



Integrating adult attachment scales and vulnerability factors in depression

Rolf van Geel, Tilly Houtmans, Peter Verboon, and Tony Laumen

Faculty of Psychology and Educational Sciences, Netherlands Open University, Nijmegen, The Netherlands

The factorial structure of a combined set of items about adult attachment orientation and depressive personality vulnerabilities was examined. By employing exploratory and confirmatory factor analysis in two nonclinical samples ($N = 661$, $N = 528$), a six-factor model emerged covering three higher-order dimensions: (I) attachment anxiety (concern what others think, pleasing and dependency/difficulty with being alone); (II) attachment avoidance (avoidance of intimacy and lack of trust); and (III) need for control/independence. These (sub)factors portray the interpersonal problems of the insecure attachment prototypes, as well as the anaclitic and introjective depressive personality prototypes. Path analysis showed that two anxiety-sociotropy subscales (concern and pleasing) and two avoidance-autonomy subscales (distrust and control) emerged as significant predictors of BDI depression. Notably, close inspection of the six-factor model challenges the original composition of several subscales of the two questionnaires involved.

Keywords: attachment, sociotropy, autonomy, depression, satisfaction with life

In cognitive and psychodynamic depression theories two personality dimensions are assumed to make a person susceptible to depression and other psychopathologies (e.g., Mikulincer & Shaver, 2007; Blatt, 2004). These vulnerabilities are portrayed by (a) the excessive concern with interpersonal relationships, and (b) the one-sided investment in personal achievement (Blatt, 1974; Beck, 1983; Luyten, Blatt, & Corveleyn, 2005). In adult attachment theory two comparable meta-constructs have emerged: (a) the anxiety about abandonment, and (b) the avoidance of intimacy (Brennan, Clark, & Shaver, 1998; Mikulincer & Shaver, 2007; Bartholomew, 1990). These two risk factors for depression and insecure attachment are reminiscent of what in the literature is known as ‘unmitigated communion’ (the tendency to focus on others to the exclusion of self) and ‘unmitigated agency’ (the tendency to focus on self-development to the exclusion of others) (Helgeson, 1994). In essence, both theories consider psychopathology to be the result of an overemphasis on either the striving for connection or the striving for self-definition.

In both research domains several self-report measures have been developed, and within each domain psychometric studies have been published focusing on first-order factor structures in item-sets. However, the item-sets concerning risk factors for depression have largely remained separated from those that have emanated from attachment theory, although both theories share a similar theoretical foundation, as evidenced by the following citation: “attachment anxiety is related to interpersonal aspects of depression, such as overdependence, lack of autonomy, and neediness

(the form of depression Blatt [1974] called *anaclitic*), avoidance is related to achievement-related aspects of depression such as perfectionism, self-punishment, and self-criticism (which Blatt called *introjective depression*)” (Mikulincer & Shaver, 2007, p. 379).

In the present study we focus on the first-order factorial structure of self-report measures assessing adult attachment relationships and risk factors in depression. First, attachment theory is discussed, highlighting Bartholomew’s (1990) four-category model of adult attachment prototypes. Several studies concerning self-report attachment measures are discussed. Secondly, descriptions of two depression prototypes are provided, and some of the associated self-report measures are reviewed. Finally, we elaborate on the similarities between attachment theory and theories describing vulnerabilities for depression, which leads to the main objective of this study: to identify the sub(factors) that materialize from the analysis of a combined set of items about adult attachment and depressive personality styles. For the purpose of external validation, the relationship between depression, and subjective well-being with the derived (sub)factors are examined. Implications for assessment and possible subscale revisions are discussed.

Adult attachment and depression

Contemporary research on adult attachment relationships suggests that ‘attachment anxiety’ (or model of self) and ‘attachment avoidance’ (or model of others) are two crucial dimensions, which underlie four basic attachment prototypes (Brennan et al., 1998; Mikulincer & Shaver, 2007). The anxiety dimension refers to oversensitivity to clues about abandonment, separation, and rejection, and an exaggerated need for reassurance, attention, and support. The avoidance dimension encompasses discomfort with close-

ness and dependency, distancing from others, and denial of attachment needs. These dimensions involve two different strategies for dealing with insecurity and distress when a security-providing attachment figure is unavailable or unresponsive. The anxious (or hyperactivating) attachment strategy involves the “intense monitoring of threat and potential signs of attachment figure unavailability, and strong efforts to maintain proximity” (Dewitte, 2008, p. 21). Quite the opposite is the avoidant (or deactivating) attachment strategy, characterized by “the dismissal of threat, the suppression (...) of attachment needs and vulnerabilities, and the inhibition of proximity seeking behaviour” (Dewitte, 2008, p. 22). In short, anxiously attached individuals are overly worried that others will not be available when needed, whereas avoidantly attached individuals (seem to) have given up on others as a source of comfort and protection altogether.

Bartholomew (1990) developed a four-category model of attachment styles based on the (orthogonal) dimensions of anxiety and avoidance: secure, preoccupied, dismissing, and fearful (Mikulincer & Shaver, 2007). She theorized that, due to consistently warm and responsive parenting, securely attached people have developed a self-concept of being worthy of love and attention (positive model of self) and a general expectation that others are trustworthy and caring (positive model of others). Hence, they do not worry about not being accepted by others (they display low anxiety) and easily get emotionally close to others (they display low avoidance). Three insecure attachment prototypes were distinguished: people with a preoccupied attachment style have a strong desire for emotionally intimate relationships (low avoidance), but at the same time they worry about not being accepted by others (high anxiety); people with a dismissing avoidant style defensively deny the need for intimacy (high avoidance) in order to preserve a sense of self-sufficiency and invulnerability (low anxiety); people with a fearfully avoidant style shun intimacy (high avoidance) in order to avoid the pain of potential loss or rejection (high anxiety), without really relinquishing their desire for acceptance and support from others.

Attachment researchers have been developing a rich variety of attachment measures, including those based on forced choice of attachment prototypes, ratings of fit with attachment prototypes, and various dimensional ‘multi-item’ measures. One of the most frequently used instruments is the Experiences in Close Relationships Scale (ECR, Brennan et al., 1998), a two-dimensional measure that includes items about attachment anxiety and attachment avoidance. Noticeably, half of the avoidance items refer to secure attachment. So, the avoidance scale of the ECR is essentially a secure-avoidance contrast. Van Oudenhoven and Hofstra (2005) created a ‘multi-item’ four-dimensional measure (in Dutch), in which the scales were labeled according to the four attachment prototypes (For a critical study, see Polek, 2007). All ‘fearful’ items explicitly convey an approach and avoidance tendency, which is the defining feature of this attachment style (Collins & Feeney, 2004). Feeney, Noller, and Hanrahan (1994) developed a five-dimensional attachment measure for use in an adolescent population, including a secure dimension (Confidence in Self and Others), two anxiety related dimensions (Need for Approval, and Preoccupation

with Relationships), and two avoidance related dimensions (Discomfort with Closeness, and Relationships as Secondary). Other factor-analytical studies have uncovered many more subscales (for reviews, see Mikulincer & Shaver, 2007; and Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010).

Regarding psychopathology, numerous studies with non-clinical samples have found strong associations of depression with global attachment anxiety and preoccupied attachment style ratings. In addition, most studies report associations of global attachment avoidance with depression, but the picture is less consistent than that for attachment anxiety (For a review, see Mikulincer & Shaver, 2007, p. 378-385). Moreover, from an overview of studies in which attachment style ratings were applied, it appears that depression is more consistently associated with fearful-avoidant attachment than with dismissing-avoidant attachment (Mikulincer & Shaver, 2007). So, it seems that the anxiety component of insecure attachment, rather than the avoidance component, is the more critical vulnerability factor. In addition, in studies using samples of clinically depressed people, more severe depressive symptomatology has been associated with a blend of attachment anxiety and avoidance (cf. fearful-avoidant attachment). Furthermore, in several clinical studies it has been reported that patients diagnosed with major depression, as compared to controls, were more likely to display features of fearful-avoidant attachment (Mikulincer & Shaver, 2007).

Although most attachment research has been focusing on the two higher-order attachment dimensions and allied attachment prototypes, we believe that identifying sub-components within these dimensions may be a prolific enterprise. Strodl and Noller (2003), for example, studied the relationship of adult attachment dimensions to depression, using Feeney et al.’s (1994) five-dimensional attachment measure. The results showed that only the need for approval, preoccupation with relationships, and relationships as secondary were uniquely associated with BDI depression. Rodrigues (2010) also used Feeney’s ASQ as an attachment instrument, when studying the effects of a (mixed cognitive-behavioral and experiential) therapy for depression. Pre-treatment measures of confidence, discomfort with closeness and need for approval were identified as critical attachment variables related to a range of treatment outcomes, including BDI depression. These studies illustrate that it may be fruitful to use multifaceted attachment measures in research and psychotherapy, as these may provide more information about specific vulnerabilities (related to depression) and clues for fine-tuning psychotherapy.

