BASIC RESEARCH ARTICLE

Attachment typologies and posttraumatic stress disorder (PTSD), depression and anxiety: a latent profile analysis approach

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Background: Bartholomew (1990) proposed a four category adult attachment model based on Bowlby's (1973) proposal that attachment is underpinned by an individual's view of the self and others. Previous cluster analytic techniques have identified four and two attachment styles based on the Revised Adult Attachment Scale (RAAS). In addition, attachment styles have been proposed to meditate the association between stressful life events and subsequent psychiatric status.
Objective: The current study aimed to empirically test the attachment typology proposed by Collins and Read (1990). Specifically, LPA was used to determine if the proposed four styles can be derived from scores on the dimensions of closeness / dependency and anxiety. In addition, we aimed to test if the resultant attachment styles predicted the severity of psychopathology in response to a whiplash trauma.
Method: A large sample of Danish trauma victims ($N = 1577$) participated. A Latent Profile Analysis was conducted, using Mplus 5.1, on scores from the RAAS scale to ascertain if there were underlying homogeneous attachment classes / subgroups. Class membership was used in a series of one-way ANOVA tests to determine if classes were significantly different in terms of mean scores on measures of psychopathology.
Results: The three class solution was considered optimal. Class one was termed Fearful (18.6%), Class two Preoccupied (34.5%), and Class three Secure (46.9%). The secure class evidenced significantly lower mean scores on PTSD, depression, and anxiety measures compared to other classes, whereas the fearful class evidenced significantly higher mean scores compared to other classes.
Conclusions: The results demonstrated evidence of three discrete classes of attachment styles, which were labelled secure, preoccupied, and fearful. This is in contrast to previous cluster analytic techniques which have identified four and two attachment styles based on the RAAS. In addition, Securely attached individuals display lower levels of psychopathology post whiplash trauma.

Keywords: *Attachment typology*; *latent profile analysis*; *posttraumatic stress disorder*; *depression*; *anxiety*

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Categorical models, or typologies, of attachment have been popular. Indeed they have been used for both descriptive and predictive purposes. For example, attachment styles have been proposed to mediate the association between stressful life events and subsequent psychiatric status. Generally, secure styles have been argued to have a protective effect, whereas, other styles have been considered to be potential risk factors for subsequent psychiatric problems (Bartholomew, Kwong, & Hart, 2001). The current study employs a rigorous statistical approach, rarely employed in the attachment literature, to examine various attachment typologies and their association with psychopathology, in a large traumatized sample.

Bowlby's (1973) attachment theory proposed that attachment styles, which are developed in childhood,

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act as prototypes for the way in which the child will function in later relationships. Although the majority of initial work concerned children, Bowlby (1979) stated that "... attachment behavior is held to characterize human beings from the cradle to the grave ..." (p. 129). Attachment theory advocates that mental representations of the self and others are central components of adult attachment. Prototypes are derived from internal working models which refer to the individual's sense of the self and others. Bowlby stated that the two main proponents of the internal working models refer to: "(1) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; [and] (2) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond to in a helpful way" (p. 204).

Hazan and Shaver (1987) proposed that adult romantic love could be conceptualized as an attachment process and devised a self-report attachment measure. Several studies have reported that measures which use items directly taken from Hazan and Shaver's (1987) original typology often result in two broad dimensions of comfort with closeness, and relationship anxiety (Feeney & Noller, 1996). A later model was proposed by Collins and Read (1990) which was similar to Hazan and Shaver's model in that it was based on the dimensions of closeness, dependency, and anxiety. The associated measurement instrument is the Revised Adult Attachment Scale (RAAS: Collins, 1996) which is based on the earlier Adult Attachment Scale (AAS: Collins & Read, 1990) and on the work of Hazan and Shaver (1987). The revised scale is reported to have advantages over the original, such as improved reliability. The ASS and the RAAS have been reported as highly correlated ($r = 0.98$) when assessed on an undergraduate sample (Collins, 1996). The RAAS consists of three dimensions which can be employed in two different ways. The dimensions can be employed independently of each other to assess individuals in terms of their level of each. Alternatively, they can be employed to categorize individuals into four attachment styles. The dimensions of closeness and dependency are combined resulting in a two-dimensional construct which results in four attachment styles. Classification is dependent on the profile of scores along the dimensions. Collins (1996) stated "... the three dimensions can be used in combination to define discrete styles of attachment, but no single dimension corresponds to a single style." (p. 814).

