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Clinical Validation of the Restructured Attachment Styles Questionnaire

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The Attachment Styles Questionnaire (ASQ; Van Oudenhoven, Hofstra, & Bakker, 2003) provides individual measures on four attachment styles. When the ASQ is applied in an individual assessment, it may be difficult to determine an individual's most dominant attachment style. An alternative structure of the ASQ, based on a biproportional method of data analysis developed by Hofstee and Ten Berge (2004), overcomes this shortage and provides a valuable addendum to the original ASQ. In two studies, which included a general population of 3382 respondents and a clinical sample of 223 respondents, a large dimension of Discomfort versus Comfort in close relations and a smaller dimension of Worry versus Confidence were identified. The combination of these two dimensions resulted in four attachment types: secure, fearful, dismissing and preoccupied. The validation of these categories in the clinical sample revealed that securely attached individuals were significantly more extraverted, emotionally stable, and autonomous compared with the insecurely attached clients. They also exhibited more self-awareness and capacity to manage new situations and began their therapies with less symptoms and a higher level of functioning. Insecurely attached clients, however, exhibited the most improvement in therapy. Good internal and external validations of the Restructured ASQ were demonstrated. A shortcoming of the construct validity of the presented categorization is discussed.

Keywords: adult attachment, biproportional scaling, discomfort, psychopathology.

The Attachment Styles Questionnaire (ASQ) is a multiple-item self-report questionnaire that uses continuous scales and was developed by Van Oudenhoven and colleagues (Van Oudenhoven, Hofstra, & Bakker, 2003; Van Oudenhoven, & Hofstra, 2005; Hofstra, Van Oudenhoven, & Buunk, 2005; Hofstra, 2009). The questionnaire was constructed to reliably measure non-relationship specific attachment styles of adults. It provides individual measures of four attachment styles: secure, fearful, dismissing and preoccupied. The psychometric qualities of the ASQ have been thoroughly investigated (Hofstra, 2009). Furthermore, the questionnaire has frequently been used in scientific research (e.g., De Schutter, Van Geel, Lodewijkx, & Verboon, 2009, Karreman, & Vingerhoets, 2012, Blom, Van Middendorp, & Geenen, 2012).

However, two considerations have prompted a re-evaluation of the ASQ. First, the difficulty in the interpretation of the test results in an individual assessment. Second, the expectation that an underlying general factor of attachment could be identified to facilitate interpretation.

Attachment styles

In 1991, Bartholomew and Horowitz described a new model of attachment styles in adulthood based on the notion that in early childhood, internal working models of self and others are developed as a result of internalized patterns of affectional and attachment experiences with caregivers (Bowlby, 1969). Bartholomew and Horowitz (1991; see also Griffin & Bartholomew, 1994) proposed four prototypic attachment patterns that combine the self-image and image of others. The four attachment styles are: secure (positive self and other-images), preoccupied (negative self-image and positive other-image), fearful (both negative self-image and other-image), and dismissing (positive self-image and negative other-

image). These internal working models shape attachment related behavior throughout the lifespan.

The ASQ is based on Bartholomew and Horowitz's theoretical model. The 24-item questionnaire (see Appendix) regards attachment to other individuals in general and has been validated in heterogeneous samples of adult Dutch respondents. An exploratory factor analysis (oblimin principal components analysis) with a forced 4-factor solution indicated four factors with Eigenvalues above 1.2, which corresponded to the four attachment styles, and explained approximately 50% of the total variance. Psychometric qualities were reasonable to good, with the exception of the somewhat weaker reliability of the dismissing style (Hofstra, 2009, chapter 2). It was determined that the ASQ attachment styles are related to, for example, the attitude towards integration of immigrants (Hofstra, Van Oudenhoven, & Buunk, 2005), psychological and socio-cultural adjustment in a foreign country (Bakker, Van Oudenhoven, & Van der Zee, 2004), well-being (Karreman, & Vingerhoets, 2012), psychological health in immigrants (Polek, Van Oudenhoven, & Ten Berge, 2011), social absorption (De Schutter, Van Geel, Lodewijkx, & Verboon, 2009), and vulnerability for developing embitterment (Blom, Van Middendorp, & Geenen, 2012).

The theoretical bipolar working models of Bartholomew and Horowitz (1991) have also been embraced by other researchers, and several researchers have identified two underlying dimensions summarized as Comfort with closeness and Anxiety over relationships (Feeney, 1999). The Experiences in Close Relationships (ECR, Brennan, Clark, & Shaver, 1998; Conradi, Gerlsma, Van Duijn, & De Jonge, 2006) is an example of a questionnaire structured by these two factors: Avoidance of intimacy and Anxiety about rejection or abandonment. The scores on the two dimensions can be combined, which results in a position on one of the four attachment styles: low avoidance and low anxiety in a secure style, low avoidance and high anxiety in a preoccupied style, high anxiety and high avoidance in the fearful style, and high avoidance and low anxiety in the dismissing style. Rather than attachment in general as measured by the ASQ, the ECR aims to measure adult romantic attachment in couple relationships.

As a result of adopting four one-dimensional scales, the original two-dimensional structure of the Bartholomew & Horowitz (1991) model and the dimensions of self versus other and positive versus negative became less clear in the ASQ. Furthermore, although the ASQ is a valid instrument that can differentiate between groups of individuals and can process research questions that concern samples, the ASQ is difficult to interpret in individual assessments because the respondents are not classified into one attachment category but receive scores on all four attachment scales. Thus, it is possible to identify high (or low) scores on all four scales that characterize the respondent, for example, as both securely and insecurely attached. The advantages of measures on each of the four attachment styles for research purposes becomes a disadvantage in determining an individual's dominant attachment style to design treatment in clinical practice.