Depressive personality styles

In Blatt’s (1974) psychodynamic and Beck’s (1983) cognitive depression theory two comparable higher-order personality dimensions can be distinguished as crucial vulnerability factors (Luyten, Blatt, et al., 2005). The first personality dimension refers to distorted and intensified attempts for connection, labeled as Dependency (Blatt, 1974) and Sociotropy (Beck, 1983), reflecting an excessive reliance and investment in significant others, as well as intense needs for acceptance and love from others (Alden & Bieling, 1996; Nietzel & Harris, 1990). A depression re-

sulting from the excessive concern with interpersonal relationships is referred to as a dependency or anaclitic depression, which is “characterized by feelings of loneliness, helplessness, weakness, and fears of abandonment” (Luyten, Blatt, et al., 2005, p. 76). The second personality dimension refers to distorted attempts to exercise control and maintain self-esteem, labelled as Self-criticism (Blatt, 1974) and Autonomy (Beck, 1983), reflecting the excessive investment in personal achievement, excessive demands for accomplishment and control, and relentless self-criticism when stringent self-standards are not met (Alden & Bieling, 1996; Nietzel & Harris, 1990). Persons who invest excessively in personal achievement are more at risk to develop a self-critical or introjective depression, involving “self-criticism, guilt, shame, worthlessness, and often a chronic fear of being criticized or disapproved” (Luyten, Blatt, et al., 2005, p. 79).

According to the ‘personality-event congruency hypothesis’ excessively dependent (anaclitic) persons are oversensitive to negative interpersonal events, and are more likely to respond with dysphoria after rejection or loss. For self-critical (introjective) persons negative achievement related events (e.g., failure at work) are considered to be risk factors (Luyten, Blatt, et al., 2005) (For a review, see Blatt, 2004; Blatt & Zuroff, 1992). In so-called action-oriented models, it has been suggested that dependent persons can evoke rejection from others because of their annoyingly clingy interpersonal style (Blatt, 2004). Similarly, self-critical individuals may induce disapproval in others because of their cold and competitive behavior, and are prone to experience failure because of their excessively high standards (Luyten, Blatt, et al., 2005). Hence, anaclitic and introjective individuals, partly, may actively help create their own ‘congruent’ life events to which they are most vulnerable. Obviously, the sequences that perpetuate dysfunctional behavior are important foci in psychotherapy (Luyten & Blatt, 2012).

Within this field of research a variety of vulnerability measures has been developed, but the three most prominent self-report measures are the Depressive Experiences Questionnaire (DEQ, Blatt, D’Afflitti, & Quinlan, 1976), the Sociotropy and Autonomy Scales (SAS, Beck, Epstein, Harrison, & Emery, 1983), and the Personal Style Inventory (PSI, Robins et al., 1994). Numerous psychometric studies have been conducted, scrutinizing factorial structures and allied composition of subscales of these measures. Revisions were driven, amongst others, by the need to replicate and improve factorial structures in clinical and non-clinical samples, the demand to diminish the artificial overlap with depressive states, while improving construct validity and preserving or enhancing criterion validity (i.e., the correlation with depressive states). At the same time, specific vulnerability components were being uncovered within the anaclitic and introjective domain.

The original DEQ assesses two main vulnerability factors, Dependency and Self-Criticism, and an additional Efficacy factor. In nonclinical populations the three-dimensional factorial structure of the DEQ has been replicated repeatedly, but in clinical populations the structure seems less clear (Desmet et al., 2007). A typical finding is that Self-criticism is more strongly connected to severity of depression than Dependency (For a review, see Blatt, 2004).

Nietzel and Harris (1990), for example, report an average effect size of $r = .49$ for Self-Criticism and $r = .29$ for Dependency in twelve cross-sectional studies. Research with revised versions of the DEQ have revealed similar results (e.g., Desmet et al., 2007). Although in its original form the DEQ contains only one Dependency factor, some studies suggest that there are reasons for distinguishing a sub-component about Neediness/Dependence, referring to a less mature level of interpersonal relatedness with others in general (linked to depression), and a sub-component about Connectedness/Relatedness, pertaining to a more mature level of interdependency with specific others (not linked to depression) (Blatt, Zohar, Quinlan, Zuroff, & Mongrain, 1995; Rude & Burnham, 1995).

The original SAS also contains two main vulnerability factors, but they each consist of three subscales: Sociotropy (Concern about Attachment and Separation, Concern about Disapproval, Concern about Pleasing Others) and Autonomy (Achievement, Freedom from Control, Preference for Solitude). So, in contrast to the DEQ, from the very beginning SAS vulnerability factors were conceived as multidimensional. Bieling, Beck, and Brown (2000) thoroughly investigated the factorial structure of the SAS for a large group of psychiatric outpatients, employing a mixture of exploratory and confirmatory techniques. They concluded that “the items of the sociotropy and autonomy scales can be adequately described by two factors for each scale” (p. 776). Regarding psychopathology, the results of this study suggest that the Sensitivity to Others’ Control (i.e., a blend of Freedom of Control and Preference for Solitude) is a critical autonomy facet, although only weakly related to BDI depression ($r = .19$). Furthermore, it seems that Fear of Criticism and Rejection (a mix of Concerns about Disapproval and Pleasing Others) is a more critical sociotropic vulnerability facet than Preference for Affiliation (correlations with BDI depression were $r = .40$ and $r = .25$, respectively). Rude and Burnham (1995) identified two similar subscales within the SAS sociotropy items: Neediness (linked to depression) and Connectedness (not linked to depression).

The original PSI was devised as an improvement of the then existing measures of sociotropy and autonomy (Robins et al., 1994). The PSI consists of (modified) items from the SAS, DEQ, and other instruments. It contains two threefold factors: Sociotropy (Concern about what Others Think, Dependency, and Pleasing Others), and Autonomy (Defensive Separation, Need for Control, and Perfectionism/Self-Criticism). Robins et al. (1994) did not include achievement items (cf. SAS) as achievement “seems to represent a relatively healthy type of autonomous striving, rather than a vulnerability factor for psychopathology” (p. 280). However, some studies suggest that Perfectionism/Self-Criticism does not fit the expected theoretical structure either (Bagby, Parker, Joffe, Schuller, & Gilchrist, 1998). For this reason, some researchers have suggested to eliminate this subscale from the (higher order) PSI autonomy construct (Desmet, Vanheule, Meganck, & Verhaeghe, 2010). A typical finding is that the (higher-order) autonomy and sociotropy scales of the (original and revised versions) of PSI both correlate with measures of depression (For a review, see Blatt, 2004). Sato and McCann (1997) analyzed the items of the PSI and a re-

vised version of the SAS (SAS-R, Clarck & Beck, 1991). The analysis of this combined item pool revealed two sociotropy factors (Sensitivity to Others, and Attachment, cf. Bieling et al., 2000) and two autonomy-related factors (Achievement, and Control, cf. Bieling et al., 2000). Sato and McCann also extracted a third autonomy factor, namely Insensitivity, composed of items about being insensitive toward others and having difficulty in relating to others. The items of this factor largely originated from the SAS-R Insensitivity subscale, but it also included some PSI Defensive Separation items. Sato and McCann (1997) reported substantial correlations with BDI depression for two introjective facets (Insensitivity, $r = .31$; Control, $r = .34$; Achievement, $r = .04$), and the two anaclitic facets (Sensitivity to Others, $r = .42$; Attachment, $r = .26$).

Taken together, it appears that the anaclitic vulnerability domain (as represented in the sociotropy items of the DEQ, SAS, SAS-R, and PSI) is essentially two-dimensional. One dimension involves the Oversensitivity to Others entailing a Fear of Criticism and Rejection. The other dimension reflects predominantly Concerns about Attachment and Separation but also implies a Preference for Affiliation (Sato & McCann, 1997; Bieling et al., 2000; Rude & Burnham, 1995). The validity of this two-factor model of sociotropy is supported by the stability of the composition of subscales across studies, the higher-order structure of subscales, and the consistent positive correlations of both scales with depression. Several studies indicate that especially the Oversensitivity to Others is pernicious to one's health (Sato & McCann, 1997; Bieling et al., 2000; Rude & Burnham, 1995).

