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Can People Remain Engaged and Vigorous in the Face of Trauma? Palestinians in the West Bank and Gaza

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Abstract

This is the first study of the relationship between being exposed to traumatic conditions and, yet, remaining engaged in life tasks and vigorous. A national random sample of adult residents (n= 1,196) of the Palestinian Authority were interviewed in person in a three-wave longitudinal study: (1) September–October 2007, (2) April–May 2008, and (3) October–November 2008. Using path modeling, we found that those who reported greater trauma exposure at time 1 reported modestly reduced engagement at time 3, mediated by their greater psychosocial resource loss at time 1 and greater depressive symptoms at time 2. At the same time, trauma exposure had a modest direct positive effect on engagement at time 3, suggesting that trauma exposure may also activate engagement. Loss of psychosocial resources as assessed at time 2 was the best predictor of lower engagement at time 3. Greater engagement was also predicted by greater social support, being male, being more educated, being younger, and being more religious. PTS symptoms at time 2 did not independently predict engagement when controlled for all variables in the model. The relative independence of psychological distress and engagement was noted as a critical finding supporting a key tenet of positive psychology.

Keywords

trauma; war; PTSD; depression; resilience; engagement; vigor

Research on traumatic stress, including political violence, has overwhelmingly focused on pathological responding (Bleich, Gelkopf, & Solomon, 2003; Galea et al., 2002; Hobfoll, Canetti-Nisim, & Johnson, 2006; Punamaki, Komproe, Qouta, Elmasri, & de Jong, 2005). However, recent research on responding to traumatic circumstances indicates that a

substantial proportion of persons are resistant to psychological distress (Bonanno, 2005; Hobfoll, Palmieri, Johnson, Canetti, Hall, & Galea, 2009) and that among those who do report psychological distress, in a large proportion this resolves over a few months (Bonanno, Galea, Bucciarelli, & Vlahov, 2006; 2007; Layne, Warren, Shalev, and Watson, 2007). In many respects this resistance and resilience in the face of severe traumatic event exposure is remarkable, suggesting tremendous human capacity for coping with adverse circumstances. These recent studies have suggested a novel way in which we can consider the consequences of traumatic events, that is instead of focusing on what causes pathology after traumatic event exposure, we may fruitfully consider what contributes to sustained normal functioning.

Extending this thinking, we were interested in considering the extent to which people exposed to traumatic events may remain high in what has been termed engagement. Interest in engagement, defined as a persistent, pervasive and positive affective-motivational state of fulfillment, has grown with the recent renewed emphasis on positive psychology (Schaufeli, Salanova, González-Romá, & Bakker, 2002; Seligman & Csikszentmihalyi, 2000). During the past decade, engagement has mainly been studied regarding work, but the concept lends itself to a more general framework of engagement to life tasks including, work, parenting, interacting with family and loves ones, and leisure activities (Seligman & Csikszentmihalyi, 2000).

The original conception of engagement involves three dimensions: vigor, dedication, and absorption. Recent research suggests that vigor and dedication constitute the core dimensions of engagement (Llorens, Bakker, Schaufeli, & Salanova, 2006), and that vigor may be the central overall concept (Shirom, 2004). Vigor refers to high levels of energy and mental resilience while involved in life tasks, the willingness to invest effort in work, and persistence in the face of difficulties. Dedication refers to a strong involvement in life tasks, accompanied by feelings of enthusiasm and significance, and by a sense of pride and inspiration. Absorption refers to becoming fully absorbed in tasks, and often losing a sense of time during tasks.

Investigating engagement may also serve to clarify the etiology of traumatic distress. It is a basis of cognitive behavioral treatment of trauma that restoration of functioning involves both changing cognitions and behaviors (Foa & Meadows, 1997; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Treatment often involves encouraging individuals to return to fuller engagement in their life tasks as a route to emotional recovery. Yet, we know little about the co-occurring processes of engagement and emotional distress in nearly any context. There is a general assumption that the psychological impact of trauma, in the form of PTS and depression symptoms, is closely linked with functioning (Foa & Meadows, 1997; Resick et al., 2002), but in fact we have little empirical evidence regarding this relationship. Because those with PTS symptoms, by definition, tend to avoid situations that remind them of the trauma and due to a combination of hyperarousal and numbing, it would be expected that those with PTS symptoms would have greater difficulty engaging in many key life tasks. Similarly depressive symptoms would contribute to withdrawal and reduced functioning that would be expected to impede full engagement and vigor. These assumptions are surprisingly untested, however, particularly among those who do not come for treatment, which is the vast majority of trauma exposed individuals.

