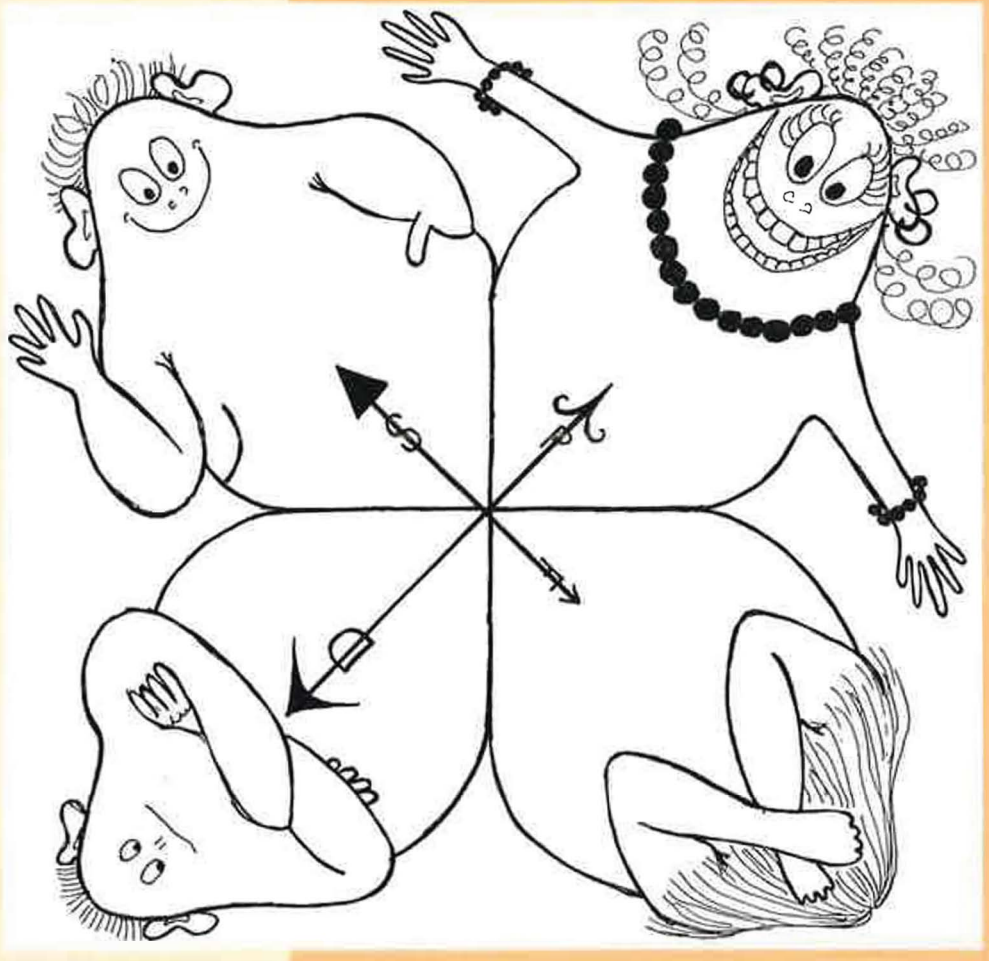
KAISA MÄNNIKKÖ

ADULT ATTACHMENT STYLES

A Person-Oriented Approach



JYVÄSKYLÄ LONGITUDINAL STUDY OF PERSONALITY AND SOCIAL DEVELOPMENT

UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 185

Kaisa Männikkö

Adult Attachment Styles

A Person-Oriented Approach

Esitetään Jyväskylän yliopiston yhteiskuntatieteellisen tiedekunnan suostumuksella
julkisesti tarkastettavaksi yliopiston Agora rakennuksessa (Ag Aud. 1)
lokakuun 13. päivänä 2001 kello 12.

Academic dissertation to be publicly discussed, by permission of
the Faculty of Social Sciences of the University of Jyväskylä,
in Agora (Ag Aud. 1), on October 13, 2001 at 12 o'clock noon.

UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2001

Adult Attachment Styles

A Person-Oriented Approach

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 185

Kaisa Männikkö

Adult Attachment Styles

A Person-Oriented Approach

UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2001

Editors
Tapani Korhonen
Department of Psychology, University of Jyväskylä
Pekka Olsbo and Marja-Leena Tynkkynen
Publishing Unit, University Library of Jyväskylä

Cover design: Minna Laukkanen
Cover picture: Kaisa Männikkö

ISBN 951-39-1999-9 (nid.), 978-951-39-5201-3 (PDF)
ISSN 0075-4625

Jyväskylä University Printing House, Jyväskylä
and ER-Paino Ky, Lievestuore 2001

ABSTRACT

Männikkö, Kaisa
Adult attachment styles: A person-oriented approach.
Jyväskylä: University of Jyväskylä, 2001, 142 p.
(Jyväskylä Studies in Education, Psychology and Social Research,
ISSN: 0075-4625; 185)
ISBN: 951-39-0999-9 (nid.), 978-951-39-5201-3 (PDF)
Yhteenveto: Aikuisten kiintymystyylit
Diss.

The methods for defining adult attachment styles, gender differences in attachment styles and the relation of attachment styles to personality characteristics and psychosocial functioning were examined. The study was based on data gathered by means of personality inventories and self-report questionnaires at ages 27, 33, and 36 in the ongoing Jyväskylä Longitudinal Study of Personality and Social Development. At age 36, attachment styles of 130 women and 141 men were measured with descriptions of the secure, dismissing, fearful, and preoccupied attachment styles in relation to the same and the opposite sex, using a 4-point scale. Attachment styles were defined by using both a classification method and a cluster analysis method. First, the participants were classified according to the single highest or tied-high (about 30%) attachment ratings. Second, the participants were assigned into clusters using a two-stage cluster analysis (hierarchical + K-means) for double-standardized (within participants and variables) clustering variables. By this procedure, an identical four-cluster solution was achieved for all participants and also for four subsamples consisting of women or men who assessed attachment in relation to female or male attachment figures. Furthermore, the tied-high classification and the four-cluster solution were associated through explicit rules. The analysis of gender differences showed that women were more preoccupied and men were more dismissing but only in relation to male attachment figures. In contrast, the secure attachment style was typical of both women and men in relation to female attachment figures. A tendency to describe attachment in more negative terms in relation to one's opposite sex than in relation to one's same sex was also discovered. The results also showed that a tendency to describe one's attachment style by using tied-high scores was related to problems in psychosocial functioning (e.g., low self-esteem, depression, health and alcohol problems), and to a more vulnerable and less adaptive personality, characterized with neurotic and psychotic features, anxiety, and feelings of detachment. In the attachment style clusters, these features characterized the Fearful, whereas the Secure had good psychosocial functioning, an extraverted and sociable personality, and low vulnerability. The attachment dimensions were related to some aspects of neuroticism and extraversion. Self-consciousness was related to the self-dimension, whereas either warmth or positive emotions were related to the other-dimension, depending on the level of self-consciousness. The relation between attachment and personality manifested considerable stability from age 27 to age 36. The results of this study suggest that measurement issues and gender differences should be paid more attention when measuring and defining attachment styles.

Keywords: adult attachment, tied-high classification, cluster analysis, gender differences, attachment target, personality characteristics, psychosocial functioning

Author's address

Kaisa Männikkö
Department of Psychology
University of Jyväskylä
P.O.BOX 35
FIN-40351 Jyväskylä
Finland
e-mail: kamannik@psyka.jyu.fi

Supervisor group

Professor Lea Pulkkinen
Department of Psychology
University of Jyväskylä
Finland

Professor Paula Lyytinen
Department of Psychology
University of Jyväskylä
Finland

Professor Jari-Erik Nurmi
Department of Psychology
University of Jyväskylä
Finland

Reviewers

Dr. Karin Grossmann
Institute of Psychology
University of Regensburg
Germany

Professor Airi Hautamäki
Department of Psychology
University of Joensuu
Finland

Opponent

Dr. Karin Grossmann
Institute of Psychology
University of Regensburg
Germany

ACKNOWLEDGMENTS

I wish to express my deepest appreciation for my supervisor, Academy Professor Lea Pulkkinen. I am extremely grateful to her for the opportunity to develop my research ideas and test them with the remarkable data gathered during the ongoing Jyväskylä Longitudinal Study of Personality and Social Development. More often than not, I have felt like the little tramp in Modern Times during this dissertation process. In any event, I am relieved to finish this study and concentrate on future challenges.

I address my most sincere gratitude to Professor Paula Lyytinen who gave me sage advice and understanding support in times when I needed it most. I also want to thank Professor Jari-Erik Nurmi who has considerably improved my scientific thinking and given, in particular, methodological advice during various phases of the research process. I am also indebted to Professor, Dr. Karin Grossmann (University of Regensburg, Germany) and Professor, Dr. Airi Hautamäki (University of Joensuu, Finland) for their valuable comments on my thesis.

I wish to offer my warmest thanks to my friends and colleagues in the Department of Psychology and Psykocenter and in other departments of the University of Jyväskylä for day-to-day support and companionship. I also want to thank my fellow post-graduate students and also other personnel in the LAKU, EMO and TWIN projects, particularly my roommate Riitta-Leena Metsäpelto who has shared the ups and downs of my dissertation with great empathy and understanding. I am also most thankful to Risto Hietala for intense discussions, daily jokes, and other encouraging and refreshing moments during numerous lunch hours and tea breaks. I am also very happy for the support of my colleagues and friends in the Finnish Graduate School of Psychology. I am very grateful to Asko Tolvanen for statistical advice and to Markku Tuomi for proofreading my English text, as well as to Satu Barman for patiently making up this dissertation.

All my other friends in the fields of hard rock geology, automatic data processing (particularly Harja-Kaisa), and Mensa Finland (most of all, Pirkko) deserve thanks for their support and help. Many thanks also for Marja for improving my physical health, and for Olli for being a secure base and a safe haven for me during this dissertation process. My warmest thanks also to Jorma. I am also grateful to my parents for their support and encouragement. Last but not least, I address my most affectionate thanks and deepest gratitude to my securely attached cat Hossantassun Eveliina (Honey) for giving me all the love and affection that a cat can give to her primary caregiver.

This study was supported financially by the Academy of Finland and by the Ministry of Education through its support of the Finnish Graduate School of Psychology.

Jyväskylä, July 2001

Kaisa Männikkö

CONTENTS

1 ATTACHMENT AND ITS ASSESSMENT IN ADULTHOOD

1.1 Attachment theory and the person-oriented approach

Attachment theory (Bowlby, 1969, 1973, 1980) provides an inspiring, multipurpose and many-sided view of its target, the individual, or man. Today, attachment theory deals with social and emotional development, gives insight into the development of psychopathology and mental disorders, and is also linked to personality development. Attachment forms in interaction with the early caregivers and, thus, builds foundations for all other relationships. Cognitive psychology and memory systems are crucial in understanding the stability of attachment throughout life and its effects in many areas in adult life. Even psychophysiology has a role in attachment. Therefore, attachment theory may well be called holistic, that is, focusing on the whole living organism.

Magnusson (1995, 1998, 1999, 2000) has presented a holistic, person-oriented approach to the study of individual functioning and development. He emphasizes the individual as an organized whole, functioning and developing as a totality, which derives its characteristic features and properties from the interaction among all the elements involved (Magnusson, 1998). The holistic principle also holds for all systems of interest in research on human ontogeny, regardless of the level at which the system is operating, from the cellular level to the environment and its subsystems (Magnusson, 1998). Therefore, the holistic view incorporates the mental, behavioral, social, and biological processes bound to the individual that are involved in his or her reciprocal interaction with the environment (Magnusson, 1995). As a whole, the individual is seen as an active, purposeful part of an integrated, complex, and dynamic person-environment system (Magnusson, 2000).

Using the person-oriented approach as the theoretical framework has implications also for research design and models for data treatment. In the person-oriented approach, individuals are studied empirically in terms of their characteristic patterns of data for the variables that are relevant for the problem under investigation (Magnusson, 2000). Methodological approaches for the person-

oriented approach include, for example, latent growth curve models, dynamic systems models, and the use of a pattern-oriented approach, focusing on information about individuals as gestalts (Bergman, 2000).

In the third part of his attachment trilogy, Bowlby (1980, 38-41) generalized the fundamental ideas of attachment theory. One of them was presented as follows: "(e) ... Thus the systems mediating attachment behavior are activated only by certain conditions, for example strangeness, fatigue, anything frightening, and unavailability or unresponsiveness of attachment figure, and are terminated only by certain other conditions, for example a familiar environment and the ready availability and responsiveness of an attachment figure...." (Bowlby, 1980, 40).

Even the short example presented above demonstrates that, despite its holistic nature, attachment research and theorizing has mostly concentrated on describing its results in a variable-oriented manner, even though the studies would have compared attachment style groups or dealt with individual pathways. In a person-oriented manner, the conditions under which a person's attachment behavior starts or stops might be described as follows: "The person's attachment behavior becomes visible only under certain conditions, for example, if he is fatigued, frightened, in a strange environment, or gets no response from the attachment figure. In addition, certain other conditions enable him to stop his attachment behavior, such as when he gets into familiar environment or gets response from the attachment figure."

Magnusson (2000) reminded that the overriding goal for us psychologists is to understand and explain individuals' thoughts, feelings, actions, and reactions. He concluded that any general model that seeks to contribute to this goal must incorporate mental, biological, behavioral, and also social factors, and needs to be placed in a coherent theoretical framework where the individual is the organizing principle. In other words, the research questions should be formulated and the results interpreted in personal terms.

The aim of this dissertation was to examine adult attachment and its relation to different aspects of life from a person-oriented approach.

1.2 Attachment as a theoretical construct

Attachment refers to an enduring affective bond between particular people (Bartholomew, 1990) of substantial intensity (Armsden & Greenberg, 1987). On the basis of Bowlby's (1969, 1973, 1980) and Ainsworth's (Ainsworth, Blehar, Waters, & Wall, 1978) work, attachments may be defined in terms of four components: proximity seeking, separation protest, safe haven, and secure base, which are observable in the behavior of an attached person in relation to the ones the attachment is targeted to. According to Bowlby and Ainsworth, proximity seeking means approaching, staying near, and making contact with the other, whereas separation protest includes resisting separations and being distressed when they occur. Secure base refers to a possibility to trust in the availability of the other, and, hence, to engage in nonattachment and explorative behavior. Safe haven, on the other hand, implies a possibility to turn to the other for comfort and support in time of distress.

These criteria have been adopted by other researchers as well, although they may present them somewhat differently. Weiss (1991), for example, suggested three criteria, combining comfort and security as a single criterion, whereas Trinke and Bartholomew (1997) included also mourning the loss of a person as a fifth criterion; however, these share the idea of Bowlby's four components. According to Fraley and Shaver (2000), proximity seeking and separation protest can also be combined to describe the tendency of an individual to remain in close contact with the attachment figure.

Ainsworth (1989) extended attachment theory to include also other affectional bonds as attachments, defining an "affectional bond" as "a relatively long-enduring tie in which the partner is important as a unique individual and is interchangeable with none other." According to her, since attachment is an affectional bond, there is a need to maintain proximity, distress upon inexplicable separation, pleasure or joy upon reunion, and grief at loss. However, one feature may separate attachments from other affectional bonds: seeking a closeness that would result in feeling secure and comfortable in relation to the partner, if securely attached, and yet the ability to move away from the secure base, provided by the partner, with confidence to engage in other activities.

Bartholomew (1994) pointed out that attachment styles can be defined with at least four different emphases: (1) as internal working models that guide interpersonal behavior and information processing, (2) as characteristic strategies that individuals use to maintain felt security, (3) as behavior reflecting experiences in specific close relationships, or (4) behavior reflecting current person-situation interactions. According to Bartholomew (1994), the two former alternatives give a dispositional interpretation of attachment styles, whereas the two latter alternatives view attachment as a relationship construct. According to Kobak (1994), attachment should be considered both as a personality construct and as a relationship construct and the context should always be taken into consideration when measuring attachment.

1.3 Attachment behavior in attachment relationships

According to Bowlby (1969), the formation of attachment between a child and his or her caregiver is biology-based and has evolved to promote security and protection against danger to keep the child alive and well. Once attachments have been formed, they are visible as an individual's *attachment behavior* toward the special person that one is attached to, caused by the activation of a separate motivational control system, that is, the *attachment system* (Bowlby, 1969, 1973). It is activated in times of separation or loss, novelty, stress, and danger, whether true or anticipated, and terminates when the attachment figure is again available and comforts the child. In infancy, attachment behavior includes, for example, crying and smiling, following and clinging, sucking, and calling the name of the attachment figure (Bowlby, 1969, 208).

In adulthood, attachment is visible as an individual's persistent urge to find close people and to retain the ones they already have (Berman & Sperling, 1994).

The function of the attachment is not necessarily protection, but rather facilitating functioning and competence outside of the relationship (Ainsworth, 1991) or fostering the attached individual's own capacity for mastering challenge (Weiss, 1982, 173). According to Hazan and Zeifman (1994), attachment relationships are expected to be more reciprocal (symmetric) in adulthood than in childhood and are assumed to be formed primarily with sexual partners. However, attachment is separate from other behavioral systems that operate in adult life, such as the systems for caregiving, and reproduction or sexuality. These, in turn, may be integrated in romantic love (Hazan & Shaver, 1994), which in itself may be confused with attachment, at least in everyday language.

Adults have a variety of different relationships with their parents, children, spouses, friends, and colleagues. The importance and number of these relationships changes, as well as one's reactions if separation or loss of the other threatens. According to Berman and Sperling (1994), an adult's attachment behavior is also more variable than in childhood and an adult can guide his or her reactions and actions to a degree when his or her attachment system is activated. One's attachment style guides the ease of making and retaining close affectional bonds, the choice of situations and clues that are perceived as threatening, and one's reactions when separation or loss is anticipated.

1.4 Primary, secondary and substitute attachment figures

Attachment bonds are thought to form between two people. Bowlby (1969, 1973) defined attachment figures as those persons toward whom attachment behavior is directed by preference. Although the mother most often has been and still is the principal attachment figure, Bowlby (1969, 304) emphasized that this role can also be filled by others than the natural mother. Thus, Bowlby (1969, 304-309) distinguished between a principal attachment figure and subsidiary/secondary attachment figures, which are those who also take care of the child and to whom the child is temporarily, perhaps in the absence of the principal attachment figure, willing to direct attachment behavior.

The place of the secondary attachment figures may be filled by several different people in a child's life. According to Bowlby (1969, 304-309), the father, the older siblings, or the grandparents may well become a child's attachment figures. Ainsworth (1989) suggested that parental surrogates might include an older sibling, another relative, an especially perceptive and understanding teacher or athletic coach, and, in the case of older persons, a mentor, priest or pastor, or a therapist. Even God has been suggested as a potential attachment figure (Kirkpatrick, 1994). Finally, Howes (1999) proposed three criteria for identification of attachment figures other than the mother: provision of physical and emotional care, continuity or consistency in a child's life, and emotional investment in the child.

Bowlby (1969, 304) stressed that having several attachment figures is rather a rule than an exception, as early as from the first years of life. However, all these attachment figures are not treated alike and therefore their roles should be

considered separately. Grossmann, Grossmann, and Zimmermann (1999) supported this, suggesting that mothers seem to relate more to the infant's secure base system, whereas fathers seem to relate more to the child's exploratory behavior system. Bowlby (1969, 308) also noted that the more intense the attachment was to the principal attachment figure, the more subsidiary attachment figures there were, and vice versa. Bowlby (1969, 207) also remarked that when people grow older, their attachment behavior is increasingly often directed toward persons outside the family and also toward groups and institutions other than the family.

