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Adult attachment, posttraumatic growth and negative emotions among former political prisoners

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Abstract

Although traumatic events are generally associated with negative psychosocial consequences, trauma survivors also report positive changes in themselves, human relationships and spirituality. Our aims are, first to study associations between exposure to torture and ill-treatment and posttraumatic growth and negative emotions, and second, to examine the role of adult attachment in moderating the association between exposure and positive growth. The participants were 275 Palestinian men imprisoned in a political context. They completed the Posttraumatic Growth Inventory (PTGI), adult attachment questionnaire (AAQ) and reported exposure to traumatic events. The results show that a high level of torture and ill-treatment was associated with a low level of posttraumatic growth and a high level of negative emotions. However, adult attachment style moderated that association, among men with secure attachment exposure to torture and ill-treatment was associated with a high level of posttraumatic growth, whereas among insecure-avoidant men exposure was associated with relatively higher level of negative emotions. Main effects show that men with secure attachment reported generally more posttraumatic growth, i.e., personal strength, positive affiliation to others and spiritual change, while insecure-preoccupied attachment was associated with negative emotions. Finally, favourable socio-economic characteristics were associated with posttraumatic growth: men with high professional position, steady employment, and good economic situation reported more personal strength and positive affiliation to others. Of demographic factors, only education was associated with attachment, secure men being more educated.

Keywords: *Trauma, adult attachment, posttraumatic growth*

Introduction

It might be difficult to imagine that a severe trauma such as imprisonment and torture could have any positive consequences in human life. Substantial research shows evidence that torture survivors exhibit elevated levels of psychiatric distress and somatic symptoms (El Sarraj, Salmi, Punamäki, & Summerfield, 1996; Emmelkamp, Van Ommeren, & Schagen, 2002; Ramsey, Gorst-Unworth, & Turner, 1993; Silove, Steel, McGorry, Miles, & Drobny, 2002), impaired social relationships (Rosenheck & Fontana, 1994) and poor cognitive functioning (Sutker, Winstead, Galina, & Allain, 1991). However, there are observations that torture survivors also perceive positive aspects of their experience, involving increased

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psychological insight, social affiliation, and spirituality (Gorst-Unworth et al., 1993; Qouta, Punamäki, & El Sarraj, 1997). Little is known about why some victims' experiences are predominantly negative, while others not only adapt but gain posttraumatic growth. Here we examine one possible explanation for the great individual differences in responses to trauma: adult attachment.

Posttraumatic growth

Traumatic experiences may result in beneficial transformations in survivors' appraisals of the self, others and life in general, which is conceptualized as posttraumatic growth (Tedeschi, Park, & Calhoun, 1998). Survivors may feel stronger, wiser and find new altruistic characteristics in themselves. "I never thought I had such a strength in me", said a Palestinian woman after losing her husband to prison (Punamäki, 1986). Exposure to dangers and life-threat may cause people to share experiences and disclose feelings, and a loss of a beloved person may increase appreciation of existing relationships (Tedeschi & Calhoun, 1996). Survival may result in awareness of the preciousness of life, conscious enjoyment of it and religious affiliation (Garbarino, 2001; Punamäki, 1986).

There is empirical evidence indicating that different kinds of traumatic experiences may serve as catalysts for posttraumatic growth. People have reported personal growth, better relationships with others and spirituality after natural disasters and accidents (Joseph, Williams, & Yule, 1993), rape, sexual abuse (Burt & Katz, 1987; McMillen, Zuruvian, & Rideout, 1995), loss and bereavement (Calhoun & Tedeschi, 1989–1990; McCrae, & Costa, 1993), and serious illness (Collins, Taylor, & Stokan, 1990; Schwarzberg, 1993). Some research is available revealing posttraumatic growth among prisoners of war (Sledge, Boydston, & Rable, 1980) and combatant soldiers (Elder & Clip, 1992). Survivors have reported that their harsh experiences have made them wiser, stronger and self-confident, and that they learned to appreciate life and human relationships (Sledge et al., 1980).

Except interview data, we found no empirical research on positive growth among political prisoners and torture survivors. The literature implicitly suggests, however, that political prisoners show relatively high levels of posttraumatic growth due to their meaningful personal and political sacrifice for an ideological cause (Becker, 1995; Ursano, Grieger, & McCarroll, 1996). They voluntarily chose their active engagement in political struggle and resistance, and show strong ideological commitment. Like combatant soldiers, they anticipate and are prepared to face traumatic experiences (Ursano et al., 1996). For political prisoners, the source of trauma is an outsider and stranger, i.e., the interrogator and enemy, which is considered more beneficial for positive growth than being victimized by a trusted person (Tedeschi, 1999). Accordingly, we may hypothesize that exposure to torture in a political context is associated with elevated levels of posttraumatic growth.

Trauma and attachment

We hypothesize that survivors' personal ways of responding to trauma, based on their earlier experiences, may be crucial in determining whether trauma is associated with posttraumatic growth or negative emotions. According to the attachment paradigm, secure and insecure individuals have learned unique ways of responding to danger and distress (Bowlby, 1973, 1980; Bretherton, 1996; Main, 1996). These experiences are incorporated in the early working models of the worth of oneself, benevolence of others and security of environment. These models guide individuals' emotional, cognitive and social development (Goldberg,

2000), and are especially activated when facing danger to one's safety and integrity (Bowlby, 1980; Mikulincer, 1998), as it happens in traumatic encounter.