Insight about the role that engagement plays in the return of functioning may come from the literature that has studied the role that resources play in return to functioning. Following trauma exposure, studies have found that possessing psychosocial resources and sustaining them (i.e., not losing resources) is key to resilience (Bleich, Gelkopf, Melamed, & Solomon, 2006; Bonanno et al., 2007; Galea et al; 2002; Hobfoll et al., 2009). Hobfoll's (1989; 1998)

Conservation of resources (COR) theory argues that people who possess greater psychosocial resources are better able to receive emotional support and task support and meet everyday life tasks and the special demands that follow trauma exposure. Possessing a strong resource reservoir is particularly important during times of sustained trauma, as resources are not only greatly taxed, but may be overwhelmed with chronic demand (Hobfoll & London, 1986; Palmieri, Galea, Canetti-Nisim, Johnson, & Hobfoll, 2008). Social support, in particular, has often been linked with resilience (Bleich et al., 2006; Bonanno et al., 2007; Galea et al; 2002), and hence may similarly be related to remaining engaged.

During the first and second Intifadas (uprisings) more than 6,200 Palestinians were killed (B'Tselem, 2008a, b), and more than 65,000 detained (JMCC, 2008; B'Tselem, 2008a, c). The Al Aqsa Intifada which began in September of 2000, has further deteriorated the economic conditions for Palestinians. In addition to occupation by Israeli forces, internecine violence between Palestinian factions has created significant danger. At the time of this study, 590 individuals had been killed in violence between Palestinian political factions (B'Tselem, 2008a, b). Occupation and internecine violence have greatly challenged people's ability to remain engaged as, not only was physical safety challenged, even access to work, food, and schools has been made difficult and on many days impossible (Ai, Peterson, & Ubelhor, 2002; Cardozo, Vergara, Agani, & Gotway, 2000; de Jong, Komproe, Van Ommeren, El Masri, Araya, Khaled etal., 2001; Hall et al., 2008).

We prospectively examined traumatic event exposure, post-traumatic stress symptoms (PTS), depression symptoms, and engagement among a representative sample of residents of the Palestinian Authority during the latter period of the Second Intifada. This was a period of ongoing and severe traumatic event exposure due to Israeli occupation, as well as great internecine violence, with little hope for the resolution of conflict. Our aim was to examine the extent to which traumatic event exposure and its correlates relate to engagement, and for the first time to examine the extent to which posttraumatic stress (PTS) and depression symptoms are related to engagement in life tasks. We believe this is the first longitudinal study of the relationship between traumatic event exposure and remaining engaged of any type, and certainly the first study of engagement in the face of occupation and political violence.

For a large, nationally derived random sample of citizens of the Palestinian Authority and East Jerusalem, we examined the model presented in Figure 1. Consistent with this model, we predicted that:

1. Trauma exposure would be negatively related to engagement.
2. PTS and depressive symptoms would mediate the impact of trauma exposure on engagement.
3. Those with greater social support, and who experienced less loss of psychosocial and material resources would report greater engagement.
4. Although PTS and depressive symptoms would be negatively related to engagement, that these symptoms and engagement would only be moderately related.

Methods

Sample and Procedure

Face-to-face interviews were conducted by trained, experienced Arab interviewers with 1196 people over the age of 18 in the West Bank, Gaza Strip, and East Jerusalem using a

stratified 3-stage cluster random sampling strategy. First, 60 clusters were selected with populations of 1,000 or more individuals (after stratification by district and type of community – urban, rural, and refugee camp) with probabilities proportional to size. More specifically, while all population concentrations within each district in the West Bank, including East Jerusalem, and the Gaza Strip were considered for selection, cities in each district were stratified according to the size of the population, and villages and refugee camps in each district were randomly selected (simple random sampling). Next, 20 households in each of the chosen clusters were selected.

We developed a random household selection method for villages and city neighborhoods, even though most population concentrations in the West Bank and Gaza are not well organized geographically. We first chose a specific prominent place in each area (e.g., a Mosque or boys' high school). From there, we moved to the third street to the right, and if not applicable moved to the second street. We then selected the fourth house on the right. If the selected house was an apartment building, we selected the apartment on the first floor. Following an interview in the first house, we moved to the opposite side of the street, and selected the third house to the left. If the selected house was an apartment building, we selected the apartment on the second floor. When the street ended we moved to the nearest street to the right and so on. Businesses were excluded.