The structure of the introjective domain is less transparent. Studies with the SAS, SAS-R and PSI seem to disclose two autonomy dimensions related to psychopathology, including depression. One salient autonomy factor is the 'Interpersonal Insensitivity towards Others' characterized by the difficulty in relating to others, and being uncomfortable with intimacy and closeness. Another typical dimension is the 'Need for Control' or "tendency to act independently from others in order to avoid being influenced by them" (Sato & McCann, 1997, p. 58). The clustering of the items about 'Interpersonal Insensitivity' seems sufficiently stable across studies. However, the precise composition of the Control factor is somewhat unstable. Clearly, additional psychometric research is needed here. A more fundamental problem is raised by the presence of the 'Individualistic Achievement' autonomy factor. This factor does not seem to qualify as a risk factor for depression as it displays negative to near zero correlations with BDI depression (Sato & McCann, 1997; Bieling et al., 2000; For a critical study of the autonomy construct, see Hmel & Pincus, 2002).

To summarize, the search for risk factors in depression has been intrinsically connected with the identification of sub-components within the anaclitic and introjective domain. This search has typically been guided by the requirement of sufficient CFA fit of the two-dimensional higher-order factor structure and the requirement of (lower-order) scales displaying substantial associations with self-report measures of depression. In this manner improved versions of the DEQ (Bagby, Parker, Joffe & Buis, 1994; Desmet et al., 2007), the SAS (Bieling et al., 2000)

and the PSI (Bagby et al., 1998; Desmet et al., 2010) have been developed. However, other researchers have applied the methodological heuristic of combining item pools of different origin and disentangled some of the crucial facets of sociotropy and autonomy (e.g., Sato & McCann, 1997). Indeed, it seems that factor analyzing these richer item pools may be particularly valuable, as these are more likely to engender reliable and meaningful sub-components related to depression.

Convergence between attachment and depressive personality measures

Conceptually, the two major dimensions of insecure attachment bear a striking resemblance to the two depressogenic vulnerability factors. Both, attachment anxiety and sociotropy/dependency encompass a strong desire for close interpersonal relationships, need for acceptance and protection from others, while attachment avoidance and autonomy/self-criticism share an emphasis on avoidance of closeness in social relationships. The empirical findings suggest that PSI-Sociotropy and DEQ-Dependency are most closely associated with the preoccupied attachment style (high anxiety, low avoidance), and that PSI-Autonomy and DEQ-Self-Criticism are closely related to the fearful-avoidant attachment style (high anxiety, high avoidance) (Zuroff & Fitzpatrick, 1995; Morrison, Urquiza, & Goodlin-Jones, 1998; Murphy and Bates 1997; Murphy, 2000; Davilla, 2001; Reis & Genyer, 2002; Sibley, 2007). Additional evidence about the similarities between attachment and depressive personality constructs comes from their shared similarity with variables concerning interpersonal problems (Alden & Bieling, 1996; Desmet et al., 2007).

The global picture that emerges from these studies is that the two higher-order depressive personality styles are associated with the two higher-order attachment dimensions. A crucial interpersonal problem associated with attachment anxiety and sociotropy/dependency seems being overly friendly and non-assertive, representing an inability to express anger towards others or to stand up for oneself for fear of rejection. A critical feature of attachment avoidance as well as autonomy/self-criticism seems interpersonal coldness, representing a tendency to distance oneself from others. Regarding the prototypes, anaclitic personality and preoccupied attachment are very much alike, whereas Blatt's concept of Self-Criticism appears to have more in common with the fearful-avoidant attachment style than with the dismissive-avoidant attachment style (Luyten, Corveleyn, & Blatt, 2005). According to Luyten, Corveleyn, et al. (2005), Beck's Autonomy concept seems more closely related to the dismissive-avoidant attachment style, reflecting a distinctive theoretical view. Beck emphasized the distancing from others and aloofness in autonomous individuals, whereas Blatt maintained that introjective individuals desire contact with others, and although fearing criticism, also need the approval of others (Luyten, Corveleyn, et al., 2005).

The present study

The primary aim of the present study was to explore the factorial structure of a combined set of items about adult

attachment and depressive personality styles. For that purpose, we selected the Attachment Style Questionnaire (Van Oudenhoven & Hofstra, 2005) and the Personal Style Inventory (Robins et al., 1994). Considering the theoretical overlap between the constructs, we expected the items to intermingle in a meaningful way, thus resulting in (sub)factors that can be associated with agentic and communal vulnerability factors for depression. Assessing these (sub)factors can possibly reveal which persons are at risk for developing different kinds of depression. Even though the study was mainly exploratory in nature, we had some expectations regarding the clustering of items. First, we expected preoccupied attachment items to display a distinct affinity with items pertaining to sociotropic personality, as they both concern a submissive-communal interpersonal orientation. In the analysis of these items, we were particularly attentive to a possible two-factor structure (cf. Sato & McCann, 1997). Second, we anticipated a clustering of items about fearful-avoidant attachment and defensive separation, as they both entail an interpersonal disconnection and insensitivity towards others. Third, we were keen on the possibility that dismissing attachment items (which are mainly about independence) would blend with items about need for control.

METHOD

Subjects and procedure

The data of this study were collected from three different groups. (A) One group consisted of the social network of psychology students who did their bachelor research in 2009 and 2010. Students sent a request to fill out an online questionnaire about 'intimate relationships, well-being, and depressive complaints', including measures about adult attachment (ASQ), depressive personality factors (PSI), depressive symptoms (BDI), and general satisfaction with life (SWLS) (see 'measures'). 661 respondents completed the questionnaires (165 men, 492 women and four of unknown gender; mean age = 42.2 years; $SD = 12.0$). (B) The second group participated in an online survey about 'intimate relationships' (De Schutter, Van Geel, Lodewijckx, & Verboon, 2009). An invitation to participate in the research was posted in newsgroups of the university's internal computer network. The questionnaire included measures about adult attachment (ASQ) and depressive personality factors (PSI) (see 'measures'). 429 respondents completed the questionnaire (139 men, 290 women; mean age = 40.6; $SD = 10.6$). (C) The data of a third group were collected in 2008 by five master psychology students. Participants were recruited by sending an e-mail to 2,167 students from different faculties. This e-mail contained an invitation to participate in a study about 'intimate relationships' with the aid of the Self-Confrontation Method (SCM) (Hermans & Hermans-Jansen, 1995). The SCM is supposed to stimulate self-examination when a person is detecting affective patterns as reflections of two 'latent' basic motives: the striving for self-enhancement and the striving for contact and union (Van Geel, 2000). In this study, every participant filled out a questionnaire that included measures about adult attachment (ASQ) and depressive personality factors (PSI) (cf. Group B). Eighty-five subjects agreed to partici-

pate in the study. Fifteen additional subjects were recruited from among the social network of the five psychology students. 99 respondents of this group were included (36 men, 63 women; mean age = 43.4 years; $SD = 9.9$). One person was excluded due to missing data of the PSI.

We used the data from the first group ($N = 661$) in the initial exploratory phase of factor analyses, and the aggregated dataset of the second and third group ($N = 528$) for the purpose of cross-validation. The persons of the exploratory sample were, on average, somewhat older than those of the cross-validation sample (respectively $M = 42.2$, $SD = 12.0$ & $M = 41.1$, $SD = 10.5$, $\eta^2 = .002$). In addition, in the exploratory sample there were somewhat more females (74.9%) than in the cross-validation sample (66.9%) ($\phi = .09$).

Measures

Attachment Style Questionnaire (ASQ; Van Oudenhoven & Hofstra, 2005). The 24-item ASQ was developed to assess Bartholomew's (1990) prototypical attachment styles 'dimensionally'. It consists of four attachment subscales: Secure, Preoccupied, Dismissing-avoidant, Fearfully-avoidant. In this study we used the original Dutch version; for an English translation, see Hofstra, Van Oudenhoven, and Buunk (2005). The items had a five-point answer scale from *strongly disagree* to *strongly agree*.

Personal Style Inventory (PSI; Robins et al., 1994). The original 48-item PSI contains two threefold factors: Sociotropy (Concern about what Others Think, Dependency, and Pleasing Others); Autonomy (Defensive Separation, Need for Control, and Perfectionism/Self-Criticism). We used a Flemish-Dutch version of the PSI (Luyten, Soenens, Vansteenkiste, & Corveleyn, 2003). The items had a six-point answer scale from *totally disagree* to *totally agree*. In the present study we discarded the four items about Perfectionism/Self-Criticism (cf. Bagby, et al., 1998; Desmet et al., 2010).

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI is a 21-item inventory that assesses somatic, cognitive, and behavioral symptoms characteristic of depressed mood. The BDI generally displays good internal consistency and adequate construct validity (Alden & Bieling, 1996). We used a Dutch version of the BDI (Bouman, Luteijn, Albersnagel, & Van der Ploeg, 1985). However, the items concerning loss of appetite and loss of weight were dropped due to low corrected item-total correlations ($< .30$, cf. Field, 2013); Cronbach's alpha reliability was .89. As would be expected for this subject pool, the mean score on the BDI was quite low ($M = 6.38$, $SD = 6.37$) and the distribution of scores had a positive skew (skewness = 1.92). Our mean score is comparable to the mean score of 9.30 Alden and Bieling (1996) found for undergraduate women volunteers.

Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS is a five item questionnaire designed to measure global cognitive judgments of satisfaction with one's life. The scale generally displays adequate reliability and construct validity. We used a Flemish-Dutch version of the SWLS (Van Doorslaer, 2007). The items had a seven-point answer scale from *totally disagree* to *totally agree*. Cronbach's alpha reliability

was .88. As would be expected for this subject pool, the mean score on the SWLS was quite high ($M = 23.62$, $SD = 6.74$, skewness = $-.60$).

Analysis

In order to find meaningful clusters in the set of ASQ and PSI items, we employed exploratory and confirmatory factor analytical techniques. As for external validation, we examined the relationships with BDI depression and SWLS life satisfaction with path analysis. However, these data were only available for the first group (i.e., the so-called ‘exploratory sample’, $N = 661$). Most analyses were done with SPSS 22, including the exploratory factor analysis. Confirmatory factor analysis and path analysis were performed with the R-package LAVAAN (Rosseel, 2012) and AMOS 22 (Arbuckle, 2013).

RESULTS

Exploratory factor analysis and refinement of subscales

In order to examine the structure of the ASQ and PSI items (initially totaling 68 items) in the ‘exploratory sample’ ($N = 661$), we first conducted a principal components analysis. Four (unrotated) factors emerged with eigenvalues larger than three, accounting for 37.6% of the variance. The item pool was further refined by screening for items with low loadings ($< .35$) and items with high secondary loadings ($> .35$) in the pattern matrix (PAF, Oblimin). As a result eight items were removed.

The remaining 60 items clearly displayed a simple four-dimensional structure, which accounted for 39.1% of the variance. Factor I was a prominent ‘Sociotropy-Anxiety factor’, composed of 22 PSI-Sociotropy items and six ASQ-Preoccupied items. Factor II revealed a contrast between ‘Secure-Attachment and (Fearful) Avoidance’, containing seven ASQ-Secure items, four ASQ-Fearful items, four PSI-Defensive-Separation items associated with avoidant attachment, and one ASQ-Dismissing item. Factor III was a mixed ‘Control-Defensive-Separation’ factor, which besides five PSI-Need-for-Control items contained five PSI-Defensive-Separation items (expressing irritation about others interfering with one’s independent decision making). Factor IV was labeled Independence, because it included four ASQ-Dismissing items (about independence), and two PSI-Defensive-Separation items (on rejecting help or sympathy from others: psi6 and psi10). Although Factor III and IV both involved independence, the items of Factor III conveyed much more irritation about others than those of Factor IV.

The internal structure of the 28 items of the higher-order Factor I was studied in more detail (PAF, Oblimin). We considered the three-factor solution, because it was clearly composed along the lines of the three sociotropy facets. Four items were dropped due to low loadings ($< .30$) or high secondary loadings ($> .30$). The first subfactor was a blend of six ASQ-Preoccupied-Attachment items and five PSI-Concern-what-Others-Think items. The second subfactor was composed of seven PSI-Pleasing-Others items and two PSI-Dependency items concerning ‘being strongly committed to others’ (psi11, psi21). The third sub-

factor consisted of four PSI-Dependency items expressing ‘difficulty with being alone’. The three factors were interpreted as ‘Concern what Others Think (Preoccupied Attachment)’ (11 items), ‘Pleasing Others (being committed and loyal to others)’ (9 items), and ‘Dependency (difficulty with being alone)’ (4 items). The internal consistencies of the three subscales were acceptable (i.e., within each subscale, all corrected item-total correlations $> .35$).

The 16 items of Factor II were also subjected to a more thorough analysis. A two-factor solution (PAF, Oblimin) seemed sensible, as it broke up this factor into two theoretically relevant facets: ‘Intimacy versus Avoidance of intimacy’ (10 items) and ‘Trust versus Distrust (Fearful avoidance)’ (6 items). Regarding internal consistency, the two subscales of this domain were satisfactory (i.e., within each subscale, all corrected item-total correlations $> .40$).

Within Factor III and Factor IV we did not discern meaningful subfactors. Moreover, all ten items of Factor III had clearly one aspect in common: feeling irritated when others restrict one’s independence and freedom. The six items of Factor IV expressed the need for independence more neutrally, with a focus on ‘not needing other people’. Psychometrically, the Need-for-Control Factor III was sound (all item-total correlations $> .35$). However, the internal consistency of Factor IV was not impressive as three item-total correlations were lower than .35.

Confirmatory factor analysis and cross-validation

We further examined the presumed seven-factor model within a CFA framework. In contrast to EFA, the CFA framework offers the possibility of testing a theoretically based clustering of items (by fixing cross-loadings to zero), and estimating method effects (by permitting measurement errors to correlate) (Brown, 2006). In order to approximate an acceptable model fit ($CFI > .90$, $TLI > .90$, $RMSEA < .06$, $SRMR < .08$, cf. Brown, 2006), we planned to progressively eliminate items from the seven-dimensional model with large item-to-factor and item-to-item error correlations (cf. Desmet et al., 2010), as signaled by many large modifications indices (of an item). By probing several CFA models it became gradually apparent that most items of the Independence factor IV displayed rather low factor loadings ($< .40$) and many (large) item-to-factor correlations, evidently representing a localized area of ill fit (Brown, 2006). Therefore, we eventually decided to discard almost all Independence items (asq6, asq12, asq16, psi6, psi10), except for one item that displayed a distinct affinity with the Dependency subscale (asq19). From this six-dimensional model nine items were removed until marginally acceptable fit was reached on the incremental fit values (CFI and $TLI > .88$, see Table 1). In order to improve the model fit, four correlated measurement errors between pairs of ‘similarly worded’ items were included (see note Table 1). The final composition of the shortened(sub)scales as well as the initial composition of extended (sub)scales are reported in Table 2.

Table 2 clarifies the distinction between the three-factor model (composed of the main Factors I, II and III) and the six-factor model (composed of the facets of Factor I and II, and Factor III). Regarding fit, the short version of the six-factor model was, of course, superior, simply be-

Table 1. Confirmatory Factor Analysis in two samples: Fit indices of three-factor and six-factor models

Exploratory sample ($N=661$)		χ^2	df	CFI	TLI	RMSEA	SRMR
3-factor	extended	3981.852	1217	0.788	0.778	0.059	0.073
	short	2421.473	812	0.843	0.833	0.055	0.064
6-factor	extended	3389.766	1205	0.833	0.823	0.052	0.065
	short	1945.113	800	0.888	0.879	0.047	0.054
Crossvalidation sample ($N = 528$)							
3-factor	extended	3446.140	1217	0.789	0.779	0.059	0.077
	short	2208.061	812	0.828	0.818	0.057	0.071
6-factor	extended	2945.609	1205	0.835	0.826	0.052	0.070
	short	1794.040	800	0.878	0.868	0.049	0.061

Note: The extended version contains 51 items, the short version contains 42 items (see Table 2). CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual. In all models four extra correlated errors were included: asq7–asq11, asq2–asq5, asq20–asq23, and psi26–psi30.

cause it was optimized for this model (see Table 1, ‘exploratory sample’). However, cross-validation supported the idea that the observed correlations among items are more adequately explained by a six-factor model (see Table 1, ‘cross-validation sample’): With respect to the extended version (of 51 items), the six-factor model displayed a better fit than the three-factor model, $\chi^2_{diff} = 500.53$, $df = 12$, $p < .0001$. Considering the short version (of 42 items), the six-factor model gave a significant improvement in fit as compared to the three-factor model, $\chi^2_{diff} = 414.02$, $df = 12$, $p < .0001$. Likewise, the incremental fit values were in favor of (the extended and short version) of the six-factor model over the three-factor model. However, the values of the RMSEA and SRMR were consistently low for all models in the cross-validation sample.

Based on the whole profile of fit measures, we conclude that the extended and short version of the six-factor model display acceptable and good fit, respectively. Regarding the whole sample ($N = 1189$) the fit measures of the short version ($\chi^2/df = 2768.621/800 = 3.461$, CFI = 0.891, TLI = 0.883, RMSEA = 0.045, SRMR = 0.052) were somewhat better than those of the extended version ($\chi^2/df = 4820.943/1205 = 4.001$, CFI = 0.844, TLI = 0.835, RMSEA = 0.050, SRMR = 0.062). The factor loadings of these two models as estimated within the entire sample are presented in Table 2. The reader can verify that in the short version (in most cases) items with a relatively low loading were deleted from the extended version, and that in both models most loadings are moderately high ($> .50$). Because of the higher-order factor structure we labeled the final model as the Anxiety-Avoidance-Control model (AAC model).