The resultant four category typology consists of the four attachment styles of secure, preoccupied, dismissing, and fearful. Although Collins and Read (1990) confirmed the existence of four attachment styles, through a cluster analysis conducted on a sample of undergraduate students, subsequent research employing cluster analysis on the RAAS, using a sample of social anxiety disorder patients, failed to identify the four styles, instead they identified two styles. The two styles they identified were termed secure and anxious-preoccupied, partly based on Collins and Read's (1990) descriptions of the four styles (Eng, Heimberg, Hart, Schneier, & Liebowitz, 2001).

Recent research by Olsen, Petersen, and Elklit (2010, submitted) supported a uni-dimensional approach proposing that secure and fearful attachment styles should lie at the polar opposites with the remaining dismissing and pre-occupied styles being placed centrally. Their proposal was based on the fact that secure attachment appeared to provide a protective factor across a number of variables, whereas, fearful attachment appeared to pose as a potential risk factor. The dismissing and preoccupied styles failed to display multiple significant results and thus appeared ambiguous with reference to their predictive ability.

As previously mentioned attachment typologies have been used for predictive purposes, for example, insecure attachment styles have been proposed to act as potential risk factors for subsequent psychiatric problems. Research has consistently shown that secure attachment is negatively associated with the subsequent development of posttraumatic stress disorder (PTSD) in a variety of adult trauma victims (e.g., cf. Declercq & Willemsen, 2006; Dekel, Solomon, Ginzburg, & Neria, 2004; Fraley, Fazzari, Bonanno, & Dekel, 2006; O'Connor & Elklit, 2008; Olsen et al., 2010, submitted). One study in particular, which assessed 544 Belgium security staff working for the Red Cross, concluded that "... 'adult attachment style' ... moderate(s) between a critical incident and the occurrence of a PTSD" (p. 323). Indeed, the results suggested that individuals with a secure attachment style or dismissing attachment style would be less likely to develop PTSD as a response to a critical incident. Those with a fearful attachment style and preoccupied attachment style were those most likely to develop PTSD as a response to a critical incident (Declercq & Palmans, 2006). Studies such as these are pertinent in relation to the current study, given our use of a large traumatized sample.

Interestingly, many studies have reported that dismissing attachment, classified as an insecure style, is also negatively associated with the subsequent development of PTSD. Research has highlighted that the negative association between PTSD severity and secure and dismissing attachment may be attributable to the fact that both attachment styles are characterized by a positive view of the self and thus provide a protective factor when dealing with adversity (Muller, Lemieux, & Sicoli, 2001; Olsen et al., 2010, submitted). One deviation regarding the negative association with dismissing attachment and PTSD lies with O'Connor and Elklit (2008) who recently reported a high positive association between dismissing

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attachment and an individual's number of lifetime and current PTSD symptoms. Both anxious-preoccupied and fearful attachment styles have been previously positively associated with the development of PTSD. For example, a study employing Multiple Dimensional scaling concluded that the distance between pre-occupied attachment and fearful attachment styles with PTSD was small indicating a high degree of inter-relatedness (Declercq & Palmans, 2006). The association between these insecure attachment styles and PTSD may be attributable to both being characterized with negative views of the self and thus posing as a potential risk factor (Muller et al., 2001; Olsen et al., 2010, submitted). However, research is not exclusive to PTSD and has shown that depression and anxiety have both been positively associated with insecure attachment styles (Eng et al., 2001; Williams & Riskind, 2004). More specifically, multiple studies have associated both with pre-occupied attachment (Eng et al., 2001; Williams & Riskind, 2004).