The third stage involved selecting one individual in each household using Kish Tables. We visited each sampled household at least 3 times in order to complete the interview. To avoid socially-related sensitivities, women were interviewed by women, and men were interviewed by men. Participants provided verbal informed consent and were paid the equivalent of about $5 (U.S.D.). The study was approved by the institutional review boards of Kent State University, the University of Miami, Rush University and Medical College, and the University of Haifa.

The initial interviews were conducted during September and October of 2007. Wave 2 interviews were conducted during April and May 2008, and Wave 3 interviews were conducted during October and November 2008. The initial sample represents a stratified random sample of towns, villages, and refugee camps in these districts proportional to population size. Sample attrition (34%) and missing (n=2%) data produced a final sample of 769 subjects used in the analyses. We conducted a regression analysis of the attrition first using all Wave 1 and then adding Wave 2 variables in the model to predict missing status at Wave 3. We used ordinary least squares (OLS) to predict the dichotomous outcome of attrition (present/missing) because logistic results are consistent with OLS results over the range of .25 to .75 for dichotomous dependent variables (Knoke, 1975), and the missing sample is within this range. OLS has the advantage of allowing a meaningful interpretation of R-square thus we used it instead of logistic regression. Attrition between the first and second wave was predicted by marital status and education when using variables in the model from the first wave, but only accounting for 2% of the variance in attrition. The second analysis shows that only marital status reduces attrition slightly ($\beta = -.076$, $p = .041$). Thus, unmarried participants were significantly more likely to be non-respondents. Even though this finding is significant, it accounts for less than 1% of the variance in missing cases at time 3 due to attrition. The adjusted R^2 is zero for all Wave 1 and Wave 2 variables in this equation. This means that attrition at time 3 is very much unrelated to the predictor variables in our analyses.

Measures

A structured survey instrument was previously translated and back-translated into Arabic for prior research. Instruments had been used previously in Arabic with other Palestinian populations and found to have sound psychometric properties and construct validity (Hall,

Hobfoll, Canetti Nisim, Johnson, & Galea, in press; Hobfoll et al., 2009; Hobfoll, Canetti-Nisim, Johnson, Palmieri, Varley, & Galea, 2008; Palmieri et al., 2008). Interviews were approximately 45 minutes in length.

Socio-demographic variables—The exogenous variables measured at Wave 1 include 5 socio-demographic variables and one variable measuring religiosity. Sex is coded as female=1 and male=0. Marital status is a dichotomous variable with married=1 and not married=0. Religiosity is measured as a dichotomy with 1=religious and 0=somewhat or not religious. Age is measured in terms of number of years. Education has six ordered categories ranging from partial elementary to university degree or higher. Income has 5 ordered categories ranging from much less than average to much more than average as indicated by self-report.

Trauma exposure—The exogenous variable measuring traumatic exposure ranges from 1 to 8 and is assessed at Wave 1. It is a count of the number of times the participants reported having witnessed or been the victim of political violence by Israeli forces or Palestinian fighters. It includes death of an acquaintance, injury to self or an acquaintance, witnessing an attack, being incarcerated in an Israeli or Palestinian prison for political reasons, experiencing torture, being physically harassed in political context (e.g., border crossing), having to leave home as a result of military operations, or having one's home demolished by Israeli forces.

Psychosocial resource loss—Assessed at Wave 1, loss of interpersonal and intrapersonal resources related to socio-political stressors and political violence was assessed using a 10-item scale from the Conservation of Resources Evaluation (COR-E; Hobfoll & Lilly, 1993). This scale has been used previously in studies of terrorism in Israel (Hobfoll et al., 2006, Hobfoll et al. 2009; Hall et al., in press; Palmieri et al., 2008) among Arabs and Jews, and in the United States (Hobfoll, Tracy, & Galea, 2006) and was found to be predictive of PTSD. Participants were asked "To what extent have you lost any of the following things in the past year as a result of the occupation or violence among factions?" Sample items for interpersonal loss include: "Feeling that you are a person of great value to other people," "stability of your family," and "intimacy with at least one friend." Examples of intrapersonal losses are: "the feeling that you are a successful person," "Sense of control in your life," and "Hope." One additional item was used to assess loss of faith in the ability of the Palestinian governing authorities to protect participants' family. For all items, participants indicated the degree of their resource loss on a 4-point scale with item responses ranging from 1 (did not lose at all) to 4 (lost very much). We did not calculate internal reliability for the loss scale, as like in life event scales, loss in one domain does not portend loss in a second domain (although in some high loss contexts, losses may occur en masse).

Social support—This is a brief 2-item scale assessed at Wave 1. One item measures whether the participants feel they can turn to spouse or family, and the other whether they feel they can return to friends when needed. It is scored on a scale of 4, ranging from "not at all" to "very much." Being two-items, internal reliability is not calculated.