Biproportional scaling

A methodological issue that involves all questionnaires using Likert scales is that a sample mean of a scale does not necessarily equal the absolute scale mean (the midpoint of the Likert scale). For example, according to the manual of the ASQ, the mean score on the secure attachment style is 3.94 (SD = 0.57). Thus, for example, an individual with a score of 3.35 on the secure attachment style will be labeled as below average secure compared with the sample mean. However, if a 5-point Likert scale is considered, which ranges from 1 = *strongly disagree* (= not secure) to 5 = *strongly agree* (= secure), the score of 3.35 is on the securely attached side because 3 (= *neutral*) is the scale midpoint (mean) and also the turning point at which a characteristic becomes its opposite. In individual cases, this will not cause difficulties because it will suffice to inspect the raw (absolute) score to nuance interpretation. However, trait structures that result from assessments on Likert scales are affected by the additive and multiplicative transformations implied in interval scaling and correlational analysis; thus, the mean of the population (in the ASQ sample for secure attachment 3.94) is the reference point, in which approximately half of the scores become negative. The effect is that a proportion of the securely attached individuals will be labeled as (relatively) not securely attached (including our example individual with a score of 3.35). Hofstee and Ten Berge (2004) proposed an alternative method of analyzing personality data based on a bipolar proportional (biproportional) scale that ranges from –1 to +1, a corresponding coefficient of raw scores L, and raw-scores principal component analysis. Contrary to relative associations such as the Pearson coefficient, no transformations (e.g., into z scores) are performed in this absolute scaling. The main finding is that this method appears to alter the trait structure of personality, which was demonstrated by Hofstee and Ten Berge (2004) using data from the Five-Factor Personality Inventory (FFPI; Hendriks, Hofstee, & De Raad, 2002) in a normal sample; a large first component was identified, which reflects a dimension they called social desirability. They determined most individuals had positive scores on this dimension. These results were replicated with different instruments in other studies (Hofstee, Barelds, & Ten Berge, 2006; Mosterman, 2013). This research indicates that when individuals are not compared with others, such as in traditional statistics, they may be characterized by the extent in which they are socially desirable. In case of the FFPI, Conscientiousness and Agreeableness appeared to be the most desirable traits. Hofstee, Barelds, and Ten Berge (2006) hypothesized

that clinical patients, inherent to their illness-related deviations, would score lower on the social desirability dimension. Using the Dutch Personality Questionnaire (NPV), they confirmed their hypothesis: the eigenvalue of the first component in a sample of 775 psychiatric clients was 1.7 times smaller compared with a normative sample ($N = 3140$), which indicated a less socially desirable personality in the patients.

Aims of the present research

In the first presented study, the biproportional method (Hofstee & Ten Berge, 2004) was applied to the original data of the ASQ validation study (Hofstra, 2009). We expected to identify a large general component. Because of the ASQ's attachment related content, we hypothesized that this large component would be represented by a dimension of security in close relationships. A potential second component may nuance this dimension. Assuming this two-dimensional structure occurs, new scales that match these factors can be constructed. In the second study, the clinical validity and prognostic value of these new scales and the derived attachment types were explored.

STUDY I

Methods

Respondents

The original sample's ASQ data obtained from Hofstra's dissertation study (2009, chapter 2) were used. This heterogeneous sample ($N = 3382$) of students, emigrants and adults from the general population consisted of 2264 women (64%) and 1269 men (36%) who ranged in age from 16 to 90 years with a mean age of 35 ($SD = 19$).

Instrument

The *Attachment Styles Questionnaire* (ASQ; Van Oudenhoven, Hofstra, & Bakker, 2003; Van Oudenhoven, & Hofstra, 2005; Hofstra, Van Oudenhoven, & Buunk, 2005; Hofstra, 2009) refers to attachment to other individuals in general. The questionnaire consists of 24 items that were formulated based on the four vignettes described by Bartholomew and Horowitz (1991) and the Relationship Scales Questionnaire by Griffin and Bartholomew (1994). The ASQ assesses four attachment styles: Secure (7 items), Preoccupied (7 items), Fearful (5 items), and Dismissing (5 items). The item's 5-point rating scale ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). The internal consistencies (Cronbach's alpha) were 0.75 for the Secure style, 0.80 for the Preoccupied style, 0.79 for the Fearful style, and 0.62 for the Dismissing style.

Analyses

The answer format of the ASQ was translated into a biproportional scale, which resulted in a [–1, –0.5, 0, +0.5, +1] scale. Based on the biproportional scores, the likeness coefficients ($L = \sum XY/N$ of N raw scores on variables X and Y, i.e., the average of the raw scores cross products) were calculated. Subsequently, the matrix of L-coefficients were factor analyzed (i.e., raw scores principal component analysis, PCA). This analysis is not available in SPSS. However, an easy applicable macro to conduct a biproportional analysis that uses SPSS software was developed by Timmerman, Hofstee, and Ten Berge (2008) and can be freely downloaded from the Groningen University website.

Results

We conducted a PCA using the biproportional raw scores matrix of the number of ASQ items (columns) by raters (rows). An indicator of the component strength in the raw scores PCA is the mean of the squared component loadings. For the first 5 principal components, the sizes were .0407, .0030, .0016, .0003, and .0003[1]. Thus, the first component size is more than 13 times as high as the second one, which indicates a large first component. To determine the number of components to retain, we examined the item loadings. We identified 18 items that had the highest absolute loading on the first principal component, 4 items with the highest absolute loading on the second component, and 2 items with the highest absolute loading on the third component. None of the item loadings of the fourth or fifth principal component exceeded these loadings. The items and component loadings are listed in the Appendix.