The availability of the attachment figure is crucial for the state of the attached person. Bowlby (1973, 23) put forward a hypothesis that "whether a child or adult is in a state of security, anxiety, or distress is determined in large part by the accessibility and responsiveness of his principal attachment figure." Bowlby defined presence as ready accessibility and willingness to respond in an appropriate way and inaccessibility as temporary (separation) or permanent (loss), and also recognized that a mother can be physically present but emotionally absent for several reasons, such as depression, rejection, preoccupation with other matters, or threatening to abandon the child as a means of disciplining. The actual experiences with attachment figures are reflected in one's states of mind that are represented by internal working models of the world and self (Bowlby, 1973, 203-204). These, in turn, determine whether a person will or will not be alarmed by any potentially alarming situation, and how confident he will be that an attachment figure will be available for him, should he for any reason desire this.

1.5 Internal working models of attachment

The child's early experiences with the caregiver are encoded into the child's memory system as *internal working models of self and others*. These working models are cognitive/affective, relatively stable constructs that guide perception, interpretation, and behavior in later life in all relationships and, hence, have a highly significant influence on the adult's whole life. They operate outside awareness and influence expectations, strategies, and behavior in later relationships (Crowell & Treboux, 1995). According to Collins and Read (1994), working models include four interrelated components: memories of attachment-related experiences; beliefs, attitudes, and expectations of self and others in relation to attachment; attachment related-goals and needs; and strategies and plans for achieving attachment-related goals.

Bowlby (1980) pointed out that the distinction between episodic and semantic memory may be helpful in understanding differing working models. Crittenden (1997) continued along the same lines by suggesting that the four memory systems (Tulving, 1987), procedural, imaged, semantic, and episodic memory systems, contain transformed sensory information that has been distorted in a way meaningful from the point of view of one's attachment style. According to her, type A (avoidant) persons are likely to construct semantic information and discard episodic memories, whereas type C (ambivalent/preoccupied) persons are likely to focus on imaged and episodic recall of memories.

Several different possible structures have been suggested for the working models. Collins and Read (1994) proposed that adult representations of attachment are best considered as a network of interconnected models. At the top of the network is the model that corresponds to the most general representations about people and the self. Further down are models that correspond to particular kinds of relationships and at the bottom are the most specific models corresponding to particular partners and partner relationships. Hazan and Zeifman (1994) viewed this hierarchy as consisting of the primary attachment figure at the top and secondary attachment figures at lower levels. Bretherton (1985) also suggested that it may be useful to think of the internal working model of the self and of attachment figures as a multilayered hierarchical network of representations, whereas Kreppner (1987) proposed a more family-oriented view to broaden the dyadic attachment concept. According to him, the internal working models could be thought to represent a set of event-based relationships, instead of a central attachment figure.

Howes (1999) summarized three possible internal model organizations in a multiple-caregiver context. In a hierarchical organization, a child's representation of the most salient caregiver is always the most influential, and that maternal attachment security influences the security of all subsequent attachment relationships. In an integrative organization, children integrate all of their attachment relationships into a single representation where the quality of each attachment relationship is assumed to be independent of all other relationships. In the independent organization, each attachment representation is considered independent both in quality and in its influence on development, and, hence, different attachment relationship representations are differentially influential for different developmental domains. According to Howes, all these models have been empirically supported.

The working model structures are supposed to be dynamic and changeable. In the beginning, the models of self and other may be closely intertwined. As the child grows older, they become distinct but still represent obverse aspects of the same relationship and cannot be understood without reference to each other (Bretherton, 1985). According to Grossmann, Grossmann, Winter, and Zimmermann (in press), a discursive elaboration is important for the development of coherent and psychologically secure internal working models of self and others. As cognitive development increases and the child's transactions with the environment become more differentiated, the working models become more elaborated complex and abstract (Klohnen & John, 1998). Collins and Read (1994) suggested that the components of the attachment network are expected to be connected through a rich set of links and associations and that the models are expected to share many elements. The network is also dynamic and interdependent, and there is a continual interchange between general and specific models in the hierarchy. Hazan and Zeifman (1994) suggested that changes may occur in the content and structure of an individual's attachment hierarchy over the course of development, as the sexual partner ascends to the top of the hierarchy and other people are added to and removed from the hierarchy.

The incorporation of mental representations within attachment theory allows for a life span perspective of the attachment behavior system, provides a means of understanding developmental change in the expression of attachment and its

ongoing influence on development and behavior in relationships (Crowell & Treboux, 1995). Waters (1994) summed up the importance of mental representations to attachment in four main points (cited in Crowell and Treboux, 1995): They (1) serve to explain the effects of early experience on later behavior and development, (2) provide a mechanism through which a person's subjective view and experience, rather than solely the objective features of experience, can influence behavior and development, (3) are a way of explaining attachment responses in new situations, and (4) provide a way of understanding attachment as a tie that binds people across time and space.

Attachment theory has been based on the concept of dyadic relationships and their attachment bonds. However, a child usually has two parents and often also siblings, as well as other close people as secondary attachment figures. The question is whether any one person has multiple models for a single attachment figure, one attachment representation for each attachment figure, or multiple models for several attachment figures; and whether these hypothetical specific models have been generalized over all relationships, or whether attachment patterns are rather relationship-specific? Bowlby (1973, 205) suggested that, if multiple models of a single attachment figure are operative, they are likely to differ in regard to their origin, their dominance, and the extent to which the subject is aware of them.

1.6 Development and stability of the attachment patterns

The early care that a child receives is crucial for the formation of the attachment bonds between the child and his or her caregiver (Ainsworth et al., 1978). A *sensitive* and *responsive* caregiver understands the child's needs and responds to them in time and in a way that is in harmony with the child, thus ensuring the formation of a secure attachment bond between the child and the caregiver. In contrast, a care that is either insensitive or irresponsive predisposes the child to form an insecure attachment bond to his or her caregiver and leaves the child unaware of his or her needs and the appropriate means to get attention and fulfillment for those needs. If the caregiver does not perceive the child's needs, interprets them incorrectly, or responds in an inappropriate way, the child learns to suppress his or her needs and to avoid close contact in other people. On the other hand, if the caregiver is inconsistent in how he or she perceives the child's needs and responds them, the child learns that it is best to be as close as possible to the caregiver and always present to receive the care that may be unpredictably available.

In his attachment trilogy, Bowlby (1969, 331) raised four problems to be solved in order to be able to distinguish favorable development from unfavorable and to know what conditions promote one or the other. One of these questions referred to how each attachment pattern relates to *subsequent* personality development and mental health. For describing patterns of attachment by means of observing the child's behavior, Bowlby (1969, 334) suggested that at least mother's whereabouts and movements, presence or absence of other persons, the state of the non-human environment, and the state of the child himself should be considered. On the basis of Ainsworth's studies, Bowlby (1969, 339) concluded

that a dimension of security-insecurity for measuring a child's attachment is reasonable and may be expected to measure an aspect of personality that is of immediate relevance to mental health.

Bowlby (1973, 322) wrote that "... there is a strong case for believing that gnawing uncertainty about the accessibility and responsiveness of attachment figures is a principal condition for the development of unstable and anxious personality so is there a strong case for believing that an unthinking confidence in the unfailing accessibility and support of attachment figures is the bedrock on which stable and self-reliant personality is built." At that time, there was insufficient empirical evidence to support these propositions fully, but several researchers have subsequently provided convincing evidence that Bowlby's theorizing was in the right direction.

In a collection of lectures, Bowlby (1988, 135-136) summarized the ideas of attachment theory on personality development. Bowlby saw an individual as progressing along any one of an array of potential developmental pathways, of which some are compatible with healthy development and others deviant. At birth, an infant has an array of pathways open to him or her, and the environment that he meets with, especially the parenting, determines along which pathway he or she will proceed. Sensitive and responsive parenting guides the child to a healthy pathway, whereas insensitive, unresponsive, neglectful, or rejecting parenting is likely to favor a deviant pathway. The findings of, for example, Crittenden (1985, 1988) strongly support Bowlby's insight.

In adulthood, the unfavorable experiences of the childhood may be considered and integrated into a mental process. Similarly, the inner working models may have been updated to become integrated, complexly organized, hierarchical and conditional models of adult persons that enable one to feel and behave adaptively in different situations. However, in the case of insecure attachment this is less true than in secure attachment. Main, Kaplan and Cassidy (1985) noted that the parents of insecure infants spoke about their childhood experiences in an incoherent, inconsistent, and unintegrated way, with particular forms of incoherence that characterized parents of infants in the differing insecure groups. Crittenden (1997) further specified and explained the differences as a discrepancy between the contents of the semantic and episodic memories. According to her, the avoidant construct models of what they ought to do, and discard information about how one feels and what really has happened, whereas the ambivalent have confused and unclear working models and hence focus on details, feelings, and episodes and engage in struggles over excessive nurturance.

Attachment theory suggests that an individual's attachment style remains quite stable throughout life once it has developed during the first few years. Crittenden (1997) puts this in a different way, as a probability of an individual to continue on his or her current pathway unless circumstances change. The basis of this stability lies in inner working models or cognitive representations of self and others that have developed during the first years according to the care that the child has received from his or her caregivers. These working models tend to be generalized over all people and guide one's perception, interpretation, feelings, and behavior in later life (Bowlby, 1980, 229). Crittenden (1997) suggests that different memory systems (procedural, imaged, episodic, semantic, suggested) may have differing information contents, depending on the attachment style. In

secure attachment, the contents of the memory systems are coherent and they are all equally accessible, whereas in insecure attachment there is discrepancy between their contents and differences in the availability of the different memory systems. As a child grows older, a gradual updating of these models occurs; however, this updating is in some degree obstructed through defensive exclusion in insecure (anxious) attachment (Bowlby, 1988, 130). Despite the stability of the early attachment style, change in the working models continues throughout the life cycle so that changes for better or worse are always possible (Bowlby, 1988, 136).

The communication pattern of the child and the caregiver is crucial in determining why one child develops healthily and another becomes disturbed. Main et al. (1985) found that securely attached mothers and children engaged in free-flowing conversation, expressed their feelings, and discussed a variety of topics, including personal ones. In insecure dyads, either conversation was fragmented and topics changed abruptly or conversation was limited, topics were kept impersonal, and all feelings were omitted. In such communication environment, also the updating of the working models to more secure ones is unlikely. Also Grossmann et al. (in press) emphasize the importance of discursive elaboration with engaged parents or other mindful attachment figures for the development of secure attachment.

Crittenden (1997) mentioned also other sources of change in the individual attachment pathways. These include an unexpected change of conditions or a successful experience of therapy. Scharfe and Bartholomew (1994) discovered that changes in attachment ratings were not consistently related to life events during an 8-month period and that attachment patterns manifested moderate stability. Crittenden also suggested that maturation itself creates the potential for change both within an attachment pattern and from one pattern to another. Change may also occur when an attachment figure fails to adapt to the child's development; on the other hand, she or he may be out of synchrony with the child at one time and fit the behavior of the child in another period.

1.7 Models and classifications of attachment

Ainsworth et al. (1978) described three attachment patterns in infants that they named A, B, and C; later, these patterns have been called, respectively, *anxious/avoidant*, *secure*, and *anxious/ambivalent* attachment patterns. A securely attached child seeks and receives protection, reassurance, and comfort when needed and trusts the support and availability of the caregiver. The two other attachment patterns reflect an infant's adaptation to the attachment figure's behavior. An avoidant attachment behavior where the child avoids contact with or even looking at the caregiver and minimizes the expression of distress results from the caregivers rejecting behavior. In contrast, the caregiver's inconsistent behavior results in the child's ambivalent attachment behavior where the child both strongly seeks the caregiver's presence and attention and resists it and protests angrily when he or she leaves or returns. Later, a fourth childhood attachment class has been suggested to cover such disorganized and strongly anxious childhood attachment behavior that cannot fit Ainsworth et al's three patterns (e.g., Crittenden, 1985; Main &

Weston, 1981; Radke-Yarrow, Cummings, Kuczynski & Chapman, 1985).

In adulthood, attachment has mostly been divided into three, four, or five attachment classes. Hazan and Shaver (1987) created a three-class attachment classification where they transformed Ainsworth et al.'s three childhood classes to attachment prototypes that represented romantic adult relationships. Bartholomew (1990) followed Hazan and Shaver's approach and further developed it by presenting a four-category model of adult attachment, where the secure, dismissing, fearful, and preoccupied attachment styles were defined on the basis of the positivity or negativity of the underlying self and other dimensions of attachment.

A five-class attachment classification for the normative cases of attachment was presented by Main and Goldwyn (1992) on the basis of results obtained with the Adult Attachment Interview (AAI). The AAI is a semistructured protocol focusing upon an individual's description and evaluation of salient early attachment experiences and the effects of these experiences on current personality and functioning (Hesse, 1999). The AAI rather measures states of mind in relation to attachment than attachment styles and describes these states with five category descriptors: free/autonomous (F), dismissing (D), enmeshed/preoccupied (E), unresolved/disorganized (U), and cannot classify (CC) (Main & Goldwyn, 1992). Those in category U were also placed in one of the F, D, or E classes, whereas the CC class was meant for those who could not be classified into any of the other categories (Main & Hesse, 1990).

Crittenden (1994, 1995, 1997) has further developed Main and her colleagues' approach by presenting a dynamic-maturation approach to the assessment and treatment of psychological disorders that is also applicable to attachment disorders and nonnormative cases of attachment. She defined a classification system for a modified AAI that includes, as a major division, the integrated and secure B's, the defended A's, the coercive C's, and the integrated or anti-integrated (psychopathy) combinations of these. Each main division is further divided into subclasses that describe the variation inside the main classes. In Crittenden's approach, different memory systems (Tulving, 1987), their contents, and the accessibility of the contents are of utmost importance in defining one's attachment pattern. Furthermore, Crittenden's coding system allows different attachment patterns toward different attachment figures.

1.8 Principal approaches in measuring adult's attachment

Measuring individual differences in adult attachment has, according to Griffin and Bartholomew (1994b), been dominated by three approaches: dimensional, typological, and prototypic. The dimensional approach implies that people can be ordered only quantitatively and that there is no interaction between the different dimensions. The grouping approach, on the other hand, implies that people exist as discrete types and that the only between-group variance is meaningful. The prototypic approach integrates and addresses the limitations of both the dimensional and the grouping approaches as it assumes that categories may

overlap with one another and that they contain members with varying degrees of typicality. Therefore, the prototypic approach allows the assessment of how well an individual fits each prototype at any time and how much the fit varies over time or situations. On the basis of these assumptions, four major modes of measuring attachment have been developed for adults: the observation (Banai, Weller & Mikulincer, 1998; Rholes, Simpson & Orina, 1999; Simpson, Rholes & Nelligan, 1992), interview (George, Kaplan & Main, 1985; Main & Goldwyn, 1992), self-report (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987), and Q-Sort (Kobak & Hazan, 1991) methods.

Attachment has been measured using either a forced-choice approach or a Likert-type scale. The former is linked to the typological measurement approach, where one of three or four attachment types or styles must be chosen to describe one's attachment behavior in close relationships. The latter is typical of the dimensional approach where a number of items are rated separately using scales of four to nine points. Prototypic descriptions of attachment styles have been rated using the forced-choice and/or a Likert-type scale. This approach takes into account the fact that several attachment styles can describe one's attachment, albeit with varying degrees and strength in different relationships.

Recently, Fraley and Waller (1998) have suggested that the dimensions of attachment, rather than the attachment styles, should be measured. Several studies have provided evidence on the self and other dimensions that underlie adult attachment (e.g., Fraley & Waller, 1998; Griffin & Bartholomew, 1994a; Sanford, 1997). These dimensions have been shown to represent the positivity (Griffin & Bartholomew, 1994a) and negativity (Brennan, Clark, & Shaver, 1998; Collins & Read, 1990; Simpson, 1990; Simpson, Rholes, & Nelligan 1992) of one's self-concept (self-model) and interpersonal orientation (other-model).

2 A FOUR-CATEGORY MODEL OF ADULT ATTACHMENT

2.1 Properties of the four-category model

Approximately a decade ago, in the early 1990's, Bartholomew presented a four-category model of adult attachment (Bartholomew, 1990; Bartholomew & Horowitz, 1991). The model was based on Bowlby's (1969, 1973) claim that attachment patterns reflect true experiences with caregivers and are encoded into working models of self and others, which, in turn, guide observation, interpretation, and behavior in close relationships of adults. The model was also the first one to provide a theoretical rationale for four, rather than three distinct attachment patterns, with two avoidant attachment classes instead of one (Bartholomew & Horowitz, 1991). Moreover, the expected relations among the attachment styles were defined. In the model, two dimensions were proposed to underlie the attachment styles. Griffin and Bartholomew (1994a) showed that these two dimensions serve as an organizing framework for the different measurement approaches.

In Bartholomew's (1990) model, four adult attachment styles were defined as combinations of the positive or negative working models of self and others as the underlying dimensions of attachment (Figure 1). A positive model of self implies oneself as worthy of love and attention, whereas a negative model of self implies that oneself is unworthy. Similarly, a positive model of other implies that others are seen as available and caring, while a negative model of others implies that others are seen as rejecting, distant, or uncaring. The *secure attachment style* is based on a positive model of both self and others, whereas the *fearful attachment style* is based on the opposite, that is, a negative model of both self and others. Further, Bartholomew defined the *dismissing attachment style* as having a positive model of self but a negative model of others and the *preoccupied attachment style* vice versa, that is, as having a negative model of self but a positive model of others. Bartholomew (1990) wanted to emphasize that each of the four styles represents theoretical ideals or prototypes; hence, the members of a category may vary in

their typicality. Therefore, no person's actual experiences will uniformly match the prototype of a single cell, and there will also be individuals who show differing degrees of agreement with two or more prototypes.

The two dimensions in Figure 1 were also conceptualized in Bartholomews's (1990) model in terms of social response styles, indicated in parentheses. The model of self was associated with dependence (on other's acceptance), varying from low to high, and the model of other was associated with avoidance (of close relationships), also varying from low to high. In that light, the secure attachment style reflects low dependence and low avoidance, whereas the fearful attachment style reflect high dependence and high avoidance. Similarly, the dismissing attachment style reflects low dependence and high avoidance, whereas the preoccupied attachment style reflects high dependence and low avoidance. Dependence implies whether self-esteem is internalized and does not require external validation or whether it requires others' continuous acceptance. The avoidance is reflected in the degree of avoiding close contact with others.

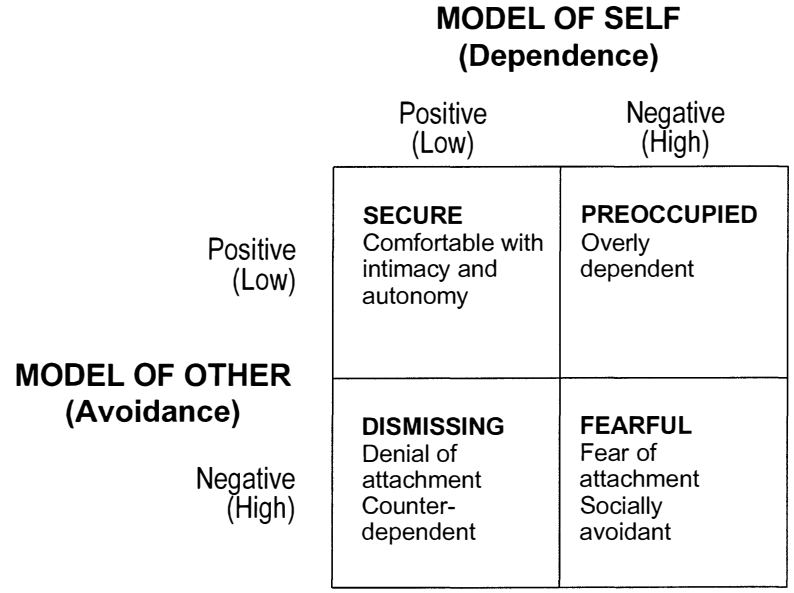


FIGURE 1 Four-category model of adult attachment (Bartholomew, 1990).