Depression symptoms—We used the 9-item Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001) to measure the severity of symptoms of depression. Items were answered on a 4-point scale ranging from "not at all" to "very much." Example items are "How often did you feel weariness or lack of energy?" and "How often did you feel, low, depressed or hopeless?" This scale has a good reliability of α=.88.

Posttraumatic stress symptoms—The 2nd wave variable consists of the 17 item PTSD Symptom Scale Interview Format (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993). These were used to assess the severity of symptoms that were present during the past month related to specific exposure to any traumatic attack that occurred since the beginning of the Al Aqsa Intifada in September of 2000 (rated on a 4 point scale from "not at all" to "extremely"). Items were answered on a 4-point scale ranging from "not at all" to "extremely." The symptom severity items of posttraumatic stress form a highly reliable scale with α=.86.

Engagement—We used 8 items adapted from the Schaufeli, Salanova, González-romá and Bakker (2002) measure of sense of engagement at Wave 3. The items were measured on a 7-point scale, with Reponses ranging from "never" to "always." Example items include "When I get up in the morning I look forward to my day." and "I become fully absorbed in my activities." The reliability for engagement was excellent, α=.93.

Analyses

Descriptive analyses, t-tests, and bivariate correlations—We calculated the means and standard deviations for all variables. Next, bivariate correlation analyses were performed to provide the input data (the correlation matrix and standard deviations) from which covariance matrices were reproduced for estimating the theoretical model.

Multivariate simultaneous equation models (SEM)—The covariance matrices were analyzed using LISREL 8 (Jöreskog & Sörbom, 1996). We obtained estimates of all direct and indirect effects from one wave of the model to subsequent waves. The first stage includes the 7 exogenous variables measured at Wave 1 (age, sex, education, income, marital status, religiosity, and traumatic exposure). The next stage includes the 2 psychosocial resources measured at Wave 1 (resource loss and social support). The penultimate stage includes the 2 measures of distress obtained at Wave 2 (symptoms of depression and posttraumatic stress). The final stage is the outcome of engagement measured at Wave 3. Within stages, the nonrecursive effects among variables are estimated.

Results

Descriptive analyses—The means and standard deviations for the 13 variables in the model are presented in Table 1. A mean of .52 for females means that 52% of the sample is female. Comparison of the sample to the available Palestinian demographic data shows no differences with regards to distribution according to gender (PCBS, 2008), chi-square (1) = 3.59, $p = 0.06$. A mean of .71 for marital status means that 71% of the sample is married. Significant differences were found regarding distribution according to marital status (PCBS, 2008), regarding males, chi-square (3) = 36.98, $p < 0.001$, and females, chi-square (3) = 30.13, $p < 0.001$. In the current study, there is small, but significant under representation of married/divorced/widowed participants, and over representation of single participants. This could be due to the fact that this prospective study necessitated investment of time on the part of the participants, a commitment difficult for persons taking care of family members in difficult living conditions and low income.

Slightly less than half (45%) consider themselves religious while 55% consider themselves somewhat or not religious. No normative data has been found regarding levels of religiosity in the Palestinian population.

SEM-Path analyses—The results for the effects of the sociodemographic variables are presented in Table 2. The path analytic results for the simultaneous equation model for the select variables are presented in Figure 2. Only significant coefficients are shown for the

purpose of clarity, although all coefficients were estimated. The saturated model therefore fit the data perfectly with a chi-square value of zero and p=1.0. We used t-values associated with a two-tailed test of significance to determine the probability associated with each coefficient.

As can be seen in Table 2, being female was the most influential socio-demographic variable in terms of effect size. Females had greater symptoms of both PTS and depression symptoms. People who considered themselves religious had less resource loss. Age was the most influential factor in terms of the number of effects. With increasing age we found increasing PTS and depression symptoms, and decreasing engagement. As education increased so did engagement, and resource loss showed a slight decline. Neither marital status nor income had any significant effects.

Results for the predicted relationships in the model are present in Figure 2. Figure 2 reveals that the number of experiences of exposure to traumatic violence at Wave 1was associated with greater resource loss at Wave 1 and greater PTS and depression symptoms at Wave 2. Exposure at Wave 1 was also directly related to greater engagement at Wave 3. Exposure also had a significant indirect effect on PTS and depression symptoms, and the only significant pathway for this was via resource loss. Resource loss is itself one of the driving forces in the model; as resource loss at Wave 1 was significantly related to greater symptoms of depression and PTS at Wave 2.

