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Discovering the hierarchical structure of variables describing adult attachment: insight from a joint analysis of seven questionnaires

Magdalena Pietrzak[1,3] · **Jan Cieciuch**[1,2]

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Abstract
Our work aimed to discover the structure of variables developed to conceptualize attachment dimensions in seven main approaches and measurement instruments. A group of 435 participants (49.7% female, 46.2% male, 4.1% non-binary/other identities) between the ages of 16 and 65 ($M = 24.8$, $SD = 8.1$) completed a series of seven questionnaires commonly used to measure attachment. A series of exploratory factor analyses was performed on the scales and items. In the analysis on the scales, the two-factor structure of Anxiety and Avoidance was reproduced. In the analysis on the items, a meaningful hierarchical six-level structure was discovered. Dimensions of Anxiety and Avoidance are quite similar across models, but Avoidance is much more complex than Anxiety. Anxiety remains in principle the same across all levels of the hierarchy, while Avoidance divides into several lower-order traits. The lower-order traits of Avoidance need reconceptualization, and the current study takes a step in this direction.

Keywords Anxiety · Avoidance · Attachment · Structure

Introduction

Bowlby (1982) defined attachment as any behavior aimed at initiating or maintaining intimacy with another person, considered by the individual to be more capable of coping with a distressing situation. His idea intended to explain the dynamic of forming close bonds between a child and their caregivers. Thanks to the measurement procedure developed by Ainsworth and Bell (1970) – The Strange Situation, it was possible to study this process empirically. Since Bowlby (1982) postulated from the beginning that attachment affects both children and adults, instruments to measure attachment in older age groups have also been developed. The first was the Adult Attachment Interview, developed by Main and colleagues (Main et al., 1985), which was designed to replicate similar conditions to those that activated attachment behavior in children in the Strange Situation Procedure. The next step in the development of the understanding of the attachment was the construction of several questionnaires to measure adult attachment. The first attempt was made by Hazan and Shaver (1987), focusing on conceptualizing romantic love as a relationship based on an attachment system. The researchers sought to re-create the Adult Attachment Interview in a form that allowed for quantitative measurement. The tool consisted of descriptions of each attachment style, in which the respondent was asked to choose the one(s) that best suited them. However, the proposed measurement was very limited, lacking nuance and requiring a high degree of self-awareness of the person completing it. Nevertheless, the growing popularity of attachment theory as a framework for describing close relationships, personality development, or the emergence of disorders resulted in further attempts to create an appropriate measurement instrument (Fraley & Shaver, 2000).

An important step in the development of measurement methods was the transition from the framework of categories proposed by Ainsworth and Bell (1970) to a dimensional view of adult attachment. Numerous studies (Stein et al., 2002) have shown that this approach better captures individual differences in the variable in question. The work of Simpson et al. (1992), as well as many subsequent ones,

✉ Jan Cieciuch
jancieciuch@gmail.com

1 Institute of Psychology, Cardinal Stefan Wyszyński University, Warsaw, Poland

2 University Research Priority Program Social Networks, University of Zurich, Zurich, Switzerland

3 SWPS University, Warsaw, Poland

framed adult attachment in terms of anxiety and avoidance. A later study by Brennan et al. (1998), involving factor analysis and cluster analysis on a pool of items drawn from the then-popular tools, showed that despite differences in the theoretical models behind the various questionnaires, it was possible to reduce them to dimensions of anxiety and avoidance.

In addition to the widely recognized dimensions of anxiety and avoidance, some authors of measurement tools have also proposed subdimensions that describe adult attachment with greater precision. Bartholomew and Horowitz (1991) divided the avoidance strategy into two types, depending on the motivation behind them. The first, dismissing, resulted from attaching little importance to close relationships and focusing on other areas of life, such as work. The second - fearful - was characterized by avoidance practiced despite the desire to have close relationships and motivated by fear of rejection.

There are also models that differentiate some more narrowly defined variables instead of the basic dimensions of anxiety and avoidance. Feeney et al. (1994), in the Attachment Style Questionnaire (ASQ), provided five dimensions describing adult attachment: Discomfort with closeness, Confidence, Relationships as secondary, Need for approval and Preoccupation with relationships. Discomfort with closeness describes aversion to emotional intimacy with others and the resulting dependence. Confidence refers to an individual's high self-esteem, as well as the belief that their loved ones are trustworthy individuals. Relationships as secondary involves considering personal achievement as more important than building relationships with loved ones. Need for approval describes the desire to be a person viewed positively by others and the dependence of life decisions on the perspective of the environment. Preoccupation with relationships is a factor whose high intensity is associated with strong emotional involvement in the formation and course of one's close relationships. Collins (1996) also argued that an analysis of the more narrowly defined variables allows for a better understanding of the processes behind attachment but proposed another set of variables: Anxiety, Close and Depend. These variables can be measured by the Revised Adult Attachment Scale (RAAS). Anxiety expresses the degree to which an individual feels fear of rejection or being unloved in a romantic context. Close refers to the degree to which an individual is comfortable with emotional closeness to another person. Depend describes the individual's tendency to rely on other people and the belief that the individual can trust that close people will not let them down.