The three adult attachment styles are based on early experiences of fear and safety with care-givers. Persons with *secure attachment* have learned that other people are responsive and predictable, and they themselves worthy and beloved. *Insecure-avoidant* persons have resolved the early disappointments by denying the importance of attachment relationships, mistrusting others and relying excessively on themselves. *Insecure-preoccupied* persons have experienced the care-giver as arbitrary and themselves as rejected, and they continue to cling to attachment relationships, feel easily disappointed and angry (Collins, 1996; Main, 1996).

Attachment theory helps us to understand why political prisoners respond in such different and unique ways to life-threat and humiliation. They perceive the severity and significance of threat and dangers differently, and differ in their estimation of the availability of help and resources (Basoglu et al., 1996; Ehlers, Maerker, & Boos, 2000; Kanninen, Punamäki, & Qouta, 2002), and invoke different psychological defences (Punamäki, Kanninen, & Qouta, 2002) and coping strategies (Kanninen et al., 2002; Emmelkamp, 2002). Probably insecure-preoccupied victims would be overwhelmed by the threat, insecure-avoidant persons would deny its significance, and securely attached survivors would appraise it in a relatively realistic and balanced manner (Crittenden, 1997; Mikulincer & Florian, 1995, 1998). Secure trauma survivors apparently apply situation-adequate and thus effective coping strategies and mature defences (Punamäki et al., 2002), whereas ineffective coping and immature defences are more probable among insecure survivors (Mikulincer & Florian, 1998). We can further hypothesize that secure survivors more readily accept help and support from others and are capable of making sense of scattered realities, while insecure-avoidant individuals would distrust the benevolence of others and deny help (Muller & Lemieux, 2000). No research is available on the association between adult attachment and posttraumatic growth among political prisoners and torture survivors, and this is where our contribution is. As posttraumatic growth involves positive affiliation with other people, gaining insight and reconstruction of meaning in trauma, we may hypothesize that survivors with secure adult attachment respond with an elevated level of posttraumatic growth to trauma.

There are two approaches to conceptualize and assess adult attachment, differing in timing of attachment formation, nature of attachment figures, consciousness of working models and role of trauma in attachment patterns. According to the discourse approach (Adult Attachment Interview, AAI; Main, 1996; Main & Goldwyn, 1991), adult attachment patterns are created in early childhood relationships, usually with the mother, and incorporated as dormant or semiconscious working models that organize emotions, cognitions, and behaviors. Adult attachment models manifest themselves in current states of mind, revealing unique ways of how secure and insecure individuals process relational, emotional and threatening information. In AAI assessment, traumatic events are incorporated as an integral part of attachment development, and trauma reveals itself in an unresolved attachment pattern (Main & Goldwyn, 1991).

The self-report approach conceptualizes adult attachment in the content and quality of the current romantic and friendship relationships, and personality characteristics. Self-report methods are used to capture the characteristic ways in which secure and insecure individuals feel about themselves and how they behave in their current important relationships (Collins, 1996; Feeney, Noller, & Hanharan, 1994; Shaver & Hazan, 1993). Trauma is conceptualized and assessed separately. Secure and insecure survivors are

hypothesized to respond to trauma according to their attachment-specific emotional and cognitive processing styles, and to show unique strengths and vulnerabilities (Mikulincer, Horesh, Eilati, & Kotler, 1999).

Attachment theory is in line with McCann et al. (1988), who have proposed that the assumptions of self and others may be positive or negative depending on the individuals' life experiences. Janoff-Bulman (1992) also suggested that warm and wise parenting enhances schema formation that is characterized by self-worth, belief in the benevolence of other people and meaningfulness of the world. He attributes schema formation to early intimate relationships, but notes that later experiences of trauma, stress or disappointments can shatter these fundamental beliefs. Ehlers and her colleagues have shown that trauma victims are at high risk for mental health problems if they experience mental defeat and loss of sense of worthiness and competence, and display negative appraisals and maladaptive control strategies (Ehlers, Mayoun, & Bryant, 1998; Ehlers et al., 2000).

Aims of the study

We first examine whether exposure to torture and ill-treatment is associated with negative emotional experience or posttraumatic growth indicated by beneficial appraisals of self, affiliation to others and spirituality. We hypothesize that among political prisoners, torture and ill-treatment are associated with elevated levels of posttraumatic growth. Second, we examine whether the association between exposure to trauma and posttraumatic growth is dependent on the adult attachment. We hypothesize that among survivors with secure adult attachment exposure to torture and ill-treatment is associated with an elevated level of posttraumatic growth, whereas among insecure survivors exposure will be associated with a low level of posttraumatic growth. Third, we tested the following hypotheses concerning adult attachment and trauma responses: Secure attachment is associated with a high level of posttraumatic growth and a low level of negative emotional experience, whereas both insecure-avoidant and insecure-preoccupied attachments are associated with a low level of posttraumatic growth and a high level of negative emotional experience. We also examine the associations between demographic factors and posttraumatic growth and negative emotional experience.