According to the contents of their working models, the different attachment styles lead to different behavior in relation to closeness and dependence and to different strategies for coping with issues related to oneself and others in close relationships. According to Bartholomew (1990), the secure and the preoccupied are both comfortable in the presence of others, but their degree of dependence on others' availability is different. *Secure* individuals have an internalized sense of self-worth and are comfortable with intimacy in close relationships. Hence, they display high self-esteem and absence of serious interpersonal problems. The *preoccupied*, instead, anxiously seek to gain acceptance and validation from others, as if they believed

that their safety and security would be totally dependent on others and their attention. They also have a deep-seated feeling of unworthiness. The two avoidant classes, the dismissing and the fearful, both tend to avoid close relationships but differ in their dependence on others' acceptance. Hence, the *dismissing* avoidants cope with this by emphasizing the importance of achievement and self-reliance and defensively denying the value of close relationships in order to maintain their sense of self-worth. They may also focus on impersonal aspects of life, such as work or hobbies. By contrast, the *fearful* desire intimacy but experience lack of trust and fear of rejection, which makes them avoid close relationships in which they may be vulnerable to loss or rejection. The result is subjective distress and disturbed social relations characterized by a hypersensitivity to social approval (Bartholomew, 1990).

Bartholomew (1990) also put forward some hypotheses concerning the origin and development of the different attachment patterns discovered in adults. She supposed that warm and responsive parenting would give rise to positive models of self and other, resulting in the secure attachment style. The preoccupied style would result from inconsistent and insensitive parenting, especially if accompanied by messages of parental devotion. The two avoidant attachment styles would result from a history of rejecting or psychologically unavailable attachment figures. The fearful may have experienced their parents' freely expressed negative affect toward and in front of them. In contrast, the parents of the dismissing may have discouraged the open expression of negative affect, displayed coolness in interaction and deficits in emotional availability and sensitivity. Bartholomew also suggested that although the basis of the attachment behaviors may lie in the childhood family environment and its continuity, there are also many other factors that determine adult attachment patterns.

In a broader developmental context, the patterns of adult attachment may be understood as attempts to regulate negative feelings within close relationships, and should be manifest in distinct patterns of emotional regulation and social interaction. According to Bartholomew (1990), a negative self-model is expected to be accompanied by considerable distress, and, correspondingly, individuals with this style should report subjective distress associated with their social fears and low self-confidence. In contrast, a dismissing attachment style can be interpreted as a defensive process, designed to prevent the experience of negative affect and the activation of the attachment system, leading to, for example, deficits in social competence, denying the existence of interpersonal problems, and a detached interpersonal stance. Moreover, the dismissing may lack reciprocity in relations and lack responsiveness to friendly overtures. Both the dismissing and the fearful may be high in hostility, the former in a dominant and the latter in a passive way.

2.2 Measuring attachment and defining attachment styles and dimensions

In order to test the four-category model, Bartholomew and Horowitz (1991) presented measures for assessing the four attachment styles. First, they created semi-structured attachment interviews for their subjects, asking them to describe

their friendship patterns (Peer Attachment Interview) and family relationships (Family Attachment Interview). The interviews were audiotaped, and independent raters rated each interview on a 7 or 9-point scale, describing the degree to which the subject matched each of the four attachment prototypes. Second, Bartholomew & Horowitz (1991) also developed a prototypic self-report (Relationship Questionnaire) on the basis of Hazan and Shaver's (1987) original three prototypes for assessment of the four attachment styles. The prototypic descriptions (Table 1) in the Relationship Questionnaire may be used as a forced-choice measure, or they may be rated separately with a continuous, Likert-type scale. Bartholomew and Horowitz (1991) themselves used a 7-point scale.

TABLE 1 Prototypic descriptions of Bartholomew's four attachment styles (Bartholomew & Horowitz, 1991)

Prototype	Description
Secure	It is relatively easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or having others not accept me.
Dismissing	I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.
Preoccupied	I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.
Fearful	I am somewhat uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely or to depend on them. I sometimes worry that I will be hurt if I allow myself to become too close to others.

Note. Finnish translations of the descriptions are given in Appendix 1.

The four attachment styles may be deduced from the raw data using several different procedures. Of the most often used methods, the forced-choice assessment, as well as the highest rating in any of the four prototypes, provide the best fitting prototype as one's attachment style. In the attachment interviews, Bartholomew and Horowitz (1991) counted the final ratings of a subject as a mean of the raters' points for each style, the highest of which was then used to assign subjects to one of the four adult attachment patterns. Scharfe & Bartholomew (1998) determined a secure-insecure division (insecure including all except the secure category) according to the same principle.

The rationale of defining attachment styles as the highest score is based on Bartholomew's (1990, 162) statement "When a person in the final analysis is described as best matching one of the four cells, this means only that the person's experiences have generally lead to outcomes that more closely approximate that cell than the other three cells. Moreover, by rating individuals' degrees of correspondence with each prototype, they can be placed within the space defined by the intersection of self and other-models, rather than simply assigned a single label."

The prototypic descriptions may also be used as items in the search for the underlying attachment dimensions (Griffin & Bartholomew, 1994b). There are at least two possibilities to do that. Griffin and Bartholomew (1994a, 1994b) themselves, as well as Simpson, Rholes, and Phillips (1996), used a simple computing method, where scores for Self axis and Other axis were achieved as follows: The self-model dimension was obtained by summing the ratings of the two attachment patterns with positive self-models (secure and dismissing) and subtracting the ratings of the two patterns with negative self-models (preoccupied and fearful). The other-model dimension rating was obtained by summing the ratings of the two attachment patterns with positive other-models (secure and preoccupied) and subtracting the ratings of the two patterns with negative other-models (dismissing and fearful) (Griffin & Bartholomew, 1994a).

Another possibility to calculate the underlying two dimensions is to enter into factor analysis the prototypic scores that have been measured with a continuous scale. Brennan, Shaver, and Tobey (1991) attempted this by entering both the three HSQ (Hazan and Shaver Questionnaire) prototype scores and the four RQ (Relationship Questionnaire) prototype scores together into principal-components analysis. They achieved two factors, the first of which was the secure versus fearful diagonal and the second the preoccupied versus dismissing diagonal. According to Griffin and Bartholomew (1994b), also these dimensions are easily replicable and represent a 45-degree rotation from the Self and Other (or anxiety and avoidance) dimensions found with the individual items.

2.3 Validity of the four-category model

Bartholomew and Horowitz (1991) showed that the proportions of the four attachment styles were quite similar in two different samples of students. In their first study, 40 female and 37 male students were interviewed, and the interviews were rated by three independent raters on 9-point scales in relation to the four prototypic descriptions. The interrater reliabilities ranged from .87 to .95. The ratings were averaged, and the highest of the four average ratings was considered to be the best-fitting category for that subject. In this manner, the proportions of the attachment styles were the following: secure 47%, dismissing 18%, fearful 21%, and preoccupied 14%. In another study, 33 female and 36 male students were interviewed and rated on a 7-point scale. Now, the reliabilities were between .74 and .88, and the distribution of the resulting attachment groups were: secure 57%, dismissing 18%, fearful 15%, and preoccupied 10%. Also several other studies using Bartholomew's (1990) four-category model as a framework have achieved quite similar percentages of the four attachment styles (e.g., Brennan & Bosson, 1998; Diehl et al., 1998; Feeney, 1999b; Pietromonaco & Barrett, 1997). These findings imply the replicability of the four attachment styles proposed by Bartholomew (1990). Moreover, Scharfe and Bartholomew (1994) demonstrated that the four attachment representations, assessed by the self-report and interview methods and by categorical as well as continuous measures, were at least moderately stable over 8 months in a stable environment.

Bartholomew and Horowitz (1991) also showed that the theoretical four-

category model was supported regardless of the method or informant, that is, across family ratings and peer ratings and across interviews, self-reports, and friend reports. The underlying four-group structure was supported both by multidimensional scaling of interview, self-report, and friend report attachment ratings considered separately and by a factor analysis of combined ratings of the three methods. Furthermore, the corresponding measures correlated moderately, whereas the correlations between noncorresponding ratings were nonsignificant or negative. As for the self-and other-dimensions that were assumed by Bartholomew (1990) to underlie the four-category model, Griffin and Bartholomew (1994a) demonstrated their construct validity. They counted ratings for the self and otherdimensions from the four attachment ratings for three different methods (self-report, peer interview, family interview) and demonstrated with the correlations in a multitrait-multimethod matrix both the convergent and the discriminant validity of the two dimensions.

The attachment ratings were validated by self-report measures of self-concept and interpersonal functioning. Bartholomew and Horowitz (1991) showed that self-concept measures (self-esteem, self-acceptance, and subjective distress) differentiated the secure and dismissing attachment styles (positive self-model) from the preoccupied and fearful attachment styles (negative self-model). Furthermore, they showed that a sociability measure differentiated the secure and preoccupied attachment styles (positive other-model) from the dismissing and fearful attachment styles (negative other-model). Griffin and Bartholomew (1994a) further demonstrated the construct validity of the latent self and othermodel dimensions by means of structural equation modeling, showing that each latent attachment dimension was related to a theoretically valid outcome variable. In the model, three self-concept measures (self-esteem, self-acceptance, and distress) were related to the latent attachment self-model, whereas four measures of interpersonal orientation (sociability and interpersonal warmth, both self and friend-reports) were related to the latent attachment other-model.

Several studies have provided evidence for the external validity of the four-category model. Bartholomew and Horowitz (1991) showed that the attachment styles were associated with a distinct profile of interpersonal problems according to both self and friend-reports. They stated that fearful subjects were characterized by passiveness, and dismissing subjects by lack of warmth in social interactions. Preoccupied subjects were highly dependent on others but attempted to achieve this through a controlling interpersonal style. In contrast to the insecure attachment styles, the problems of secure subjects were not distinctive in content.

Other studies have also provided evidence for the external validity of the four-category model. First, some of the results show that each attachment style differs from all other attachment styles in some respect. The secure, for example, have been shown to derive their self-esteem from socially based sources, such as positive relations with others (Brennan & Bosson, 1998). The dismissing, instead, get self-esteem from competence-based sources, such as autonomy and environmental mastery (Brennan & Bosson, 1998) and report less affect intensity and emotionality than all others (Pietromonaco & Barrett, 1997). Preoccupied individuals reported more affect intensity and emotionality, higher levels of distress, less self-knowledge and less differentiation between themselves and others than other individuals (Pietromonaco & Barrett, 1997). Second, other studies have

shown differences between attachment styles along the self and otherdimensions. For example, Cozzarelli, Hoekstra & Bylsma (2000) found that the model of self was related to life satisfaction and positive well-being. According to Lopez, Gover, Leskela, Sauer, Schirmer, and Wyssman (1997), the preoccupied and the fearful (with negative self-model) were more shame-prone than the secure or the dismissing (with positive self-model). Third, each of the four attachment styles have been demonstrated to differ from one or two other attachment styles in, for example, family climate, defense style and personality variables (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998), caregiving styles (Feeney, 1996), importance of and conflicts over closeness-distance (Feeney, 1999a), and parental descriptions (Levy, Blatt, & Shaver, 1998).

3 SELF-REPORTS IN THE ASSESSMENT OF ADULT ATTACHMENT

3.1 Development of attachment self-reports

The development of attachment-related self-report measures began in late 1970's, continuing in three major directions. First, the attachment measures were based directly on Bowlby's (1969, 1973, 1980) concepts and the three attachment patterns for infants developed by Ainsworth et al. (1978). Second, Ainsworth's secure, anxious, and avoidant attachment patterns were transformed by Hazan and Shaver (1987) to correspond to romantic adult attachments. Several researchers adopted their approach and continued to develop multi-item attachment questionnaires, the items of which were derived on the basis of the three prototypic descriptions. Third, Bartholomew and Horowitz (1991) suggested two avoidant classes, instead of one, and developed a four-prototype questionnaire for assessing adults' attachment styles. Their measure inspired several researchers who developed different ways to use the four prototypes in measuring attachment, such as suggesting different attachment targets, as well as researchers who developed long multi-item questionnaires for measuring attachment. The latest development has been to measure attachment dimensions instead of, or in addition to, the attachment styles (e.g., Fraley & Waller, 1998).

During the development of attachment self-reports, an abundance of measures have been developed. The current literature mentions at least 34 attachment measures. A detailed description of these measures is beyond the scope of this thesis; furthermore, extensive reviews and comparisons of attachment self-reports have been published (e.g., Bradford & Lyddon, 1994; Crowell & Treboux, 1995; Garbarino, 1998; Lopez & Gover, 1993; Lyddon, Bradford, & Nelson, 1993; Sperling, Foelsh & Grace, 1996; Stein, Jacobs, Ferguson, Allen, & Fonagy, 1998). Figure 2 describes the development of the self-report instruments based on Hazan and Shaver's (1987) prototypic attachment measure.

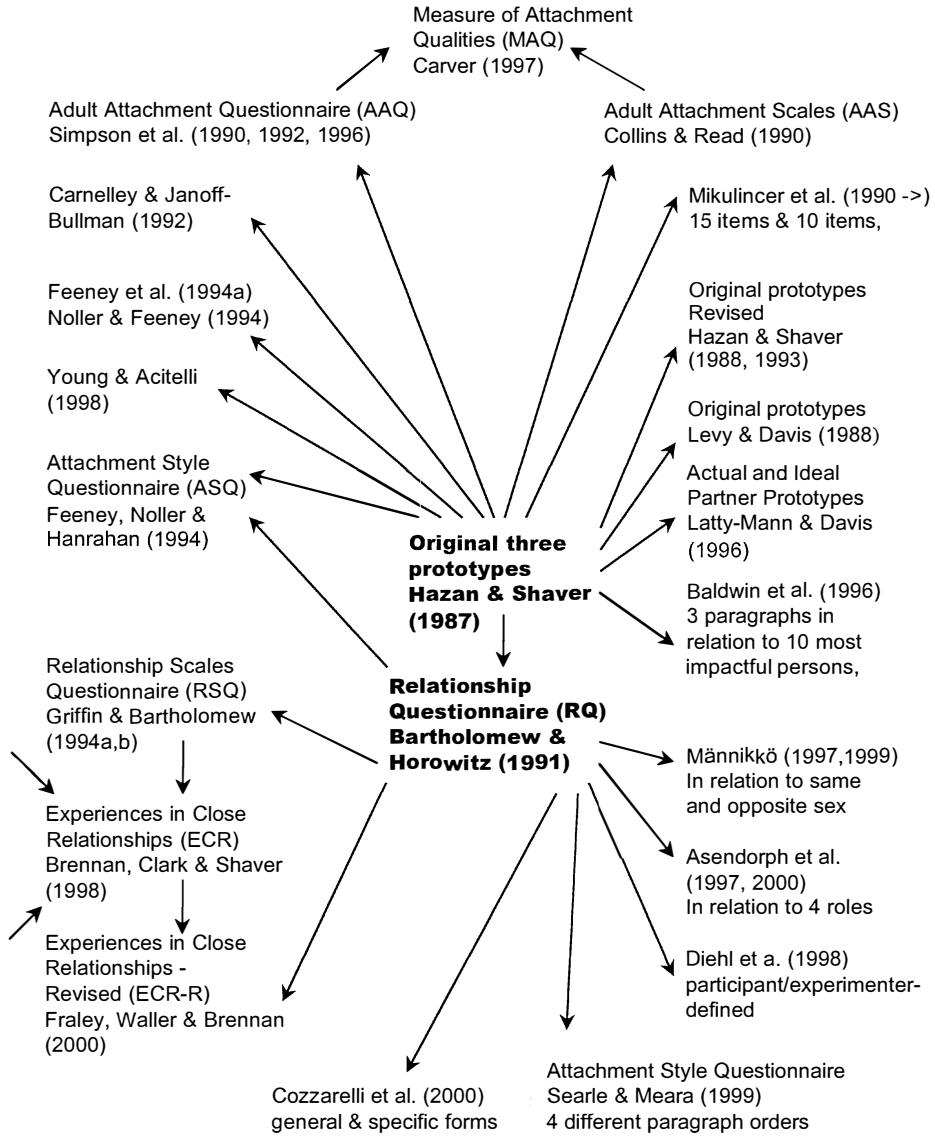


FIGURE 2 Development of attachment self-reports, based on Hazan and Shaver's (1987) three original prototypes.

3.2 Prototypic attachment self-reports

Hazan and Shaver (1987) started the prototypic self-report tradition in assessing adult attachment with their classical study "Romantic love conceptualized as an attachment process". They introduced three prototypic descriptions of adult attachment styles that corresponded to the three childhood attachment patterns

(secure, anxious/ambivalent, and avoidant) presented by Ainsworth et al. (1978). Hazan and Shaver suggested that romantic love as an attachment process is experienced somewhat differently by different people because of variations in their attachment histories and, accordingly, in their attachment styles in close relationships. The best known and most widely used successor of the Hazan and Shaver (1987) approach surely is Bartholomew and Horowitz's (1991) Relationship Questionnaire that measures four attachment styles instead of three; besides, the attachment styles have rather been named according to the Adult Attachment Interview tradition by Main and her colleagues (e.g., George, Kaplan, & Main, 1985; Main & Goldwyn, 1992) as secure, preoccupied, dismissing, and fearful. The different prototypic attachment self-reports have been listed in Table 2.

TABLE 2 Prototypic attachment self-reports.

Authors	Instrument	Measured attachment styles and attachment targets (if any)
Hazan & Shaver (1987)	Original Three Prototypes 3 prototypes, forced	Secure, Avoidant, Ambivalent
Hazan & Shaver (1988, 1993)	Original Prototypes Revised 3 prototypes, 7-point/forced	Secure, Avoidant, Ambivalent
Bartholomew & Horowitz (1991)	Relationship Questionnaire (RQ) 4 prototypes, 7-point	Secure, Dismissing, Preoccupied, Fearful
Baldwin, Keelan, Fehr, Enns, and Koh-Kangarajoo (1996)	Prototype measure based on HS 3 prototypes, 7-point/forced	Secure, Avoidant, Anxious/ ambivalent; In relation to the 10 most impactful relationships
Latty-Mann & Davis (1996)	Actual and Ideal Partner Prototypes 4 prototypes, 5-point	Secure, Avoidant, Preoccupied, Ambivalent
Männikkö (1997)	Prototype measure based on RQ 4-prototypes, 4-point	Secure, Dismissing, Preoccupied, Fearful; In relation to the same and the opposite sex
Searle & Meara (1999)	Attachment Style Questionnaire 4 paragraphs, 7-point/forced	Secure, Avoidant, Fearful, Preoccupied
Cozzarelli, Hoekstra & Bylsma (2000)	Prototype measure based on RQ 4 paragraphs, 7-point	Secure, Dismissing, Fearful, Preoccupied; general and relationship-specific forms

Baldwin, Keelan, Fehr, Enns, and Koh-Rangarajoo (1996) adopted Hazan and Shaver's (1987) three prototypic descriptions and forced-choice approach but developed various ways to utilize the prototypes. First, they asked the participants to choose for ten most impactful relationships that prototype that best characterized their feelings for that person. Second, they asked the participants to rate each prototype on a 7-point scale in relation to mother, father, and current partner (if

any). Third, they asked the participants to think about all their relationship experiences and to select the single relationship that was the best representative of each attachment description. Fourth, they estimated the percentage of their a) romantic relationships, b) nonromatic relationships and c) all their relationships combined that corresponded to the secure, avoidant, and anxious-ambivalent attachment style descriptions.