Resource loss also was significantly associated with lower levels of engagement at Wave 3, both directly and indirectly. The significant total indirect effect operates through the significant pathway of depressive symptoms, which we do not present in detail due to the small effect sizes of the indirect pathways.[1]

Self-reported availability of social support was significantly related to lower symptoms of both depression and PTS, more strongly for the former than the latter. It also was related to higher levels of engagement, both directly and indirectly. The significant total indirect effect of social support operates primarily through the significant paths that involve symptoms of depression.

Symptoms of depression (Wave 2) were, in turn, significantly associated with the level of engagement at Wave 3. However, PTS symptoms did not have a significant independent association with engagement.

Discussion

We prospectively examined predictors of engagement in life tasks in a large sample of Palestinians in three waves during a period of high exposure to traumatic stress and major economic challenge. It is a central tenet of positive psychology that understanding psychopathology does not necessarily offer the fullest picture of functional aspects of people's behavior (Seligman & Csikszentmihalyi, 2000). The results of this first study of engagement in the face of traumatic stress partially supported our proposed model. The deviations from the hypothesized model are also of great interest and potentially inform an understanding of what predicts remaining more fully engaged in life tasks, despite an environment of omnipresent threat of violence, political unrest, and marked economic challenge that characterizes the occupied Palestinian Authority.

[1]There were a total of nine (out of 30) significant indirect effects: religion and education on depression (−), PTS (−) and engagement (+); exposure on PTS (+); and resource loss (−) and social support (+) on engagement. The effects are all significant at the $p > .05$ level except religion on depression and PTS, which are significant at the $p < .01$ level.

Beginning with traumatic exposure, we found that those who were more exposed to trauma had reduced engagement, mediated by their greater depressive symptoms, and greater resource loss, but also increased engagement as a direct effect of exposure. Loss of psychosocial resources was the best predictor of engagement through its combined direct negative association with engagement and through its indirect association with engagement as mediated by depressive symptoms. Social support was also both directly and indirectly associated with greater engagement, through its negative relationship with depressive symptoms.

There are several remarkable findings regarding the associations, and lack thereof, between depressive symptoms, PTS symptoms and engagement. Foremost of these findings is that engagement and psychological distress in the form of either depressive or PTS symptoms were only moderately related as predicted in hypothesis 4. In fact, PTS symptoms had no independent association with engagement. We know so little about the relationship between psychological distress and functioning in any domain (Seligman & Csikszentmihalyi, 2000). Nevertheless, this finding reflects the several studies in the organizational psychology literature that show that psychological distress and engagement are negatively related, but not strongly so (Schaufeli et al., 2002) and also mirrors a similar finding among caregivers of dying partners (Folkman, 1997). This would be consistent with more basic research on personality that finds that a state of high energy, full concentration, and pleasurable engagement is relatively independent of sadness and lethargy (Watson & Tellegen, 1985).

This means that people continue to strive toward functioning even when they are feeling psychological distress, which was remarkably high in this sample. Second, it is notable that when all variables are simultaneously considered, that it is the depressive symptoms, not the PTS symptoms that are significantly associated with engagement. Other studies have also noted that depressive symptoms are associated with withdrawal and more passive behavioral response (Jacobson et al., 1996). It must also be stressed that PTS symptoms include depressive affect, so this finding does not mean that PTS symptoms per se are not associated with engagement. Rather, it suggests that it may be the depressive component of PTS that is associated with reduced engagement.

The finding that exposure to trauma contributes both to lower engagement through its association with depressive symptoms, and through its direct positive association with engagement is important and consistent with several stress theories, although it was not predicted in our model. In this regard, Lazarus and Folkman's stress appraisal theory (1984) and Hobfoll's COR theory (1988 (1998) both predict that stressful challenges activate people's coping efforts and mobilization of resources, at the same time as they might contribute to psychological distress. More engagement in life tasks in the face of trauma is also consistent with self-regulation theory (Carver & Scheier, 1998), which posits that when people are faced with even significant life challenges such as these, that they are motivated to act in ways to improve their circumstances at the same time as they attempt to regulate their emotions. Likewise, Frederickson's (1998) broaden and build theory suggests that many individuals sustain positive affect (which we did not study, but which we must assume also occurs for many) and that these emotions, in turn, are linked to efforts toward exploration, curiosity, commitment, and adaptation. On another level, confrontation with traumatic circumstances of violence and political unrest may actually motivate some individuals to increase the value they place on family, work, and other things in life that are important to them as a counteragent in their search for positive meaning and meaningfulness (Tedeschi & Calhoun, 2004), which would likely motivate further investment in these life domains that might be reflected in engagement. As others have noted, exposure to conflict-related violence could, in certain conditions, have a positive long-term effect, such as

receiving external assistance and gaining new lifestyle and values (Pedersen, Tremblay, Erra'zuriz, & Gamarra, 2008).