Method

Participants

The participants were 275 Palestinian male ex-prisoners from the Gaza Strip. Of these, 225 were randomly sampled from a list of ex-prisoners in a local human rights organization; every fourth was selected from a list of 1000 names. An additional 50 men from local rehabilitation programs participated. All the men had been imprisoned during Intifada I, the national uprising for independence 1987–1993. They were released according to the Oslo Agreement between Israel and the Palestinian Liberation Organization (PLO) signed in Washington in September 1993. Data collection was conducted on two occasions in 1997 and 1999, when the military situation was still stable in the Gaza Strip.

Table I shows the distributions of demographic characteristics of the sample. The participants were 19–51 years of age (Mean = 30.1, standard deviation (SD) = 6.4). Sixty-nine percent were married and 30% unmarried. Forty percent of the men lived in refugee camps, 16% in villages, and 38% in towns. The educational level of the participants varied from primary school (5%) to university degree (34%). Concerning profession, 22% worked

Table I. Means and standard deviations of posttraumatic growth and negative experience according to demographic characteristics.

Demographic characteristics	Personal strength		Affiliation to others		Spiritual change		Negative experience		N ^a	%
	M	SD	M	SD	M	SD	M	SD		
Education: Primary school	2.67 ^a	0.72	2.89 ^a	0.62	3.21	0.78	1.14 ^a	1.57	14	5.1
Secondary school	3.23 ^b	0.62	3.35 ^b	0.74	3.35	0.83	0.35 ^b	1.11	23	8.4
Matriculation	3.49 ^{bc}	0.60	3.60 ^{bc}	0.55	3.48	0.78	-0.05 ^b	0.90	101	36.7
Vocational school	3.66 ^c	0.55	3.66 ^{bc}	0.69	3.44	0.89	0.00 ^b	1.03	44	16.0
University degree	3.74 ^c	0.64	3.84 ^c	0.60	3.52	0.78	-0.18 ^b	0.86	93	33.8
<i>F</i> – values (4,266)	11.40 ^{***}		7.66 ^{***}		0.59		6.72 ^{***}		275	100.0
Profession: Student	3.48 ^{ab}	0.16	3.41 ^a	0.15	3.64	0.20	-0.35 ^a	0.21	38	15.0
Entrepreneur	3.38 ^{ab}	0.11	3.55 ^a	0.10	3.50	0.14	0.22 ^a	0.17	35	13.9
Worker	3.32 ^a	0.10	3.37 ^a	0.10	3.41	0.13	0.32 ^a	0.15	41	16.3
Police & security	3.44 ^{ab}	0.11	3.62 ^a	0.11	3.43	0.14	0.00 ^a	0.18	32	12.7
Blue collar Professional	3.79 ^b	0.09	3.83 ^a	0.09	3.64	0.11	-0.16 ^a	0.13	51	20.2
White collar professional	3.82 ^b	0.09	3.80 ^a	0.08	3.35	0.11	-0.14 ^a	0.13	55	21.8
<i>F</i> –values (5,241)	4.97 ^{***}		3.69 ^{**}		0.75		2.17 [*]		252	99.9
Work situation: Steady job	3.69 ^a	0.06	3.76 ^a	0.06	3.45	0.07	-0.14 ^a	0.09	122	44.7
Temporary job	3.65 ^a	0.10	3.56 ^{ab}	0.09	3.57	0.12	0.02 ^{ab}	0.14	44	16.1
Unemployment	3.32 ^b	0.06	3.44 ^b	0.06	3.44	0.08	0.17 ^b	0.09	107	39.2
<i>F</i> – values (2,266)	10.40 ^{***}		7.36 ^{**}		0.44		2.99 [*]		273	100.0
Place of Residence: Town	3.53	0.06	3.65	0.06	3.57	0.08	0.06	0.09	105	38.1
Refugee camp	3.55	0.10	3.57	0.10	3.38	0.12	-0.05	0.14	110	39.9
Village	3.45	0.06	3.56	0.06	3.39	0.08	0.09	0.09	44	16.0
Resettled area	3.78	0.18	3.67	0.17	3.50	0.21	-0.43	0.24	16	5.8
<i>F</i> – values (3,267)	1.09		0.42		1.13		1.33		275	100.0
Religiosity: Believer	3.44	0.11	3.52	0.11	4.20 ^a	0.12	0.20	0.16	33	12.0
Respects traditions	3.56	0.05	3.63	0.05	3.65 ^b	0.06	0.02	0.08	144	52.6
Not important	3.50	0.07	3.60	0.07	3.00 ^c	0.07	-0.16	0.10	84	30.7
Non-believer	3.78	0.20	3.62	0.19	2.36 ^d	0.20	-0.02	0.26	13	4.7
<i>F</i> – values (3,266)	0.87		0.29		41.88 ^{***}		1.28		274	100.0
Economic status: Good	3.68 ^a	0.59	3.73 ^b	0.58	3.36 ^a	0.79	-0.16 ^a	0.91	44	16.1
Moderate	3.46 ^a	0.65	3.54 ^{ab}	0.60	3.61 ^a	0.73	0.08 ^{ab}	0.96	109	39.9
Poor	3.31 ^b	0.80	3.40 ^b	0.81	3.39 ^a	0.93	0.21 ^b	0.90	120	44.0
<i>F</i> – values (2,266)	6.02 ^{**}		5.16 ^{**}		3.05 [*]		3.07 [*]		273	100.0