This study had two aims. First, to empirically test the attachment typology proposed by Collins and Read (1990). Specifically, latent profile analysis (LPA) was used to determine how many styles of attachment could be derived from scores on the dimensions of closeness/dependency and anxiety. LPA is an appropriate statistical tool for use in the attachment literature as it statistically determines the existence of homogeneous groups of individuals within a heterogeneous sample. Thus, it can be used to identify underlying patterns of attachment. Indeed, LPA may be more appropriate than traditional cluster analysis as cluster analysis ascertains groupings based on observed homogeneity by determining the distance between cases. However, LPA ascertains groupings based on the responding of the individuals, under the premise that individuals respond in a similar manner due to an overarching latent trait, in this case, an attachment style. The second aim was to test if the resultant attachment styles, produced by the LPA, predicted the severity of posttraumatic stress, depression, and anxiety symptoms in response to a whiplash trauma. Whiplash trauma is a term used to describe the rapid and sudden extension of the neck during a motor vehicle accident. It was predicted that individuals classified as secure would have better psychological status, i.e., lower levels of posttraumatic stress, depression, and anxiety.

Method

Sample

The sample consisted of individuals recruited via mail from the Danish Society for Polio, Traffic and Accident Victims. The society works for the interests of its group members by liaising with the government and by providing services such as counseling and self-help groups. Membership to the society is strictly by referral from the Danish National Health Service and similar organizations. All respondents were entered into a prize draw where they could win a travel voucher worth 2,000 USD. The current study was part of a larger study ($n = 2{,}320$) concerned with chronic whiplash associated disorders and its physical and psychological correlates. The response rate was 74% ($n = 1{,}716$). Respondents had been exposed to a traumatic event resulting in whiplash, the majority of which had resulted from motor vehicle accidents (94%). A further proportion of the sample sustained additional physical injuries (49%). The whiplash resulted in hospitalization for a proportion of the sample (25%) with the average stay in hospital equating to 6.9 days. A large majority of the sample (94%) sought medical assistance within four weeks from the occurrence of the accident. The whiplash occurred on average 62 months pre-participation. All analyses are related to respondents who completed all attachment and posttraumatic stress measures. Therefore the effective sample comprised 1,567 individuals. The majority of respondents were female (78.9%). Age ranged from 16 to 76 years, the mean age of the sample was 42.70 years (standard deviation [SD] = 10.10).

Measures

The RAAS (Collins, 1996). The RAAS is a measure of adult attachment based on the AAS (Collins & Read, 1990) which assesses interpersonal relationships. The RAAS consists of 18 items which measure three subscales; closeness, dependency, and anxiety. The three subscales were composed by a factor analysis of the scale on a sample of undergraduate students. High scores on the anxiety dimension is characterized by individuals who worry about being unloved or abandoned by romantic partners, high scores on the closeness dimension is characterized by individuals who find closeness with others easy and high scores on the depend dimension is characterized by individuals who feel that others are trustworthy and dependable (Collins, 1996). Questions are answered on a five-point Likert scale (not at all characteristic [1], to very characteristic of me [5]). Two of the three subscales are combined resulting in two subscales; closeness/dependency and anxiety. The reliability of the scores, based on Cronbach's alpha, have been reported as 0.77 (closeness), 0.78 (dependency), and 0.85 (anxiety) based on undergraduate students (Collins, 1996) and as 0.84 (closeness), 0.76 (dependency), and 0.90 (anxiety) based on anxiety disorder patients (Eng et al., 2001). The reliability of the scores, based on Cronbach's alpha, in the current study were 0.67 (closeness), 0.69 (dependency), 0.83 (anxiety), and 0.76 (closeness/dependency).

The Harvard Trauma Questionnaire Part IV (HTQ: Mollica et al., 1992). The HTQ consists of 30 items which measure the presence and severity of post-traumatic

stress. Questions are answered on a four-point Likert scale (not at all [1], to all the time [4]). Scores are summed to provide an indicator of severity. Sixteen items correspond to the 17 items as specified by the Diagnostic Statistical Manual-IV (DSM-IV: American Psychiatric Association, 1994). Items pertaining to psychological distress and physiological reactivity within the DSM-IV specification are combined into one item which assesses both psychological and physiological reactions to reminders of the traumatic event (the combined item is placed in re-experiencing cluster in accordance with the DSM-IV specification). Possible scores range from 16 to 64. In the current study scores ranged from 16 to 63 ($M = 37.46$, SD = 9.39). The difference in total scores for males ($M = 36.95$, SD = 9.96) and females ($M = 37.59$, SD = 9.23), t (1,400) = −1.05, $p = 0.005$ (two-tailed) approached statistical significance. The items are divided into three subscales that correspond to the three main symptom groups of PTSD: re-experiencing, avoidance, and hyperarousal. In-line with DSM-IV guidelines, individuals met the PTSD diagnostic criteria if they scored three (“quite a bit”) or above on at least one re-experiencing symptom, three avoidance symptoms, and two hyperarousal symptoms. A proportion of the sample met the diagnostic criteria for PTSD (38.3%, $M = 80.84$, SD = 13.04). A further proportion of the sample met the criteria for subclinical PTSD, defined by individuals who missed meeting the DSM-IV diagnostic criteria by one symptom (28.5%, $M = 65.02$, SD = 9.51).