The item content of the first principal component, which represents the major dimension, can be interpreted as Discomfort (versus Comfort) in close relationships. Examples of the items include *I avoid close ties* (component loading 0.28) and *I feel uncomfortable when relationships with other individuals become close* (0.26) on the positive side, and *I feel at ease in intimate relationships* (–0.29) and *I think it is important that individuals can rely on each other* (–0.34) on the negative side of the dimension. Discomfort expresses itself in fear and avoidance, while Comfort reflects autonomy and trust. The very weak second component appears to reflect the extent to which an individual worries about social contacts in general. Only three items have substantial loadings, including one positive and two negative loadings: *I often wonder whether other individuals like me* (–0.11), *I don't worry whether other individuals like me*

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[1] "The averaged cross-product $L_{XY} = \Sigma XY/N$. With scores between –1 and +1, L_{XY} is conveniently bounded within those same limits. As a consequence, $L_{XX} = \Sigma X^2/N$, the extent to which X is like itself, is generally not unity, but ≤ 1; $L_{XX} = 1$ only if all ratings are at the extreme scale ends. So L_{XX} functions as an index of saliency: It represents the size of the X vector." (Hofstee & Ten Berge, 2004, p. 122).

(0.09), and *I find it important to know whether other individuals like me* (–0.10); all three items comprised the original Preoccupation scale. To prevent confusion in terminology, we labeled this dimension as Worry (versus Confidence). As shown in the Appendix, the Discomfort pole predominantly contains items of the original Fearful and Preoccupation scales, while Secure items constitute the Comfort side of the dimension. The Dismissing items do not cluster on one pole of this dimension.

Based on the foregoing information, we excluded three items from the ASQ because of their low and insufficiently differentiating loadings: *I don't worry about being alone: I don't need other individuals that much* (item 19); *I usually find other individuals more interesting than myself* (item 21) and *I prefer that others are independent of me, and that I am independent of others* (item 6). With the remaining 21 items, two new bipolar scales were created: a Discomfort scale comprised the 18 highest loading first component items (items 2, 3, 4, 5, 8, 9, 11, 13, 20, and 23 and reversed items 1, 10, 12, 14, 15, 16, 18, and 22) and a Worry scale comprised the 3 highest loading second component items (items 7 and 24 and the reversed item 17). The 5-point Likert answer scale was re-coded in a biproportional answer format: –1, –0.5, 0, +0.5, +1. Scale scores were formed by the means of the item scores and can be either positive or negative[2]. In the present sample, Discomfort scores ranged from –1 to +.56, with a mean of –0.40 (*SD* .25). Worry scores ranged from –1 to +1, with a mean of .05 (*SD* .45). The Cronbach's alphas were .83 for Discomfort and .71 for Worry.

Individuals can be typed by their combined scores on the two dimensions Discomfort and Worry, which results in four styles: the combination of negative scores on both Discomfort and Worry (D–W–) is hypothesized to reflect a secure style; the combination of positive scores on both dimensions (D+W+) is hypothesized to represent an insecure or fearful style. The two mixed styles might be interpreted as a preoccupied style (D–W+) and a dismissing style (D+W–) (Figure 1).

STUDY II

In the second study, the Discomfort and Worry scales were applied to a clinical sample and compared with the original scales in relation to personal functioning and symptomatology. The associations between Discomfort and Worry and the related attachment constructs, such as self-awareness, sensitivity to others, and capacity to manage new

situations, were investigated, as well as the relation with personality factors. Furthermore, we explored the value of the aforementioned client types D–W–, D+W+, D–W+, and D+W–. To investigate the clinical relevance of attachment type assessment and to increase knowledge regarding its prognostic value, therapy outcome data were also included.

Type D+W+ *n* = 160 (5%)	Type D+W– *n* = 79 (2%)
Type D–W+ *n* = 1899 (56%)	Type D–W– *n* = 1244 (37%)

Figure 1 *Attachment Client Types in a Two-Dimensional Model of Discomfort and Worry in Sample 1*

Methods

Participants
The participants of Study II included 223 clients referred by a primary care physician to the first author's psychotherapy practice between 2009 and 2013. The sample was composed of 65 men (29%) and 158 women (71%) who ranged in age from 18 to 71 years, with a mean age of 38 (*SD* = 12). The clients provided self-ratings on a number of questionnaires (only the questionnaires relevant for the research questions are reported here). One hundred thirty-one clients (59%) completed follow-up measures (T2), including 36 males (28%) and 95 females (72%), with a mean age of 38 (*SD* = 12).

Measures
The *Attachment Styles Questionnaire* (ASQ; e.g., Van Oudenhoven, Hofstra, & Bakker, 2003): please refer to description in Study I. The internal consistencies in the present sample as measured with Cronbach's alpha were 0.77 for the Secure style, 0.83 for the Preoccupied style, 0.85 for the Fearful style, and 0.54 for the Dismissing style. The alphas for the restructured scales Discomfort and Worry were 0.87 and 0.73, respectively, in the present sample.

The *Autonomy-Connectedness Scale-30* (ACS-30; Bekker & Van Assen, 2006) consists of 30 items with a 5-point rating scale answering format that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). The ACS-30 distinguishes three scales: Self-Awareness (SA, 7 items; e.g., *Usually it is very clear to me what I like most*), Sensitivity to Others (SO, 17 items; e.g., *I often go deeply into others feelings*), and Capacity for Managing New Situations (CMNS, 10 items; e.g., *I quickly feel at ease in new situations*). The reliability (Cronbach's alpha) of the three scales in the present sample was 0.81, 0.78, and 0.81 for SA, SO, and CMNS, respectively.

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[2] It is possible to create a more precise scale score by weighting the items. A weight matrix was calculated in the Timmerman, Hofstee, & Ten Berge (2008) macro. For user convenience, we preferred to maintain simplicity and applied unweighted scores in the present studies.

Table 1

Descriptive Statistics of the Original and Biproportional ASQ Scales

| Scale | T1 | | | | T2 | | | | df | t |
	min	max	*M*	(*SD*)	min	max	*M*	(*SD*)		
Secure	1.57	5.00	3.78	(0.79)	1.86	5.00	3.82	(0.72)	130	−2.05*
Fearful	1.00	5.00	2.61	(1.07)	1.00	5.00	2.45	(0.98)	130	3.07*
Dismissing	1.20	5.00	3.18	(0.66)	1.40	4.80	3.29	(0.69)	130	−1.08
Preoccupied	1.00	5.00	3.16	(0.95)	1.00	4.86	2.83	(0.87)	130	4.92**
Discomfort	−1.00	+0.47	−0.29	(0.33)	−1.00	+0.44	−0.37	(0.33)	130	3.38**
Worry	−1.00	+1.00	0.22	(0.52)	−1.00	+1.00	0.05	(0.49)	130	4.81**

Note. T1 $N = 223$. T2 $n = 131$. *$p < 0.05$; **$p < 0.001$. Original ASQ scales are Secure, Fearful, Dismissing and Preoccupied; Restructured biproportional ASQ scales are Discomfort and Worry.