Indication of the existence of subdimensions was also included in the work of Brennan et al. (1998), who performed the factor analysis on items from multiple popular attachment questionnaires. Although their analyses showed the possibility of identifying subdimensions, they did not focus on that aspect. Consequently, the questionnaire they constructed, Experience in Close Relationships (ECR), only included the basic dimensions of anxiety and avoidance.

Although literature on adult attachment is huge and several measurement instruments have been developed, there is a lack of consensus on what dimensions should be differentiated. Some discrepancies appear even in the way attachment is defined. Indeed, some authors operationalize it as a cognitive representation of self and others in close relationships (Collins, 1996). Others focus on specific behavioral patterns associated with aspects of attachment (Rholes et al., 2006; Feeney et al., 1994). Still others, however, draw on the maladjustment that characterizes non-secure attachment patterns (Stein et al., 2002) and emphasize the clinical aspect in their definitions, equating attachment with, for example, a tendency to depression or personality disorders (Bifulco et al., 2003; Paetzold et al., 2015). Moreover, in various models and measurement instruments, different sets of variables are differentiated that hinder the integration of the knowledge gathered in many empirical studies. In our study we propose a step toward integration of several operationalizations of the attachment.

Current study

Although the solution proposed by Brennan et al. (1998) is currently the most widely accepted operationalization of adult attachment, it concerns only the basic dimensions of anxiety and avoidance. There is a lack of knowledge on what subdimensions are worth distinguishing and how they relate to each other.

The purpose of the current study was to analyze the relations between attachment variables differentiated in several most often used models. We ran our analysis both on the scale and item level. More specifically, on the level of scales, we expected (1) the main variables conceptualized in various models and operationalized by different measurement instruments to build a two-factor structure of attachment Anxiety and Avoidance. To test this hypothesis, an exploratory factor analysis (EFA) was performed on all main variables measured by seven questionnaires listed in Table 1. On the level of items (2) we also expected two broad factors of attachment Anxiety and Avoidance but (3) we continued the exploration of the hierarchical structure of variables measured by the items from all questionnaires. For this goal, a method of discovering the hierarchical structure of variables proposed by Goldberg (2006) was used. The procedure involved (a) conducting a series of EFAs, forcing an increasing number of factors successively, and

(b) analyzing the correlations between factors obtained in a subsequent EFA. The increase of factors was terminated based on the criterion of theoretical meaningfulness and statistical thresholds. Goldberg's (2006) procedure has been used many times in personality research, for purposes such as the analysis of temperament (Ponikiewska et al., 2022), or dark triad constructs (Rogoza, & Cieciuch, 2020). We applied it for the first time to attachment dimensions which enabled us to significantly expand the scope of the study by Brennan et al. (1998) and to look at the structure of attachment variables. Finally, in order to show the meaning of the obtained factors and their relationship with variables measured by the existing questionnaires, a correlation analysis of the obtained factors with the existing scales of the seven questionnaires was conducted.

Materials and methods

Participants and procedure

The study was conducted via an online survey in Poland. Participants were recruited through social networks (Facebook, Instagram), using a snowball technique. As an incentive, 10 USD vouchers to a popular retail chain have been drawn among the participants (25% of the sample got them). The procedure was approved by the Ethical Board for Scientific Research in the authors' institution. The database was then scrubbed of responses that were inconsistent or suggested a lack of a serious approach to taking the survey. Mainly, attention was paid to the answers entered in the space provided to specify the gender marked as "other", where some respondents entered illogical or contradictory answers. The final sample consisted of 435 participants: 49.7% women, 46.2% men, and 4.1% non-binary or other gender identities. Participants were between 16 and 65 years old ($M = 24.8$, $SD = 8.1$). 9.7% of them were currently married, 48.0% were in an informal relationship, and 42.3% were single. 4.3% had an elementary education, 56.8% had a secondary education, and 37.9% had a higher education. 40.7% of them held a permanent job, and 1.8% worked on a part-time basis.

Attachment measures

To measure attachment dimensions, we used the seven questionnaires described below. The Relationship Scales Questionnaire (RSQ; Griffin and Bartholomew, 1994) is a questionnaire aiming to measure attachment as understood by several different models. The tool made it possible to measure attachment as conceptualized by Griffin and Bartholomew (1994), as well as Collins and Read (1990), Hazan and Shaver (1987), Feeney and Hohaus (2001) and Simpson et al. (1992). It consisted of 30 items, based on those from two other tools– Relationship Questionnaire (Bartholomew, & Horowitz, 1991) and Adult Attachment Scale (Collins and Read, 1990). The items relate to feelings experienced in close relationships. On the scale level, the current study used only the variables differentiated in Simpson et al.'s (1992) model, namely anxiety and avoidance.

The Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2015) is a revision of RSQ. T-RSQ consists of 40 items grouped into four scales (fearful, dismissing, preoccupied, and secure) but T-RSQ enables also to measure two main dimensions of anxiety and avoidance. Answers are given on a scale from 1 (not at all like me) to 7 (very much like me). The translation of the T-RSQ into Polish was prepared for this study.

The Attachment Style Questionnaire (ASQ), developed by Feeney et al. (1994) contains 40 items, measuring attachment according to Hazan and Shaver's model (2007). The tool enables to measure two main dimensions of anxiety and avoidance and lower-order variables: discomfort with closeness, confidence, relationships as secondary, need for approval, preoccupation with relationships. Answers are given on a scale from 1 (totally disagree) to 6 (totally agree). The Polish version of the scale was prepared for this study in consultation with the author of the original version.

The Revised Adult Attachment Scale (RAAS) developed by Collins (1996) is a questionnaire used to measure attachment based on her model. The tool consists of 18 items, derived from a transformation of the prototypical descriptions of attachment styles developed by Hazan and Shaver (1987). They form three scales (close, dependent and anxiety) but RAAS enables also to measure two main dimensions of anxiety and avoidance. Respondents provide answers on a scale from 1 (not at all characteristic of me) to 5 (very characteristic of me). The study used a Polish adaptation of the questionnaire by Adamczyk (2012).

The Experience in Close Relationships-Revised (ECR-R) is a 36-item questionnaire to measure anxiety and avoidance developed by Brennan et al. (1998) as a result of analyzing existing attachment measurement tools. Answers are given on a scale from 1 (strongly disagree) to 7 (strongly agree). This study uses the Polish adaptation by Lubiewska et al. (2016). However, to bring this version closer to the original, some changes were made. The content of the items and the instruction were adjusted to refer only to romantic relationships - as in the original questionnaire - and not, as before, to all close relationships.

The Vulnerable Attachment Scales Questionnaire (VASQ; Bifulco et al., 2003) is a questionnaire consisting of 22 items, derived from Adult Attachment Interview and chosen primarily to measure attachment in clinical settings

to assess the risk of depression. However, the tool can also be used in research general population. The answers are given on a scale from 1 (strongly disagree) to 5 (strongly agree). The Polish version of the scale was prepared for this study in consultation with the author of the original version.

The Adult Disorganized Attachment (ADA) scale is a questionnaire developed by Paetzold et al. (2015) to measure attachment disorganization. It consists of 9 items, addressing issues such as anxiety, confusion in close relationships, or lack of trust in partners, developed based on an analysis of the literature on disorganized attachment. The answer is given on a scale from 1 (strongly disagree) to 7 (strongly agree). The Polish version of the scale was prepared for this study in consultation with the author of the original version.

For the questionnaires without a Polish version, the translation was prepared by a team of researchers, including the authors of the current paper. First, the researchers translated the scales individually and then agreed on the most accurate translation. Subsequently, a backtranslation was prepared by an independent researcher who had not seen the original version. After that, the Polish version along with the backtranslation were sent to the authors of the original scales with a request to send us comments if necessary. In the cases where the authors suggested any changes, the Polish version was updated accordingly. The process was repeated until the authors' approval was obtained.

Results

The mean and standard deviation values, as well as Cronbach's alpha for the main scales used in further analyses, are presented in Table 1.

The two-factor structure of anxiety and avoidance scales from five questionnaires

First, to verify the hypothesis on the two-factor structure of attachment scales, EFA with principal axis factoring and varimax rotation was conducted on the scales of anxiety and avoidance or similar constructs measured by the following five questionnaires: RSQ, T-RSQ, RAAS, ECR-R, ASQ. The scree plot (Fig. 1A) suggests two factors. It turned out that they are loaded by the scales of anxiety and avoidance, respectively, from the questionnaire we used. Detailed results from the EFA are presented in Table 2.

The hierarchical structure of items from seven questionnaires

An EFA was conducted on items derived from all seven questionnaires, excluding items that repeat between scales. In total, the results for 138 items were analyzed. Analyses allowed six coherent levels to be identified. In a seven-level solution, there is a component on which no variable has its highest factor loading, so it is not interpretable. This is the point where the analysis should stop. After that, a correlation analysis was carried out between the factors obtained at the subsequent analysis that shows what and how some higher order factors divide into lower-order factors. The hierarchical structure of attachment variables obtained this way is presented in Fig. 2.