Correlational analysis

In order to examine the construct validity of the AAC model, six new scales were created by unit weighting of standardized items, according to the ‘short version’ of the six-factor model (see Table 2). A comparison between the exploratory and cross-validation sample revealed that only marginal differences in means could be detected on these subscales ($\eta^2 < .01$). Table 3 presents the correlations between the AAC scales within the two samples. The correlations of these scales with depressive complaints, and general satisfaction were only available for the exploratory

sample. Table 3 shows that the correlations between the AAC scales were all moderate to high positive. However, the highest correlations were between the three anxiety-sociotropy scales and between the avoidance and control scales. Hence, the correlational matrix as a whole suggests that there are two noticeable clusters.

The six AAC scales correlate substantially with BDI and SWLS, but when only considering the most pronounced correlations it seems that a combination of high Concern and high Distrust is most harmful to one’s well-being.

Associations of the attachment-personality scales with depression and satisfaction: A mediational model

In order to obtain an overview of the relationships of the AAC scales with depression and general life satisfaction, we examined a path model in which depression was conceived as a mediator between the attachment-personality factors and life satisfaction. Although the path model assuming ‘complete’ mediation by BDI did not result in an acceptable overall fit ($\chi^2/df = 58.895/6 = 9.816$, CFI = .973, TLI = .874, RMSEA = .116, SRMR = .047), by including one additional path between Distrust and SWLS, excellent fit was reached ($\chi^2/df = 9.541/5 = 1.951$, CFI = .998, TLI = .986, RMSEA = .038, SRMR = .017). The parameter estimates of the latter model are included in the path diagram of Figure 1. The diagram shows that Concern, Pleasing, Distrust and Control are important predictors of BDI depression ($R^2 = .35$) and that BDI depression and Distrust predict Life Satisfaction ($R^2 = .43$). Importantly, the diagram suggests that depression largely mediates the relationship between the attachment-personality scales and general life satisfaction.

Associations of a cluster-based attachment measure with depression and satisfaction

We subdivided the ‘exploratory sample’ ($N = 661$) that contained the BDI and SWLS scores, into four clusters representing the four attachment prototypes. We used Ward’s hierarchical cluster algorithm (on the six AAC subscales), with the Squared Euclidean distance as proximity measure. To ascertain the stability of the solution, an additional ‘nonhierarchical’ clustering was performed with the centroids from the hierarchical procedure as seeds. The

Table 2. Standardized loadings of the six-factor confirmatory solution of the extended and short version ($N = 1189$)

Scales and items			loadings	
			extended	short
I ANXIETY				
Ia Concern what Others Think				
asq7	I often wonder whether people like me.	ASQ-PREOCCUPIED	.78	.77
asq11	I am often afraid that other people don't like me.	ASQ-PREOCCUPIED	.77	.78
asq13	<i>I fear to be left alone.</i>	ASQ-PREOCCUPIED	.56	–
asq17	I don't worry whether people like me or not.	ASQ-PREOCCUPIED	-.65	-.65
asq21	I usually find other people more interesting than myself.	ASQ-PREOCCUPIED	.46	.48
asq24	<i>I find it important to know whether other people like me.</i>	ASQ-PREOCCUPIED	.68	–
psi7	<i>I am very sensitive to criticism by others.</i>	PSI-CONCERN	.69	–
psi31	I am very concerned with how people react to me.	PSI-CONCERN	.79	.79
psi33	I get very uncomfortable when I'm not sure whether or not someone likes me.	PSI-CONCERN	.79	.78
psi39	I am most comfortable when I know my behavior is what others expect of me.	PSI-CONCERN	.44	.46
psi45	I judge myself based on how I think others feel about me.	PSI-CONCERN	.66	.68
Ib Pleasing Others				
psi1	<i>I often put other people's needs before my own.</i>	PSI-PLEASING	.49	–
psi5	I am very sensitive to the effects I have on the feelings of other people.	PSI-PLEASING	.49	.48
psi9	I worry a lot about hurting or offending other people.	PSI-PLEASING	.67	.67
psi11	It is hard for me to break off a relationship even if it is making me unhappy.	PSI-DEPENDENCY	.48	.48
psi15	I try to please other people too much.	PSI-PLEASING	.67	.65
psi21	It is very hard for me to get over the feeling of loss when a relationship has ended.	PSI-DEPENDENCY	.45	.45
psi35	It is hard for me to say 'no' to other people's requests.	PSI-PLEASING	.65	.64
psi41	I often let people take advantage of me.	PSI-PLEASING	.53	.52
psi47	It is hard for me to let people know when I am angry with them.	PSI-PLEASING	.54	.54
Ic Dependency				
psi3	I find it difficult to be separated from people I love.	PSI-DEPENDENCY	.62	.64
psi17	I find it difficult if I have to be alone all day.	PSI-DEPENDENCY	.52	.54
psi27	<i>I like to be certain that there is somebody close I can contact in case something unpleasant happens to me.</i>	PSI-DEPENDENCY	.47	–
psi37	I become upset when something happens to me and there's nobody around to talk to.	PSI-DEPENDENCY	.61	.58
asq19	I don't worry about being alone, I don't need other people that strongly.	ASQ-DISSMISSING	-.53	-.52
II AVOIDANCE AND DISTRUST				
Ila Avoidance of Intimacy				
asq1	I feel at ease in emotional relationships.	ASQ-SECURE	-.57	-.57
asq3	I feel uncomfortable when relationships with other people become close.	ASQ-SECURE	.66	.66
asq4	<i>I feel comfortable without having close relationships with other people.</i>	ASQ-DISSMISSING	.53	–
asq8	I avoid close ties.	ASQ-SECURE	.75	.74
asq14	I find it easy to get engaged in close relationships with other people.	ASQ-SECURE	-.73	-.73
asq15	I feel at ease in intimate relationships.	ASQ-SECURE	-.64	-.64
psi2	I tend to keep other people at a distance.	PSI-DEFENSIVE-SEPARATION	.67	.67
psi126	It is hard for me to express admiration or affection.	PSI-DEFENSIVE-SEPARATION	.54	.54
psi28	It is difficult for me to make a long-term commitment to a relationship.	PSI-DEFENSIVE-SEPARATION	.52	.53
psi30	It is hard for me to open up and talk about my feelings and other personal things.	PSI-DEFENSIVE-SEPARATION	.53	.54
Ilb Distrust				
asq2	I would like to be open to others, but I feel I can't trust other people.	ASQ-FEARFUL	.59	.57
asq5	I would like to have close relationships with other people, but I find it difficult to fully trust them.	ASQ-FEARFUL	.67	.68
asq10	<i>I trust other people and I like it when other people can rely on me.</i>	ASQ-SECURE	-.60	–
asq20	I am afraid that my hopes will be deceived when I get too closely related to others.	ASQ-FEARFUL	.73	.75
asq22	I trust that others will be there for me when I need them.	ASQ-SECURE	-.50	-.47

asq23	I am wary to get engaged in close relationships because I am afraid to get hurt.	ASQ-FEARFUL	.75	.78
III NEED FOR CONTROL				
psi4	I am easily bothered by other people making demands on me.	PSI-CONTROL	.52	.48
psi16	<i>I don't like people to invade my privacy.</i>	PSI-DEFENSIVE-SEPARATION	.51	–
psi18	<i>It is hard for me to take instructions from people who have authority over me.</i>	PSI-CONTROL	.43	–
psi34	When making a big decision, I usually feel that advice from others is intrusive.	PSI-DEFENSIVE-SEPARATION	.63	.64
psi36	I resent it when people try to direct my behavior or activities.	PSI-CONTROL	.53	.49
psi38	Personal questions from others usually feel like an invasion of my privacy.	PSI-DEFENSIVE-SEPARATION	.50	.51
psi42	I rarely trust the advice of others when making a big decision.	PSI-DEFENSIVE-SEPARATION	.51	.51
psi44	I become upset more than most people I know when limits are placed on my personal independence and freedom.	PSI-CONTROL	.53	.52
psi46	I become upset when others try to influence my thinking on a problem.	PSI-DEFENSIVE-SEPARATION	.65	.66
psi48	I feel controlled when others have a say in my plans.	PSI-CONTROL	.65	.66

Table 3. Correlations between Six AAC scales (in two samples) and correlations with Depression (BDI) and Life Satisfaction (SWLS)

	Concern	Pleasing	Dependency	Avoidance	Distrust	Control	Minimum-Maximum of Corrected Item-Total Correlations
Concern	.88 (.87)						.46 - .74 (.40 - .74)
Pleasing	.65** (.66**)	.80 (.76)					.45 - .58 (.34 - .57)
Dependency	.48** (.48**)	.45** (.41**)	.63 (.70)				.38 - .46 (.45 - .55)
Avoidance	.33** (.29**)	.25** (.20**)	.03 (.02)	.85 (.86)			.48 - .66 (.42 - .69)
Distrust	.43** (.39**)	.38** (.33**)	.18** (.17**)	.66** (.63**)	.82 (.78)		.43 - .68 (.35 - .62)
Control	.28** (.27**)	.34** (.30**)	.23** (.13**)	.40** (.46**)	.45** (.43**)	.78 (.79)	.43-.59 (.39 - .62)
BDI	.49**	.43**	.25**	.36**	.48**	.37**	.36-.66
SWLS	-.40**	-.36**	-.23**	-.36**	-.48**	-.28**	.63-.81

Note: * = $p < .05$, ** = $p < .01$ (two-tailed). Statistics in brackets refer to the cross-validation sample ($N = 528$). Cronbach's alphas are placed on the diagonal. Correlations between the AAC-scales and BDI and SWLS are based on the exploratory sample ($N = 661$). The correlation between BDI and SWLS was $-.62$, $p < .001$.