The *Symptom Check List-90* (SCL-90; Arrindell & Ettema, 1986) is an inventory of physical and emotional symptoms. The questionnaire is composed of 90 descriptions that comprise eight scales: Anxiety, Agoraphobia, Depression, Somatic complaints, Insufficiency of Cognition and Action, Suspiciousness and Interpersonal Sensitivity, Hostility, and Sleep problems. The sum across all items, which is defined as Psychoneuroticism, indicates the overall level of emotional and physical dysfunction. In the present sample, the Cronbach's alpha ranged from 0.80 for Hostility to 0.97 for Psychoneuroticism.

The *Five-Factor Personality Inventory* (FFPI; Hendriks, Hofstee, & De Raad, 1999) assesses the Dutch psycho-lexically based Big Five personality dimensions, including Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and (intellectual) Autonomy. The latter construct is a measure of independent decision making. The response scale ranges from 1 (*not at all applicable*) to 5 (*entirely applicable*). In the present sample, the reliability for self reports (Cronbach's alpha) was .93 for Extraversion, .86 for Agreeableness, .90 for Conscientiousness, .92 for Emotional Stability, and .88 for Autonomy.

Diagnoses were classified according to the *Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV-TR)* (Dutch translation: Koster van Groos, 2001) multiaxial coding system. For the current study, Axes I, II and V were used. Axis I diagnoses were grouped into three clusters: mood disorders (38%), anxiety disorders (31%), and remaining disorders (31%). For Axis II, the presence or absence of personality pathology was recorded (34% and 66%, respectively). For Axis V, a Global Assessment of Functioning (GAF) scale, which ranged from 1 to 100, was registered as the GAF score.

Procedure

Prior to the first appointment, the clients completed a short questionnaire regarding sociodemographic characteristics, perceived problems and symptoms, and the requested help. The manifesting problems and symptoms were assessed in detail during the first interview. At the end of this session, the clients were handed the self-report questionnaires to be completed at home. The completed questionnaires were collected during the client's second interview session. The diagnostic procedure was continued with the assessment of the client's developmental history and personal biography. Subsequent to the second interview, the questionnaires were scored according to the manuals' instructions. A short psychological report was written that summarized the results of the assessment procedure, including the questionnaire interpretation, DSM-IV classification, and treatment design. The third session entailed the feedback session during which the report was discussed with the client and informed consent for treatment was obtained. Therapy was subsequently conducted according to standard practice. If possible, follow-up measures were collected during the course and at the end of therapy. Not all clients completed the follow-up measures because of limited duration of therapy, the lack of returned questionnaires, referral for specialized help, or dropout. In therapies of longer duration, the questionnaires were completed several times. The last questionnaire results were used in the current study and were labeled T2. The time period between the first and last measures varied between 10 to 163 weeks, with a mean of 50 weeks ($SD = 32$) and a median of 39 weeks.

For feedback regarding the ASQ, the means and standard deviations of the four attachment scales described in the manual (Van Oudenhoven & Hofstra,

Table 2

Pearson Correlations between Original and Biproportional Attachment Style Scales, Functioning, Symptoms, Autonomy-Connectedness, and Personality Factors.

ASQ Scale	DSM-IV Axis V	SCL-90 Total	ACS-30 SA	ACS-30 SO	ACS-30 CMNS	FFPI E	FFPI A	FFPI C	FFPI ES	FFPI Au
Secure	.35**	−.43**	.33**	.08	.21*	.59*	.16	−.02	.33*	.39*
Fearful	−.21*	.40**	−.30**	.13	−.18*	−.46*	−.03	−.02	−.26	−.34*
Dismissing	−.13	.09	.04	−.38**	.06	−.11	−.20	−.05	.13	.08
Preoccupied	−.20*	.41**	−.46**	−.50**	−.31**	−.29*	−.06	.15	−.43*	−.55*
Discomfort	−.33**	.50**	−.43**	.14	−.28**	−.56*	−.10	.02	−.43*	−.52*
Worry	−.14	.32**	−.39**	.52**	−.26**	−.20	−.06	.22	−.32*	−.44*

Note. N = 223. (FFPI *n* = 87). *p < 0.01; **p < 0.001. Original ASQ scales are Secure, Fearful, Dismissing and Preoccupied; Biproportional scales are Discomfort and Worry. Axis V = Global Assessment of Functioning; SCL-90 Total = total symptom score; SA = Self-Awareness; SO = Sensitivity to Others; CMNS = Capacity to Manage New Situation; E = Extraversion; A = Agreeableness; C = Conscientiousness; ES = Emotional Stability; Au = Autonomy.

2005) were considered the norm: a score between the mean plus or minus one standard deviation was labeled average; a score between one and two standard deviations from the mean was labeled above or below average; and a score higher than the mean plus or minus two standard deviations was labeled high or low. Thus, a client was told that her scores on the attachment styles in close relationships were, for example, average for the secure style, but above average for the fearful avoidant and preoccupied styles and below average for the dismissing style.

Results

Attachment Scales

In Table 1, the original ASQ scale means and standard deviations at T1 and T2 are presented, as well as the results of the paired-samples *t*-tests. The Restructured ASQ biproportional scales Discomfort and Worry have, by nature, a midpoint of 0. The sample means on Discomfort and Worry indicate that, on average, the clients did not feel uncomfortable (negative value) in close relationships, but did report worries (positive value) regarding the relationships. *T*-tests revealed significant changes between T1 and T2 for all scales with the exception of the dismissing style. Because of the limited sample size at T2, we assessed the potential for a selection bias by comparing the 131 clients with the 92 clients for whom only T1 data were available. No significant differences were identified in gender, age, marital status, educational level, questionnaire scores or in DSM-IV classifications.