Two-factor solution Forcing a two-factor structure allowed us to reproduce the dimensions of Anxiety and Avoidance. The former is characterized by intense emotions related to entering a close relationship, fear of losing a partner, and the desire for fusion with an attachment figure. The second refers to aversion to close relationships, distrust of loved ones, and restraint in expressing emotions. The items with

Table 1 Attachment measurement instruments used in the study

Questionnaire	Model of attachment	Variable	Mean	Standard deviation	Cronbach's alpha
Revised Adult Attachment Scale (RAAS)	Collins, 1996	Anxiety	2.88	1.10	0.88
		Avoidance	2.85	0.75	0.84
Relationship Scales Questionnaire (RSQ)	Simpson et al., 1992	Anxiety	2.61	1.11	0.85
		Avoidance	2.75	0.77	0.77
Trent Relationship Scales Questionnaire (T-RSQ)	Griffin & Bartholomew, 1994	Anxiety	4.18	1.06	0.86
		Avoidance	3.77	0.84	0.77
Attachment Scales Questionnaire (ASQ)	Feeney et al., 1994	Anxiety	3.73	0.81	0.88
		Avoidance	3.44	1.02	0.87
Experience in Close Relationships-Revised (ECR-R)	Brennan et al., 1998	Anxiety	3.57	1.32	0.93
		Avoidance	3.33	1.13	0.92
Vulnerable Attachment Scales Questionnaire (VASQ)	Bifulco et al., 2003	Vulnerable attachment	2.96	0.51	0.75
Adult Disorganized Attachment Scales (ADA)	Paetzold et al., 2015	Disorganized attachment	2.52	1.14	0.84

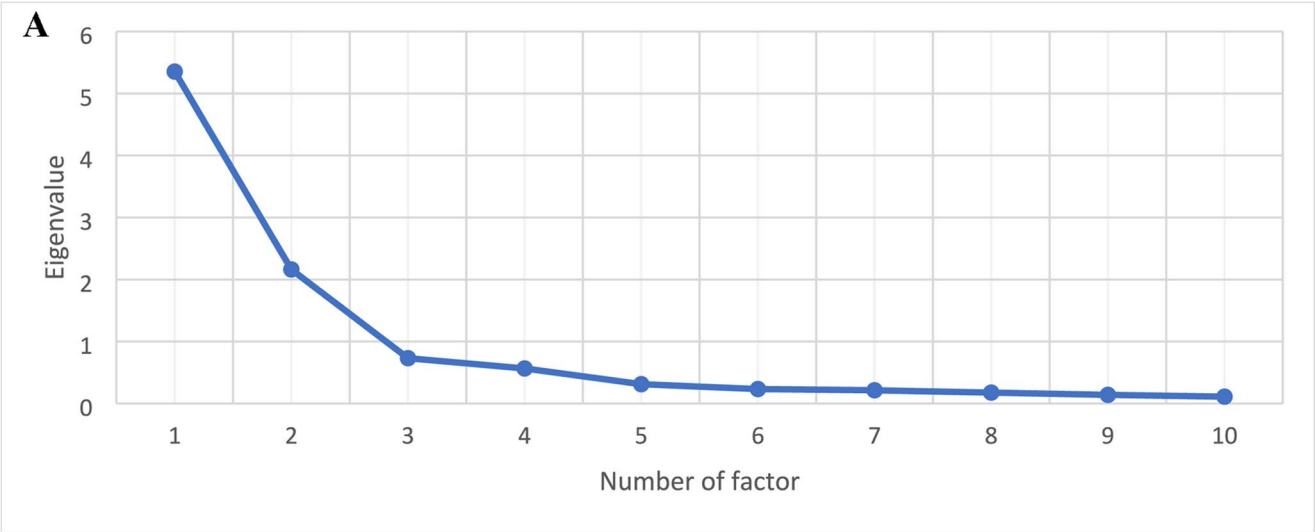


Fig. 1 The scree plots from EFAs conducted on the scales (1A) and on the items of the questionnaires (1B)

Table 2 The results of EFAs conducted on scales from five questionnaires measuring anxiety and avoidance constructs

Scale	Factor 1 (Anxiety)	Factor 2 (Avoidance)
Anxiety (RAAS)	**0.92**	0.13
Anxiety (RSQ)	**0.92**	0.03
Anxiety (ECR-R)	**0.86**	0.10
Anxiety (ASQ)	**0.77**	0.21
Anxiety (T-RSQ)	**0.72**	0.46
Avoidance (RSQ)	0.14	**0.88**
Avoidance (RAAS)	0.33	**0.86**
Avoidance (T-RSQ)	−0.17	**0.81**
Avoidance (ASQ)	0.29	**0.81**
Avoidance (ECR-R)	0.23	**0.73**

the highest factor loadings for Anxiety come from the RSQ (secure scale from Hazan and Shaver's model, 2007; anxiety scale from Simpson et al.'s model, 1992; anxiety from Feeney and Hohaus' model, 2001; anxious-ambivalent from Hazan and Shaver's model, 2007; anxiety scale from Collins' model, 1996; anxiety from Simpson et al.'s model, 1992), ECR-R (anxiety scale) and RAAS (anxiety scale). The items with the highest factor loadings for Avoidance came from the RSQ (avoidance scale from Feeney et al.'s model, 1994), T-RSQ (fearful scale), VASQ (insecurity scale), ASQ (attachment avoidance/discomfort with closeness scale), and RAAS (close and avoidance scales), as well as ECR-R (avoidance scale).