Table I (Continued)

Demographic characteristics	Personal strength		Affiliation to others		Spiritual change		Negative experience		N ^a	%
	M	SD	M	SD	M	SD	M	SD		
Marital status: Married or engaged	3.63	0.07	3.66	0.07	3.34	0.09	-0.04	0.11	190	69.3
Single	3.49	0.05	3.58	0.05	3.51	0.06	0.08	0.07	81	29.6
Divorced or widowed	3.06	0.46	3.36	0.45	3.50	0.56	0.22	0.50	3	1.1
<i>F</i> – values (2,267)	1.86		0.63		1.40		0.23		274	100.0

Note: Means within columns not sharing the same superscript were significantly different at $p < 0.05$ in Tukey-b tests. * $p < 0.05$; ** $p < .01$; *** $p < 0.001$.

^aDifferences in numbers are due to missing values.

in academic positions (university teachers, researchers), 20% were professionals (such as teachers and lawyers), 14% entrepreneurs, 16% workers, 13% were police or other security officers, and 15% students. At the time, 39% were unemployed. All of the participants were Muslims, and 12% of them were strong believers.

Data collection

The fieldwork was conducted in cooperation with Palestinian ex-detainees' rehabilitation programs and local mental health clinics (the Gaza Community Mental Health Program [GCMHP]). The participation of the ex-prisoners was voluntary and they did not receive any reward for it. Verbal consent was obtained because the suspicion caused by the exceptional socio-political situation in Gaza precluded the use of written consent. The participants responded to the questionnaires anonymously. The GCMHP therapists and social workers provided mental health consultation during or after the fieldwork to those who so wished.

Two male field workers collected the data and were trained by the researchers. They approached the ex-prisoners personally in their homes and explained the study aims to them (learning about the psychosocial conditions of ex-prisoners). The visits lasted about one and a half-hours. If the person was not available at the time of the first visit, a message was left and one more contact was made. The dropouts were seven persons in the original sample, two refused to participate and five could not be interviewed due to absence.

Measures

Posttraumatic growth was measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Cahlon, 1996). It consists of 21 items, which evaluate whether a person perceived positive aspects of the traumatic event, such as realizing personal strength, social cohesion and spirituality. The participants were asked to rate how well the descriptions fit their prison experiences on a 4-point Likert scale: (1) not at all; (2) to a small degree; (3) to a moderate degree; (4) to an extremely great degree. To identify the underlying structure of posttraumatic growth in this sample, a principal component analysis (Rotation method of Varimax with Kaiser Normalization) was conducted for the 21 variables. A three factor solution was chosen, using the fall in the eigenvalue of the fourth factor as a criterion. It explained 45.9% of the variation of the factor structure. One item was omitted because of cross-loading on two factors.

Three averaged sum scores were constructed according to the factor solution: Personal strength score consists of seven items (e.g., "A feeling of self-reliance" and "I discovered I am stronger than I thought I was"; eigenvalue = 5.69; explained variance 28.45%; reliability, $\alpha = 0.81$). Affiliation to others score also had seven items (e.g., "Having compassion for others" and "I learned a great deal about how wonderful people are"; eigenvalue = 2.09; explained variance 10.45%; reliability, $\alpha = 0.80$), and spiritual change score had six items (e.g., "I have stronger religious faith" and "I established a new path for my life"; eigenvalue = 1.47; explained variance 7.36%; reliability, $\alpha = 0.65$). The reliability of total positive growth reached $\alpha = 0.80$.

Tedeschi and Cahlon (1996) conducted a principal component analysis in a student sample. They revealed a five-factor solution that also included separate dimensions for an appreciation of life and new possibilities. Our replication of the five-factor solution was successful (49.6% of the common variance was explained), but the reliabilities of the corresponding sum variables were low (for spiritual change, $\alpha = 0.42$, and appreciation of

life, $\alpha = 0.50$). Accordingly we applied the three-factor solution, where two items from the appreciation of life scale loaded on the personal strength dimension (e.g., an appreciation for the value of my own life) and one item on the spiritual change dimension (e.g., My priorities about what is important in life). Three items from the new possibilities dimension loaded on the personal strength dimension (e.g., I'm able to do better things with my life) and two items on the spiritual change (e.g., I established a new path in my life).

Negative emotional experience was indicated by 14 negative emotions derived from Fridja, Kuipers, & ter Schure (1989) and Smith (1991), who conceptualize the emotional experience as a multilevel construct involving appraisals, feeling states and action tendencies. The participants were instructed to think about their prison experiences. Then they were given a scale consisting of seven negative appraisals of the experience and seven negative feeling states. The content of the scale is presented in Appendix I. Participants rated the intensity of each appraisal and feeling state on the ten-point scale (0 = nothing at all, 10 = extremely strong). An averaged sum score was constructed and based on a one-factor principal component analysis solution, reliability was $\alpha = 0.89$. Research using the same tool reported good reliability among Middle Eastern men (Näätänen, Kanninen, Punamäki, & Qouta, 2002).