The association between Discomfort and Worry was *r* = .44, *p* < .001. Both Discomfort and Worry scales showed a significant positive relationship with overall symptoms and a significant negative association with self-awareness, the capacity to

manage new situations, emotional stability, and autonomy. Discomfort was also negatively related to the level of functioning and to extraversion. Worry exhibited a strong positive association with sensitivity to others. The results are presented in Table 2.

Attachment Client Types

Forty-five clients had positive scores on Discomfort; 156 clients scored positive on Worry. A combination of the scores on both scales revealed four client types, which were distributed as follows: D–W–; *n* = 58 (26%); D–W+, *n* = 120 (54%); D+W+, *n* = 36 (16%); and D+W−, *n* = 9 (4%) (Figure 2).

Type D+W+ T1 *n* = 36 (16%)	Type D+W− T1 *n* = 9 (4%)
Type D–W+ T1 *n* = 120 (54%)	Type D–W− T1 *n* = 58 (26%)

Figure 2 *Attachment Client Types in a Two-Dimensional Model of Discomfort and Worry in Sample 2*

The client types significantly differed in Axis I diagnoses (χ^2 = 18.5, *df* = 6, *p* = .005). Mood disorders were predominantly identified in the D+W+ attached clients (58%); anxiety disorders were primarily identified in the D+W− clients (56%), while the remaining diagnoses were predominately identified in the D–W− clients (47%). The D–W+ clients exhibited a distribution of 37% mood disorders, 34% anxiety disorders, and 29% remaining disorders.

Table 3

Means and Standard Deviations of Functioning, Symptoms, and Autonomy-Connectedness in the Four Attachment Client Types and All Clients

Type	DSM-IV Axis V M (SD)	SCL-90 Total M (SD)	ACS-30 SA M (SD)	ACS-30 SO M (SD)	ACS-30 CMNS M (SD)
D–W–	62.6 (6.7)	138.1 (30.6)	27.5 (5.1)	58.2 (9.3)	20.1 (6.2)
D–W+	60.5 (6.0)	169.1 (46.7)	22.6 (5.9)	65.6 (7.8)	17.3 (5.5)
D+W+	57.8 (4.7)	199.1 (48.2)	21.1 (5.7)	66.7 (8.0)	15.8 (5.5)
D+W–	52.8 (5.7)	214.9 (59.9)	23.6 (6.4)	56.4 (12.0)	18.9 (2.5)
All clients	60.3 (6.4)	167.7 (48.8)	23.7 (6.1)	63.5 (9.2)	17.8 (5.8)

Note. All: $N = 223$; D–W– Type: $n = 58$, D–W+ Type: $n = 120$, D+W+ Type: $n = 36$, D+W– Type: $n = 9$. Axis IV = Global Assessment of Functioning; SCL-90 Total = total symptom score; SA = Self-Awareness; SO = Sensitivity to Others; CMNS = Capacity to Manage New Situations.

The client types did not significantly differ in the absence or presence of personality pathology according to the Axis II classification. A significant difference was identified with regard to drop out: D+W+ was overrepresented and D–W– was underrepresented ($\chi^2 = 18.6$, $df = 9$, $p = .028$). No differences were identified with regard to sociodemographic variables or the duration of therapy between T1 and T2.

One-way analyses of variance demonstrated significant differences between the four attachment styles: in level of functioning (DSM-IV Axis 5) $F(3,219) = 9.47$, $p < .001$; in symptoms (SCL-90 total) $F(3,219) = 18.43$, $p < .001$; in self-awareness (AGS-30 SA) $F(3,219) = 12.84$, $p < .001$; in sensitivity to others (AGS-30 SO) $F(3,219) = 13.95$, $p < .001$; and in capacity to manage new situations $F(3,219) = 5.36$, $p = .001$.

Significant differences were also identified between the four groups on the FFPI personality factors: extraversion $F(3,83) = 5.94$, $p = .001$; emotional stability $F(3,83) = 6.06$, $p = .001$; and autonomy $F(3,83) = 10.10$, $p < .001$. The D–W– attached clients exhibited less symptoms compared with the other groups, had a higher level of functioning, showed more self-awareness and capacity to manage new situations, and were more extraverted, emotionally stable, and autonomous. The D+W+ clients experienced the most sensitivity to others and the least self-awareness, extraversion and autonomy, whereas the D+W– clients had the most symptoms and were the least emotionally stable. The means and standard deviations are presented in Table 3.

Therapy Effect

Paired samples *t*-tests demonstrated that, at the group level, significant changes in symptoms and functioning occurred between T1 and T2. The effect sizes for the decrease in the SCL-90 symptoms and the increase in the level of functioning were large ($d =$

0.95 and $d = -1.81$, respectively). In Table 4, the results of these changes as the main therapy outcomes are displayed. The changes in the ACS-30 scales and the Restructured ASQ scales are also reported in the table: self-awareness and capacity to manage new situations increased, whereas sensitivity to others, discomfort and worry decreased. Although these changes were statistically significant, the effect sizes were small. The last three columns of Table 4 list the percentages of clients for whom there was a clinically significant increase or decrease per scale (RCI ≤ -1.96 or RCI ≥ 1.96, respectively) and those for whom the change was not clinically significant. Thus, for most clients, there was a clinically significant decrease in the symptoms during therapy. For the majority of clients, therapy did not have a clinically significant change in the ACS-30 or the ASQ characteristics, which illustrates the stability of these traits.

Predictive Value

Of the 131 clients who completed both the T1 and T2 questionnaires, 58% did not exhibit changes in attachment style. Improvement was identified in 29% of the clients (a positive sign on either Discomfort or Worry turned into a negative sign), and deterioration was identified in 11% of the clients (a negative sign changed into a positive sign). In 2% of the clients, the signs exchanged (D–W+ in D+W–). The results are displayed in Table 5. Overall, the numbers of D–W– and D+W– attached clients increased, and the numbers of D+W+ and D–W+ attached clients decreased during therapy.