The Trauma Symptom Checklist (TSC-33: Briere & Runtz, 1989). The TSC-33 was originally developed to assess the long-term impact of rape and child sexual abuse. It has been suggested that as the TSC-33 is responsive to physical abuse as well as rape and sexual abuse it may in fact be responsive to a wide array of traumatic experiences (Briere & Runtz, 1989). In addition, the items in this scale are highly overlapping with items in the Symptom Checklist (SCL-90) (Derogatis & Coons, 1993), and the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). In this study the depression and anxiety subscales were employed. The depression subscale consists of 10 items, and the anxiety subscale consists of eight items. Respondents answer items for both subscales on a four-point Likert scale (never [1] to very often [4]). Possible scores for the depression subscale ranged from 10 to 40 and for the anxiety subscale from 8 to 32. In the current study scores ranged from 10 to 38 ($M = 20.92$, SD = 5.06) and from 8 to 30 ($M = 16.29$, SD = 3.74). There was a significant difference in total scores for males ($M = 20.18$, SD = 5.10) and females ($M = 21.13$, SD = 5.02) on the depression subscale, t (1,481) = −3.01, $p = 0.003$ (two-tailed), however, the magnitude of the difference was very small (eta squared = 0.006). There was also a statistically significant difference between males ($M = 15.76$, SD = 3.82) and females ($M = 15.43$, SD = 3.71) on the anxiety subscale t (1517) = 2.85, $p = 0.004$ (two-tailed), however, the magnitude of the difference was very small (eta squared = 0.005). The subscales and total scores gained from the TSC-33 have been previously reported as being internally consistent, with good discriminant validity (Briere & Runtz, 1989).

Analytic plan

The LPA is a statistical technique employed to determine the number of homogeneous groups based on data from continuous latent variables. These groups are referred to as “classes”, in the attachment literature the classes represent attachment styles. DiStefano and Kamphaus (2006) reported that LPA is a superior statistical technique to the more traditional methods of cluster analysis. LPA is thought to be advantageous as it provides a more flexible framework which allows for the incorporation of multiple variables which aid the researcher in understanding the differences between classes. Model fit is determined by a variety of fit indices; the Akaike Information Criterion (AIC; Akaike, 1987), the Bayesian Information Criterion (BIC; Schwartz, 1978), and the Sample size adjusted BIC (ssaBIC; Sclove, 1987), the Lo-Mendell-Rubins adjusted likelihood ratio test (LRT; Lo, Mendell, & Rubin, 2001), entropy values (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993) and the likelihood ratio chi-square (LRχ^2). Guidelines state that with reference to the AIC, BIC, and ssaBIC the lower the values the superior the fit (Hu & Bentler, 1999). However, as more classes are added to the model, fit tends to improve with the AIC, BIC, and ssaBIC continually lowering. To determine what improvement is made to the model by adding an additional class, the difference between the values for the AIC, BIC, and ssaBIC can be calculated. If the difference between the values of one additional class is small, an additional class is said to add little to the model (DiStefano & Kamphaus, 2006). On the basis of parsimony the solution with fewer classes should be accepted. If the LRT for a particular class solution is deemed significant (<0.05) then the solution is deemed acceptable, however, if the LRT value is non-significant (>0.05) this indicates that a solution with one less class should be used. Ramaswamy et al. (1993) reported that high entropy values indicate good classification, with one indicating perfect classification.