Also Latty-Mann and Davis (1996) developed two prototypic measures on the basis of the original Hazan and Shaver (1987) prototypes. The prototypic measures for Actual Partner Prototypes and Ideal Partner Prototypes both included four prototypes: Secure, Avoidant, Preoccupied, and Ambivalent. The Ideal Partner Prototypes presented the profiles of the insecure as they would ideally present themselves.

Some researchers have adopted the prototypic descriptions of the Relationship Questionnaire (Bartholomew & Horowitz, 1991) as such and have, instead, introduced other changes in how the measure is used. Cafferty, Davis, Medway, O'Hearn, and Chappell (1994) report having used a modification of Bartholomew and Horowitz's (1991) measure with a forced choice by including a category "none of these descriptions fit". Searle and Meara (1999) developed a version of the Relationship Questionnaire (Bartholomew & Horowitz, 1991) that differed from the RQ in two minor aspects. First, they developed the four forms of the measure so that the descriptive paragraphs were not presented to each participant in the same order. Second, a final question was added, requiring respondents to indicate which of the four attachment styles described them best.

Also the attachment target of the prototypes has been accounted for in some studies using the RQ. Männikkö (1997, 1999) rated each of the four attachment styles with a continuous scale in relation to the same and the opposite sex in her master's thesis and a pilot study of this dissertation. Cozzarelli, Hoekstra, and Bylsma (2000) used two different forms of the Relationship Questionnaire. One of these referred to how the participants felt about people in general, whereas the second referred to how the participants felt about their current romantic partners. The first form was worded in the traditional way, whereas the second version was worded so as to refer to the participant's relationship with his or her current romantic partner.

A completely different prototypic measure was created by Sperling and Berman (1991). On the basis of Ainsworth et al.'s (1978) taxonomy, they presented a four-category attachment style measure that included paragraphs for dependent, hostile, avoidant and resistant/ambivalent attachment styles, as well as an item for assessing the security/insecurity of the relationship in question. The four paragraphs were assessed in four different categories of close relationships: mother, father, friendship, and sexual.

3.3 Multi-item attachment self-reports

The development of multi-item attachment self-reports clearly consists of two separate traditions: one where development of a measure based on Hazan and

Shaver's (1987) three original prototypic descriptions or Bartholomew and Horowitz's (1991) four prototypic descriptions has been attempted and another where long multi-item self-reports has been favored and several earlier measures have been utilized. The motivation for developing multi-item measures rose from the shortcomings of the forced-choice prototypic approach. Simpson et al. (1992) summed up the problematic psychometric properties of the forced-choice prototypic approach in four observations: (1) the extent to which the forced-choice category describes one is not measured and, hence, variability within each category is not measured, (2) people must choose one category despite the fact that some may be characterized as a blend of two or more styles, (3) forced-choice classification places constraints on the types of statistical analyses that can be performed, and (4) cases in which discrete classes underlie individual adult differences are rare. A list of multi-item attachment questionnaires is presented in Table 3.

The three prototypic descriptions of secure, avoidant, and anxious/ ambivalent attachment styles have inspired many researchers to subdivide the descriptions into items, yet in various different ways whose rationales are not always clearly stated. Hazan and Shaver (1988) themselves divided their three prototypes into 13 items. Collins and Read (1990) created their 18-item measure by dividing each of the original three prototypes (Hazan & Shaver, 1987) into five items that correspond to the logical division of the items on the basis of the contents of the original prototypes. Furthermore, they added one item for each of the three attachment styles, concerning one's beliefs about others' availability and responsivity when one needs them. Simpson's (1990; Simpson, et al., 1992) 13 items were based on the original prototypes, with only slight changes in wording; however, one sentence from the original Avoidant was omitted ("I find it difficult to allow myself to depend on others."). Simpson et al. (1996) adopted these 13 items and added four completely new ones. Carnelley and Janoff-Bullman's (1992) 11 items, as well as Feeney, Noller and Callan's (1994) 15 items were both quite straightforward adaptations of the original prototypes; however, both inverted the original "I find it difficult to trust others completely." to "I find it easy to trust others.". Carver (1997) included in his MAQ 11 items on the basis of the original prototypes and rewrote all three items for Secure attachment style. These new items were an attempt to create a clearer focus for a positive sense of security in relationships than in the previous instruments, such as "it gives a sense of comfort in general, feels relaxing and good, and is a source of strength". Mikulincer and his colleagues (e.g., Mikulincer, Florian, & Tolmacz, 1990; Mikulincer & Nachson, 1991; Mikulincer & Orbach, 1995; Banai, Weller, & Mikulincer, 1998; Mikulincer & Arad, 1999; Mikulincer & Horesh, 1999; Mikulincer, Birnbaum, Woddis, & Nachmias, 2000) have very consistently used the same measurement approach throughout the last decade; however, the contents of their 15 or 10 items (7-point scale) are not listed in their studies.

Asendorpf and his colleagues (Asendorpf, Banse, Wilpers, & Neyer, 1997; Asendorpf & Wilpers, 2000), as well as Young and Acitelli (1998) both based their 6-item measures on Bartholomew and Horowitz's (1991) Relationship Questionnaire. Asendorpf and his colleagues (Asendorpf et al., 1997; Asendorpf & Wilpers, 2000) studied the security of attachment in relation to different attachment figures, that is, mother, father, same-sex peers and opposite-sex peers

TABLE 3 Multi-item measures based on Hazan and Shaver's (1987) original prototypes or Bartholomew and Horowitz's (1991) four prototypic descriptions.

Authors	Instrument	Measures
Collins & Read (1990)	Adult Attachment Scales (AAS) 18 items, 5-point	*Scales:* Depend, Anxiety, Close *Styles:* Secure, Anxious, Avoidant
Mikulincer, Florian & Tolmacz (1990)	unnamed multi-item measure 15 items, 7-point/forced	*Styles*: Secure, Avoidant, Ambivalent
Simpson (1990)	Adult Attachment Questionnaire (AAQ) 13 items, 7-point	*Scales*: Secure, Anxious, Avoidant
Simpson, Rholes & Nelligan (1992)	Adult Attachment Questionnaire (AAQ) 17 items, 7-point	*Scales*: Avoidant/secure, Anxious
Carnelley & Janoff-Bullman (1992)	unnamed multi-item measure 11 items, 6-point	*Scales*: Secure, Avoidant, Anxious/ambivalent
Feeney, Noller & Callan (1994), and Noller & Feeney (1994)	unnamed multi-item measure 15 items, 5-point	*Scales*: Closeness, Anxiety
Feeney, Noller & Hanrahan (1994)	Attachment Style Questionnaire (ASQ) 40 items, 6-point	*Scales*: Confidence, Discomfort with Closeness, Need for Approval, Preoccupation with Relationships, Relationships as Secondary *Styles*: Secure, Dismissing, Fearful, Preoccupied
Griffin & Bartholomew (1994a, 1994b)	Relationship Scales Questionnaire (RSQ) 30 items, 5-point	*Scales*: Secure, Dismissing, Fearful, Preoccupied *Dimensions*: Self, Other
Simpson, Rholes & Phillips (1996)	unnamed multi-item measure 17 items, 7-point	*Scales*: Avoidance, Ambivalence *Dimensions*: Self, Other
Carver (1997)	Measure of Attachment Qualities (MAQ) 14 items, 4-point	*Scales*: Security, Avoidance, Ambivalence-Worry, Ambivalence-Merger
Asendorpf, Banse, Wilpers & Neyer (1997) and Asendorpf & Wilpers (2000)	unnamed multi-item measure (RQ-based) 6 items, 5-point	*Bipolar scale*: Security versus insecurity
Young & Acitelli (1998)	unnamed multi-item measure 6 items, 5-point	*Styles*: Secure, Avoidant, Anxious/ambivalent
Brennan, Clark & Shaver (1998)	Experiences in Close Relationships (ECR) 36 items, 7-point	*Scales*: Anxiety, Avoidance *Styles*: Secure, Avoidant, Ambivalent
Mikulincer & Arad (1999)	unnamed multi-item (10) measure 10 items, 7-point/forced	*Scales*: Anxiety, Avoidance
Fraley, Waller & Brennan (2000)	Experiences in Close Relationships - Revised (ECR-R) 36 items, 7-point	*Scales*: Anxiety, Avoidance

with a 6-item scale. The items were selected on the basis of a factor analysis from a larger pool that was derived from the prototypic descriptions of Bartholomew and Horowitz (1991). This 6-item measure is a bipolar scale that contains items derived from the secure and fearful prototypes. According to Asendorpf and Wilpers (2000), the attachment scale measures attachment security (versus insecurity) with satisfactory reliability and validity.

The impression that one gets is that several researchers have developed multi-item self-reports on the basis of Hazan and Shaver's (1987) original prototypes without taking advantage of each other's work. Only Carver (1997) describes basing his MAQ on the work of other researchers, in his case Collins and Read's (1990) AAS and Simpson's (1990) AAQ. The variants of the multi-item measures have different numbers of items, from 6 to 18, and use different scales, from 5 points to 9 points. The most extensive of the measures is Collins and Read's (1990) 18-item measure and the most concise is Young and Acitelli's (1998) 6-point measure. The instruments are designed to measure either three or four attachment styles or two to three attachment dimensions. The psychometric properties of the measures are usually not thoroughly tested, and the styles or dimensions were defined by using simple methods, such as forced choice or factor analysis.

The desire to measure attachment dimensions instead of attachment styles, and also the need to improve the psychometric properties of the attachment measures, have led to the development of longer multi-item questionnaires on the basis of several earlier attachment measures. Griffin and Bartholomew (1994a, 1994b) developed a questionnaire consisting of 30 phrases drawn from the descriptions in Hazan and Shaver's (1987) attachment measure, Bartholomew and Horowitz's (1991) Relationship Questionnaire, and Collins and Read's (1990) Adult Attachment Scale. The scale includes items associated with all four attachment styles. Feeney, Noller and Hanrahan (1994) developed 65 items that were based on 22 constructs (e.g., comfort with closeness, overdependence, avoidance on intimacy, lack of trust) covering the major features described in both three and four-group models of adult attachment, together with the basic themes of the infant attachment theory.

Brennan, Clark and Shaver (1998) combined all self-report attachment measures (including unpublished conference papers) that they were aware of in a single questionnaire, resulting in a pool of 323 items that broadly addressed the different aspects of attachment. In addition to the traditional sources of attachment items (e.g., Collins & Read, 1990; Feeney, et al., 1994b; Griffin & Bartholomew, 1994a), they also included items concerning affective and cognitive dimensions of adolescents' attachment to peers (Armsden & Greenberg, 1987) and West and Sheldon-Keller's (1994) items based on clinical constructs, as well as items concerning intimate touch and romantic sexuality. In all, the items measured 60 attachment constructs. From this pool of items, they constructed the ECR questionnaire which consisted of 36 items and corresponded to the avoidance and anxiety dimensions that underlie adult attachment. Fraley, Waller, and Brennan (2000) utilized the same pool of 323 items and the item response theory in order to develop an attachment measure with acceptable psychometric properties, resulting in ECR-R, consisting of 18 items for both the anxiety and avoidance dimensions.

3.4 Attachment self-reports based on theoretical concepts

There are also many self-report measures that are directly based on Bowlby's (1969, 1973, 1980) and/or Ainsworth et al.'s (1978) concepts or are not otherwise clearly attached to the other two major directions of attachment self-report development. As a whole, the measures in this category are quite separate and do not measure attachment in general but pursue their distinctive idea that is visible, for example, in the variety of concepts measured, the area of competence, orientation toward specific groups, or variation of the defined attachment figures. However, although these measures may not be as widely used and known as Hazan and Shaver's (1987) or Bartholomew and Horowitz's (1991) self-reports or their proponents, they include several psychometrically acceptable and conceptually interesting alternatives for measuring adult attachment. Moreover, this group of measures contains instruments that are suitable for special groups, such as the elderly (Lipson-Parra, 1990; Cicirelli, 1995) or therapy clients (Mallinckrodt, Gantt, & Coble, 1995). There are also some interesting attempts to apply self-reports to new areas of attachment self-report measurement, such as attachment history (Pottharst, 1990; Lichtenstein & Cassidy, 1991) or attachment networks (Trinke & Bartholomew, 1998). Also a paper-and-pencil form of the AAI has been presented (Kanninen & Punamäki, 1997). A list of attachment self-report questionnaires based on Bowlby and Ainsworth's constructs is presented in Table 4.

TABLE 4 Attachment self-reports developed on the basis of theoretical constructs, based on Bowlby and Ainsworth's work.

Authors	Instrument	Measures
Parker, Tupling, & Brown (1979)	Parental Bonding Instrument (PBI) 25 items, 4-point	Retrospective memories of parental behavior
Bell, Billington, & Becker (1986)	Object Relations Inventory (BORI) 45 items	*Scales*: Alienation, Insecure attachment, Egocentricity, Social incompetence
Armsden & Greenberg (1987)	Inventory of Parent and Peer Attachment (IPPA) 28+25 items, 5-point	*Scales*: Trust, Communication, Alienation
Kenny (1987)	Parental Attachment Questionnaire (PAQ) 70 items, 5-point	*Scales*: Affective quality of relatioships, Parental fostering of autonomy, Parental role in providing emotional support.
West, Sheldon, & Reiffer (1987)	Reciprocal Attachment Questionnaire (RAQ) 15 items, 5-point	*Dimensions*: Proximity seeking, Separation protest, Feared loss, Availability, Use of the attachment figure. *Patterns*: Angry withdrawal, Compulsive caregiving, Compulsive self-reliance, compulsive careseeking
West, Sheldon, & Reiffer (1987)	Avoidant Attachment Questionnaire (AAQ) 15 items, 5-point	*Scales*: Maintains Distance in Relationships, High Priority on Self-Sufficiency, Attachment Relationship is a Threat to Security, Desire for Close Affectional Bonds

TABLE 4 (continued)

Authors	Instrument	Measures
West & Sheldon (1988)	Measure of Insecure Attachment 40 items, 5-point	*Patterns*: Compulsive careseeking, Compulsive self-reliance, Compulsive caregiving, Angry withdrawal
Hindy, Schwarz, & Brodsky (1989)	Anxious Romantic Attachment Scale (ARAS)	*Score*: Insecure/anxious romantic attachment
Lipson-Parra (1990)	Lipson-Parra Adult Attachment Scale (LAAS) 55 (20) items, 4-point	Attacment in older adults
Pottharst (1990)	Attachment History Questionnaire (AHQ) 51 items, 7-point	*Scales*: Secure attachment base, Parental discipline, Threats of separation, Peer affectional support
Sperling & Berman (1991)	Attachment Styles Inventory (ASI) 4 descriptions, 9-point	Dependent, Hostile, Avoidant, Resistant/ambivalent; In relation to mother, father, friends, sexual partners
Lichtenstein & Cassidy(1991)	Adult Attachment Questionnaire (AAQ) 80 items	*Scales*: Anger, Role-reversal, Rejection, Dismissing about feelings, Balanced
West & Sheldon-Keller (1992)	Adult Attachment Dimensions Questionnaire 35 items, 5-point	*Scales*: Availability, Feared loss, Proximity seeking, Reciprocity, Responsiveness, Secure base, Separation protest, Use of attachment figure
Berman, Heiss, & Sperling (1994)	Continued Attachment Scale (CAS) 6 items, 5-point	Responses to separation from mother/father
Brennan & Shaver (1995)	Multi-Item Measure of Attachment Style 70 items, 7-point	*Scales*: Frustration with Partners, Proximity-Seeking, Self-Reliance, Ambivalence, Trust/Confidence in Others, Jealousy/Fear of Abandonment, Anxious Clinging to Partners
Cicirelli (1995)	Adult Attachment Scale 16 items, 7-point	Strength of adult daughters' current attachment to their elderly mothers
Mallinckrodt, Gantt, & Coble (1995)	Client Attachment to Therapist Scale (CATS) 36 items, 6-point	*Scales*: Secure, Avoidant-Fearful, Preoccupied-Merger *Styles*: Secure, Reluctant, Avoidant, Merger
Kanninen & Punamäki (1997, submitted)	Adult Attachment Interview Form	*Scales*: Childhood memories, coherence of the answers, dealing with distress *Styles*: Balanced/secure, dismissing, preoccupied
Trinke & Bartholomew (1997)	Attachment Network Questionnaire (ANQ) 8 items, rank order	Importance of significant people for various attachment components

3.5 Relations between different attachment classifications and dimensions

Griffin and Bartholomew (1994a) examined the relations of their self and other dimensions with dimensional structures derived with three established self-report methods for assessing adult attachment. They chose a multi-item measure of Hazan and Shaver's (1987) secure, anxious, and ambivalent attachment patterns (see, e.g., Simpson, 1990), Simpson's Anxiety and Avoidance subscales (Simpson, et al., 1992), and Collins's Closeness, Anxiety, and Comfort with Dependence subscales (Collins & Read, 1990). They discovered that their self-model dimension seemed to underlie HS Ambivalence, S Anxiety, and CR Anxiety. The other-model dimension seemed to underlie both the HS Secure and Avoidant, CR Comfort with Closeness, and S Avoidance. The CR Comfort with Dependence was moderately related to both the self and other-model dimensions.

The two dimensions underlying the four-category model have received support. Feeney et al. (1994b) found two dimensions in a discriminant analysis with five attachment scales predicting four attachment styles, the first of which reflected positive versus negative models of self (dependency), and the second of which reflected positive versus negative models of others (avoidance). Feeney et al.'s data supported both Discomfort and Anxiety as the key dimensions underlying adult attachment. Brennan et al. (1991) generated two clear factors from continuously rated HS and BH items. The secure ratings loaded positively and the avoidant and fearful ratings loaded negatively on the first factor, whereas the anxious-ambivalent and preoccupied ratings loaded positively and the dismissing rating loaded negatively on the second factor. According to Bartholomew and Shaver (1998), these factors corresponded to the diagonals of the four-category model, shown in Figure 1. Also Sanford (1997) provided convincing evidence for the two-dimensional structure in both married and non-married adults, on the basis of the measure of Collins and Read (1990) who identified the dimensions as Closeness and Anxiety. Brennan and Bosson (1998) factor analyzed (PCA) continuously rated Bartholomew and Horowitz's (1991) four attachment prototypes and generated two factors. The first factor loaded positively on fearful attachment and negatively on secure attachment and was labeled as attachment insecurity. The second factor, defensive emotional style, loaded positively on dismissiveness and negatively on preoccupation.

Four attachment style groups have been discovered in other studies as well, supporting the existence of four rather than three attachment styles. Feeney et al. (1994b) clustered five attachment scales and yielded Bartholomew's four-style structure that was distinguishable in terms of the scores on Confidence, Discomfort with Closeness, and Relationships as Secondary, in two randomly divided samples.

Bartholomew's four-category classification has been compared with several other self-rated attachment classifications and notable overlap has been found. Brennan et al. (1991) compared the BH classification to HS classification with 840 college students and noted that 82% of the individuals in the secure class were the same; BH preoccupied and HS ambivalent had 57% overlap; BH fearful and HS avoidant had 61% overlap; BH dismissing were either HS avoidant (43%) or secure

(45%). Also Levy, Blatt, and Shaver (1998) noted similar overlap trends in their 54 students: HS Secure were BH Secure (75%) or BH Fearful (24%); HS Avoidant were BH Fearful (67%), BH Dismissing (29%), or BH Preoccupied (5%); HS Anxious/Ambivalent were BH Preoccupied (50%), BH Fearful (37,5%), or BH Dismissing (12.5%).

The Adult Attachment Interview classes (Main & Goldwyn, 1992) also have a connection with the Bartholomew's (1990) four attachment categories. Bartholomew and Shaver (1998) compared the attachment interview (Bartholomew & Horowitz, 1991) codings with an AAI classification. The degree of correspondence between the different interview codings was impressive. Crowell, Treboux, and Waters (1999) also found a trend toward a relation between AAI and RQ classifications but mostly in the Secure class (81% of women overlapped versus 42% of the insecure classes). However, they used the forced-choice method in defining the RQ attachment styles, which may have distorted the results, particularly in the insecure attachment classes.