One way analyses of variance of the four client groups at T1 revealed significant differences in the changes between T1 and T2 in the SCL-90 symptoms, $F(3,127) = 3.27$, $p = .023$. *Post hoc* comparisons (Bonferroni) demonstrated that the T1 D–W– client types exhibited significantly less improvement compared with the T1 D+W+ client types, $M_{diff} = -27.1$, $p = .032$. Furthermore, the change in the level of

Table 4

Therapy Outcomes

	T1		T2						RCI (in %)		
	M	SD	M	SD	$M_{(diff)}$	d	r_{xx}^{1}	r_{xx}^{2}	−	0	+
SCL-90 total	169.40	49.29	130.24	33.23	39.16**	.95	.62	.56	74	23	3
ACS-30 SA	23.11	6.17	24.77	5.52	−1.66**	−.28	.63	.60	2	89	9
ACS-30 SO	63.16	8.98	60.12	8.74	3.04**	.35	.64	.65	11	89	0
ACS-30 CMNS	18.24	5.65	19.43	5.60	−1.19*	−.21	.73	.70	1	93	6
HSL Discomfort	−.29	.33	−.37	.33	.08**	.23	.67	.66	21	71	8
HSL Worry	.25	.51	.05	.49	.20**	.40	.55	.53	13	84	3
GAF-score	59.88	6.10	73.09	8.50	−13.21**	−1.81	.41	.43	--	--	--

Note. $n = 131$. *$p < .01$, **$p < .001$. RCI = Reliable change index (− = reliable decrease, + = reliable increase, 0 = no reliable clinical effect). Effect size $d = M_{(diff)} / ((SD_1 + SD_2)/2)$. r_{xx}^{1} = test-retest correlation. r_{xx}^{2} = test-retest correlation controlled for duration therapy.

Table 5

Changes in the Attachment Styles between T1 and T2

	T1 D−W−		T2 D−W+		T2 D+W+		T2 D+W−		T2	
Type	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
D−W−	32	(24)	22	(17)	7	(5)	1	(1)	2	(2)
D−W+	74	(57)	18	(14)	49	(37)	5	(4)	2	(2)
D+W+	22	(17)	4	(3)	12	(9)	4	(3)	2	(2)
D+W−	3	(2)	2	(2)	0	(0)	0	(0)	1	(1)
All clients	131	(100)	46	(35)	68	(52)	10	(8)	7	(5)

Note. D = Discomfort (positive or negative); W = Worry (positive or negative); underscored are unchanged styles between T1 and T2.

functioning significantly differed between the attachment styles, $F(3,115) = 3.10$, $p = .030$. The D+W− group exhibited the most improvement in functioning, $M_{diff} = 15.8$, $p = .022$.

Linear regression analyses demonstrated a positive association between Discomfort and Worry on T1 and changes in the SCL-90 symptoms between T1 and T2: the more Discomfort and Worry at T1, the more improvement that was expected in the symptoms. The strength of the association (correlation coefficient) for Discomfort was 0.26 ($p = .001$) and Worry was 0.19 ($p = .015$). Discomfort on T1 contributed 7% to the prediction of the changes in the symptoms (independent variable Discomfort T1, dependent variable difference scores T1-T2 SCL-90 total; $R = .260$, $R^2 = .068$, adjusted $R^2 = .060$, $F(1,129) = 9.35$, B = 30.16, $p = .003$). Worry scores on T1 also added 6% to the prediction of the changes in the symptoms ($R = .246$, $R^2 = .060$, adjusted $R^2 = .053$, $F(1,129) = 8.28$, B = 18.47, $p = .005$).

Discussion

In the two presented studies, an alternative structure of the ASQ was investigated to determine first, if a meaningful general factor of attachment could be identified, and second, whether dimensional attachment scores could be combined and categorized in meaningful attachment types.

In Study I, the structure of the original ASQ was changed by applying a biproportional raw scores principal component analysis in which the absolute scores and the scale midpoint of 0 were maintained. This method was developed by Hofstee & Ten Berge (2004) to overcome the problem of loss of information regarding absolute positive or negative ratings in traditional analyses. The alternative method has been proven to alter the structure of the questionnaire compared with traditional factor analysis, in which a dominant dimension of socially 'good' versus 'bad' emerges dependent on the item content of the questionnaire, thereby reflecting social desirability or

social fitness. In the first presented study, a strong dimension was identified in the ASQ, which confirmed our expectation. Because of its item content, this dimension reflects Discomfort (versus Comfort) in relationships. Furthermore, a much smaller second dimension was identified, which refers to whether an individual worries in relating to others (Worry versus Confidence). These two dimensions combined into four client types appeared to be useful in typing clients in an individual assessment, which was demonstrated in the second study.

In Study II, the Discomfort and Worry dimensions and the derived client types were further explored in a clinical sample. It can be concluded that the opposing types D–W– and D+W+ clearly differentiate between securely and insecurely attached clients. The secure D–W– clients were more extraverted, emotionally stable, and autonomous and started their therapy with less symptoms, better functioning, more self-awareness, and a better capacity to manage new situations compared with the other attachment type clients. They exhibited the least dropout percentage and most D–W– clients did not suffer from mood or anxiety disorders. In contrast, the insecure D+W+ clients were more introverted and dependent, were highly sensitive to others and exhibited the least self-awareness. They predominantly suffered from depressive disorders, a finding that corresponds with evidence of a link between depressive symptoms and adult attachment insecurity (e.g., Bifulco, Moran, Ball, & Bernazzani, 2002; Besser, & Priel, 2003; Wei, Mallickrodt, Larson, & Zakalik, 2005).