Table 4. Means of four clusters for six AAC subscales, BDI and SWLS ($N = 661$)

Subscale	Secure	Preoccupied	Dismissing- avoidant	Fearful- avoidant	Univariate $F(3,657)$	η^2
Concern	-.65 ^a	.75 ^c	-.28 ^b	1.18 ^d	225.47	.51
Pleasing	-.63 ^a	.79 ^c	-.28 ^b	1.05 ^d	196.71	.47
Dependency	-.41 ^b	.97 ^d	-.50 ^a	.47 ^c	129.45	.37
Avoidance	-.70 ^a	-.28 ^b	.70 ^c	1.38 ^d	311.11	.59
Distrust	-.77 ^a	.07 ^b	.45 ^c	1.43 ^d	289.89	.57
Control	-.64 ^a	.14 ^b	.41 ^c	.98 ^d	112.48	.34
BDI	-.48 ^a	.26 ^c	-.02 ^b	1.03 ^d	75.23	.26
SWLS	.47 ^c	-.22 ^b	-.12 ^b	-.83 ^a	53.62	.20
Number of cases	270	149	152	90	–	–

Note: Means are obtained for standardized variables ($M = 0$, $SD = 1$). Means within each row with different superscripts differ significantly at $p < .05$ (Cf. Bonferroni). All $F(3,657)$ statistics are significant, $p < .001$.

agreement measure between these two four-cluster solutions indicated sufficient convergence ($Kappa = .78$). The results from the nonhierarchical four-cluster solution with a given start configuration were used in this study.

Table 4 summarizes the means of the four clusters on the six AAC scales. The profiles of mean scores of these clusters are as would be expected for the four attachment prototypes. Persons allocated to the first cluster represent a secure group ($n = 270$, 41%): they display below average scores on all scales. The second cluster can be described as a preoccupied cluster ($n = 149$, 23%), these persons display above average scores on the three anacletic subscales, especially on dependency. The third cluster represents a dismissing-avoidant cluster ($n = 152$, 23%), with relatively high averages on the three introjective subscales and low averages on the anacletic subscales. The fourth cluster is a fearful-avoidant cluster ($n = 90$, 14%), displaying above average scores on all subscales. Although the effect sizes (η^2) indicate that all six sales contribute to the differentiation between clusters, the largest differences are related to differences in Concern ($\eta^2 = .51$), Pleasing ($\eta^2 = .47$), Avoidance ($\eta^2 = .59$) and Distrust ($\eta^2 = .57$).

Univariate anovas reveal that there are substantial differences in BDI ($\eta^2 = .26$) and SWLS ($\eta^2 = .20$) between the four clusters. Evidently, the secure cluster displays the lowest average on BDI and highest average on SWLS, whereas the opposite holds true for the fearful-avoidant cluster (see Table 4).

The differences in BDI between the four clusters were further examined with a 2×2 factorial anova, using two dummy variables as theoretical facets (anxiety: 0 = low, 1 = high; avoidance: 0 = low, 1 = high); For example, persons classified as 'preoccupied' were coded with 'anxiety = 1 and avoidance = 0' (Cf. Brennan et al., 1998). The anova revealed that the differences in BDI were largely reducible to theoretical differences in anxiety (partial $\eta^2 = .19$) and theoretical differences in avoidance (partial $\eta^2 = .10$); the interaction anxiety \times avoidance was negligible (partial $\eta^2 = .01$). Concerning SWLS, similar results were visible: partial $\eta^2_{\text{anxiety}} = .12$; partial $\eta^2_{\text{avoidance}} = .09$; partial $\eta^2_{\text{anxiety} \times \text{avoidance}} = .00$.

DISCUSSION

The findings of the factor analyses suggest that items about adult attachment and depressive personality can be merged into three meaningful (higher-order) factors: (I) Anxiety; (II) Avoidance and Distrust, and (III) Need for Control (see Table 2). As expected, the ASQ preoccupied attachment items showed a distinct affinity with PSI sociotropy items, but specifically with those of the facet Concern (Factor Ia). We searched for a possible two-factor solution in the sociotropy and preoccupied attachment items, but did not find a convincing two-group clustering (i.e., one clear dysfunctional variant and one less dysfunctional variant). Instead, we found indications for a three-factor solution that was composed along the lines of the original PSI. However, the factors Ia and Ib, both, clearly refer to Oversensitivity to Others. The Dependency Factor Ic contained precisely the same four PSI items as the Dependency scale of a shortened version of the PSI (Desmet et al., 2010).

Remarkably, these very same items were also subsumed in the Attachment factor in the study of Sato and McCann (1997). Moreover, the items of the Dependency Factor express a similar 'difficulty with being alone' as the items belonging to the factor 'Preference for Affiliation' in Bieling et al. (2000). So, there are indications that in our study the first two anxiety-sociotropy facets convey dysfunctional Oversensitivity (i.e., anxiety about not being liked in the 'presence of others') and the third facet is reminiscent of less dysfunctional Concerns about Attachment (i.e., anxiety about being rejected and not being cared for 'when being alone') (cf. Sato & McCann, 1997).

We expected that the items about fearful-avoidant attachment would display affinity with the items about defensive separation, but the results were rather ambiguous. Factor analysis indeed revealed one higher-order Factor II including fearful-avoidant attachment and defensive separation items, but it was much more complex than anticipated. Interestingly, we discovered two theoretically bipolar facets within Factor II. The items of Factor IIa, including four defensive separation items, shared the theme of being (un)comfortable with intimacy in relationships. The items of Factor IIb, including all fearful-avoidant attachment items, explicitly referred to (dis)trust in other people. This distinction in two (correlated) facets challenges the operationalization of secure and fearful-avoidant attachment by Van Oudenhoven and Hofstra (2005), as some of the security items display affinity with defensive separation, while others do with fearful-avoidant attachment. In addition, the composition of Factor IIa suggests that (only) four PSI defensive separation items refer to the 'avoidance of intimacy' (cf. definition of this concept). Surprisingly, Desmet et al. (2010) iteratively discarded these very items from their shortened version of the PSI defensive separation scale. The composition of Factor IIb further suggests that it is not the approach-avoidance conflict per se that is characteristic of fearful-avoidant attachment, but, in fact, lack of trust (see Table 2).

We predicted that the dismissing attachment items (mainly referring to independence) would combine with items about need for control. However, CFA revealed that most dismissing attachment items displayed a disturbing affinity with other factors, which gave us reason to exclude them from the model. In the final CFA model a factor was retained that referred to control and independence, but it was, in fact, a balanced mix of Need for Control and Defensive Separation items. Obviously, the composition of this Factor III questions the original operationalization of the PSI scales involved. Considering the content of the alleged Defensive Separation Items of Factor III, they are more about control than separation. Sato and McCann (1997) report a comparable blend of control items and defensive separation items, which they also labeled as a control-factor. Compared to Van Oudenhoven and Hofstra's (2005) dismissing scale, Factor III expresses the need for independence in a more extreme way.