In the current study, a number of LPA models (two classes to six classes) were estimated using Mplus 5.2 (Muthén & Muthén, 1998–2007). The analysis was conducted on the standardized scores on the two RAAS scales of closeness/dependency and anxiety. Subsequently, class membership was used as an independent variable in a series of one-way Analysis of Variance (ANOVA) tests to determine if they were significantly different in terms of scores on the measures of PTSD, depression, and anxiety.

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Table 1. Fit statistics for the LPA

Model	Log likelihood	AIC	BIC	ssaBIC	Entropy	LRT
2	−4,018.63	8,051.26	8,088.76	8,066.53	0.78	613.98
						0.00
3	−3,924.41	7,868.82	7,922.39	7,890.62	0.73	180.28
						0.00
4	−3,885.76	7,797.52	7,867.16	7,825.86	0.72	73.95
						0.07
5	−3,859.46	7,750.91	7,836.62	7,785.79	0.76	50.33
						0.00
6	−3,843.23	7,724.46	7,826.24	7,765.88	0.79	31.05
						0.03

Abbreviations: AIC. Akaike Information Criterion (Akaike, 1987); BIC, Bayesian Information Criterion (Schwartz, 1978); ssaBIC, Sample size adjusted BIC (Sclove, 1987); Entropy (Ramaswamy et al., 1993) and the LRT, Lo-Mendell-Rubins adjusted likelihood ratio test (Lo et al., 2001).

Results

Attachment LPA

The fit statistics from the LPA are presented in Table 1.

The three class solution was considered to be the best solution. The Lo-Mendell-Rubin's is non-significant for the four class solution, whereas the three class solution is significant. The entropy value indicates that a high proportion of participants are correctly classified. The AIC, BIC, and ssaBIC all show a large drop from the two to three class solutions, subsequent decreases through to the six class solution are much smaller suggesting that additional classes do not add to the model (DiStefano & Kamphaus, 2006).

Class one (fearful, 18.6%) was characterized by respondents who scored high on the anxiety dimension and low on the closeness/dependency dimension. Class two (preoccupied, 34.5%) was characterized by respondents who scored lower than class one (fearful) but higher than class three (secure) on the anxiety dimension and higher than class one (fearful) but lower than class three (secure) on the closeness/dependency dimension. Class three (secure, 46.9%) was characterized by respondents who scored low on the anxiety dimension and high on the closeness/dependency dimension. It is noteworthy to mention that reference to low and high should be regarded as relative rather than absolute. The latent profile plot can be seen in Fig. 1. The class probabilities from the LPA can be viewed in Table 2.

Table 2. Estimated means from the latent class model in probability scale (SE)

	Anxiety (SE)	Close/dependency (SE)
Class 1 (fearful; 18.6%)	1.62 (0.07)	−0.91 (0.07)
Class 2 (preoccupied; 34.5%)	0.21 (0.10)	−0.34 (0.04)
Class 3 (secure; 46.9%)	−0.80 (0.03)	0.61 (0.07)

Note. All values are significant ($p < 0.05$). SE = standard errors.

One-way ANOVA tests

The ANOVA tests were employed to determine if the classes were significantly different in terms of their mean scores on PTSD, PTSD subscales (re-experiencing, avoidance, hyperarousal) depression and anxiety. Post-hoc Bonferroni corrections were used and all pairwise comparisons were significant ($p = 0.000$). Comparing the classes across all measures and subscales, the fearful class displayed the highest levels of symptomatology, the secure class displayed the lowest levels of symptomatology, and the preoccupied class displayed mid-levels of symptomatology (see Table 3).

Discussion

This study has two aims, first, to assess the validity of a four category attachment typology. The current study employed a rigorous quantitative approach to identify different attachment styles based on the dimensions of closeness/dependency and anxiety. The results demonstrated evidence of three discrete classes of attachment styles, which were labeled secure, preoccupied, and fearful. The results are in contrast to previous cluster analytic techniques which have identified four (Collins & Read, 1990) and two (Eng et al., 2001) attachment styles based on the RAAS. However, given that the methods of estimation and statistical assessment of model fit are superior to older clustering techniques (DiStefano & Kamphaus, 2006), the current three styles could be argued to be more robust. When compared with Bowlby's original four style typology of attachment, individuals in