Three-factor solution The three-factor structure resulted in the emergence of two types of Avoidance. One, called Distance, is characterized by a reluctance to establish close

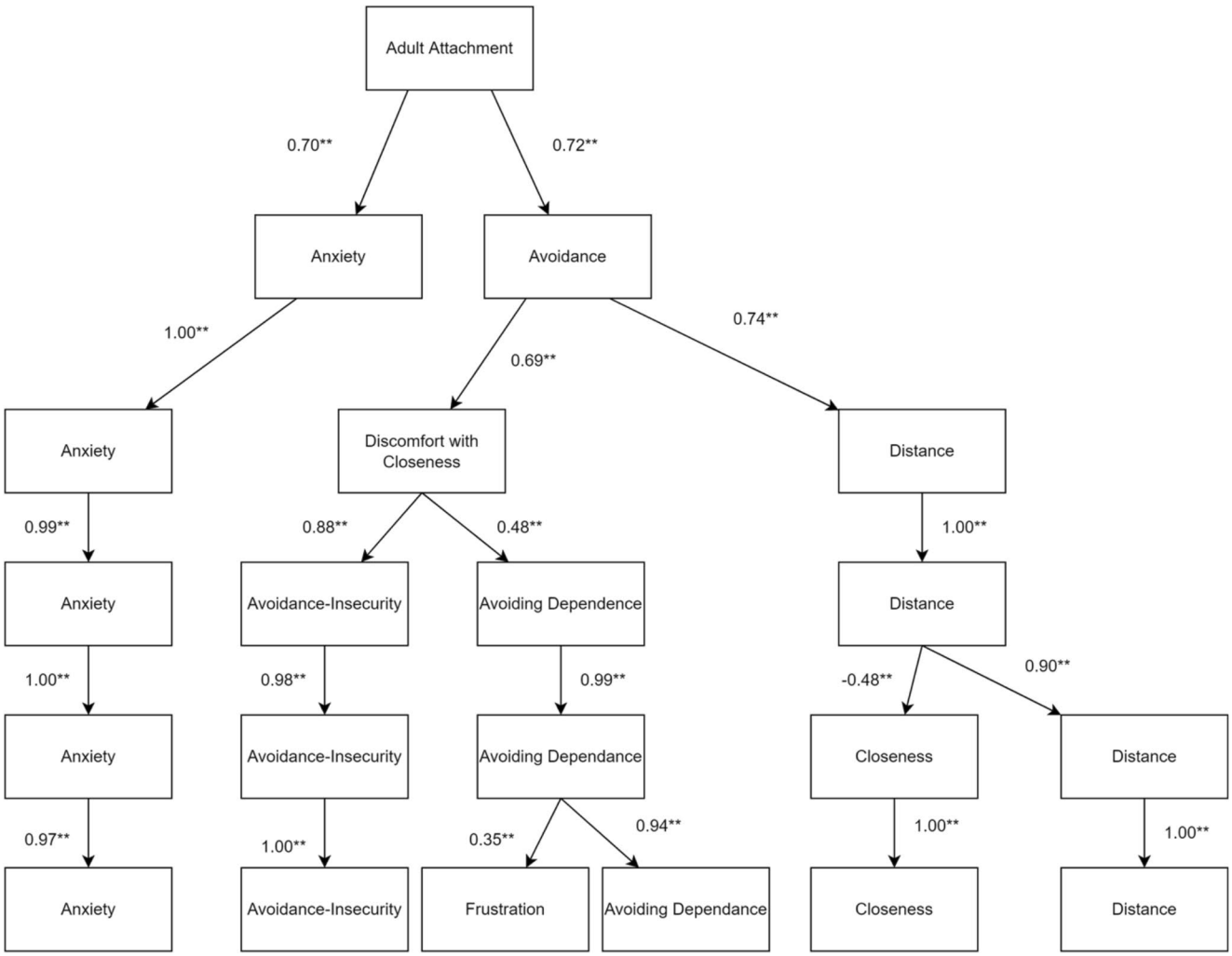


Fig. 2 The hierarchical structure of attachment

relationships and anger in response to others' attempts to initiate them. The other, Discomfort with Closeness, manifests as anxiety and confusion at the prospect of intimacy, as well as distrust of others. This result may relate to the distinction already considered in the literature between avoidant attachment caused by anxiety and the one caused by anger (Bifulco et al., 2003), although it is not equivalent to it. The items with the highest factor loadings are mostly drawn from ECR-R (avoidance scale) for Distance, and ASQ (attachment avoidance/discomfort with closeness scale/, attachment avoidance/confidence with self and others scale), RSQ (secure scale from Hazan and Shaver's model, 2007; closeness scale from Collins' model, 1996; avoidance from Simpson et al.'s model, 1992; avoidance from Feeney and Hohaus' model, 2001), T-RSQ (secure scale), RAAS (avoidance scale) for Discomfort with Closeness.