Adult attachment was measured by The Attachment Style Questionnaire by Feeney et al. (1994), which is a 40-item self-report questionnaire. Participants rate on a Likert scale from 1 to 6 (1 = strongly disagree, 6 = strongly agree) how well the descriptions fit their own feelings and behaviour in close relationships. Averaged sum scores were formed following Feeney et al. (1994), and depicted *secure*, *insecure-avoidance* and *insecure-preoccupation* dimensions of attachment. The secure scale includes 10 items (e.g. "I find it easy to trust others"; "I find it relatively easy to get close to other people"). The insecure-avoidance scale includes 14 items (e.g., "I worry about people getting too close"; "Achieving things is more important than building relationships"). The insecure-preoccupation scale includes 12 items (e.g., "Other people often disappoint me"; "I worry that others won't care about me as much as I care about them"). The Cronbach α reliabilities were 0.72 for secure, 0.74 for insecure-avoidant, and only 0.62 for insecure-preoccupation scales. Four items were dropped due to their loading on two dimensions and contributing to low reliability value. They were "Overall, I am a worthy person", "I'm confident that other people will like and respect me" (secure), "I prefer to depend on myself rather than other people" (insecure-avoidant), "I'm frustrated when others are not available when I need them" (insecure-preoccupied).

Exposure to traumatic events was assessed by reported torture and ill-treatment during interrogation. The list includes a total of 30 items, derived from an Amnesty International report (1984), earlier studies (Allodi, 1985) and testimonies of Palestinian prisoners (Al-Haq, 1988). Of these, eleven refer to physical torture (e.g., crucifixion, hooding and harsh beating), eleven to psychological ill-treatment (e.g., humiliation of a family member or sham execution), four to sexual abuse, such as rape or attempted rape, four to either food or sensory deprivation, and overexposure to light and heat. The participants were asked whether they had been exposed to each of these methods during interrogation: (1) never, (2) sometimes or (3) very often. A sum score was constructed for the total amount of torture and ill-treatment (ranging from 39 to 89, $M = 69.02 + 14.38$).

Translation of measures

A bilingual psychologist and social worker translated the scales of posttraumatic growth, adult attachment and emotional experience from English into Arabic focusing on the

content, technical, conceptual and semantic equivalence. The scales were examined and translated by a bilingual psychologist (Arabic and English), and independently back translated by a bilingual social worker. The pilot study was conducted among ten political prisoners. The torture and ill-treatment scale was translated into Arabic for earlier epidemiological studies (El Sarraj et al., 1996).

Results

Demographic factors, positive growth and attachment

The means and standard deviations of posttraumatic growth and negative emotional experience are presented according to demographic factors in Table I. Results show that higher education, favourable professional position and good economic situation were associated with a high level of posttraumatic growth and a low level of negative emotional experience. Post-hoc analyses reveal, for instance, that men with only primary school education reported significantly less personal strength and positive affiliation to others, and more negative emotional experience compared to men with higher levels of education. The level of personal strength was lower among workers than among professionals (e.g., teachers and lawyers). Compared to men with a steady job, unemployed men reported less personal strength, and together with those having temporary jobs also less positive affiliation to others. Poor economic status was associated with low personal growth, and poor and moderate economic status with a high level of negative emotional experience.

Of the background variables, only religiosity was associated with spiritual change; men who characterized themselves as believers showed the highest, and non-believers the lowest spiritual change. Place of residence and marital status were associated neither with posttraumatic growth nor negative emotional experience.

One-way ANOVAs between demographic factors and attachment dimensions show that only education was significantly associated with secure ($F(4, 264) = 7.62, p < 0.0001$), insecure-avoidant ($F(4, 264) = 2.43, p < 0.05$), and marginally with insecure-preoccupied ($F(4, 264) = 2.23, p < 0.07$) adult attachment. Post-hoc analyses specified that men with only primary school education showed less secure attachment, and more avoidant attachment than men with higher levels of education. Of the demographic factors only economic status was significantly associated with the level of torture and ill-treatment ($F(2, 232) = 5.34, p < 0.005$): those estimating their economic situation as good reported the highest and those estimating it as poor reported the lowest level of torture and ill-treatment.

Correlation analyses

Table II presents Pearson's bivariate correlations between age, trauma (length of imprisonment, exposure to torture and ill-treatment), and dimensions of adult attachment and posttraumatic growth. The results revealed significant positive correlations between secure attachment and personal strength, positive affiliation to others, and positive spiritual change. Both avoidant and preoccupied insecure attachment styles were negatively correlated with personal strength and positive affiliation to others. Furthermore, secure attachment correlated negatively and insecure-avoidant and insecure-preoccupied attachment positively with negative emotional experience. Age was not associated with attachment dimensions, posttraumatic growth or emotional experience. However, older men had spent a longer time in prison and reported a higher level of torture and ill-treatment than younger men. Length of imprisonment correlated positively with personal

Table II. Pearson bivariate correlations between age, trauma variables, adult attachment, posttraumatic growth and negative emotional experience.