Among the demographic variables, a number of findings were notable. Women were less engaged then men, through their being more likely to have depressive symptoms than men, which, in turn, was related to lower engagement. Being older was related to lower engagement through its direct effect on engagement and indirectly, as older individuals were more likely than younger individuals to report depressive symptoms. Education also was both directly and indirectly related to engagement, as more educated individuals reported being more engaged and experienced less resource loss, which in turn was related to lower engagement. Finally, being religious was indirectly related to higher engagement, through it being significantly related to less resource loss. Marital status and income were not independently related to engagement.

Although our focus was on engagement, this study is also one of the first to examine the impact of trauma exposure in a developing "nation" during a period of significant political violence from external and internal sources in other than cross-sectional surveys. As others have found examining trauma in low income regions, Palestinians' exposure to traumatic events was found to be related to high levels of psychological distress, such as PTSD and depression symptoms (Johnson et al., 2008; Lopes Cardozo, Vergara, Agani, & Gotway, 2000; Scholte et al., 2004). In addition, it has been noted that exposure to conflict-related violence concentrates its ill-effects in specific vulnerable groups, having greater impact on women, those with low education, and older individuals (Lopes Cardozo et al., 2000; Pedersen et al., 2008; Scholte et al., 2004). Such study in different regions in the world increases our overall ability to speak in terms of how humans react to trauma, as opposed to how people in higher income nations react, and in so doing contributes to a more universal psychology (de Jong et al., 2001). In this regard, it is also notable that the relationships between trauma exposure, resource loss, social support, and PTS and depression symptoms were of a magnitude that we might expect in more developed regions (Bleich et al., 2003; Galea et al., 2002; Miguel-Tobal, Cano-Vindel, Gonzalez-Ordi, Iruarrizaga, Rudenstine, Vlahov, 2006), at the same time that the levels of psychological distress were quite high, as have been found in other developing and underdeveloped nations experiencing trauma exposure (de Jong et al., 2001; Punamaki et al., 2005)

Strengths and Limitations

This study had several marked strengths. The large sample size and three-wave design are themselves nearly unique in the field of traumatic stress (Kessler & Wittchen, 2008) and lend themselves to the sophisticated statistical modeling we conducted. The theoretically derived model and pioneering exploration of the positive psychology construct of engagement are also key study strengths. Limitations include a reasonable, but still noteworthy, refusal rate for initial participation, and we cannot know how our findings might generalize to those who refused to participate. Also, even prospective study and sophisticated analyses can only be used to imply potential causal relations. Certainly these relationships are transactional and interactive. Perhaps the key thing to remember in any such study is that interpretations are limited to the constructs chosen for study and the models that are explored, and that other variables and other models not considered might have better explanatory value. Given the need not to overburden respondents, scales were necessarily brief and self-report, which reduces their reliability compared to full scales, and certainly less reliable than obtaining multiple assessments of each variable of interest or clinical assessments. Finally, there is controversy over the use of trauma-related constructs in non-Western cultures (Nicholl & Thompson, 2004; Silove, 1999), but we and others have found cross-cultural applicability and quite similar findings as those found in the West for

PTS and depressive symptoms (Cardozo et al., 2000; Cheung, 1994; Hobfoll et al., 2008; Scholte et al., 2004).

Conclusions

Any conclusions drawn from this study must be taken in context and be cautiously generalized. First, being the pioneering study of remaining engaged and vigorous in life tasks during traumatic conditions also means that we had to extrapolate our model from a literature on positive psychology in much lower stress circumstances (Schaufeli et al., 2001). Second, the chronically threatening and traumatic conditions in which Palestinians live also means that they have had an unusual amount of time to adapt to these circumstances in a process that has been called stress recalibration (Hobfoll, 2003). Hence, although we found only a weak relationship between trauma exposure, traumatic psychological distress and engagement, individuals who are exposed to severe acute trauma may possibly be markedly disengaged from key life tasks. Only future study can address the critical question of generalizability.