In both the general sample of Study I and the clinical sample of Study II, the D–W–(secure)/D+W+ (insecure) diagonal comprised 42% of the respondents. For the general sample, the ratio insecure/secure was approximately .11; for the clinical sample, the ratio was .63. Thus, not surprisingly in the clinical sample, approximately six times as many insecurely attached individuals were identified compared with the general sample. The interpretation of the 58% mixed types, which form the D+W– /D–W+ diagonal, in a nearly identical proportion in both samples, is less clear. The D+W– types, which combine the presence of discomfort with a lack of worry, appeared rather rare. Although the numbers are too small to draw firm conclusions from the results, the D+W– clients were predominantly diagnosed with anxiety disorders, reported the most symptoms, the least sensitivity to others, and the worst functioning. The label 'dismissing' for D+W– clients appears plausible when it is considered that these individuals do not trust other individuals and typically rely on themselves: they only seek help when distress is highest. However, once they have initiated therapy, they appear to profit most from the therapeutic relationship. More than half of the samples consisted of the D–W+ type. In the clinical sample, they were represented by clients who felt comfortable in close relationships, but worried whether they were likeable

to other individuals. These individuals trust other individuals, but lack confidence in themselves.

The internal validity of the Restructured ASQ scales Discomfort and Worry was good. The external validity was also reasonable and demonstrated expected associations with attachment related measures, such as self-awareness and sensitivity to others. The predictive validity of Discomfort and Worry in therapy improvement was also demonstrated. Thus, the clinical relevance of the Restructured ASQ has been demonstrated. However, notwithstanding these fairly satisfying findings, an important issue was not addressed in the presented studies, namely, the construct validity of the questionnaire. One may question if combinations of Discomfort and Worry in close relations may indeed indicate attachment representations. Can we label D–W–, D+W+, D+W–, and D–W+ as Secure, Fearful, Dismissing, and Preoccupied, respectively, especially when we consider the overrepresentation of D–W+?

One approach to address the question of construct validity is to compare the current results to prevalence studies of attachment. To our knowledge, no epidemiological research on attachment has been conducted; however, Bakermans-Kranenburg and Van IJzendoorn (2009) conducted a large meta-analysis on more than 200 clinical and non-clinical adult attachment representation studies that included over 10,000 Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) classifications. The AAI is a semi-structured interview that focuses on early attachment experiences and their effects in the present. Attachment-related autobiographical childhood memories are evaluated from the current perspective. Verbatim transcriptions of the interview are analyzed following strict guidelines. Three attachment representations can be distinguished: Secure-Autonomous, Insecure-Dismissing, and Insecure-Preoccupied. An additional classification, Unresolved, can be used for unresolved attachment-related trauma. Bakermans-Kranenburg and Van IJzendoorn (2009) identified a four-way distribution of 50% secure, 24% dismissing, 9% preoccupied, and 16% unresolved over all non-clinical and not at-risk samples and a distribution of 28% secure, 25% dismissing, 10% preoccupied, and 38% unresolved in clinical and at-risk samples. These distributions considerably deviate from the 37% secure in our general sample of study I, but match the 26% secure in the clinical sample of study II. The percentages of preoccupation and dismissing considerably deviate: preoccupied attachment representations were identified in 9% and 10% in the Bakermans-Kranenburg and Van IJzendoorn (2009) samples versus 56% and 54% in our samples; dismissing representations were identified in 24% and 28% of the AAI-samples compared with 2% and 4% in the present studies. Thus, it can be concluded that the ASQ attachment construct does not match the AAI construct. Further

research that applies both measures to the same individual is recommended.

The shortcoming of the presented studies with regard to the construct validity might be circumvented by renaming the Restructured ASQ as, for example, a Relational Comfort and Confidence Questionnaire. Regardless of its name, the Restructured ASQ appeared to provide a valid and useful tool to assess an individual's dominant attitude towards the self and other individuals, which may strengthen the clinical relevance in the diagnosis and the therapeutic process and outcome. Where the original ASQ scales have previously been proven to be valuable for research questions over samples, the Restructured ASQ combines two dimensions and provides a practical addendum in characterizing individuals.

References

Arrindell, W. A., & Ettema, J. H. M. (1986). SCL-90: *Handleiding bij een multidimensionele psychopathologie-indicator* [SCL-90: Multidimensional psychopathology indicator professional manual]. Lisse, The Netherlands: Swets & Zeitlinger.

Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2009). The first 10,000 Adult Attachment Interviews: distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development, 11,* 223-263.

Bakker, W., Van Oudenhoven, J. P., & Van der Zee, K. I. (2004). Attachment styles, Personality, and Dutch emigrants' intercultural attachment. *European Journal of Personality, 18,* 387-404.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of Personality and Social Psychology, 61,* 226-244.

Bekker, M. H. J., & Van Assen, M. A. L. M. (2006). A short form of the autonomy scale: Properties of the Autonomy-Connectedness Scale. *Journal of Personality Assessment, 86*, 51-60.

Besser, A., & Priel, B. (2003). A multisource approach to self-critical vulnerability to depression: The moderating role of attachment. *Journal of Personality, 71,* 515-555.

Bifulco, A., Moran, P. M., Ball, C., & Bernazzani, O. (2002). Adult attachment style. I: Its relationship to clinical depression. *Social Psychiatry and Psychiatric Epidemiology, 37,* 50-59.

Blom, D., Van Middendorp, H., & Geenen, R. (2012). Anxious attachment may be a vulnerability factor for developing embitterment. *Psychology and Psychotherapy: Theory, Research and Practice, 85,* 351-355.

Bowlby, J. (1969). *Attachment and loss, Volume 1: Attachment.* New York: Basic Books.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpsom & W. S. Rholes (Eds). *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Conradi, H. J., Gerlsma, C., Van Duijn, M., & De Jonge, P. (2006). Internal and external validity of the experiences in close relationships questionnaire in an American and two Dutch samples. *European Journal of Psychiatry, 20,* 258-269.