Four-factor solution Enforcing the four-factor solution resulted in the separation of Discomfort with Closeness into two sub-dimensions, named Avoidance-Insecurity and Avoiding Dependence. The first is characterized by a lack of trust in others, feelings of awkwardness in intimate interactions, and questioning of self-esteem. The items building this dimension were mainly derived from the ASQ (attachment avoidance/confidence in self and other scale scale), RSQ (secure scale from Hazan and Shaver's model, 2007; avoidance scale from Simpson et al.'s model, 1992; closeness scale from Collins' model, 1996; avoidance from Feeney and Hohaus' model, 2001), T-RSQ (preoccupied and anxiety scales), and RAAS (close and avoidance scales) questionnaires. It turned out that Avoidance-Insecurity is more strongly correlated with Discomfort with Closeness than its second sub-dimension. Avoiding Dependence includes traits related to aversion to reliance or discomfort in the face of being dependent on someone. This subscale is constructed by statements taken from the ASQ (confidence in self and others, attachment avoidance, attachment anxiety, and discomfort with closeness scales), T-RSQ

(preoccupied and anxiety scales), RSQ (secure scale from Hazan and Shaver's model, 2007; closeness scale from Collins' model, 1996; avoidance from Simpson et al.'s model, 1992; and avoidance from Feeney and Hohaus' model, 2001), and RAAS (avoidance scale).

Five-factor solution Going a level lower resulted in the extraction of a second variable called Closeness alongside Distance (as an opposition to Distance from the four-factor solution). It refers to a sense of support from a partner, trust, and a tendency to show affection in relationships. Almost all the items building this sub-dimension came from the avoidance scale of ECR-R.

Six-factor solution The last six factor solution, like the level above, was characterized by the emergence of a variable alongside another, existing on a higher level. The additional dimension was extracted from the Avoiding Dependence subscale and is referred to as Frustration. The items building this variable refer to a sense of disappointed expectations from loved ones, and a lack of confidence in receiving sufficient support in the future. This dimension contains items derived from the ASQ (preoccupation with relationships, confidence in the self and others, and attachment avoidance scales), RSQ (dependency scale from Collins' model, 1996; anxiety scale from Feeney and Hohaus' model, 2001), VASQ (insecurity scale) and RAAS (depend and avoidance scales) questionnaires.

The relationship between the variables from the hierarchical model and the scales from the seven questionnaires

Table 3 presents correlations between variables measured by the questionnaires and variables obtained in the hierarchical analysis. In particular, we present the correlations with (a) the general factor of attachment, (b) two broad higher-order factors (Anxiety and Avoidance), (c) two subfactors of Avoidance (Discomfort with Closeness and Distance), and (d) factors that emerge from them at the fifth level of analysis.

As expected, the dimensions of Anxiety and Avoidance from the two-factor level were significantly correlated with the corresponding scales from other questionnaires and their subscales. Correlation values for the main scales were at a high level of at least 0.70. The model with the strongest correlations was that of Simpson et al. (1992), measured by the RSQ questionnaire.

Interestingly, Avoidance was also strongly correlated with the variables, associated with disordered attachment, such as disorganized attachment from ADA or insecurity from VASQ. It was also correlated with a few anxiety scales (i.e., anxiety from ASQ), which proves a lack of orthogonality between the dimensions of anxiety and attachment operationalized in all the questionnaires analyzed.

At the three-factor level, the Discomfort with Closeness dimension also correlated highly with most avoidance scales and their subscales. However, there was no high correlation with disorganized attachment. In contrast, Distance, the second subfactor of Avoidance, emerged at the three-factor level, has a high positive correlation with disorganized attachment. Its correlations with avoidance scales are slightly lower. In the case of Distance at the five-factor level, correlations with similar values were obtained.

The subscales that emerge at lower levels have few significant correlations with other variables, indicating their particularly innovative nature.

Discussion

The purpose of this study was to empirically identify basic dimensions and subdimensions describing attachment by the most often used models and questionnaires. To make this possible, an analysis of seven major conceptualizations of the construct was carried out.

Most of the attachment models differentiated anxiety and avoidance as two basic dimensions of attachment (Simpson et al., 1992; Collins, 1996; Feeney et al., 1994; Fraley et al., 2000). This structure was also confirmed by the analysis conducted by Brennan et al. (1998) who used factor analysis on several measurement instruments. In the current study, factor analysis both on scales and items from all questionnaires included in the study was used to analyze this structure. As a result, the structure of two basic dimensions was replicated on the scale level and the hierarchical structure was presented for the first time on the items level. Moreover, the analysis allowed us to confirm that anxiety and avoidance are conceptualized in a similar way in all models we used.

In some of the attachment models, more narrowly defined subdimensions are also proposed. The existence of subdimensions was also signaled by Brennan et al. (1998), who, however, focused on the two basic dimensions level. The suggestion of subdimensions also appears in the work of Feeney et al. (1994). However, they were not included in the adaptation of their model prepared by Griffin & Bartholomew (1994), and do not seem to appear in any other well-established conceptualization of attachment.