Notwithstanding these caveats, our model was nevertheless theoretically based and partially supported in a strong research design that has seldom been achieved under conditions of severe, chronic environmental threat and trauma. It is remarkable that, on one hand, we found this sample to be highly distressed, and yet that distress did not greatly disrupt their engagement and vigor in life tasks. This is very different than the conclusions of others that PTS symptoms do not necessarily follow from trauma exposure, which is a separate key point (Breslau, Kessler, Chilcoat, Schultz, Davis & Andreski, 1998), but instead emphasizes that even when rather severe psychological distress does follow, many people remain engaged in life tasks and vigorous. Our findings also shed more light on how people react to trauma in non-Western, low income regions of the world that are in fact more likely to be exposed to such chronic environmental threat. As such, we believe it is a strong starting point for the study of the relationship between trauma exposure and engagement and provides a good heuristic base for future research. This future research is vital to our development of a fuller understanding of how people simultaneously have great emotional difficulty when they are exposed to traumatic conditions, but yet also continue to thrive and survive (Bonanno et al., 2006; 2007).

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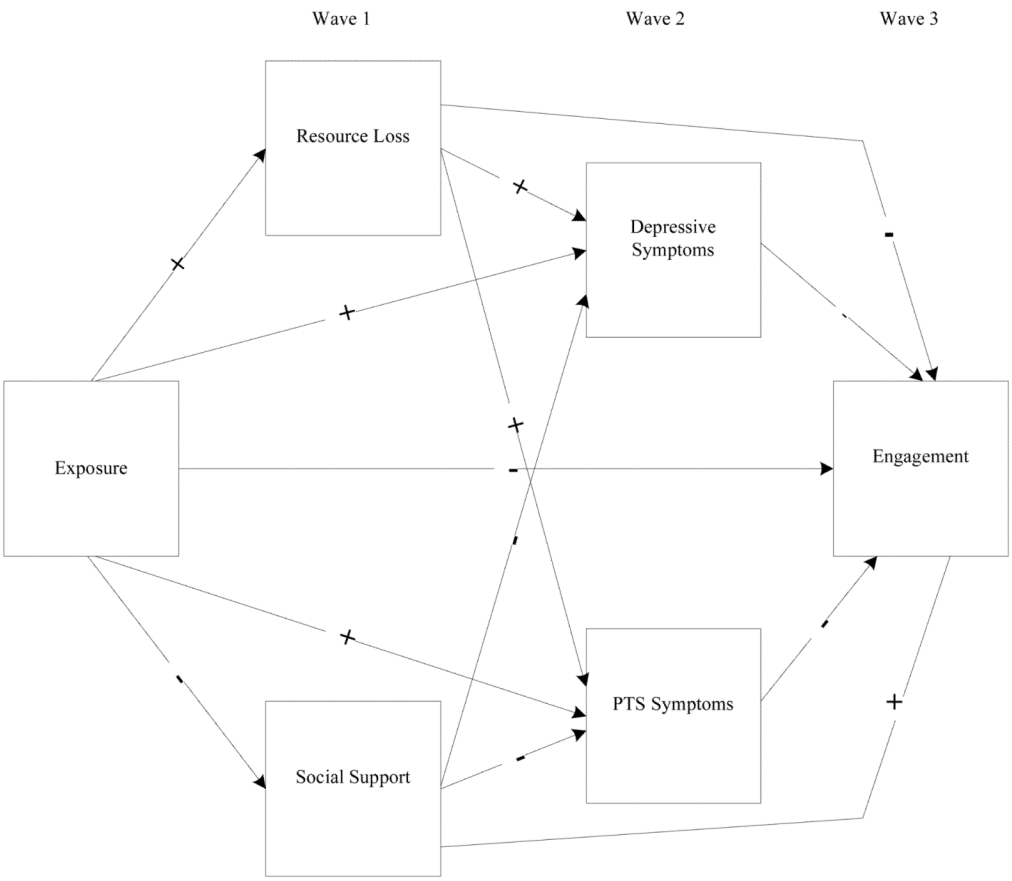

Figure 1.
Theoretical model representing the impact of terrorism, resource loss and social support on depressive symptoms, PTS symptoms and engagement.