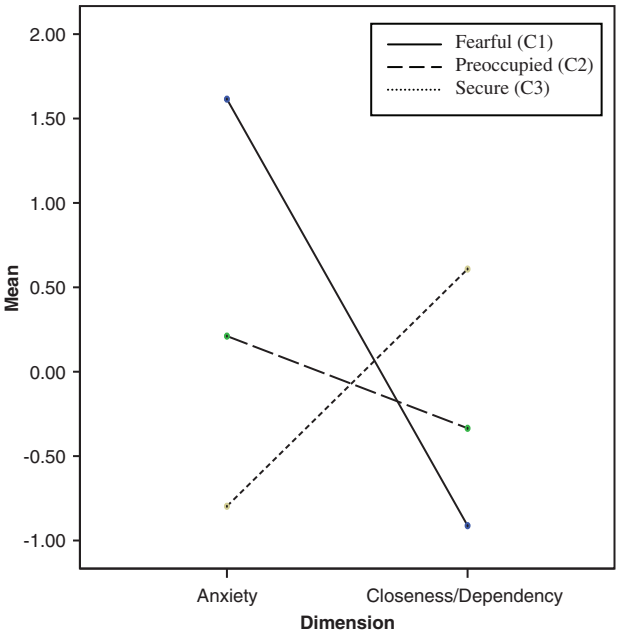

Fig. 1. Three class LPA plot.

the secure style, identified in the current study, can be regarded as displaying a positive view of the self (high closeness/dependency) and a positive view of others (low anxiety), whereas, individuals in the fearful style can be regarded as displaying a negative view of the self (low closeness/dependency) and a negative view of others (high anxiety). Interestingly, and despite the differences in sample characteristics, the secure style was represented by the style composed of the largest proportion of the sample (46.9%), which is in line with early reports based on Ainsworth, Blehar, Waters, and Wall (1978) three category attachment framework, which also reported that securely attached individuals were represented by the largest proportion of individuals (approx. 62%) (Campos, Barrett, Lamb, Goldsmith, & Steinberg, 1983). Individuals in the preoccupied style were characterized as such because relative to the other two styles they lay close to the midpoint in terms of the anxiety dimension and at the lower end of closeness/dependency dimension and so are characterized as having an ambiguous view of others and a negative view of the self. Surprisingly, individuals typically classified as dismissing who are characterized as having a positive view of the self (low closeness/dependency) and a negative view of others (low anxiety) failed to be identified within this latent profile approach. Such may be attributable to the notion of attachment existing along a continuum, as proposed by Olsen et al. (2010, submitted) who suggested a uni-dimensional approach. As previously acknowledged, Olsen et al. proposed that secure and fearful attachment styles should lie at the polar opposites with the remaining dismissing and pre-occupied styles being placed centrally. Their proposal was based on the fact that secure attachment appeared to provide a protective factor across a number of variables, whereas, fearful attachment appeared to pose as a potential risk factor. The dismissing and preoccupied styles failed to display multiple significant results and thus appeared ambiguous with reference to

Table 3. ANOVA for attachment styles, posttraumatic stress, depression, and anxiety scores

	Class	Mean score	Df	F	Sig.	Eta squared
HTQ total PTSD	Secure	61.21	2	142.89	0.000	0.17
	Preoccupied	70.34	1,350			
	Fearful	80.05	1,352			
HTQ re-experiencing	Secure	7.23	2	35.20	0.000	0.04
	Preoccupied	7.83	1,511			
	Fearful	8.78	1,513			
HTQ avoidance	Secure	15.88	2	117.86	0.000	0.14
	Preoccupied	18.54	1,433			
	Fearful	21.45	1,435			
HTQ hyperarousal	Secure	13.79	2	85.03	0.000	0.10
	Preoccupied	15.18	1,513			
	Fearful	16.61	1,515			
TSC depression	Secure	19.09	2	139.04	0.000	0.16
	Preoccupied	21.55	1,481			
	Fearful	24.53	1,482			
TSC anxiety	Secure	15.17	2	99.83	0.000	0.12
	Preoccupied	16.62	1,517			
	Fearful	18.66	1,519			

Abbreviations: HTQ, Harvard Trauma Questionnaire (Mollica et al., 1992); TSC, Trauma Symptom Checklist (Briere & Runtz, 1989).