The correlations with BDI depression were positive and significant for all three anxiety-sociotropy subscales and for all three avoidance-autonomy subscales. However, path analysis (i.e., multiple regression) revealed that only two anxiety-sociotropy subscales (Concern and Pleasing) and

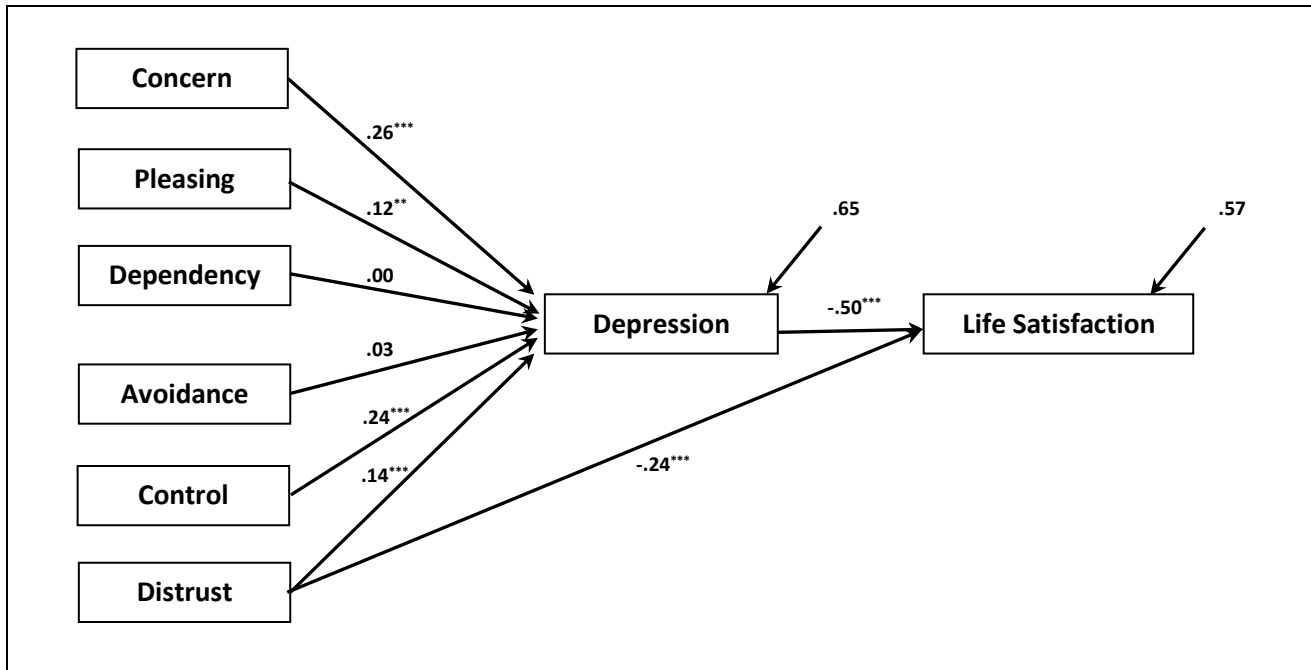


Fig. 1. Path Diagram of a mediational model, including one additional direct path (i.e., Distrust → Life satisfaction) ($N = 661$). The correlations between predictors are not included in the diagram (Cf. Table 3). The residual variance components (error variances) indicate the proportion of unexplained variance $1 - R^2$. Significant regression weights are marked: ** = $p < .01$, *** = $p < .001$

two avoidance-autonomy subscales (Distrust and Control) emerged as significant predictors of depression. Regarding the anaclitic factors, these results are consistent with other research, as several studies have shown that aspects of Oversensitivity to Others are substantially associated with BDI depression. Likewise, numerous studies have found strong associations of depression with global attachment anxiety and preoccupied attachment style ratings (Mikulincer & Shaver, 2007). The finding that Dependency (i.e., difficulty with being alone) in the path analysis did not emerge as a significant predictor of depression, supports the idea that it represents a less dysfunctional aspect of anxiety-sociotropy (Factor I). Regarding the introjective vulnerability factors, the results are partially consistent with other research. Mikulincer and Shaver's (2007) overview of studies in which attachment style ratings were applied, shows that depression is more consistently associated with fearful-avoidance (cf. Distrust, Factor IIb) than with dismissing-avoidance. In addition, some studies have found Control (cf. Factor III) to be substantially associated with BDI depression (Sato & McCann, 1997; Bieling et al., 2000).

Although Avoidance of Intimacy (Factor IIa) displayed a substantial correlation with depression, in the multivariate path model (i.e., when statistically controlling for the other predictors) it did not emerge as a substantial risk factor for depression. So, apparently, it is not the tendency to disconnect from others (Factor IIa) that puts people at a higher risk for depression. We think that the distrust in others (Factor IIb) is the critical problem that, besides predisposing to depression, leads people to defensively separate from others (Factor IIa). In this perspective, the correlation between Avoidance of Intimacy and depression can be interpreted as 'spurious', as it can be explained by their underlying communality with Distrust in Others.

The path model suggests that the relationships between several AAC scales (i.e., Concern, Pleasing, Control, and Distrust) and general life satisfaction are being mediated by depression, although the relationship between distrust and life satisfaction is only partially being mediated. In other words, life satisfaction is diminished by these four attachment-personality scales via depression. However, the model also suggests that the distrust in others directly decreases life satisfaction. We speculate that distrust may influence the general outlook one has on life, causing a person to shy away from cooperating with others and to constantly doubt the sincerity of other people in helping to achieve goals. In this way the fulfilment of one's goals in life becomes difficult and thereby the satisfaction with one's life is negatively affected. Because, traditionally, much research in the attachment domain is conducted with categorical measures, we created a variable along these lines. By employing cluster analysis, we were able to distinguish four groups, which we conveniently interpreted in terms of attachment prototypes. The fact that differences in depression and life satisfaction between these clusters could be explained by two classical theoretical features (anxiety and avoidance) supports the concurrent validity of the AAC model.

Regarding assessment of anaclitic vulnerability/attachment anxiety, it appears that the three-dimensional PSI structure has largely been replicated in this study, with ASQ preoccupied attachment items displaying a distinct affinity with PSI Concern items (Factor Ia). Regarding assessment of introjective vulnerability, it looks like subscale revision is indicated for PSI defensive separation, as in the final model these items did not constitute one single coherent cluster of items. In fact, some of the defensive separation items seem to reflect 'being (un)comfortable with intimacy' (Factor IIb), whereas others convey 'a feeling of

irritation and experiencing others as being intrusive' (Factor III). Regarding the assessment of (in)secure attachment, our findings suggest that the ASQ secure and fearful-avoidant subscales may be refined. The ASQ secure items were distributed over the two aspects of Factor II, both bipolar in nature, disclosing that some of the ASQ secure items involve 'being (un)comfortable with intimacy' (Factor IIa), whereas others entail aspects of (dis)trust, and fearful-avoidant attachment (Factor IIb).

As mentioned before, the PSI largely contains a mix of (modified) items that originate from Blatt's psychodynamic and Beck's cognitive-behavioral depression theories. By combining these item pools of risk factors for depression with items that have been derived from attachment theory, factors are likely to emerge with the characteristics of both sets of theories. In our view, the three higher-order factors with its subfactors, transparently portray the different 'interpersonal problems' of the insecure attachment prototypes, as well as the anaclitic and introjective personality types. The higher-order concept of attachment anxiety and the specific concept of preoccupied attachment may be enriched by including items from the sociotropy facets (Factor I). In addition, the broad concept of attachment avoidance and the specific concepts of defensive separation, fearful-avoidant attachment and secure attachment can be understood in terms of one higher-order dimension that incorporates aspects of avoidance of intimacy (Factor IIa) and distrust in relationships (Factor IIb). Finally, the dismissing aspect of attachment avoidance is possibly well captured by items from the (refined) autonomy factor representing a pronounced need for control and independence (Factor III). Hence, we believe that the AAC-model offers a fresh perspective on self-report measures on adult attachment and depressive personality.

Limitations of this study include a possible self-selection bias due to the voluntary nature of respondent participation, self-report biases and response sets. In addition, the factor structure was derived from a (nonclinical) group of predominantly higher-educated middle-aged women. So, the results may not generalize to the Dutch and Flemish populations. Some caution is also warranted, as considerable steps were needed (in which many items were eliminated) to reach an acceptable model fit. Therefore, the factor structure requires replication in other samples, including clinical samples. Furthermore, due to the extremity of BDI and SWLS scores, correlations involving these measures have undoubtedly been influenced due to restriction of range.

Future research may benefit from drawing items from other multi-faceted measures. Within the field of attachment research Brennan, Clark, and Shaver (1996, in Brennan et al., 1998) extracted no fewer than 12 dimensions from the initial ECR item pool of 323 items. From the field of depressive personality scales, the original item pools of the DEQ and SAS may be considered, as well as their revised versions. Studying the correlational structures of these richer item pools may illuminate our understanding of the critical attachment and personality dimensions that predispose people to psychopathology, including depression.

ACKNOWLEDGEMENTS

We thank the many bachelor students and five master students for the assistance in the data gathering. We thank Steve de Schutter for putting the data from his master thesis at our disposal.

