-20)	12.00 (5.41)	12.09 (4.82)	12.84 (4.33)	.76
Spiritual Change (0-10)	3.21 (2.86)	2.66 (2.91)	4.05 (3.07)	.74
Appreciation of Life (0-15)	9.68 (4.14)	9.28 (3.50)	11.77 (3.26)	.80
IES Total (1-86)	41.74 (20.22)	61.22 (14.74)	45.98(15.88)	.92
Avoidance (1-32)	14.47 (8.51)	21.75 (7.39)	13.30 (7.21)	.86
Intrusion (0-32)	16.74 (7.50)	23.06 (5.96)	21.72 (5.95)	.85
Hyperarousal (0-24)	10.53 (6.92)	16.41 (5.23)	10.95 (6.07)	.83

Note. MVA = Motor Vehicle Accident; SA=Sexual Assault survivors; Bereave = Bereavement ;

α =Chronbach's Alpha

Table 2

Univariate F tests for the association between trauma type, PTG domains and IES-R subscales

Subscale	<i>df</i>	<i>F</i>	<i>p</i>	Partial eta Squared	Observed power
Relating to others	2, 91	5.67	<.01	.11	.85
New possibilities	2, 91	2.84	.06	.06	.55
Personal strength	2, 91	.32	.73	.01	.10
Spiritual change	2, 91	2.05	.13	.04	.14
Appreciation of life	2, 91	4.99	<.01	.10	.80
Avoidance	2, 91	12.29	<.01	.21	.99
Intrusion	2, 91	6.33	<.01	.12	.89
Hyperarousal	2, 91	9.22	<.01	.17	.97

Note. *df* = degrees of freedom, *F* = F ratio, *p* = significance level

Table 3

Pearson bivariate correlations between the IES-R scores and the PTGI scores (N=94)

		Avoidance	Intrusion	Hyperarousal	Total IES
Relating to others	Correlation	-.19	-.05	-.15	-.16
New possibilities	Correlation	-.07	.24*	.24*	.14
Personal strength	Correlation	-.14	.18	.10	.04
Spiritual change	Correlation	-.04	.16	.10	.08
Appreciation of life	Correlation	-.19	.10	-.04	-.07
Total PTG	Correlation	-.17	.14	.04	-.01

Note. * = $p < .05$ (2-tailed)