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their predictive ability. It is a possibility that the preoccupied class in the current study is an amalgamation of both dismissing and preoccupied individuals as the class is not as clear cut as would have been expected in terms of scores on the anxiety dimension. However, as dismissing attachment has been reported as being more prevalent in males than females with regards to adult romantic attachment (Brennan, Clark, & Shaver, 1998; Scharfe & Bartholomew, 1994) another possibility may be that dismissing attachment is simply under represented in the current sample as there is a preponderance of females (79%). Interestingly, although the majority of studies do indeed uncover a dismissing attachment style, its role is more ambiguous than that of alternative attachment styles. For example, Declercq and Palmans (2006) using Dimensional scaling reported that the distance between dismissing attachment and PTSD was large suggesting that dismissing attachment styles are less related to PTSD. They speculated that perhaps individuals who had a dismissing attachment style simply responded to a critical incident "... with other dysfunctions" (p. 331) given that their study only assessed attachment styles related to PTSD alone. Thus, the role of dismissing attachment styles in traumatized samples needs further investigation.

This study also showed that the three attachment styles predicted differences in mean scores for PTSD, depression, and anxiety. For all variables the scores increased from secure, preoccupied, to fearful attachment styles. The secure class evidenced the lowest mean scores in terms of PTSD, in line with previous research, which has concluded negative associations between secure attachment and PTSD symptoms (Declercq & Willemsen, 2006; Dekel et al., 2004; Fraley et al., 2006; O'Connor & Elklit, 2008; Olsen et al., 2010, submitted), in light of a traumatic experience. In the current study the preoccupied and fearful styles provided higher mean PTSD scores, respectively. Interestingly, O'Connor and Elklit (2008) reported a positive association with fearful attachment and PTSD symptoms. These findings are comparable to those of the current study as secure attachment evidenced the lowest means scores and fearful attachment evidenced the highest means scores, in terms of PTSD symptoms as reported by participants. In addition, Olsen et al. (2010, submitted) reported positive associations between both preoccupied and fearful attachment styles and PTSD. Again, comparable with the results of the current study they reported that fearful attachment evidenced the strongest association.

With reference to the PTSD symptom clusters of re-experiencing, avoidance, and hyperarousal the secure style evidenced the lowest mean scores. The lower mean scores for secure individuals across all PTSD variables may in part be attributable to securely attached individuals seeking and receiving greater beneficial social support than that of their insecurely attached counterparts (Collins & Feeney, 2000; Riggs, Jacobvitz, & Hazen, 2002). Similarly, Fraley et al. (2006) suggested that securely attached individuals deal with adversity more effectively than their insecurely attached counterparts as their internal working models, which stem from early attachment relationships, offer comfort and security by reassuring that people are on hand when really needed. Likewise, the higher mean scores for both the preoccupied and fearful styles, with reference to all PTSD variables, may be attributable to an individual's level of perceived social support and their mental representations of the responsiveness and availability of others in times of need (Fraley et al., 2006). Further support for the roles of social support or the lack thereof was provided by O'Connor and Elklit (2008) who reported that individuals classified with a fearful attachment style where also individuals who reported the lowest levels of perceived social support.

These results support the one-dimensional approach proposed by Fraley and Brumbaugh (2004), O'Connor and Elklit (2008), and Olsen et al. (2010, submitted) which places secure and fearful attachment at polar opposites, with preoccupied and dismissing attachment placed centrally. Interestingly, O'Connor and Elklit (2008) concluded that preoccupied attachment would be placed closer to secure attachment, whereas, dismissing attachment would be placed closer to fearful attachment. Unfortunately, this hypothesis could not be tested within the current study. Interestingly, however, it is in contrast to other studies which have concluded that dismissing attachment is also negatively associated with the subsequent development of PTSD (Muller et al., 2001; Olsen et al., 2010, submitted). In addition, Collins (1996) reported that when compared to preoccupied individuals, dismissive people reported lower levels of negative emotion, suggesting that dismissive individuals would be placed closer to secure rather than fearful individuals.