4 IN SEARCH OF A METHOD FOR DEFINING ATTACHMENT STYLES FROM SELF-REPORTED CONTINUOUS ATTACHMENT RATINGS

4.1 Tied-high scores in self-reported attachment ratings

One of the most difficult problems in defining the attachment styles from continuously rated prototypes was already foreseen by Bartholomew (1990) in her proposal that some individuals are supposed to exhibit more than one attachment style equally well. In attachment literature, these types of attachment ratings are known as "tied-high ratings" (e.g., Kirkpatrick & Davis, 1994).

The amount of the tied-high cases has varied between 8% (Roberts, Gottlieb, & Kassel, 1996) and as high as 33% (Kemp & Neymeyer, 1999), depending on the use of three or four attachment categories. In the studies using three attachment categories, Roberts et al. (1996) found 8% of tied-high scores, whereas Kirkpatrick and Davis (1994) regarded 11% of women and 16% of men as unclassifiable. From studies that used four-category measures, Kemp and Neymeyer (1999) reported 33% of tied-high scores. In general, four-category measures seem to reveal more tied-high cases than three-category-measures.

Also the treatment of the tied-high cases has varied between studies. Pietromonaco and Barrett (1997), as well as Searle and Meara (1999), solved the problem by concentrating on "pure" attachment classes, defined on the basis of the same attachment style as the highest attachment style score and the forced-choice attachment style. However, in many studies the unclassifiable and bothersome tied-high scores have resulted in exclusion of the participants (e.g., Kirkpatrick & Davis,1994; Kemp & Neimeyer, 1999).

A special case of the tied-high scores is when all of the prototypes describe the participant equally well; furthermore, this may occur at any level of the rating scale. As a result, the participant may refuse to answer or chooses the same rating for all attachment prototypes. Cafferty et al. (1994) used a modification of Bartholomew and Horowitz's (1991) measure with a forced choice, including a category "none of these descriptions fit" and noted that slightly more than 20 percent of the participants chose that option.

These special cases certainly seem unclassifiable when a highest score is used as a basis of classification; however, if only one attachment style would be given a score that is only one level higher than the other ratings, that would become the most descriptive attachment style. In addition, the ratings would be treated equally, despite the level of the given ratings as a whole or the nearly equal descriptiveness of the other attachment styles. These are methodological questions; nevertheless, an even more interesting question is what lies behind the inability or unwillingness to describe oneself with given attachment style descriptions?

4.2 Defining attachment types, styles, or prototypes

One of the most common ways of defining attachment styles from self-reported data is to force the participants to choose one of the attachment styles, regardless of their number, as the one describing their attachment style best. Hazan and Shaver (1987) introduced this practice and it has been subsequently adopted by several researchers, using the three-prototype measure or the four-category measure, as such or complemented with a continuous rating. Feeney has used this method quite recently in several studies with both the three-category (e.g., Feeney & Noller, 1990; Feeney & Ryan, 1994) and the four-category (e.g., Feeney, 1996; Feeney, 1999b) measure. Also Pietromonaco and Barrett (1997) compared the forced-choice attachment style and the highest rating on a 9-point scale for the same four attachment style descriptions.

Mikulincer and his colleagues have also adopted this approach and used it consistently throughout the 1990's (see Mikulincer, et al., 1990; Mikulincer & Nachson, 1991; Mikulincer & Orbach, 1995; Banai, et al., 1998; Mikulincer & Arad, 1999; Mikulincer, et al., 2000). However, they defined the attachment style as a match between the forced choice and the highest rating in one of three factors, defined on the basis of continuously rated items. They treated the mismatches between a forced-choice classification and a highest mean as follows: If the classifications were different but a closer analysis of the separate items favored either of the attachment styles, that was the final classification (Mikulincer et al., 1990); otherwise, the mismatches were omitted (e.g., Mikulincer & Nachson, 1991; Mikulincer & Orbach, 1995; Florian, et al., 1995; Banai, et al., 1998; Mikulincer & Horesh, 1999).

The problem of the forced-choice approach is that it measures the prototypes as dichotomic variables that are mutually exclusive and, consequently, ignores information concerning how well each prototype corresponds to the rater and also the possibility that several prototypes may fit equally well or that none of the prototypes may apply. This problem has been overcome by measuring each of the prototypes on a continuous scale, ranging from 4 points (Männikkö, 1997, 1999) to 9 points (e.g., Pietromonaco & Barrett, 1997). However, the advantage of using a continuous scale has very often been neglected, as the attachment styles have, nevertheless, been defined as the highest score in the attachment styles. This approach was presented by Bartholomew and Horowitz (1991) for interview ratings, and since then it has also been widely used with self-reports.

When the prototypes are rated separately with a continuous Likert-type scale,

all necessary information is gathered if one is willing to consider associations of attachment styles and scale use when defining attachment styles. One way of solving the problem of defining attachment styles from continuously rated prototypes is to use such statistical methods that take into account the scores of several prototypes simultaneously, such as cluster analysis. Clustering variables may then consist of either continuous scores of prototypes (Männikkö, 1997, 1999) or variables obtained by reducing data in a multi-item attachment questionnaire (Collins and Read, 1990; Feeney, et al.,1994b). Collins and Read (1990) clustered the composite scores on the Close, Depend and Anxiety scales and chose a three-cluster solution corresponding to the Secure, Avoidant and Anxious attachment styles. Feeney et al. (1994b) carried out a cluster analysis (Ward method, Euclidean distances) by using a five-factor solution as the clustering variables. The four attachment style categories can also be obtained from Brennan et al.'s (1998) extensive multi-item questionnaire by means of clustering analysis.

Yet another case of defining attachment styles is to measure the attachment styles in relation to several attachment figures. Männikkö (1997, 1999) measured four attachment styles in relation to the same and the opposite sex and used these eight variables as clustering variables. Sperling and Berman (1991) rated their four paragraphs for dependent, hostile, avoidant and resistant/ambivalent attachment styles in four different categories of close relationships: mother, father, friendship, and sexual. They computed a mean of all four relationships to represent a global attachment measure for each four attachment styles.

As shown above, the participants' attachment styles have usually been defined from prototypic continuous ratings by choosing the highest rating as a participant's attachment style. However, this approach is not quite satisfactory, as it ignores Bartholomew's (1990, 162) claim that "not all individuals are expected to exhibit a single attachment style", but rather "some may show differing degrees of similarity to two or more prototypes." Furthermore, the number of participants rating their attachment style with two or more attachment styles as equally high has left up to 33% (Kemp & Neymeyer) of the participants unclassified. The problems in managing these tied-high scores have led to exclusion of participants (e.g., Kemp & Neymeyer, 1999; Kirkpatrick & Davis, 1994) or concentration only on "pure" attachment classes (Pietromonaco & Barrett, 1997; Searle & Meara, 1999). Excluding a group of participants with tied-high scores may, however, cause some important aspects of individuals' attachment styles to remain undiscovered and unstudied. Clearly, there is a need for generally accepted methods or principles for defining attachment styles from continuously rated attachment styles for all participants.

4.3 Distribution of attachment styles

The proportions of the attachment styles seem to be identical when a three-category measure and a forced-choice or a highest-rating definition method have been used. Secure attachment style is always the most common, ranging between 54% (Roberts, et al., 1996) and a maximum of over 70% (e.g., Gerlsma, Buunk, &

Mutsaers, 1996; Mikulincer & Arad, 1999). Avoidant is the second most common attachment style in the three-category assessments, ranging from 14% (Kirkpatrick & Davis, 1994) to over 30% (Bringle & Bagby, 1992; Davis, Morris, & Kraus, 1998; Feeney & Ryan, 1994). Anxious/ambivalents are the least common of the three attachment styles, from about 10% (Baldwin, et al., 1996) to over 20% (Brennan, et al., 1991; Feeney & Ryan, 1994). These proportions are close to the proportions of the forced-choice attachment classes in Hazan and Shaver's (1987) college undergraduates sample and a sample gathered through a newspaper "love quiz": on the average, secure 56%, avoidant 24%, and anxious/ambivalent 20%. However, the attachment style proportions in Collins and Read's (1990) study, using a clustering analysis in defining attachment styles, were quite different: secure 47%, avoidant 15%, and anxious 38%.

Within the four-category measure, there seem to be two style definition traditions that produce different attachment style distributions. Table 5 shows a collection of attachment studies in which the Relationship Questionnaire (Bartholomew & Horowitz, 1991) has been used for measuring the attachment styles and a variety of methods have been utilized in defining attachment styles from the ratings. The studies presented in Table 5 have been chosen to represent different attachment style definition methods, but they are also representative among those studies that have used the same method. As can be seen, the distribution of the attachment styles has been identical whether forced choice, highest rating, or their combination or modification were used for defining the attachment styles. In these studies, secure attachment style varied mostly between 40% and 60%, and the three other attachment styles were almost identical, between 10% and 30%. These proportions remained the same whether an interview, self-report or partner report was used (Scharfe & Bartholomew, 1994). However, interesting tendencies were seen, for women to be more preoccupied and men to be more dismissing, at least in Feeney's (1999b) and also in Scharfe and Bartholomew's (1994) studies.

Another tradition in defining attachment styles, using cluster analysis, produces somewhat different proportions of attachment styles. In these studies (Table 5), the proportion of the secure attachment style is lower than in the studies using forced choice or highest rating, varying mostly between 20% and 45%. The proportions of the other three attachment classes are again almost identical, varying mostly between 10% and 30%; however, the proportion of the fearful might be somewhat higher than the proportion of the dismissing or the preoccupied. Paralleling the other tradition, also cluster analysis displays a higher proportion of dismissing attachment style for men and a higher proportion of preoccupied attachment style for women (Männikkö, 1999).

In two of the cluster analysis studies, one interesting feature needs further examination. Both Carver (1997) and Männikkö (1999), in a pilot study of the current dissertation, noted the existence of a cluster that was difficult to interpret on the basis of Bartholomew's (1990) model because none of the attachment styles described the participants in the cluster. Moreover, Männikkö (1999) discovered that this kind of cluster appeared for women (named as Unclassified), whereas for men a cluster appeared where all but the dismissing attachment style (named as Ambivalent) described the participants equally well. In addition, Männikkö (1999) noted that these two clusters appeared only when the participants had rated

TABLE 5 Practices of assessing and defining adult attachment styles, based on the four-category model.

Study	Participants	Style definition method	Style distribution
Brennan & Bosson (1998)	212 women, 159 men; 17-29 yrs.	Forced	S 45%, P 16%, D 14%, F 25%
Feeney (1999b)	238 women, 238 men	Forced	S 56%, P 16%, D 10%, F 17% (women) S 52%, P 11%, D 21%, F 16% (men)
Diehl et al. (1998)	159 women, 145 men; 20-87 yrs.	Forced / Highest (1-5)	S 51%, P 8%, D 25%, F 16% (forced) S 56%, P 6%, D 24%, F 14% (highest)
Pietromonaco & Barrett (1997)	1662; undergraduates	Forced = highest (1-9)	S 48%, P 16%, D 8%, F 28%
Bartholomew & Horowitz (1991)	40 female, 37 male; 18 - 22 yrs.	Highest (mean of 3 times 1-9)	S 47%, P 14%, D 18%, F 21% (interview)
Scharfe & Bartholomew (1994)	71 women, 72 men; mean age 24.5 yrs.	Highest (1-9) Highest (1-7)	S 49%, P 32%, D 6%, F 13% (interview, females) S 50%, P 25%, D 4%, F 21% (self-report, females) S 44%, P 21%, D 11%, F 24% (partner-report, females) S 47%, P 7%, D 20%, F 26% (interview, males) S 60%, P 7%, D 21%, F 12% (self-report, males) S 48%, P 5%, D 32%, F 16% (partner-report, males)
Feeney, Noller & Hanrahan (1994)	470 female, 470 male; students	Cluster analysis	S 39%, P 23%, D 26%, F 12%
Carver (1997), Study 4	146 women, 110 men; students	cluster analysis	S 18%, Ax 24%, Av 31%, UC 27%
Männikkö (1999)	137 women, 146 men; 36 yrs.	cluster analysis, separately for women and men, separately for the same and the opposite sex	S 45%, P 25%, D 14%, F16% (women, to their same sex) S 21%, P 22%, D 18%, F 16%, UC 33% (women, to their opposite sex) S 39%, P 9%, D 13%, F 39% (men, to their same sex) S 25%, P 11%, D 17%, F 29%, AB 18% (men, to their opposite sex)

Note. S = Secure attachment style, P = Preoccupied attachment style, D = Dismissing attachment style, F = Fearful attachment style, UC = Unclassified in relation to attachment, AB = Ambivalent in relation to attachment.

their attachment styles in relation to their opposite sex, and not in relation to their same sex. In the light of the attachment ratings, these clusters might represent those participants who were either unable or unwilling to differentiate between the attachment styles when describing themselves.

Another question is whether the existence of these clusters is an artifact of the cluster method and needs methodological solutions or whether they reflect a special aspect of attachment that still remains undiscovered or undescribed. In

their study, Griffin and Bartholomew (1994) did report having studied the effect of ipsatized attachment ratings in order to control individual differences in scale use but without an appreciable effect on the results.

4.4 Defining attachment indices or dimensions

The problem of tied-high scores is only encountered when using a person-oriented approach in examining attachment. In a variable-oriented approach, continuous ratings are utilized as such, and their interrelations and relations with other variables are the focus of the examination. This is also the case when attachment dimensions or attachment indices are defined instead of, or in addition to, the attachment styles. In attachment research, two different methods seem to appear in forming attachment dimensions, or indexes: factor analysis, resulting in differing numbers of factors, from two to five, and computing composite scores as means or sums of the items, known to belong to a certain attachment subscale (e.g., Gross & Hansen, 2000; Simpson, 1990). In addition, Griffin and Bartholomew (1994a) presented a method for computing self and other dimensions from continuously rated attachment prototype scores. Recently, Fraley et al. (2000) have shown that the means of the items may not always be appropriate for reducing scales to scores, because the different items may measure the target with differing importance.

The quest for the dimensions underlying adult attachment has generally followed the main line of first generating a pool of items, then analyzing them using either factor analysis or principal-components analysis, followed either by orthogonal or oblique rotation, and finally choosing the examined factor structure on statistical basis. In this way, a clear and highly replicable two-dimensional structure has been achieved in several studies, despite the differences in the measures or samples used. In most studies, the two-dimensional structure seems to be composed of a dimension describing closeness or avoidance and a dimension describing anxiety or ambivalence (Brennan et al., 1998; Feeney et al., 1994a; Noller & Feeney, 1994; Rholes, Simpson, & Orina, 1999; Simpson et al., 1992; Tucker & Anders, 1999). However, also a two-dimension structure corresponding to the diagonals of the four-category model has been presented by Brennan and Bosson (1998). In their study, the first factor concerned fearfulness versus security, and the second factor concerned dismissiveness versus preoccupation.

In addition to the strong support for two dimensions underlying adult attachment, other numbers of dimensions or factors have been suggested. Several studies (e.g., Feeney et al., 1994b; Mikulincer et al., 1990) have suggested three factors, corresponding to Hazan and Shaver's (1987) three attachment styles. Four factors (Avoidance, Ambivalence-Worry, Ambivalence-Merger, and Security) were suggested by Carver (1997), although he also found that second-order factor analysis, using scale totals as items, yielded two factors, one incorporating avoidance and security, and the other incorporating the two ambivalence scales. In addition, Feeney et al.'s (1994b) five-factor solution yielded the factors of Confidence (secure attachment), Discomfort with Closeness (avoidant attachment), Need for approval (both preoccupied and fearful attachment), Preoccupation with relationships (anxious/ambivalent attachment), and Relationships as Secondary (dismissing attachment).

5 GENDER DIFFERENCES IN ADULT ATTACHMENT

5.1 Measurement issues in detection of gender differences in attachment

The different approaches to measuring and conceptualizing adult attachment have also led to conflicting views as to the question whether there are gender differences in adult attachment. In the interview method, attachment is assessed separately for several attachment figures, which usually include at least mother and father. The coding system of AAI also enables determination of different attachment styles for different attachment figures and for special situations, such as traumatic experiences in childhood (Crittenden, 1997). In contrast, in the self-report tradition the possibility of measuring other than generalized attachment style first surfaced in Armsden and Greenberg's (1987) Inventory of Parent and Peer Attachment and Parker et al.'s (1979) Parental Bonding Instrument, where parallel forms were presented for mother and father.

In the 1990's the idea of multiple attachment figures began to appear up in attachment self-reports. First, Sperling and Berman (1991) measured attachment in relation to four different categories of close relationships: mother, father, friendship, and sexual relationships. Second, Baldwin et al. (1996) asked participants to name the ten most impactful relationships in their lives and indicate which attachment style best characterizes their feelings for that person. One year later Trinke and Bartholomew (1997) published an Attachment Network Questionnaire where participants generated a rank order for their significant people, whereas Asendorpf et al. (1997) studied the security of attachment specifically in relation to mother, father, same-sex peers, and opposite-sex peers. Männikkö (1999) measured attachment in relation to the same and the opposite sex in general. The latest effort has been made by Cozzarelli et al. (2000), by measuring participants' feelings about people in general and toward their current romantic partners.

The choice of the measure for assessing attachment styles has a remarkable effect on whether gender differences in attachment are detected or not. The earlier

studies that used the forced-choice measure have usually not revealed any gender differences in adult attachment (Hazan & Shaver, 1987; Feeney & Noller, 1990; Mikulincer, et al., 1990). Also those studies based on the original three-prototype attachment classification have usually not revealed any gender differences. For example, Mikulincer and his colleagues have consistently utilized throughout the 1990's (Mikulincer & Nachson, 1991; Mikulincer & Orbach, 1995; Mikulincer, 1997; Mikulincer, 1998a, 1998b; Mikulincer, Orbach, & Iavneli, 1998, Mikulincer & Arad, 1999; Mikulincer & Horesh, 1999; Mikulincer, et al., 2000) the Hazan and Shaver questionnaire with forced choice without finding any differences between women and men. Also, the few studies comparing the three-category Hazan and Shaver (1987) measure and the four-category Bartholomew and Horowitz (1991) measure have confirmed that the three-category measure detects no gender differences where the four-category measure finds significant and even large differences (Brennan, et al., 1991; Levy, et al. 1998).

Until recently, attachment style distributions have rarely been reported separately for women and men even in the studies using a four-category model as a framework. However, from those results that have been published, it may be generalized that secure attachment style is the most common for both women and men, whereas the dismissing, preoccupied and fearful attachment styles have quite equal but smaller proportions. Feeney and Noller (1996, 123) summarized the gender differences in self-reported attachment styles as follows: "The original measure of adult attachment style appears to be unrelated to gender. By contrast, subsequent measures suggest that males are more dismissing of attachment and that, on some attachment measures, females show greater comfort with closeness and greater preoccupation with relationships." Feeney and Noller also concluded that the four-group model is more sensitive than the three-group model in identifying gender differences in attachment patterns.

5.2 Attachment differences between women and men

The possibility of attachment-related differences between women and men has been considered several times as the attachment theory has evolved. Bowlby (1973, 187-188) reported that there are some evolutionary differences between women and men in susceptibility to fear, consistent from infancy to adulthood. According to Bowlby, males tend to attack and defend themselves, whereas females protect others and retire from dangerous situations. However, Ainsworth et al. (1978, 81, 96) found no significant sex differences in either the behavioral measures or the attachment classification in the Strange Situation. In adults, Hazan and Shaver (1987) made the same finding and later (Hazan & Shaver, 1994) suggested that gender differences might lie primarily in the domains of caregiving and sexuality, rather than attachment. The reason for that would be that the caregiving and sexual mating systems are more susceptible to sex-role socialization pressures since they develop later than the attachment system.