De Schutter, S., Van Geel, R., Lodewijkx, H., & Verboon, P. (2009). Social absorption and social individuation: Dutch validation. *Netherlands Journal of Psychology, 65,* 40-52.

Feeney, J. A. (1999). Adult romantic attachment and couple relationships. In J. Cassidy & P. R. Shaver, (Eds). *Handbook of Attachment: Theory, Research, and Clinical Applications* (pp 355-377). New York: Guilford Press.

George, C., Kaplan, N., & Main, M. (1985). *Adult Attachment Interview.* Unpublished manuscript, Department of Psychology, University of California, Berkely.

Griffin, D., & Bartholomew, K. (1994). Models of the self and other: fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67,* 430-445.

Hendriks, A. A .J., Hofstee, W. K. B., & De Raad, B. (1999). *Handleiding bij de Five-Factor Personality Inventory (FFPI)* [The Five-Factor Personality Inventory Professional Manual]. Lisse, The Netherlands: Swets Test Publishers.

Hofstee, W. K. B., Barelds, D. P. H., & Ten Berge, J. M. F. (2006). Structuring assessments of Personality. *Journal of Individual Differences, 27,* 87-92.

Hofstee, W. K. B., & Ten Berge, J. M. F. (2004). Personality in proportion: a bipolar proportional scale for personality assessment, and its consequences for trait structure. *Journal of Personality Assessment, 83,* 120-127.

Hofstra, J. (2009). *Attaching cultures. The role of attachment styles in explaining majority members' acculturation attitudes.* Unpublished doctoral dissertation, University of Groningen, the Netherlands.

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.

Karreman, A., & Vingerhoets, A. J. J. M. (2012). Attachment and well-being: the mediating role of emotion regulation and resilience. *Personality and Individual Differences, 53,* 821-826.

Mosterman, R. M. (2013). Normal people in clinical practice: a general factor of personality in biproportional scaling and its practical relevance. *Journal of Personality Assessment, 95,* 13-25.

Polek, E., Van Oudenhoven, J. P., & ten Berge, J. M. F. (2011). Evidence for a "Migrant Personality": attachment styles of Poles in Poland and Polish

immigrants in the Netherlands, *Journal of Immigrant & Refugee Studies, 9,* 311-326.

Timmerman, M. E., Hofstee, W. K. B., & Ten Berge, J. M. F. (2008). *Biproportional analysis of judgemental responses.* http://www.gmw.rug.nl/~sda/software/JDGMmacro.zip

Van Oudenhoven, J. P. L. M., Hofstra, J., & Bakker, W. (2003). Ontwikkeling en evaluatie van de Hechtingstijllijst [Development and evaluation of the Attachment Styles Questionnaire]. *Nederlands Tijdschrift voor de Psychologie en haar Grensgebieden, 58,* 95-102.

Van Oudenhoven, J. P. L. M., & Hofstra, J. (2005). *De Hechtingsstijllijst (HSL): Handleiding [The Attachment Styles Questionnaire (ASQ): Manual].* Unpublished manuscript, University of Groningen, the Netherlands. Electronic version: http://www.intercultureelcontact.nl/pdf/handleiding_hechtingsstijllijst.pdf

Wei, M., Mallinckrodt, B., Larson, L. M., & Zakalik, R. A. (2005). Adult attachment, depressive symptoms, and validation from self versus others. *Journal of Counseling Psychology, 52,* 368-377.

Appendix

Items and factor loadings of the (Dutch) Attachment Styles Questionnaire (English translation)

S	-0.61	I avoid close ties (8)	0.28	0.02	0.03
F	0.54	I feel uncomfortable when relationships with other people become close (3)	0.26	0.01	0.03
D	0.55	I feel comfortable without having close relationships with other people (4)	0.25	0.05	0.04
F	0.72	I am wary to get engaged in close relationships because I'm afraid to get hurt (23)	0.24	-0.04	0.03
F	0.76	I'm afraid that my hopes will be deceived when I get too closely related to others (20)	0.24	-0.04	0.04
P	0.80	I am often afraid that other people don't like me (11)	0.19	-0.09	-0.01
P	0.61	I have the impression that usually I like others better than they like me (9)	0.19	-0.06	0.01
P	0.58	I fear to be left alone (13)	0.19	-0.08	-0.01
F	0.80	I would like to have close relationships with other people, but I find it difficult to fully trust them (5)	0.15	-0.04	0.05
F	0.75	I would like to be open to others, but I feel I can't trust other people (2)	0.13	-0.03	0.04
P	0.82	I often wonder whether people like me (7)	0.07	-0.11	-0.00
P	0.51	I usually find other people more interesting than myself (21)	0.06	-0.06	0.02
D	0.60	I don't worry about being alone: I don't need other people that strongly (19)	0.05	0.06	0.06
P	-0.65	I don't worry whether people like me or not (17)	-0.01	0.09	0.03
D	0.61	I prefer that others are independent of me, and that I am independent of others (6)	-0.01	0.01	0.09
P	0.70	I find it important to know whether other people like me (24)	-0.07	-0.10	-0.00
S	0.56	I find it easy to get engaged in close relationships with other people (14)	-0.13	0.01	-0.02
D	0.64	It is important to me to be independent (12)	-0.19	-0.01	0.09
S	0.53	I trust that others will be there for me when I need them (22)	-0.21	-0.02	0.00
S	0.61	I feel at ease in emotional relationships (1)	-0.23	-0.03	0.00
D	0.61	I like to be self-sufficient (16)	-0.26	-0.02	0.07
S	0.61	I trust other people and I like it when other people can rely on me (10)	-0.27	-0.03	0.01
S	0.61	I feel at ease in intimate relationships (15)	-0.29	-0.03	0.02
S	0.60	I think it is important that people can rely on each other (18)	-0.34	-0.05	0.05

Note. In de the first column the original scales: S = Secure, P = Preoccupied, F = Fearful, D = Dismissing; in the second column the original factor loadings. Between brackets the item number. In the last three columns the loadings on the first, second and third component of biproportional PCA. Primary loadings are underscored.