With reference to depression and anxiety, results again showed that the secure attachment style had the lowest mean scores. The more insecure styles of preoccupied and fearful attachment had higher mean scores, respectively. In line with previous research, the current results suggest that secure attachment may be negatively associated with depression and anxiety, whereas, the insecure styles may be positively associated (Eng et al., 2001; Williams & Riskind, 2004). Contrary to previous research which has proposed a link between preoccupied attachment and depression and anxiety (Eng et al., 2001; Williams & Riskind, 2004) the highest mean scores evidenced in the current study were for fearful attachment. The propensity of insecure attachment styles to be associated with depression and anxiety has been suggested to be attributable to the tendency of such individuals to ruminate over negative experiences. In addition, insecurely attached individuals create a mental representation of the self as

helpless and hopeless with no means of escape or support in light of aversive experiences (Bemporad & Romano, 1992; Rholes & Simpson, 2004). The current results therefore suggest that secure attachment may act as a protective factor for depression and anxiety, whereas fearful attachment may pose as a risk factor for the development of depression and anxiety. The results pertaining to both depression and anxiety further support the proposal of a one-dimensional attachment model (Olsen et al., 2010, submitted). However, it is important to note that Olsen et al. (2010, submitted) reported that the most salient finding in their study was not that secure attachment may operate as a protective factor but that fearful attachment may operate as a risk factor. The absence of a dismissing attachment class within this current study unfortunately prevents the testing of the hypothesis that dismissing individuals would also be placed centrally alongside preoccupied individuals. As previously mentioned it is important to note that the style referred to as preoccupied is not as clear cut as would be desired, with individuals approximating midpoint levels of anxiety rather than clear cut high or low levels. It may be the case that the preoccupied class is a culmination of both traditionally classified preoccupied and dismissing individuals. However, despite this, the fact that the mean scores for depression and anxiety are greater for fearful attachment and lower for secure attachment, lends further support to the notion of a one-dimensional attachment model (Fraley & Brumbaugh, 2004; O'Connor & Elklit, 2008; Olsen et al., 2010, submitted).

In conclusion the current study proposes, in line with Olsen et al. (2010, submitted), that attachment may be better conceptualized as a one-dimensional construct with secure and fearful attachment classifications being placed at polar opposites of the dimension. Individual's not classified as either securely or fearfully attached may indeed lie centrally along a continuum. With regards to the predictive utility of attachment styles, secure attachment may pose as a protective factor, whereas fearful attachment may pose as a risk factor with reference to the development of psychiatric symptoms.

The current study is not without its limitations. First, the study is retrospective and cross-sectional so no causal inferences regarding the influence of attachment styles and psychiatric disorders are possible. Furthermore, as the study is retrospective some may question whether the findings are partly attributable to concerns over discriminant validity. In addition, some may question whether results may be attributable to a degree of conceptual overlap, i.e., those who are fearfully attached may also be those who are anxious and fearful in general. Second, self-report measures of attachment have been criticized as they are open to "faking good" or "faking bad", and thereby have the ability to confound the analysis. Furthermore, it has been suggested that conclusions from self-report measures may simply reflect the respondents' current mood. Likewise, there has been ample debate regarding whether attachment researchers should employ self-report measures or attachment interviews (cf. Steele, 2002). However, as both have been shown to have merit and both have been able to provide answers to research questions in line with the core concepts of attachment theory (Daniel, 2006) this may not be a major concern. Fourth, it is also important to note that the characteristics of dismissing attachment styles may have resulted in a reporting bias whereby dismissing individuals are subsumed within either the secure or preoccupied attachment class. Dismissing individuals often deliver positive reports of their childhood (and so positive reports of the self and others), however, when questioned further they find it difficult to support such memories (Zimmerman, 2004): self-report measures do not allow for further questioning. Thus, if a LPA was conducted on data gleaned from an attachment interview perhaps a dismissing style would emerge. Fifth, as participants in the sample are Danish the generalization of results to other cultures must be conducted cautiously. Sixth, early childhood trauma exposure may influence the development of later adult attachment styles; unfortunately we did not enquire about participants early childhood experiences.

The current findings may have important implications regarding the conceptualization of attachment classifications. These findings are notable given they suggest that secure and fearful attachment exist at polar opposites of what may be considered a risk continuum. Future research may consider replicating the current LPA and extending the number of clinical variables under investigation to clarify and solidify conclusions.

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There is no conflict of interest in the present study for any of the authors.

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