However, when the four-category model of attachment and the measures based on it were presented, gender differences began to appear quite consistently and uniformly. Feeney (1996, 1999b) noted the tendency of males to select the

dismissing style and of females to choose the preoccupied and fearful styles. Brennan et al. (1991) found significant gender differences in all four of Bartholomew's self-report categories in the same sample. The differences were especially large in the dismissing and fearful categories, more males than females being dismissing, and more females than males being fearful. In Brennan and Morris's (1997) study, more females than males classified themselves as fearful or secure, and more males than females classified themselves as preoccupied or dismissing. In summary: there is evidence that males tend to be more dismissing and females more preoccupied or fearful. However, the basis of some controversial findings, such as whether males or females are more preoccupied, still need to be resolved.

5.3 Attachment differences in multiple attachment figure systems

Attachment studies have increasingly began to consider the possibility of attachment style differences in relation to different attachment figures. Trinke and Bartholomew (1997) asked participants to recognize as attachment figures the "significant people in your life, those people that you currently feel a strong emotional tie to, regardless of whether that tie is positive, negative, or mixed". Hazan and Zeifman's (1994) study represents another type of approach to recognizing attachment figures; they asked the participants to name a single person on different, theory-based criteria.

Trinke and Bartholomew's (1997) participants named romantic partners, mothers, fathers, siblings, and best friends as attachment figures. In Hazan and Zeifman's (1994) study, 91% of the named attachment figures fell either into a parent category (mother, father, stepparent, grandparent) or a peer category (friends, romantic partners). The remaining 9% included siblings, teachers, aunts, uncles, and "nobody".

As for the importance of the attachment figures, Trinke and Bartholomew (1997) noted that mothers constituted the greatest overall proportion of primary attachment figures and outranked fathers for the secure base and safe haven attachment behaviors, whereas partners outranked mothers for the degree of emotional connection. Grossmann, Grossmann, and Zimmermann (1999) noted that the mother contributed more to the development of the attachment system, whereas the father contributed more to the development of the exploration behavior. Also Florian et al. (1995) found that romantic partners were preferred as supportive figures over same-sex friends, who, in turn, were preferred over mothers and opposite-sex friends, whereas fathers were the least preferred.

It is also assumed that most people exhibit multiple models of attachment that have been discovered to be more or less general or relationship-specific (Asendorpf & Wilpers, 2000; Baldwin et al., 1996; Cook, 2000; Cozzarelli, et al., 2000). Cook (2000) explained that individuals make relationship-specific adjustments in their representations of others that are independent of their more general interpersonal expectations and may also be reciprocally determined. According to Hazan and Zeifman (1994), attachments are transferred from parents

to peers in a sequence that begins with proximity seeking, followed by safe haven, and finally separation protest and secure base, resulting in complete attachments within either parents or romantic partners.

According to the attachment theory, the origin of one's attachment style(s) are the experiences with attachment figures. Studies of children's attachment styles toward their parents suggest some concordance between the attachment styles of children and parents (Crittenden, Partridge, & Claussen,1992; Fox, Kimmerly, & Schafer, 1991; Rosen & Burke, 1999). However, also results suggesting relative mismatches between the attachment styles of children and parents, especially when the parents have different attachment styles, have been presented (Crowell, et al., 1999; Fox, et al., 1991; Levy, et al., 1998; Rosen & Burke, 1999). Surely, future research needs to address this issue more carefully.

Attachment theory also suggests that one's attachment style guides one's behavior in later life and in many areas of life. Therefore, it would be reasonable to expect that it would also influence the choice of one's partner, either through one's own attachment style or one's opposite-sex parent's attachment style. Both matches and meshes have, indeed, been found between partners and parents (Baldwin et al., 1996; Chappell & Davis, 1998; Collins & Read, 1990; Crittenden et al., 1992; Kirkpatrick & Davis, 1994; Latty-Mann & Davis, 1996).

6 PSYCHOSOCIAL FUNCTIONING AND PERSONALITY CHARACTERISTICS IN ADULT ATTACHMENT

6.1 Psychosocial functioning in adult attachment styles

In general, psychosocial functioning may be used to refer to such situations where both psychological and social factors are assumed to play a role. Put in another way, it is a question of human behavior, where both external, situational causes and also people's inner traits and processes operate (Baumeister, 1999). Therefore, the term psychosocial functioning may be divided into psychological functioning and social functioning. Both these terms may be defined as consisting of various factors. Positive psychological functioning has, according to Ryff (1989), been described by many theorists with nearly identical features, which she tried to describe as psychological well-being, consisting of self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Social functioning, in turn, was defined by Rutter, Quinton, and Hill (1990) as referring to how an individual copes with developmental tasks linked to work, his or her social relations, intimate relationships, and financial standing and how he or she adapts to social norms in terms of problem behavior (Rönkä, 1999). Jointly, these constructs integrate a person's various life areas and allow a holistic approach to life outcomes.

There is a growing body of evidence of the outcomes associated with the different attachment patterns, or styles. The positivity of the self-model or self-view seems to be important for positive psychosocial functioning. Bartholomew and Horowitz (1991) found that the two attachment styles with positive model of self differed from those with a negative model of self with three self-concept measures: self-esteem, self-acceptance, and subjective distress. Brennan and Morris (1997) tested the association of attachment styles to two distinct components of self-esteem: self-liking and self-competence. They noted that security was associated with self-liking, whereas dismissing avoidance was associated with self-competence. Brennan and Bosson (1998) noted that the association of

attachment with self-esteem is fully mediated by sources of self-esteem and partially mediated by attitudes about and reactions to partner feedback. Those who value relational sources of self-esteem are more open to and affected by partner feedback than those people who derive self-esteem from competence-based sources. Individuals with negative other-models are relatively averse to partner feedback, and individuals with negative self-models are distressed by feedback.

Also the positivity of the other-model or, in other words, one's attitude toward others seems to be important for adaptive psychosocial functioning. Bartholomew and Horowitz (1991) found that the two groups that had a positive model of others differed from those that had a negative model of others by a measure of sociability, both as a self-report and a friend report. Diehl, Elnick, Bourbeau, and Labouvie-Vief (1998) noted that persons with a secure attachment style described their family of origin and their current family more positively and scored higher on personality variables indicative of self-confidence, psychological well-being, and functioning in the social world. Feeney (1999b) noted that issues of closeness and distance were highly salient, especially for insecurely attached individuals. Recurrent conflicts over closeness-distance were linked with attachment insecurity, especially males' dismissing-avoidance.

Attachment is defined as an emotional bond between close people. Therefore, it is not surprising that an association between attachment style and emotion expression and regulation has been suggested. Bartholomew (1990) stated that a negative attitude toward both self and others resulted in anxiety both with other people and when alone, as was the case in fearful attachment. Instead, a positive attitude toward self enabled one to refrain from anxiety and anger if one avoided close relationships, as was the case in the dismissing attachment style. The study by Kobak and Sceery (1988) supports this view. In addition, Kobak, Ferenz-Gillies, Everhart, and Seabrook (1994) noted that mothers characterized by the dismissing attachment style had problems in emotionally demanding situations with their children, which made them anxious and intrusive toward their children. On the other hand, Crowell and Feldman (1991) noted that mothers characterized by preoccupied attachment were distressed when they had to separate from their child.

Interaction between people and its success is largely defined by the inner working models that guide observation, interpretation, and behavior in a situation. According to Bartholomew and Horowitz (1991), the insecure attachment styles were characterized by interpersonal problems where warmth and dominance (control) differentiated between the attachment styles. The dismissing were cold, hostile and passive, whereas the preoccupied were dominant, warm, and overly expressive. The fearful, in turn, were characterized by lack of assertiveness, social inhibition, passivity and introversion.

The health implications of attachment concern both mental and physical health. According to Goldberg (2000, 203-204), traditional theorizing links avoidant attachment to externalizing problems (e.g., aggression, conduct disorder, criminal behavior) and preoccupied attachment with internalizing disorders. In the field of the health psychology, attachment constructs have only recently been introduced. However, Goldberg (2000, 231) found evidence for secure attachment as being beneficial to health, and insecure attachment being likely to increase the risk of

disease. The association is quite likely to be indirect via poor behavioral strategies for managing stress, physiological dysregulation, or personality traits, attitudes, and competencies that play a role in health behavior.

6.2 Attachment and personality vulnerability

Bowlby (1979, 104-105) defined healthy personality functioning as an individual's ability to recognize suitable figures willing and able to provide him with a secure base and his ability to collaborate with such figures in mutually rewarding relationships. Disturbed personality functioning can be of every degree and take many forms, such as anxious clinging, excessive or over-intense demands for age and situation, aloof non-committal, and defiant independence.

Bowlby (1973, 1980) also suggested that the basis of adult psychopathology would be in childhood insecure attachment. Dozier, Stovall, and Albus (1999) summarized that this is the case when children develop negative representations of self or others or when they adopt strategies for processing attachment-related thoughts and feelings that compromise realistic appraisals, they become more vulnerable to psychopathology. According to George et al. (1985), unresolved status in adulthood may correspond to childhood disorganized/disoriented (Crittenden, 1985, 1988; Main & Solomon, 1986, 1990; Main & Weston, 1981; Radke-Yarrow, et al., 1985) attachment. Brennan et al. (1991) proposed that the self-reported fearful attachment style would also partly result from childhood disoriented/disorganized attachment. These suggestions are in accordance with Dozier et al. (1999) who reported that psychiatric disorders are nearly always associated with nonautonomous attachment states of mind (somewhat equivalent to insecure attachment styles) and that unresolved status is the most overrepresented state of mind among persons with psychiatric disorders. They also suggested that dismissing states of mind seem to reflect attempts to minimize attachment needs and, therefore, should be associated with disorders that involve turning attention away from one's own feelings, such as hostile forms of depression and externalizing forms of anxiety disorders. Preoccupied states of mind reflect the maximizing of attachment needs and should, therefore, be associated with disorders that imply absorption in one's own feelings, such as internalizing forms of depression and anxiety.

If adult attachment styles are seen as an essential and meaningful component of adults' overall personality structure, they should also be associated with meaningful personality vulnerability factors. Support for this assumption has been provided by, for example, Meyers (1998) who found that the securely attached respondents relied upon the maladaptive, self-blaming defense of turning against the self less often than did the avoidantly and ambivalently attached respondents. Diehl et al. (1998) found that adults with a secure attachment style were less inclined to adopt immature defense styles (projection, passive aggression, acting out, denial, isolation, displacement, and regression) as means to resolve conflict. The fearful attachment style was particularly associated with immature and neurotic defense styles (reaction formation, inhibition, withdrawal, idealization). Meyers (1998) found that securely attached respondents displayed higher levels of personal

competence and lower levels of psychological distress that avoidantly and ambivalently attached respondents did. They also had higher self-esteem scores than avoidantly and ambivalently attached respondents did.

According to Gross and Hansen (2000), attachment styles are associated with shame: secure attachment negatively; preoccupied and fearful attachment styles positively; dismissing attachment was unrelated to shame. Also Lopez, Gover, Leskela, Sauer, Schirmer, and Wyssman (1997) found that preoccupied and fearful students were more shame-prone than their secure and dismissive peers were. Kemp and Neimeyer (1999) found clear support for the relationship between preoccupied attachment and the experience and expression of heightened psychological distress. Bookwala and Zdaniuk (1998) noted that those involved in reciprocally aggressive relationships scored higher on the preoccupied and fearful attachment styles and reported experiencing more interpersonal problems than individuals involved in non-aggressive dating relationships did.

There is some evidence that discordance in attachment representations may be related to maladaptive psychosocial functioning. Crittenden et al. (1992) noted that meshed couples (dismissing/enmeshed) had the highest rate of partner abuse and secure couples the lowest. Moreover, they detected a relation between couples' child-rearing practices and attachment patterns: abusing and marginally maltreating couples tended to be dismissing, while abusing-and-neglecting and neglecting couples tended to be preoccupied. Secure (balanced) couples had adequate child-rearing styles. Bowlby (1973, 205) also noted that some clinical data may be best explained by supposing that individuals sometimes operate with two or more working models of the same attachment figure and two or more models of self. Bretherton (1985) reminded that these incompatible models of attachment figures result from defensive exclusion of painful feelings and thus provide emotional relief but, simultaneously, force the person to work with an inadequate model of reality which cannot be updated.

6.3 Relation between attachment and personality

The function of attachment system and personality is somewhat different in adulthood than in childhood: attachment is related to interpersonal functioning and self, whereas personality is defined as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustment to his environment" (Allport, 1937, 48). Bowlby (1969, 331) already raised the question of how each attachment pattern is related to subsequent personality development and mental health? An abundance of studies deals with the relation between a child's attachment style and his or her developmental and socioemotional outcomes in later life, but fewer studies examine an adult's attachment style and subsequent personality characteristics. In this thesis, I will concentrate on viewing personality structure from a trait-theoretical point of view, from Eysenck's (1990) three fundamental personality traits and from the Big Five descriptive system (McCrae & Costa, 1999).

The core of Eysenck's personality theory lies in a hierarchical description of personality and an examination of the biological basis of the three fundamental

personality dimensions. Eysenck (1990) presented evidence that physiological, neurological, biochemical, and hormonal factors play an important part in the genesis of personality differences on the three major factors, Extraversion - introversion (E), Neuroticism (N), and Psychoticism (P) dimensions. The "Big Three" higher-order factors are at the top level of a four-level personality hierarchy. The third level is that of traits that intercorrelate within each factor. Thus, Extraversion - introversion is composed of traits such as sociable, lively, active, assertive, sensation-seeking, carefree, dominant, surgent, and venturesome. Similarly, Neuroticism consists of traits such as anxious, depressed, guilt feelings, low self-esteem, tense, irrational, shy, moody, emotional. Psychoticism, in turn, consists of traits such as aggressive, cold, egocentric, impersonal, impulsive, antisocial, unemphatic, creative, and tough-minded. At the second level there are habitual actions or cognitions, and at the lowest level singly occurring acts or cognitions (Eysenck, 1990).

The five-factor model of personality (Costa & McCrae, 1985) is a hierarchical organization of personality traits in terms of five basic dimensions: Extraversion (E), Neuroticism (N), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). The facets of the five factors, as measured with a revised NEO Personality Inventory (NEOPI-R; Costa & McCrae, 1992), were as follows (Costa & McCrae, 1995; John & Srivasta, 1999): (1) Extraversion versus Introversion: Gregariousness, Assertiveness, Activity, Excitement-seeking, Positive emotions, and Warmth, (2) Agreeableness versus antagonism: Trust, Straightforwardness, Altruism,Compliance, Modesty, Tender-mindedness, (3) Conscientiousness versus lack of direction: Competence, Order, Dutifulness, Achievement striving, Self-discipline, Deliberation, (4) Neuroticism versus Emotional stability: Anxiety, Angry hostility, Depression, Self-consciousness, Impulsiveness, Vulnerability, and (5) Openness versus Closedness to experience: Ideas, Fantasy, Aesthetics, Actions, Feelings, Values.

Meaningful and systematic relations between adult attachment styles and personality characteristics have been found that suggest a relation between attachment styles and the extraversion, agreeableness, and neuroticism dimensions of personality. Shaver and Brennan (1992) found that secure subjects were less neurotic and more extraverted (measured with NEO-PI scales) than insecure subjects and more agreeable than avoidant subjects. This finding was supported by Carver (1997), who found that security was positively associated with extraversion and agreeableness, whereas avoidance was inversely related to extraversion and agreeableness, and ambivalence was related to neuroticism. Diehl et al. (1998) examined the relation between four attachment styles and personality dimensions assessed by means of California Psychological Inventory (CPI) and found that higher scores on the secure attachment styles were associated with higher scores on personality dimensions such as Sociability, Dominance, Social Presence, Self-Acceptance, Empathy, Communality, and Capacity for Status. A reversed pattern of associations was found for the insecure attachment styles and was most pronounced for the fearful and preoccupied dimensions. Shaver and Brennan (1992) also found that only some of the subscales of the NEO-PI facets differentiated between the three attachment styles.

The two major personality factors, Extraversion and Neuroticism, seem to coincide in the various personality structure systems, whereas there is less

agreement on the relation between Eysenck's P factor and the O, A, and C traits in the five-factor system. According to Eysenck (1990), the five-factor model of personality combines type factors (E & N) with trait factors lying at a lower level (Conscientiousness and Agreeableness) and also includes a cognitive factor (Openness to experience) that does not seem to fit in with Eysenck's three dimensions. Digman (1997) claimed that Eysenck's P factor is fundamentally A and C at the level of the Big Five. Clark and Watson (1999) summarized evidence from literature to the effect that the Big Three can be transformed into the Big Five by taking E and N as they are, decomposing the third dimension into Conscientiousness and Agreeableness, and including Openness as an additional dimension. However, Clark and Watson noted that all of the content related to Conscientiousness and Agreeableness (such as Tender-Mindedness) cannot be combined in a single higher-order dimension. Also the existence of two metatraits, alpha and beta, the former consisting of three (Agreeableness, Consciousness, and Emotional Stability) and the latter of two (Extraversion and Intellect) facets of the Big Five has been proposed by Digman (1997). He suggested that the alpha metatrait might be a social desirability factor or might represent the socialization process, whereas the beta metatrait may be interpreted as describing personal growth versus personal constriction.

After Bowlby (1969, 331) presented it, researchers have tried to answer the question of the relation between attachment and personality at an empirical level rather than at a theoretical level, until Thompson (1999) in his insightful paper of early attachment and later socioemotional development summed up empirical findings in this field and described the relation between attachment and personality with greater theoretical precision. Thompson emphasized the multidetermined and differentiated outcomes of adult personality, which are difficult to relate to early attachment security. The point of view taken, a narrower or a broader one, makes the possible outcomes somewhat more accurate. Thompson outlined three views, of which the narrowest deals with outcomes concerning the child's later trust and confidence in the parent and other close partners. According to a somewhat wider point of view, attachment security should also predict the child's sociability, understanding of others, and orientation toward others. In a much broader view, Thompson suggested that attachment security should have general effects on the child's self-confidence, initiative, ego functioning, and other broader personality processes.

7 AIMS OF THE STUDY

The purpose of this study was threefold. The principal aim of this study was to examine the outcomes of a variety of methods to define attachment style groups on the basis of continuous attachment self-ratings. The second aim of this study was focused on studying gender differences in adult attachment styles. The third aim was to investigate the attachment style groups in relation to psychosocial functioning and personality characteristics in late early adulthood. The approach to adult attachment was person-oriented.

As the framework of the study, I used Batholomew's (1990) four-category model of adult attachment, where the secure, dismissing, preoccupied, and fearful attachment styles were defined in relation to the positivity or negativity of two underlying attachment dimensions, the model of self and the model of other.

The first research question was set down as follows:

1. *What are the outcomes of defining attachment style groups by using continuous prototype ratings and a variety of methods?*
    - 1.1. *By using a classification procedure based on the highest and tied-high attachment style ratings?*
    - 1.2. *By using hierarchical cluster analysis with standardized versus double-standardized clustering variables?*
    - 1.3. *By iterating the hierarchical cluster solution?*

The first research question was aimed at examining the outcomes of forming attachment style groups from continuous ratings by using various methods. On the basis of earlier studies (e.g., Kemp & Neimeyer, 1999; Pietromonaco & Barrett, 1997; Searle & Meara, 1999), I hypothesized that a group of participants would remain unclassified because of their tied-high scores when using highest scores as the basis of attachment styles (e.g., Bartholomew & Horowitz, 1991; Feeney, 1996). Furthermore, I assumed that the tied-high scores could be interpreted on the basis of the positivity or negativity of the underlying self and other dimensions and,

thus, the previously unclassified participants could be assigned to theoretically meaningful extended attachment style classes. Pursuing Bowlby's (1973, 205) suggestion of the association between multiple working models and clinical data, I also assumed that a tendency to assess one's attachment styles with two or more attachment styles would be related to poor psychosocial functioning.