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Age										
2. Length of imprisonment	0.26**									
3. Torture and ill-treatment	0.14*	0.19**	0.06							
<i>Adult Attachment</i>										
4. Secure	0.01	-0.03	-0.10							
5. Insecure-avoidant	0.02	0.03	0.05	-0.27**						
6. Insecure-preoccupied	-0.08	0.05	0.00	-0.07	0.48***					
<i>Posttraumatic growth</i>										
7. Personal strength	0.04	0.13*	-0.10	0.48***	-0.23**	-0.21**				
8. Affiliation to others	0.01	0.06	-0.08	0.52***	-0.22**	-0.16*	0.71***			
9. Spiritual change	-0.02	-0.07	-0.05	0.19**	0.01	0.04	0.16**	0.17**		
10. Negative emotional experience	0.04	-0.05	0.18**	-0.24**	0.27**	0.32**	-0.25**	-0.16**	-0.10	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

strength, whereas exposure to torture and ill-treatment correlated with a high level of negative emotional experience. Dimensions of posttraumatic growth correlated positively with each other, and negatively with negative emotional experience. Torture and ill-treatment did not correlate with adult attachment dimensions.

Regression analyses for posttraumatic growth and negative emotional experience

Multiple hierarchical regression analyses were conducted to test the hypotheses concerning main effects of exposure to trauma and attachment style and their hypothesized interactions effects on posttraumatic growth and negative emotional experience. The three dimensions of posttraumatic growth and negative emotional experience were the dependent variables.

In the first step, the age, education, economic status and length of imprisonment were entered to control for their impact. In the second step, the sum score of reported torture and ill-treatment, and in the third step, secure, insecure-avoidant, and insecure-preoccupied attachment dimensions were entered. Finally, the interaction terms between torture and ill-treatment and attachment dimensions were entered. The attachment and exposure to torture variables were first centered in order to ensure that multicollinearity between the main and the interaction effects did not distort the results (Aiken & West, 1991).

The results are presented in Table III. The model explained 38% of the variance for personal strength ($R^2 = 0.38$), 34% for affiliation to others, and 24% for negative emotional experience. The hypothesized trauma and attachment characteristics predicted only 7% ($R^2 = 0.07$) of spiritual change.

Contrary to our hypothesis, the results revealed that exposure to torture and ill-treatment was associated with low levels of personal strength and affiliation to others, while association was non-significant with spiritual change. Exposure was further significantly associated with a high level of negative emotional experience. The correlation analysis in Table II showed that the correlations were non-significant between exposure to torture and ill-treatment and posttraumatic growth dimensions. Thus, when the demographic variables and length of imprisonment were controlled for, the regression coefficients become significant.

The significant interaction effects substantiated the hypothesis that exposure to torture and ill-treatment was associated with a high level of posttraumatic growth only among men with secure attachment, and with a high level of negative emotional experience, especially among insecure-avoidant men. Figure 1 shows that securely attached men reported relatively more positive affiliation to others when they were exposed to a high level of torture and ill-treatment than when exposed to a low level. Men with insecure-avoidant attachment in turn reported relatively more negative emotional experience when exposed to a high level of torture and ill-treatment than when exposed to a low level, as shown in Figure 2.

The significant main effects substantiated the hypothesized associations between adult attachment and posttraumatic growth and negative emotional experience. Men with secure attachment reported more personal strength, positive affiliation to others and positive spiritual change, whereas insecure-preoccupied men reported a high level of negative emotional experience. Insecure-avoidant attachment style did not explain unique variance when it was simultaneously entered with other attachment styles, although it showed significant negative correlations with personal strength and affiliation to others and significant positive correlation to negative emotional experience (Table 2).

Table III. Hierarchical multiple regression models for the main and interaction effects of trauma and attachment styles on posttraumatic growth and negative emotional experience.

Predictors	Posttraumatic growth							
	Personal strength				Affiliation to others			
	R ²	df	F-value	β	R ²	df	F-value	β
Step 1: Demographic	0.17	4	13.29***		0.08	4	5.65***	
Age				-0.02				0.03
Education				0.20***				0.07
Economical status				-0.12**				-0.13**
Length of imprisonment				0.09				0.02
Step 2: Torture and ill-treatment	0.01	1	2.81+	-0.13**	0.01	1	2.91*	-0.14**
Step 3: Adult Attachment	0.19	3	25.20***		0.23	3	28.43***	
Secure				0.39***				0.45***
Insecure-avoidant				-0.06				-0.06
Insecure-preoccupied				-0.09				-0.08
Step 4: Interactions	0.01	3	1.56		0.02	3	2.38+	
Torture × Secure				-0.10				-0.13*
Torture × Avoidant				0.03				-0.04
Torture × Preoccupied				-0.09				-0.09
Total model	$R^2 = 0.38; F(11,247) = 13.98, p < 0.0001$				$R^2 = 0.34; F(11,247) = 13.98, p < 0.0001$			
Predictors	Negative emotional experience							
	Spiritual change				Negative emotional experience			
	R ²	df	F-value	β	R ²	df	F-value	β
Step 1: Demographic	0.01	4	.97		0.08	4	5.47***	
Age				0.00				0.09
Education				0.04				-0.13*
Economical status				0.09				0.04
Length of imprisonment				-0.06				
Step 2: Torture and ill-treatment	0.00	1	.69	-0.07	0.03	1	8.86**	0.15**
Step 3: Adult Attachment	0.05	3	4.34**		0.11	3	12.41***	
Secure				0.23***				-0.09
Insecure-avoidant				-0.06				0.06
Insecure-preoccupied				-0.02				0.24***
Step 4: Interactions	0.01	4	0.82		0.03	3	3.02*	
Torture × Secure				-0.06				0.09
Torture × Avoidant				-0.12				-0.16*
Torture × Preoccupied				0.07				0.07
Total model	$R^2 = 0.07; F(11,247) = 1.84, p < 0.05$				$R^2 = 0.24; F(11,247) = 7.61, p < 0.0001$			