REFERENCES

- Alden, L. E., & Bieling, P. J. (1996). Interpersonal convergence of personality constructs in dynamic and cognitive models of depression. *Journal of Research in Personality*, 30, 60-75.
- Arbuckle, J. L. (2013). *IBM SPSS Amos 22 User's Guide*. IBM.
- Bagby, R. M., Parker, J. D. A., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of the Depressive Experiences Questionnaire. *Assessment*, 1, 59-68.
- Bagby, R. M., Parker, J. D. A., Joffe, R. T., Schuller, D., & Gilchrist, E. (1998). Confirmatory factor analysis of the revised Personal Style Inventory (PSI). *Psychological Assessment*, 5(1), 31-43.
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7, 147-178.
- Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton & J. E. Barnett (Eds.), *Treatment of depression: Old controversies and new approaches* (pp. 265-290). New York: Raven Press.
- Beck, A. T., Epstein, N., Harrison, R. P., & Emery, G. (1983). *Development of the Sociotropy-Autonomy Scale: A measure of factors in psychopathology*. Manuscript, University of Pennsylvania, Philadelphia.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J. E., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 561-571.
- Bieling, P. J., Beck, A. T., & Brown, G. K. (2000). The Sociotropy-Autonomy Scale: structure and implications. *Cognitive Therapy and Research*, 24(6), 763-780.
- Blatt, S. J. (1974). Levels of object representation in anaclitic and introjective depression. *Psychoanalytic Study of the Child*, 29, 107-157.
- Blatt, S. J. (2004). *Experiences of depression: Theoretical, clinical, and research perspectives*. Washington DC: American Psychological Association.
- Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). *Depressive Experiences Questionnaire*. New Haven: Yale University.
- Blatt, S. J., Zohar, A. H., Quinlan, D. M., Zuroff, D. C., & Mongrain, M. (1995). Subscales within the Dependency factor of the Depressive Experiences Questionnaire. *Journal of Personality Assessment*, 64, 319-339.
- Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: two prototypes for depression. *Clinical Psychology review*, 12, 527-562.
- Bouman, T. K., Luteijn, F., Albersnagel, F. A., & Van der Ploeg, F. A. E. (1985). Enige ervaringen met de Beck Depression Inventory. *Gedrag - Tijdschrift voor Psychologie*, 13, 13-24.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: The Guilford Press.
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: The Guilford Press.
- Clarck, D. A., & Beck, A. T. (1991). Personality factors in dysphoria: A psychometric refinement of Beck's Sociotropy-Autonomy Scale. *Journal of Psychopathology and Behavioral Assessment*, 13, 369-388.

- Collins, N. L., & Feeney, B. C. (2004). An attachment theory perspective on closeness and intimacy. In D. J. Mashek & A. Aron (Eds.), *Handbook of closeness and intimacy*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Davila, J. (2001). Refining the association between excessive reassurance seeking and depressive symptoms. *Journal of Social and Clinical Psychology*, 20, 538-559.
- De Schutter, S., Van Geel, R., Lodewijkx, H., & Verboon, P. (2009). Social Absorption and Social Individuation: Dutch Validation with Interpersonal Behaviours, Preoccupations, Social Network and Attachment. *Netherlands Journal of Psychology*, 65, 40-52.
- Desmet, M., Vanheule, S., Groenvynck, H., Verhaeghe, P., Vogel, J., & Bogaerts, S. (2007). The Depressive Experiences Questionnaire: An inquiry into the different scoring procedures. *European Journal of Psychological Assessment*, 23, 89-98.
- Desmet, M., Vanheule, S., Meganck, R., & Verhaeghe, P. (2010). Reconstruction and validation of the Personal Style Inventory in a Flemish clinical and student sample. *Psychological Reports*, 106, 394-404.
- Dewitte, M. (2008). *Implicit processes in adult attachment*. Unpublished doctoral dissertation.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with life scale. *Journal of Personality Assessment*, 49, 71-75.
- Feeney, J. A., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults: Clinical and developmental perspectives* (pp. 128-152). New York: Guilford Press.
- Field, A. (2013). *Discovering Statistics using IBM SPSS statistics (Fourth Edition)*. Los Angeles: Sage.
- Helgeson, V. S. (1994). Relation of agency and communion to well-being: Evidence and potential explanations. *Psychological Bulletin*, 116(3), 412-428.
- Hermans, H. J. M., & Hermans-Jansen, E. (1995). *Self-narratives: The construction of meaning in psychotherapy*. New York: Guilford.
- Hmel, B. A., & Pincus, A. L. (2002). The meaning of autonomy: on and beyond the interpersonal circumplex. *Journal of Personality*, 70(3), 277-310.
- Hofstra, J., Van Oudenhoven, J. P., & Buunk, B. P. (2005). Attachment styles and majority members' attitudes towards adaptation strategies of immigrants. *International Journal of Intercultural Relations*, 29, 601-619.
- Luyten, P., & Blatt, S. J. (2012). Psychodynamic treatment of depression. *Psychiatric Clinics of North America*, 35, 111-129.
- Luyten, P., Blatt, S. J., & Corveleyn, J. (2005). The convergence among psychodynamic and cognitive-behavioral theories of depression: Theoretical overview. In J. Corveleyn, P. Luyten & S. J. Blatt (Eds.), *The theory and treatment of depression: Towards a dynamic interactionism model* (pp. 79-106). Leuven/Mahwah, NJ: Leuven University Press/Lawrence Erlbaum Associates.
- Luyten, P., Corveleyn, J., & Blatt, S. J. (2005). The convergence among psychodynamic and cognitive-behavioral theories of depression: A critical overview of empirical research. In J. Corveleyn, P. Luyten & S. J. Blatt (Eds.), *The theory and treatment of depression: Towards a dynamic interactionism model* (pp. 107-147). Leuven/Mahwah, NJ: Leuven University Press/Lawrence Erlbaum Associates.
- Luyten, P., Soenens, B., Vansteenkiste, M., & Corveleyn, J. (2003). *Personal Style Inventory (PSI): Dutch version*. Leuven: Departement Psychologie, Centrum voor Psychoanalyse en Psychodynamische Psychologie.
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford Press.
- Morrison, T. L., Urquiza, A. J., & Goodlin-Jones, B. L. (1998). Depressive experiences and romantic relationships in young adulthood. *Psychological Reports*, 82, 339-349.
- Murphy, B. (2000). *Adult attachment style and vulnerability to depression*. Doctoral dissertation, Swinburne University of Technology, Melbourne.
- Murphy, B., & Bates, G. W. (1997). Adult attachment style and vulnerability to depression. *Personality and Individual Differences*, 22, 835-844.
- Nietzel, M. T., & Harris, M. J. (1990). Relationship of dependency and achievement/autonomy to depression. *Clinical Psychology Review*, 10, 279-298.
- Polek, E. (2007). *Attachment in cultural context. Differences in attachment between Eastern and Western Europeans and the role of attachment styles in Eastern European migrants' adjustment* (Doctoral dissertation, Faculty of behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands).
- Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: a 25-year review. *Journal of Psychosomatic Research*, 69(4), 419-432.
- Reis, S., & Grenyer, B. F. S. (2002). Pathways to anaclitic and introjective depression. *Psychology and Psychotherapy: Theory, Research and Practice*, 75, 445-459.
- Robins, C. J., Ladd, J., Welkowitz, J., Blaney, P. H., Diaz, R., & Kutcher, G. (1994). The Personal Style Inventory: Preliminary validation studies of new measures of sociotropy and autonomy. *Journal of Psychopathology and Behavioral Assessment*, 16, 277-300.
- Rodrigues, A. (2010). *An examination of clients' attachment styles, affect regulation, and outcome in the treatment of depression* (Master's thesis, Department of Adult Education and Counselling Psychology, University of Toronto, Toronto, Canada).
- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1-36.
- Rude, S. S., & Burnham, B. L. (1995). Connectedness and Neediness: Factors of the DEQ and SAS dependency scales. *Cognitive Therapy and Research*, 19, 323-340.
- Sato, T., & McCann, D. (1997). Vulnerability factors in depression: The facets of sociotropy and autonomy. *Journal of Psychopathology and Behavioral Assessment*, 19, 41-62.
- Sibley, C. G. (2007). The association between working models of attachment and personality: Toward an integrative framework operationalizing global relational models. *Journal of Research in Personality*, 41, 90-109.
- Strodl, E., & Noller, P. (2003). The relationship of adult attachment dimensions to depression and agoraphobia. *Personal Relationships*, 10(2), 171-185.
- Van Doorslaer, N. (2007). *Werkstress bij psychologen in de psychosociale oncologie (Eindverhandeling postacademische vorming)*. Brussel: Vrije Universiteit Brussel.
- Van Geel, R. (2000). *Agency and communion in self-narratives: A psychometric study of the self-confrontation method*. Nijmegen: Nijmegen University Press.
- Van Oudenhoven, J. P., & Hofstra, J. (2005). *De Hechtingsstijl-lijst (HSL): Handleiding [The Attachment Style Questionnaire: Manual]*. Groningen: Rijksuniversiteit Groningen.
- Zuroff, D. C., & Fitzpatrick, D. K. (1995). Depressive personality styles: implications for adult attachment. *Personality and Individual Differences*, 18, 253-265.