If the information of only the highest rating is used in determining one's attachment style, valuable information about the interrelations of the attachment styles and the strengths of the other attachment styles than the highest is ignored. Therefore, I assumed that a statistical grouping method that would take into account the full properties of the measured variables would be necessary for assigning participants to attachment styles. On the basis of earlier studies (Carver, 1997; Feeney, Noller, & Hanrahan, 1994; Männikkö, 1999), I anticipated that cluster analysis would perform well in this regard. I hypothesized that Bartholomew's (1990) secure, dismissing, fearful, and preoccupied attachment style groups would be identifiable in the four-cluster solution of the cluster analysis. Furthermore, I assumed, on the basis of earlier work (Carver, 1997; Männikkö, 1999), that the participants would have individual-level differences in their attachment ratings that would distort the outcomes of the cluster analysis and, therefore, would need to be taken into account.

In agglomerative hierarchical clustering analysis, individual cases may in the final cluster solution be members of such clusters that no longer necessarily are the best but, rather, the second best clusters for the participants (Norusis, 1994b). Therefore, I assumed that iteration of the final cluster solution would assign the participants to the attachment style cluster that corresponded best to their attachment style ratings. On the basis of the steps explained above, I hypothesized that the extended attachment style classes and the iterated four-cluster solution for such clustering variables where individual-level differences have been taken into account would correspond to and, hence, validate each other.

The second research question was set down as follows:

2. *Are there gender differences in adult attachment?*
   - 2.1. *Between women and men as raters of attachment?*
   - 2.2. *Between attachment targets of the same and the opposite sex?*

The results concerning gender differences in adult attachment appear somewhat contradictory. First, no gender differences have been found using Hazan and Shaver's (1987) three prototypes, whereas some differences do appear when attachment is measured with Bartholomew and Horowitz's (1991) four attachment styles. Second, there are discrepancies within the differences that have been discovered. Some differences between women's and men's attachment styles, such as males having higher dismissiveness compared to females, have been supported in several studies (Bartholomew & Horowitz, 1991; Brennan & Morris, 1997; Brennan et al., 1991; Feeney et al., 1994), whereas others are contradicting. For example, according to Bartholomew and Horowitz (1991), females are more

preoccupied than males, whereas in Brennan and Morris's (1997) study males were more preoccupied than females and females were more secure or fearful than males. Third, the possibility of gender differences in adult attachment has often not been studied, and the results have only recently been presented separately for women and men. On the basis of earlier research (Bartholomew & Horowitz, 1991; Brennan & Morris, 1997; Brennan et al., 1991; Feeney et al., 1994), I hypothesized that I would find differences in attachment styles between women and men. In particular, I assumed men to be more dismissing and women to be more preoccupied.

Attachment studies have only recently began to assess attachment in relation to different attachment figures, such as mother, father (Sperling & Berman, 1991), current partner (Baldwin et al., 1996), same or opposite-sex peers (Asendorph et al., 1997), or people in general (Cozzarelli, et al., 2000). According to Bowlby (1969), having more than one attachment figure is rather the rule than the exception (1969). However, neither the differences in adult attachment in relation to different attachment figures (Florian, et al., 1995; Trinke & Bartholomew, 1997) nor the mechanisms underlying the possible differences (e.g., Crowell, et al., 1999; Hazan & Zeifman, 1994) are clear. Recent studies have also shown that attachment security is highly relationship-specific (Asendorpf & Wilpers, 2000; Cook, 2000) and that estimates of a general attachment style toward mother and father may differ (Baldwin et al., 1996). On the basis of these results, I assumed that attachment styles in relation to the same and the opposite sex would differ.

The third research question was set down as follows:

3. *How are attachment styles related to personality characteristics and psychosocial functioning in late early adulthood?*

The generalized working models of attachment are thought to have a large influence on an adult's life in all relationships and in other areas of life, including socioemotional functioning and personality processes (Bartholomew, 1990; Bowlby, 1973; Crowell & Treboux, 1995; Dozier, et al., 1999; Thompson, 2000). Therefore, I assumed that attachment in adulthood would be associated with various aspects of psychosocial functioning. Earlier research has shown that secure attachment is associated with better psychosocial functioning (e.g., Bartholomew & Horowitz, 1991; Gross & Hansen, 2000; Diehl et al., 1998; Meyers, 1998) and that insecure attachment is associated with poorer psychosocial functioning (e.g., Dozier, et al., 1999; Gross & Hansen, 2000; Feeney, 1999; Kemp & Neimeyer, 1999). Therefore, I hypothesized that the fearful attachment style would be the most associated with psychosocial malfunctioning and personality vulnerability and the secure attachment style the least.

In human development, attachment begins to develop in interaction with the caregivers since birth, whereas personality is built on childhood temperament, personal experiences and learning as one grows older. In adulthood, the relation between attachment and personality has become intertwined and reciprocal and, therefore, any causality between them would be bidirectional. A relation between

attachment styles and personality has been confirmed (e.g., Carver, 1997; Diehl et al., 1998; Shaver & Brennan, 1992). Therefore, I hypothesized that I would confirm the earlier findings showing that the secure attachment style was positively related to extraversion, whereas the preoccupied and fearful attachment styles were positively related to neuroticism. Furthermore, I expected to find that the relation between personality facets and attachment styles would be parallel to that between personality domains and attachment styles.

Results concerning the relation between attachment and personality (e.g., Carver, 1997; Diehl et al., 1998; Shaver & Brennan, 1992) may imply meaningful and systematic relations between attachment and personality. My proposition was that the underlying self and other dimensions of attachment might be associated with the two higher-order factors of personality (Digman, 1997). Considering also the wide influence of attachment styles on an adult's life, I assumed that the differences in personality domains and facets, personality vulnerability, and psychosocial functioning would not only differentiate separate attachment styles but would also associate the attachment styles along the dimensions of Bartholomew's four-category model of adult attachment. In particular, I assumed that neuroticism, anxiety-related disorders, and psychological functioning would differentiate the attachment styles along the self dimension and that extraversion and personality vulnerability would be associated with it, as well as that different aspects of social functioning would differentiate the attachment styles along the other dimension.

8 METHOD

8.1 Participants

The participants in this study consisted of 130 women and 141 men from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development, conducted by professor Lea Pulkkinen (Pulkkinen, 1982, 1998) in Jyväskylä, Finland. In the present study, I used data gathered from 1986 to 1995 when the participants were in their late early adulthood, at ages 27, 33, and 36. I was given an opportunity to make a secondary analysis of the data without participating in the planning of the study or data collection.

The longitudinal study began in 1968 when the participants were eight years of age. The original sample (173 girls and 196 boys; racially homogenous, Finnish-speaking, mostly Protestants by religion) of the longitudinal study was drawn from second-grade pupils as a random sample of 12 elementary school classes from downtown and suburban areas. Jyväskylä, the home town of the participants when they were children, is a medium-sized town (about 90,000 inhabitants in 2000) located in the Central Finland.

At age 27, 155 women and 166 men participated in the follow-up. At age 33, the number of the participating women was 126 and the number of the men 123. And, finally, at age 36, 152 women and 161 men participated in the follow-up. The sample in this study consisted of those participants who had complete attachment data at age 36.

Sample attrition analyses at ages 27 (Pulkkinen, 1988) and 36 (Sinkkonen & Pulkkinen, 1996) showed that the participants were representative of the original random sample. In comparison with the data derived from Statistics Finland (1994), they also unbiasedly represented their age cohort, born in 1959, with respect to marital status (10% of the women and 16% of the men were single; 56% of the women and 59% of the men were married), number of children, level of education (45% of the women and 23% of the men qualified for university studies), and unemployment at age 36.

8.2 Procedure

Data were gathered during different phases of longitudinal study using mailed questionnaires, semistructured interviews, personality inventories, and self-report questionnaires. Also local and national criminal records were studied for the whole sample. At age 27, a mailed questionnaire, a semistructured interview, and two personality inventories were used for data collection. At age 33, another personality inventory was mailed to each of the participants. At age 36, the participants first filled in a mailed questionnaire concerning their life situation. Secondly, they participated in a semistructured interview, which included information of the following topics in the order of presentation: regulation of emotion, life structure, autobiography, self, state of health, alcohol consumption, intimate relationships, family relations, work, and coping. During the interview, the participants also filled in 20 self-report questionnaires.

The interviews for the 36-year-old participants, during which the attachment data was gathered, were conducted by 14 specially trained persons (13 female and one male) who were approximately of the same age and had quite identical academic status. The interviews were held in any one of the following places, according to the wishes of the participants: at Jyväskylä University, in a participant's home, a participant's office, or in a suitable place in a participant's neighborhood. Each interview lasted from two to six hours, and it was tape recorded. At the end of the interviews, the participants were given two personality inventories to fill out and return in a prepaid envelope after the interview.

8.3 Measures

8.3.1 Attachment style measure

The Relationship Questionnaire by Bartholomew and Horowitz (1991) was utilized for assessing the participants' *attachment styles*. The participants reported their degree of correspondence to four attachment styles, that is, the secure, dismissing, fearful and preoccupied attachment style descriptions, in close relationships, using a four-point scale (*1 = does not describe my view at all, 2 = describes my view a little, 3 = describes my view well, 4 = describes my view very well*). Each of the attachment styles (secure, dismissing, preoccupied, fearful) was rated separately in relation to the same and the opposite sex; thus, the attachment figure was assumed to be either female or male with no further definitions. The instructions given to the participants were as follows: "*Presented below are four descriptions of different ways of thinking about people who are close to you. Please indicate how well they correspond to you and write down the appropriate alternative on the line given. Rate separately your views on those who are a) your same sex, b) your opposite sex.*" The descriptions used in the Finnish translation of the Relationship Questionnaire are presented in Appendix 1.

8.3.2 Measures of psychosocial functioning and personality vulnerability

Psychosocial functioning was operationalized as psychological functioning, behavioral problems, as well as cognitive and behavioral strategies, and mood during the semi-structured interview. Personality vulnerability was considered as a risk factor for good psychosocial functioning and was examined in relation to vulnerability related to anxiety, introversion-extraversion, aggressivity, hostility, and conformity-nonconformity.

Measures of *psychological functioning at age 36* included Rosenberg's (1965) Self-Esteem Scales, an abbreviated 18-item version of Ryff's (1989) Scales of Psychological Well-Being, a shortened version of Depue's (1987) Depression Scale, King and Emmons's (1990) measure of alexithymia, labeled as Ambivalence over Emotional Expression (AEQ), and a measure of health problems (Aro, 1988; Aro & Hänninen, 1984). A four-point scale (*1 = does not describe my view at all, 4 = describes my view very well*) was used with all of the scales.

Behavioral problems were measured with drinking problems by age 36 and criminality by age 36. Drinking problems were defined on the basis of an alcoholism screening test CAGE (Mayfield, McLeod, & Hall, 1974), frequency of intoxication, and noticeable adverse consequences of drinking. Criminality was assessed according to the government register and a self-report obtained in the interview at age 36. Rönkä (1999) provides more details of these measures.

The participants described their *current mood* in the beginning of the interview session using a 15-adjective Brief Mood Introspection Scale (BMIS; Mayer & Gashke, 1988), on a four-point response scale (*1 = does not describe my mood at all, 4 = describes my mood very well*). Near the end of the interview, the participants' *cognitive and behavioral strategies* in achievement contexts were assessed by Strategy and Attribution Questionnaire (SAQ; Nurmi, Salmela-Aro, & Haavisto, 1995). The SAQ includes 15 items on a four-point scale *(1 = strongly disagree, 4 = strongly agree).*

Personality vulnerability was assessed at age 36 using the Karolinska Scales of Personality (KSP; af Klinteberg, Schalling, & Magnusson, 1986, 1990). According to the authors, KSP was originally designed for the definition of vulnerability constructs that are derived from theories of biologically-based temperament dimensions. Therefore, the aim of the KSP is not to encompass the whole personality but to measure personality correlates of some psychiatric disorders, such as psychopathy, schizophrenia, depression, and anxiety. The scales can, according to af Klinteberg (1996), be grouped into four classes: (1) *Introversion - extraversion related scales:* impulsiveness, monotony avoidance, and detachment; (2) *Conformity - nonconformity scales:* social desirability and socialization, (3) *Anxiety related scales:* psychic anxiety, somatic anxiety, muscular tension, inhibition of aggression, and psychastenia, and (4) *Aggressivity related scales:* verbal aggression, indirect aggression, irritability, and the hostility scales of suspicion and guilt.

8.3.3 Personality measures

Personality characteristics were measured *at age 27* using a standardized Finnish version (Eysenck & Haapasalo, 1989; Haapasalo, 1990b) of the Eysenck Personality Inventory (EPQ; Eysenck & Eysenck, 1975). The EPQ assesses three personality

dimensions, based on the pioneering work of Eysenck and his colleagues, the so-called Big Three: Neuroticism/Negative Emotionality, Extraversion/Positive Emotionality, and Disinhibition versus Constraint (Clark & Watson, 1999). The EPQ consists of 101 items, which are answered by either "*yes*" or "*no*" (Haapasalo, 1990a), and encompasses four scales: E (Extraversion), N (Neuroticism), P (Psychoticism), and L (Lie) scales (Haapasalo, 1990b). According to Clark and Watson (1999), the N-factor reflects the extent to which the world is perceived as threatening, problematic, and distressing. The E-factor involves a willingness to engage the environment, and the P-factor (or DvC) reflects a tendency to behave in an undercontrolled versus overcontrolled manner.

Personality characteristics were measured *at age 33* using a Big Five Personality Inventory (NESTA; Pulver, Allik, Pulkkinen, & Hämäläinen, 1995). This inventory, consisting of 181 statements, is an authorized adaptation of the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985) in which approximately one quarter of the items are substitutes for the original American items. The response scale was from *1 = Strongly disagree* to *5 = Strongly agree.* The scales included in the NESTA are as follows: (1) *Neuroticism* (anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability), (2) *Extraversion* (warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions), (3) *Openness to Experience* (fantasy, aesthetics, feelings, actions, ideas, and values), (4) *Agreeableness*, and (5) *Conscientiousness.* Agreeableness involves trust, altruism, and sympathy as opposed to antagonism or aggressiveness, whereas conscientiousness involves disciplined striving for goals as well as strict adherence to principles.

8.4 Data reduction and variables

Data gathered was reduced to variables concerning (1) attachment styles at age 36, (2) psychosocial functioning and personality vulnerability at age 36, and (3) personality characteristics at ages 27 and 33.

Attachment style variables were ratings from the Finnish translation (Appendix 1) of the Relationship Questionnaire (Bartholomew & Horowitz, 1991). Each of the four attachment styles was rated in relation to the same and the opposite sex; therefore, the eight attachment style variables were as follows: (1) *dismissing attachment style in relation to the same sex,* (2) *dismissing attachment style in relation to the opposite sex,* (3) *secure attachment style in relation to the same sex,* (4) *secure attachment style in relation to the opposite sex,* (5) *fearful attachment style in relation to the same sex,* (6) *fearful attachment style in relation to the opposite sex,* (7) *preoccupied attachment style in relation to the same sex,* (8) *preoccupied attachment style in relation to the opposite sex.*

The *psychological functioning* of the participants was described in terms of the following variables: (1) *Self-esteem* (Rosenberg, 1965), (2) *Psychological Well-being* (Ryff, 1989), (3) *Depression* (Depue, 1987), (4) *Alexithymia* (King & Emmons, 1990), (5) *Health problems* (Aro, 1988; Aro & Hänninen, 1984). Composite scores were calculated as means of all items. The coefficient alphas for the composite scores, for all participants, were as follows: Self-esteem, .75 (10 items, e.g., "For

the most part I am satisfied with myself."); Psychological Well-being, .72 (18 items, e.g., "When I look at the story of my life, I am pleased with how things have turned out."); Depression, .91 (16 items, e.g., "Have you become sad, depressed, or irritable for several days or more without really understanding why?"); Alexithymia, .71 (7 items, e.g., "I'd like to talk about my problems with others, but at times I just can't."), and Health Problems, .71 (20 symptoms, e.g., headache, trembling hands, tiredness and weakness, eating ravenously).

Behavioral problems were assessed with two variables: (1) *Problem drinking* and (2) *Criminality.* Problem drinking was coded into three classes as 1 = "no problem drinker", 2 = "presumptive problem drinker", 3 = "problem drinker". Criminality was based on the number of registered criminal arrests by age 35, classified into 6 categories (0 = 0, 1 = 1, 2 = 2 - 4, 3 = 5 - 9, 4 = 10 - 15, 5 = 16 or more arrests). Rönkä, Kinnunen, and Pulkkinen (2000) explained the coding of the variables in more detail.

Current mood was described with 15 adjectives (BMIS; Mayer & Gashke, 1988), which were factor analyzed (PAF, Varimax), resulting in three factors that explained 42% of the total variance. The first factor described (1) *Negative and Excited Mood* (sad, frightened, disappointed, surprised, excited; loadings from .74 to .49). The second factor was interpreted as (2) *Calm Mood* (peaceful, calm, nervous (-), relaxed; loadings from .81 to .50). The third factor represented (3) *Positive and Active Mood* (peppy, happy, satisfied, enthusiastic, sleepy (-), sluggish (-); loadings from .72 to .26). The reliability scores were, respectively, .80, .78, and .74 for all participants.

The participants' *cognitive and behavioral strategies* in achievement contexts were assessed with 15 items (SAQ; Nurmi, et al., 1995) that were factor analyzed (PAF, Varimax), resulting in three factors that explained 39% of the total variance. The first factor described (1) *Success Expectations* (e.g., "I usually manage to deal with even the most demanding tasks."; 5 items, loadings from .85 to .27), the second factor was interpreted as (2) *Task-Irrelevant Behavior* (e.g., "If I am expecting some difficulties, I usually find something else to do."; 5 items, loadings from .81 to .29), and the third factor represented (3) *Mastery Beliefs* (e.g., "In the long run, success in one's studies depends little on one's knowledge and abilities." (reversed); 5 items, loadings from .49 to .35). The reliability scores were, respectively, .83, .78, and .54 for all participants.

Personality vulnerability at age 36 was described with a Finnish translation of the Karolinska Scales of Personality (KSP; af Klinteberg et al., 1986, 1990). The KSP consists of 15 scales, each of which consist of 10 items, except the socialization scale (20 items) and the aggression-related scales (5 items each). A mean of the items in each scale was calculated to represent the following variables: (1) *Impulsiveness,* (2) *Monotony Avoidance,* (3) *Detachment,* (4) *Social desirability,* (5) *Socialization,* (6) *Psychic anxiety,* (7) *Somatic Anxiety,* (8) *Muscular Tension,* (9) *Inhibition of Aggression,* (10) *Psychastenia,* (11) *Verbal Aggression,* (12) *Indirect Aggression,* (13) *Irritability,* (14) *Suspicion,* and (15) *Guilt.* The coefficient alphas of the composite scores and the best item of each scale are presented in Table 6.

Personality variables at age 27 included composite scores for (1) *Extraversion,* (2) *Neuroticism,* and (3) *Psychoticism,* measured with a Finnish translation of the EPQ (Haapasalo, 1990). The items in each score were based on a Finnish scoring key for a four-factor structure, explained in more detail by Haapasalo (1990a, 1990b). The coefficient alphas and the best items for the composite scores were,

TABLE 6 The coefficient alphas of the KSP Scales and the best item of each.