In the current study, Goldberg's (2006) method, previously used for similar purposes in the personality literature (Rogoza & Cieciuch, 2020; Ponikiewska et al., 2022), was

Table 3 Correlations between the factors obtained in hierarchical exploratory factor analysis and the scales from seven questionnaires

		(1) Adult Attachment	(2) ANXIETY	(2) AVOIDANCE	(3) Discom-fort with Closenes	(5) Avoidance-insecurity	(5) Avoiding Dependence	(3) Distance	(5) Closeness	(5) Distance
ADA (Paet-zold et al., 2015)	Disorganized attachment	0.61**	0.44**	0.53**	0.12**	0.14**	0.03	0.64**	-,20**	0.64**
ASQ (Feeney et al., 1994)	AVOIDANCE	0.81**	0.28**	0.82**	0.76**	0.63**	0.44**	0.45**	−0.22**	0.45**
	ANXIETY	0.65**	0.84**	0.84**	0.35**	0.53**	−0.07	−0.13	−0.01	−0.13
	Discomfort with Closeness	0.81**	0.31*	0.78**	0.77**	0.67**	0.41**	0.41**	−0.15**	0.41**
	Confidence	−0.66**	−0.48*	−0.59**	−0.71**	−0.74**	−0.16**	−0.59	0.37**	−0.59
	Relationships as secondary	0.57**	0.17**	0.58**	0.24**	0.14**	0.25**	0.65**	−0.09	0.65**
	Need for approval	0.57**	0.70**	0.19**	0.34**	0.56**	−0.15**	0.01	0.02	0.01
	Preoccupation with relationships	0.57**	0.82**	−0.05	0.15**	0.25**	0.05	−0.07	0.19**	−0.07
RSQ (Hazan & Shaver, 2007)	Avoidant	0.81**	0.31**	0.79**	0.59**	0.50**	0.33**	0.29**	−0.14**	0.29**
	Anxious	−0.46**	0.86**	−0.08	−0.12*	0.01	−0.12*	0.61**	<0.01	0.61**
	Secure	−0.63**	−0.31**	−0.71**	−0.58**	−0.52**	−0.21**	−0.37**	0.39**	−0.37**
RSQ (Col-lins, 1996)	Anxiety	0.50**	0.89**	−0.05	−0.08	0.04	−0.10*	0.06	−0.03	0.06
	Dependence	0.80**	0.49**	0.62**	0.61**	0.41**	0.52**	0.29**	−0.25**	0.29**
	Closeness	0.60**	−0.07	−0.85**	−0.52**	−0.54**	−0.07	−0.69**	0.25**	−0.69**
RSQ (Simpson et al., 1992)	Avoidance	0.69**	0.13**	0.88**	0.63**	0.56**	0.24**	0.63**	−0.27**	0.63**
	Anxiety	0.56**	0.91**	0.05	−0.02	0.09	−0.07	0.11*	−0.09	0.11*
RSQ (Feeney et al., 1994)	Avoidance	0.50**	−0.16**	0.83**	0.68**	0.45**	0.50**	0.45**	−0.33**	0.45**
	Anxiety	0.77**	0.89**	0.30**	0.25**	0.30**	0.10*	0.23**	−0.11*	0.23**
T-RSQ (Scharfe, 2015)	AVOIDANCE	0.31**	−0.22**	0.79**	0.53**	0.45**	0.13**	0.58**	−0.45**	0.46**
	ANXIETY	0.85**	0.73**	0.47**	0.52**	0.58**	0.17**	0.25**	−0.02	0.25**
	Secure	−0.43**	−0.18**	−0.63**	−0.56**	−0.56**	−0.07	−0.19**	0.49**	−0.19**
	Fearful	0.85**	0.62**	0.61**	0.62**	0.67**	0.18**	0.33**	−0.10*	0.33**
	Preoccupied	0.38**	0.61**	−0.22**	−0.05	> −0.01	0.09	−0.07	0.37**	−0.07
	Dismissing	0.70**	0.16**	0.70**	0.51**	0.32**	0.49**	0.56**	−0.1*	0.56**
ECR-R (Brennan, et al., 1998)	Avoidance	0.54**	0.21**	0.81**	0.40**	0.27**	0.20**	0.55**	−0.69**	0.55**
	Anxiety	0.59**	0.89**	0.12*	−0.03	0.02	0	0.20**	−0.17**	0.20**
RAAS (Col-lins, 1996)	Avoidance	0.81**	0.33**	0.85**	0.69**	0.57**	0.38**	0.51**	−0.32**	0.51**
	Anxiety	0.66**	0.90**	0.15**	0.10*	0.14**	0.07	0.13**	−0.13**	0.13**
	Close	−0.64**	−0.14**	−0.85**	−0.59**	−0.58**	−0.15**	−0.60**	0.30**	−0.60**
VASQ (Bifulco et al., 2003)	Insecurity	0.83**	0.42**	0.76**	0.59**	0.55**	0.26**	0.54**	−0.16**	0.55**
	Proximity-seeking	0.04	0.56**	−0.42**	−0.30**	−0.05	−0.37**	−0.22**	0.23**	−0.22**

Number in brackets refer to the level of hierarchical attachment structure to which the variable belongs

Names in capital letters refer to main factors (for questionnaires with sub-dimensions)

used to explore the hierarchical structure of attachment variables.