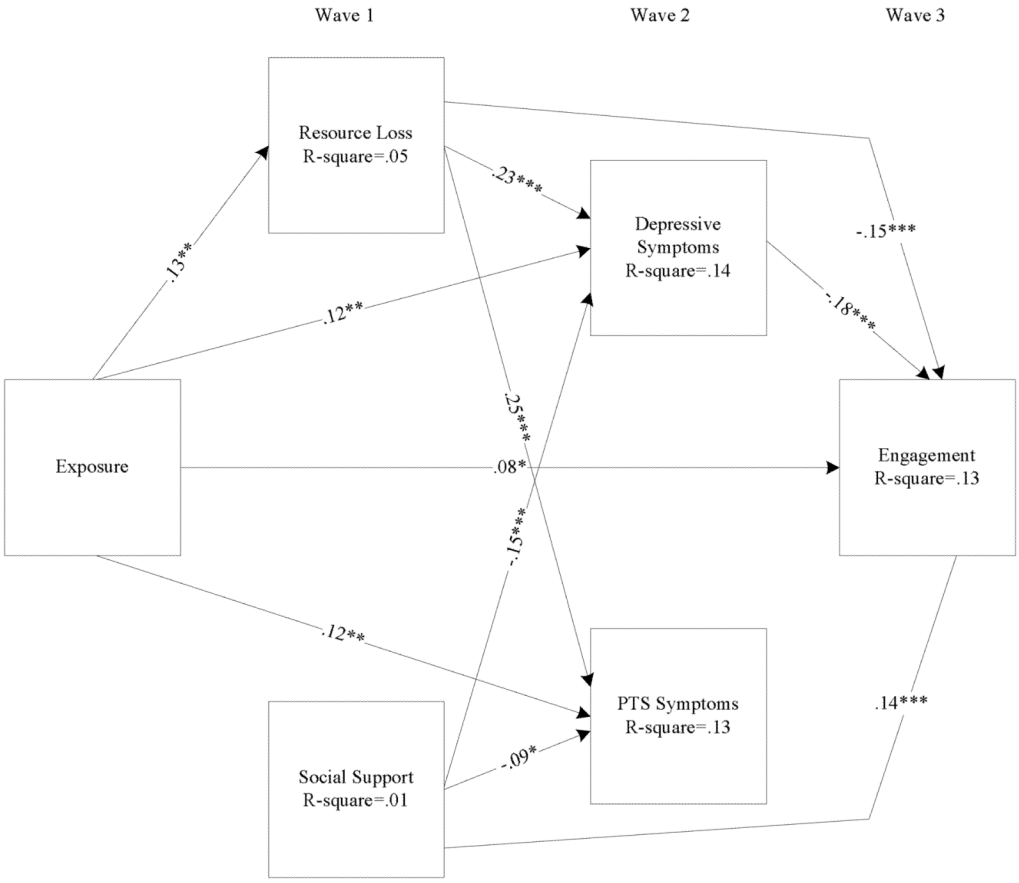

Figure 2.
The impact of terrorism, resource loss and social support on depressive symptoms, PTS symptoms and engagement.

Table 1

Means and Standard Deviations for all Variables in the Model (n=769)

	Means	Standard Deviations
Wave 1		
Female	0.52	0.50
Religious	0.45	0.50
Married	0.71	0.46
Age	34.86	12.59
Education	3.96	1.45
Income	2.34	1.24
Exposure	2.08	1.77
Resource loss	9.27	6.47
Social Support	4.36	1.58
Wave 2		
Depressive Symptoms	9.78	6.32
PTS Symptoms	20.77	9.14
Wave 3		
Engagement	28.80	10.09

Table 2

Significant Effects of Sociodemographic Variables on the Endogenous Variables in Model 1

	Exogenous Variables					
	Female	**Religious**	**Married**	**Age**	**Education**	**Income**
Endogenous Variables						
Resource Loss		−0.12**			−0.09*	
Social Support						
Depressive Symptoms	0.19***			0.09*		
PTS Symptoms	0.20***			0.10**		
Engagement				−0.08*	0.12**	

* $p < .05$.

** $p < .01$

*** $p < .001$.

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Appendix

Intercorrelation among Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Sex (Female)	--										
2. Religiosity	0.08	--									
3. Married	0.06	−0.04	--								
4. Age	−0.02	0.04	0.36	--							
5. Education	−0.11	−0.10	−0.11	−0.30	--						
6. Income	−0.02	−0.07	0.01	−0.02	0.32	--					
7. Exposure	−0.34	−0.04	0.10	0.10	−0.06	−0.08	--				
8. Resource loss	−0.04	−0.11	0.03	0.08	−0.11	−0.06	0.14	--			
9. Social Support	0.01	0.04	0.01	−0.01	0.06	0.02	0.05	−0.10	--		
10. Depression T2	0.14	0.03	−0.01	0.10	−0.12	−0.08	0.08	0.26	−0.17	--	
11 PTS T2	0.15	0.02	0.03	0.12	−0.11	−0.06	0.09	0.27	−0.11	0.68	--
12. Engagement T3	0.00	0.03	−0.05	−0.14	0.19	0.09	0.02	−0.21	0.19	−0.21	−0.13

Note. T2 = variable measured at time 2. T3 = variable measured at time 3. PTS = posttraumatic stress symptoms. Coefficients larger than .08 are significant at the $p < .05$ level, two-tailed.