Note. β-coefficients are those computed at the final step of each analysis. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

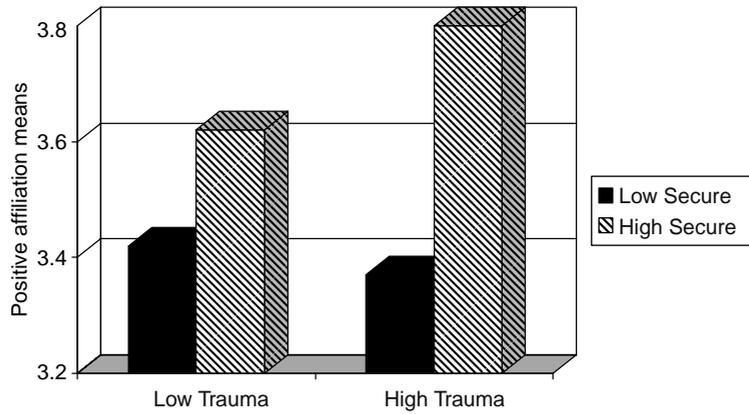


Figure 1. Interaction effect between torture and ill-treatment and secure attachment on positive affiliation to others. *Note:* Low Trauma and High Trauma refer to values of median-split variable of exposure to torture and ill-treatment; Low Secure and High Secure refer to values of median-split variable of Secure attachment.

Discussion

Our results revealed that secure attachment played a protective role in enhancing posttraumatic growth, while men with insecure-avoidant attachment were vulnerable to negative emotional experience in the face of trauma. The research setting was cross-sectional and based only on subjective reports from individual informants. Subsequently, the results do not warrant any causal links between adult attachment, trauma and posttraumatic growth. In an ideal research setting, we should have measured adult attachment before the men were exposed to traumatic events in order to predict their differentiated responses. The validity of findings would also be considerably stronger when using multiple informants, for instance legal documents about experiences of torture and ill-treatment and combining both questionnaire self-report and interview procedure for attachment (AAI; Main, 1996). Finally, two scales, spiritual change indicating

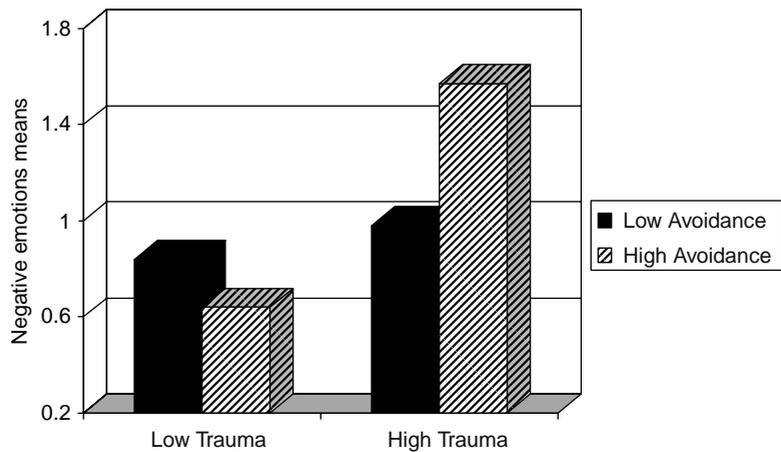


Figure 2. Interaction effect between torture and ill-treatment and insecure-avoidant attachment on negative emotional experience. *Note:* Low Trauma and High Trauma refer to values of the median-split variable of exposure to torture and ill-treatment; Low Avoidance and High Avoidance refer to values of median-split variable of Insecure-avoidant attachment.

posttraumatic growth and insecure-preoccupied attachment had low reliabilities (α -values 0.62–0.65). Based on the criticism above, our results can only provide tentative information about possible positive personal, social and philosophical meanings for these men's traumatic experiences.

Our results did not concur with the assumption that experiencing political trauma with ideological connotations would encourage positive transformation (Becker, 1995; Ursano et al., 1996). On the contrary, men who reported high levels of torture and ill-treatment were less capable of generating personal strength and positive affiliation to others, but instead they experienced more negative emotions. In this sense, the results also differ from earlier studies by Tedeschi and his group (Tedeschi, 1999; Tedeschi & Calhoun, 1996), which showed a positive association between stressful life events and posttraumatic growth. The different nature of experiences in the earlier study and our study may explain the discrepancy. Tedeschi and Calhoun (1996) studied undergraduate students who had experienced, for instance, bereavement, accident and separation. Although painful, these events did not involve life-threat and systematic cruelty by fellow humans as was the case in our study.

Our findings suggest that posttraumatic growth is also possible in extreme trauma if the survivor has secure adult attachment. Among secure persons, exposure to torture and ill-treatment was associated with increased trust in their fellow-men and shared emotions. Cruel experiences did not shatter their core beliefs in human virtue, but rather strengthened them. Secure men were apparently capable of integrating their dangerous experiences and fears into an overall positive adaptive strategy, and this made it possible for them to mature and enjoy beneficial transformation. Men with insecure-avoidant attachment in turn responded with highly negative emotions when exposed to severe trauma. Avoidant persons typically minimize and belittle their painful experiences, as well as deny and numb the emotions evoked (Collins, 1996; Mikulincer & Orbach, 1995). This seemed also to be generally true in our sample (no direct main association was found between insecure-avoidant attachment and negative emotions), but once exposed to a high level of torture and ill-treatment, the insecure-avoidant attachment formed a risk for intense negative emotions.