In the obtained structure, Anxiety appeared to be a unidimensional variable, while Avoidance was divided into several lower-order factors. This result corresponds to the model by Bifulco et al. (2003), in which a distinction between angry-avoidant and anxious-avoidant attachment strategies was made. This suggests that at the root of the complexity of avoidance is a difference in motivation - refraining from close relationships can be motivated by fear or hostility. Similar trends can be seen in the structure we described. The results obtained may help to better understand attachment as having a more complex and hierarchical structure. The present study, by using a wide range of questionnaires and Goldberg's (2006) method, well-established in personality research, may be a step toward understanding the structure of attachment.

Moreover, correlation analysis of obtained attachment factors with variables measured by the questionnaires included in the study allows us to identify some differences in the meaning of variables measured by various questionnaires. For example, avoidance from most questionnaires is related rather to Discomfort with Closeness (a subfactor of Avoidance), while avoidance from ECR-R is most strongly correlated with Distance (another subfactor of Avoidance). Such differences in the operationalization of Avoidance may lead to incoherent conclusions in studies that use different questionnaires.

An interesting result is the moderate and strong positive correlations of anxiety measured by some questionnaires with Avoidance subfactors, such as Avoidance-insecurity and Discomfort with Closeness. The correlations here can be seen primarily with the ASQ and the T-RSQ. This may be due to the inclusion of low self-esteem in the definition of anxiety, which does not appear in items measuring anxiety in other questionnaires. Both Avoidance-Insecurity and Discomfort with Closeness refer to avoidance resulting from fear of rejection, often associated with an individual's low self-esteem. These results may account for empirically found relations between anxiety and avoidance, although according to theory (Ainsworth & Bell, 1970) they should remain independent of each other.

It is worth noting, however, that the differences between correlations of the majority of the scales to factors differentiated within Avoidance are not large. Such results mean that although some subfactors are possible to be differentiated within Avoidance, it is not possible to measure them by using the available questionnaires. Thus, a reconceptualization of the subdimensions it worth pursuing, followed by operationalization and development of a new measurement instrument that allows subdimensions to also be measured in addition to the basic dimension of Anxiety and Avoidance. This can be correctly done only when the basic dimensions are soundly defined.

Looking for the basic dimensions of a given phenomenon is a very important part of the conceptualization and identifying such dimensions can give a rise to developing new models, thus providing new understanding and insight, including differentiation of the subdimensions. The history of the Big Five traits of personality (John & Srivastava, 1999) serves as an example. These basic traits were identified in psycholexical research as basic dimensions of personality and several questionnaires were developed to measure them. However, analysis of data collected by the questionnaires developed to measure five traits showed that two higher-order values can be systematically identified (Digman, 1997; DeYoung et al., 2002). Agreeableness, consciousness and emotional stability built one factor, while extraversion and openness to change built another one. The first one was called Alpha (Digman, 1997) or Stability (DeYoung et al., 2002), while the second one Beta (Digman, 1997) or Plasticity (DeYoung et al., 2002). Identification of these two basic dimensions was a point of departure for developing a comprehensive personality model, namely the Circumplex of Personality Metatraits (Cieciuch & Strus, 2017; Strus et al., 2014) that was built on the knowledge accumulated in the Big Five tradition but circumvents the problems that emerged in this tradition. A similar case is temperament research, where several models identifying various catalogs of basic dimensions of temperament were developed. Ponikiewska et al. (2022) applied Goldberg's (2006) procedure to questionnaires measuring variables differentiated in eight models of temperament and identified two basic dimensions: Activity and Reactivity. Moreover, having the basic dimensions, Strus et al. (2022) developed a new model of temperament that was built on the results and knowledge accumulated within the temperament psychology, enabling integrated several models.

Our study can be seen as an attempt to apply this way of thinking to attachment models. The point of departure was the same: co-existence of several models and questionnaires to measure various variables describing attachment. We performed the first step– empirical identification of the basic dimensions and its hierarchical structure, which is a similar step to that made by Ponikiewska et al. (2022) in temperament psychology. Our result can be a basis on which a reconceptualization of both dimensions and subdimensions can be built.

The conducted study is not free of limitations. The data collection was carried out on a convenience sample, consisting exclusively of Polish speakers, which might have caused possible culturally specific issues, resulting from the country's generally accepted ways of raising children and understanding and forming close relationships. The study

certainly needs to be replicated on a larger, more diverse sample. Some of the participants did not have any romantic experience and were asked to answer the items concerning relationships based on their predictions and imagination, which might not be fully reliable. Nonetheless, the current work represents an important step in the study of attachment, as it paves the way for a new understanding of the variable as a more complex structure, pointing especially to the complexity of avoidance, while supporting anxiety and avoidance as the main dimensions of temperament. Further research can build on our results in proposing a synthesizing model of attachment, that differentiates both basic dimensions and their subdimensions. Such a model can help to integrate knowledge accumulated by research conducted on various models of attachment.

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