According to attachment theory, exposure to danger and threat activates individual unique working models of oneself, others and the world (Bowlby, 1980; Mikulincer, 1998) and accordingly attachment-specific responses crystallize in exposure to trauma. Middle Eastern research has shown that the activation of attachment-related responses only occurs in relatively extreme stress, danger and threat. Mikulincer and Florian (1995) studied the attachment and coping style of Israeli soldiers during combat training. They showed, as do our results, that the working models of secure individuals involved benign perceptions and a sense of inner strength that facilitated effective coping with traumatic stress, whereas insecure-preoccupied individuals exaggerated the significance of the threat and negative perceptions, and felt personally inadequate and helpless in dealing with the stress. Findings among Israeli prisoners of war (Solomon, Ginsburg, Mikulincer, Neria, & Ohry, 1998), civilians under bombardment (Mikulincer, Florian & Weller, 1993) and among Palestinian political prisoners (Kanninen, Salo, & Punamäki, 2000) show that attachment style also explains individual differences in mental health, particularly under conditions of high stress. These results suggest that the attachment-specific, unique inner working models as well as memory representations serve the function of integrating and assimilating new and painful experiences into existing life histories (Cason, Resick, & Weaver, 2002; Horowitz, 1979). Attachment style explains whether this integration is successful and results in positive growth, or is leading to symptoms and negative emotions.

The traumatic experience may either match or not match victims' pre-existing working models and core beliefs of themselves, other people and the world (Crittenden, 1997; Dunmore, Clark, & Ehlers, 2001), which can explain why some individuals may flourish after traumatic experiences, while others only seem to lose their strength. Experience of torture involves purposeful human cruelty, which may be profoundly shocking for secure individuals, who have learned to trust others and believe in human benevolence. On the contrary, insecure persons expect others to be malevolent and cruel experiences may confirm their core beliefs. Our result concerning insecure-preoccupied men may substantiate the idea that the match between the attachment-specific working models and current experience can neutralize trauma impact. Insecure-preoccupied men generally reported a high level of negative emotions, which accords with their characteristic way of ruminating and being easily overwhelmed by negative emotions (Main, 1996; Shaver & Hazan, 1993). Torture experiences did not, however, further escalate their negative emotions, possibly because they matched their inner working models and memory schemas.

We found that socio-economic factors are important in determining whether trauma victims are capable of beneficial transformation of their painful experience. High professional position, steady employment, and good economic situation were all associated with elevated levels of personal strength and positive affiliation to others. They were also associated to some extent with low negative emotional experience. Demographic factors that do not connote with success in life (age, marital status, and place of residence: refugee camp vs. town) were not associated with posttraumatic growth. The results indicate that material security and prestige create conditions for positive transformation and beneficial attributions of oneself and others when men return from prison. Spiritual change, in turn, was not a function of socio-economic characteristics. Only religious commitment was positively associated with spiritual change.

As in general research on adult attachment (van IJzendoorn & Bakermans-Kranenburg, 1996), we found no associations between demographic characteristics and attachment style. As an exception, low educational level was associated with low attachment security and high avoidance, which concurs with some earlier research (van IJzendoorn, 1995). It has been suggested that education generates time and motivation to develop one's personality and insights, and lack of education is related to low mental resources, which explains the importance of education in adult attachment.

Methodological considerations

For future studies it would be preferable to analyze attachment-specific responses to danger and threat in a longitudinal setting, involving traumatic events of different kinds. Although attachment theory assumes long-term stability for inner working models, researchers suggest that severe trauma may change secure attachment towards insecure and especially towards unresolved attachment styles (Main & Goldwyn, 1991). Therefore, our measurement of adult attachment after the trauma may involve these changes in attachment. Although the severity of torture and ill-treatment or length of imprisonment was not associated with attachment style, we would have needed a matched control group to conclude whether former political prisoners are more insecure and belong more often to the unresolved attachment category.

Further, our choice of using self-report questionnaires as an adult attachment method deserves criticism. Attachment-specific working models are often dormant and not accessible to conscious thinking. Therefore a method based on information processing and discourse (AAI) would provide more valid information. Measuring attachment by

questionnaire is especially problematic among insecure-avoidant individuals, who have a tendency to give idealized descriptions of their attachment figures and deny painful experiences.

We applied the Posttraumatic Growth Inventory developed by Tedeschi and Calhoun (1996) to measure the extent to which former political prisoners perceive personal, social and spiritual beneficial transformation due to trauma. The original scale that was tested in a student sample was five-dimensional, including separate factors of new possibilities and appreciation of life scales. The original spiritual change dimension had only two items. Our factor and reliability analyses showed, however, that a three-dimensional tool fits our data better. Items of both the appreciation of life and new possibilities dimensions loaded significantly either on personal strength or spiritual change factors. The three-factor solution also corresponds with the conceptual domains of growth, i.e., positive changes in self, in relationships with other people and in philosophy of life.

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