Scale	Alpha	Best item
Impulsiveness	.72	I consider myself an impulsive person.
Monotony Avoidance	.78	I try to get to places where things really happen.
Detachment	.69	I consider myself reserved and a little cold rather than kind and warm.
Social desirability	.65	I'm always courteous, even to people who are disagreeable.
Socialization	.86	I sometimes wanted to run away from home (reversed).
Psychic Anxiety	.84	I don't have much self-confidence.
Somatic Anxiety	.80	I often feel restless, as if I wanted something without knowing that.
Muscular Tension	.82	When trying to fall asleep I often notice that my muscles are really tense.
Inhibition of Aggression	.70	I find it hard to object if I am neglected at a restaurant.
Psychastenia	.77	I get tired and hurried too easily.
Verbal Aggression	.65	When people yell at me, I yell back.
Indirect Aggression	.44	When I am mad, I sometimes slam doors.
Irritability	.44	I can't help being a little rude to people I don't like.
Suspicion	.40	I commonly wonder what hidden reason another person may have for doing something nice for me.
Guilt	.43	I sometimes have bad thoughts that make me feel ashamed of myself.

for all participants, as follows: Extraversion, .83 (e.g., "Do other people think of you as being very lively? "), Neuroticism, .85 (e.g., "Are you often troubled about feelings of guilt?"), and Psychoticism, .62 (e.g., "Would life without dangers be too boring in your opinion?").

Personality variables at age 33 included composite scores (sums of items) for five personality traits and also for their subscales according to Hämäläinen et al. (1994): (1) *Neuroticism*, (2) *Anxiety*, (3) *Hostility*, (4) *Depression*, (5) *Self-consciousness*, (6) *Impulsiveness*, (7) *Vulnerability*, (8) *Extraversion*, (9) *Warmth*, (10) *Gregariousness*, (11) *Assertiveness*, (12) *Activity*, (13) *Excitement seeking*, (14) *Positive emotions*, (15) *Openness to Experience*, (16) *Fantasy*, (17) *Aesthetics*, (18) *Feelings*, (19) *Actions*, (20) *Ideas*, (21) *Values*, (22) *Agreeableness*, and (23) *Conscientiousness*. The coefficient alphas and the best items for the Big Five traits composite scores are presented in Table 7.

TABLE 7 The coefficient alphas of the NEO Personality Inventory Scales and the best item of each.

Scale	Alpha	Best (or second best) item
Neuroticism	.92	I often feel tense and nervous.
Anxiety	.80	I am seldom apprehensive or restless.
Hostility	.71	Others do not regard me as easily hurt or as temperamental.
Depression	.85	Sometimes life seems quite gloomy and hopeless.

(continues)

TABLE 7 (continued)

Scale	Alpha	Best (or second best) item
Self-consciousness	.75	When I have dealings with other people, I fear I will make a fool of myself.
Impulsiveness	.74	My actions are often guided by spontaneous impulses.
Vulnerability	.77	I often feel helpless and want others to solve my problems for me.
Extraversion	.88	I find it easy to be sociable with people I do not know.
Warmth	.79	Even when with people I do not know, I am open and friendly.
Gregariousness	.76	I want large numbers of people around me.
Assertiveness	.75	I am dominating, strong-willed and decisive.
Activity	.75	I am not one who is constantly bustling about.
Excitement seeking	.71	I want to get involved in exciting adventures.
Positive emotions	.80	I am a more serious person than a happy person.
Openness to Experience	.91	Aesthetic and artistic things are not very important to me.
Fantasy	.84	I try to keep my thoughts within the bounds of reality and to avoid day-dreaming.
Aesthetics	.86	I believe that the opinions of people living in different societies regarding right and wrong may be right from their points of view.
Feelings	.72	It is only seldom that I pay any attention to my moods.
Actions	.71	I want to eat only the foods I am used to.
Ideas	.79	Philosophical discussions do not interest me.
Values	.49	I believe I am open-minded and tolerant regarding other people's ways of life.
Agreeableness	.79	I am unconditional and pig-headed in my opinions.
Conscientiousness	.82	I am not very systematic.

Note. Some of the items were reversed before counting the composite scores.

8.5 Data analysis

8.5.1 Person-oriented approach and cluster analysis

In the person-oriented approach, it is natural to use methods that aim directly at capturing entities or structures that are assumed to reflect the system. Bergman (2000) presented three propositions which are accepted for the person-oriented approach. The first proposition states that the relations between different factors need not apply to every studied individual. The second proposition suggests that linear relations are not very useful approximations of relations that hold in reality. According to the third proposition, interactions between factors are rather the rule than the exception; therefore, the variable values may be the most meaningful as components in configurations and patterns, and not by themselves.

Different methodological approaches to person-oriented studies address the continuity of the phenomenon (e.g., latent growth curve models), the motor of change (e.g., models for dynamic systems), or typical configurations of values,

using information about individuals as gestalts (Bergman, 2000). Well-functioning methods for obtaining a classification include, for example, the cluster analysis family of methods and configural frequency analysis (CFA). In cluster analysis, objects are sorted into clusters according to their similarity or dissimilarity to other objects in order to produce differing clusters in which members tend to be alike. In CFA, all possible value patterns are analyzed directly. A more detailed description of these and other methods for the person-oriented approach were given, for example, by Bergman (1998) and Magnusson (1999).

In hierarchical clustering analysis, a commonly used method for forming clusters is *agglomerative hierarchical clustering analysis*, where clusters are formed by grouping cases into larger and larger clusters until all cases are members of a single cluster (Norusis, 1994b). At every step, either individual cases are added to existing clusters or two existing clusters are combined. However, once a case (participant) has been included in a cluster, it cannot be removed, even though another cluster would be a better fit in the end. The K-means clustering analysis can be used to correct this situation, since it moves cases within the chosen number of clusters to assign all cases to the clusters that are the best fit (Norusis, 1994b). In a K-means cluster analysis, a case is assigned to the cluster with the shortest distance between the case and the center of the cluster. The algorithm used for determining cluster memberships is based on nearest centroid sorting, described by Anderberg (1973). Furthermore, Bergman and Magnusson (1991) have suggested that the most useful cluster solution is obtained by using an initial classification based on Ward's method and relocating the clusters by K-means analysis, using the squared Euclidean distance method.

Among the methods for combining clusters, one of the most frequently used is Ward's method. This method uses *squared Euclidean distance* as a measure of the similarity, or the distance, of the cases. Squared Euclidean distance is calculated as the sum of the squared differences over all possible pairs of the clustering variables. In *Ward's method*, the means for all variables in each cluster are first calculated. Then, squared Euclidean distance to the cluster mean is calculated for each case. Finally, the distances are summed for all of the cases. At each step, those two clusters merge that result in the smallest increase in the overall sum of squared within-cluster distances (Norusis, 1994b). When using the Euclidean distance, both profile level and form are taken into account when the clusters are formed (Bergman, 1998).

8.5.2 Analysis of data in the present study

The overall data analysis procedure in the present study was as follows: First, I compared the outcomes of determining attachment style groups for all participants together in two different ways: by classifying the participants into attachment style classes and by forming attachment style clusters using cluster analysis. As for the cluster analysis, I studied the effect of standardizing the clustering variables only within variables or both within participants and within variables, and also the effect of iterating the final cluster solution. Second, I examined gender differences in adult attachment by forming and comparing gender-specific attachment style clusters separately for women and men, and separately in relation

to same and opposite sex. Third, I compared the best attachment style cluster solution for all participants in psychosocial functioning and personality characteristics. A more detailed description of the data analysis is given in the following paragraphs.

The classification of the participants into attachment style classes was based on their highest attachment ratings and their combinations within the four attachment styles. First, I identified the highest ratings and assigned those participants who used only one highest rating to the corresponding attachment style classes. Second, I identified the different combinations of the highest ratings and created additional attachment style classes on that basis. Next, I assigned the participants to the additional attachment classes. The participants were classified into the extended attachment style classes in relation to both the same sex and the opposite sex. Finally, I compared the participants, using tied-high scores, with the other participants in psychosocial functioning and personality characteristics.

A basis for the clustering analyses was an examination of the eight attachment style variables (four attachment styles, each rated separately in relation to same and opposite sex) that were used as clustering variables. Usually, the clustering variables are standardized within variables to transform all variables into z-scores that have a mean of 0 and a standard deviation of 1 (Norusis, 1994b). However, standardizing within variables does not take into account the individual profile form and profile level. I described the individual-level differences in the participants' attachment style ratings with the medians and ranges of the eight variables. In order to take into account the individual differences in how the response format was used, I standardized the clustering variables first within participants and then within variables.

The outcomes of standardizing the variables only within variables or first within participants and then within variables were compared by forming a cluster tree from ten to two clusters in a hierarchical agglomerative cluster analysis, using eight attachment style ratings as clustering variables, with Ward's method and Euclidean distances, for all participants together. For both sets of cluster analyses, the four-cluster solution was first examined in order to find out whether it was interpretable as representing Bartholomew's (1990) four attachment styles. If not, then the cluster solutions from five to ten were examined in order to find out which cluster solution would best represent the secure, dismissing, fearful, and preoccupied attachment styles and what the additional clusters would represent.

The clusters were compared for the eight clustering variables by means of a one-way ANOVA and a Sheffe pairwise test. The highest and the lowest means in the clustering variables in each cluster were used for the interpretation. In the four-cluster solutions, the secure attachment style cluster was expected to be characterized by a high mean in the secure and by a low mean in the fearful attachment style ratings, and the opposite was expected to be the case for the fearful attachment style cluster. Correspondingly, a high mean in the dismissing and a low mean in the preoccupied attachment style ratings were expected to characterize the dismissing attachment style cluster, whereas the opposite was expected to describe the preoccupied attachment style cluster. I also used an independent samples t-test for comparing each attachment style cluster in the ten-cluster solutions against its complement, that is, all other participants.

The outcomes of iterating the final cluster solution were examined by

choosing the better of the hierarchical four-cluster solutions and iterating it by means of a K-means cluster analysis. The centers of the hierarchical four-cluster solution were given as starting points in the iterative cluster analysis. Iteration was continued until no participants changed attachment style clusters. Finally, the iterated four-cluster solution and the extended attachment style classification were compared by means of cross-tabulation. The typicality or antitypicality of the participants in relation to their ratings, compared with their attachment styles, were deduced on the basis of the absolute value of the adjusted residuals (> 2.0) in the cross-tabulated cells.

In order to examine gender differences in adult attachment, three sets of cluster analyses were conducted in order to produce gender-specific attachment style clusters. First, women and men were analyzed separately using the eight double-standardized variables (four attachment styles in relation to the same and the opposite sex) as clustering variables. Next, all participants were collectively clustered in relation to their same and opposite sex. The four ratings in relation to the same sex were entered as clustering variables when forming the clusters in relation to the same sex, and similarly, the ratings in relation to the opposite sex were entered when forming the clusters in relation to the opposite sex. Third, four sets of clusters were formed: for women and men collectively and separately for female and male attachment figures. Identical cluster analysis sequences were formed for all gender-specific attachment style clusters, according to the routine discovered as best when examining the outcomes of the standardization of the clustering variables and the iteration of the final cluster solution. The four-cluster solutions were identified and compared in the same manner as explained above.

The best attachment style four-cluster solution at age 36 was examined for psychosocial functioning at age 36 and for personality characteristics at ages 33 and 27. The attachment style clusters were compared in psychosocial functioning and personality characteristics by means of a one-way ANOVA, and the pairwise comparisons were made by means of a Scheffe test. As for the relation between the personality characteristics measured nine and three years earlier than the attachment styles, the differences between the participants in each attachment style cluster were also examined pairwise by means of discriminant analysis, treating personality variables at age 27 and 33 as independent variables and the attachment styles at age 36 as dependent variables.

All analyses of data were carried out using the SPSS for Windows 8.0 statistical package (Norusis, 1994a, 1994b, 1994c).

9 ATTACHMENT STYLE CLASSES

9.1 Classifying participants on the basis of the highest ratings

The most common way to define attachment styles for participants is to classify their continuous attachment style ratings on the basis of the highest score. Thus, each participant is assigned to the attachment style class that has the highest rating. In this classification system, the participants having two or more equally high ratings are either ignored or labeled as unclassifiable. In this sample, attachment styles were measured in relation to the same and the opposite sex; accordingly, separate attachment style classifications were created in relation to the same and the opposite sex.

Table 8 indicates the frequencies and percentages of the *Secure*, *Fearful*, *Dismissing*, and *Preoccupied* attachment style classes. The secure attachment style was clearly the most common across the gender of participants or imagined

TABLE 8 Frequencies and percentages of the participants in the attachment style classes, based on the highest attachment style rating, and also in the extended tied-high classes for the Unclassified, based on combinations of highest attachment style ratings.

Attachment style class	Same sex				Opposite sex			
	Women		Men		Women		Men	
	f	%	*f*	%	*f*	%	*f*	%
Secure	85	65.4	74	52.5	71	54.6	67	48.6
Fearful	11	8.5	13	9.2	17	13.1	15	10.9
Dismissing	4	3.1	8	5.7	2	1.5	4	2.9
Preoccupied	2	1.5	2	1.4	2	1.5	3	2.2
Unclassified	28	21.5	44	31.2	38	29.2	49	35.5
Total (All)	130	100.0	141	100.0	130	100.0	138	100.0
Self Positive	2	1.5	9	6.4	2	1.5	7	5.1
Self Negative	1	0.8	2	1.4	2	1.5	2	1.4
Other Positive	10	7.7	4	3.5	15	11.5	9	6.5
Other Negative	2	1.5	5	3.5	2	1.5	1	0.7
Polar Opposites	6	4.6	10	6.4	12	9.2	16	11.6
Ambivalent	7	5.4	13	9.2	5	3.8	14	10.1
Total (Unclassified)	28	21.5	44	31.2	38	29.2	49	35.5

attachment figures, ranging from 48.6% to 65.4%. The percentages of the other attachment styles were minor compared to the secure attachment style, with the dismissing and preoccupied attachment styles ranging from 1.4% to 5.7% and the fearful attachment style ranging from 8.5% to 13.1%. However, this classification procedure failed to classify participants who had two or more equally high scores. The percentage of the unclassified participants (hereafter: the Unclassified) ranged from 21.5%, for women in relation to their same sex, to 35.5%, for men in relation to their opposite sex, which made them the second largest group of the participants after the Secure.

Nearly one third of the participants (the Unclassified) clearly was too much to ignore. Further, a single class for the unclassified participants did not appear to describe these participants well because several possible combinations of the four attachment styles were found among the highest scores, thus making the unclassified participants quite heterogeneous. In order to examine the group of the unclassified participants in more detail, additional classes were developed for them on the basis of theoretically meaningful combinations of the attachment style ratings (hereafter: tied-high scores) that could be deduced on the basis of the underlying attachment dimensions.

The additional attachment tied-high classes (Table 8) were based on the following principles: First, the participants who rated themselves with a combination of any two attachment styles as the highest (hereafter: double tied-high scores) were classified according to the chosen combination into classes corresponding to the underlying self and other dimensions and their positivity or negativity. Thus, the participants who rated themselves with double tied-high scores were classified as *Self Positive* (secure and dismissing), *Self Negative* (preoccupied and fearful), *Other Positive* (secure and preoccupied), or *Other Negative* (dismissing and fearful). The participants in the *Polar Opposites* class rated, mostly, the secure and the fearful attachment styles, some also the dismissing and the preoccupied attachment styles, as equally descriptive. Finally, the *Ambivalent* class consisted of those who rated any combination of three attachment styles, or all four attachment styles, (hereafter: ambivalent tied-high scores) as equally descriptive.

The frequencies and percentages of the additional attachment tied-high classes are presented in Table 8, separately for women and men and in relation to the same and the opposite sex. The percentages of the additional attachment tied-high classes were generally quite low, ranging from 0.7%, for Other Negative men, to 11.6%, for Polar Opposites men in relation to their opposite sex. However, the number of the women who had a positive attitude toward others (Other Positive) was somewhat higher than that of the men, and the number of men who rated themselves with either ambivalent (Ambivalent) or conflicting (Polar Opposites) tied-high scores was somewhat higher that of the women, particularly in relation to their opposite sex.

9.2 Characteristics of participants using tied-high attachment ratings

The personality characteristics and psychosocial functioning of the participants assessing themselves with several tied-high attachment ratings were compared

with those participants assessing themselves with a single highest attachment style. As the extended classes of the previously unclassified participants were quite small, the unclassified were treated as one group in a one-way analysis of variance, comparing the secure, preoccupied, dismissing, and fearful highest-score attachment style classes with the Unclassified. The five groups were compared pairwise with a Scheffe test.

The results showed that only the Secure and the Unclassified differed from each other in personality characteristics and psychosocial functioning. The Unclassified had less adaptive personality characteristics than the Secure. At age 27, the Unclassified were less extraverted ($F(4,226) = 5.513$, $p = .000$) and more neurotic ($F(4,226) = 4.140$, $p = .003$) and psychotic ($F(4,226) = 4.201$, $p = .003$) than the Secure. These personality characteristics were quite stable, as the Unclassified differed from the Secure also at age 33 in the same way as six years earlier. Again, the Unclassified were more neurotic ($F(4,190) = 3.567$, $p = .008$), less extraverted ($F(4,191) = 9.723$, $p = .000$), less agreeable ($F(4,191) = 6.758$, $p = .000$), and also less open to experience ($F(4,190) = 4.865$, $p = .001$) than the Secure.

The Unclassified also had poorer psychosocial functioning in several areas and a more vulnerable personality than the Secure. The Unclassified had lower self-esteem ($F(4,265) = 6.866$, $p = .000$) and psychological well-being ($F(4,266) = 12.897$, $p = .000$) and higher depression ($F(4,255) = 3.063$, $p = .017$). In addition, the Unclassified manifested a range of anxiety-related vulnerability, such as psychic anxiety ($F(4,247) = 9.349$, $p = .000$), somatic anxiety ($F(4,247) = 7.280$, $p = .000$), muscular tension ($F(4,247) = 7.403$, $p = .000$), and psychastenia ($F(4,247) = 9.663$, $p = .000$). As for external problems, the Unclassified had more health problems ($F(4,266) = 2.662$, $p = .033$) and alcohol problems ($F(4,266) = 5.304$, $p = .000$) and also more criminality ($F(4,266) = 3.017$, $p = .019$) than the Secure. In interaction with others, they had more problems in emotional expression ($F(4,264) = 8.031$, $p = .000$) and were also more irritable ($F(4,247) = 4.968$, $p = .001$) and suspicious ($F(4,247) = 7.114$, $p = .000$) and had more feelings of detachment ($F(4,247) = 19.212$, $p = .000$) than the Secure. Overall, the Unclassified participants were less sociable ($F(4,247) = 4.379$, $p = .002$) and less socially desirable ($F(4,247) = 11.569$, $p = .000$). In the interview situation, the Unclassified differed from the Secure by estimating their mood as less positive and active ($F(4,256) = 3.544$, $p = .008$). They also estimated that they engaged more in task-irrelevant behavior ($F(4,254) = 3.382$, $p = .010$) and had fewer mastery beliefs ($F(4,254) = 2.910$, $p = .022$) than the Secure.

On the basis of these results, it may be concluded that a tendency to rate two or more attachment styles as describing one's attachment styles equally well indicates weaker psychosocial functioning and proneness to personality vulnerability factors. Furthermore, the ambivalence in attachment style ratings is also related to less adaptive personality characteristics.

10 ATTACHMENT STYLE CLUSTERS

10.1 Hierarchical cluster analysis with standard z-scores

An agglomerative hierarchical cluster analysis (Ward method, Euclidean distances) was performed, using eight clustering variables consisting of attachment ratings in relation to the same or the opposite sex, for each of the four attachment styles. The variables were standardized within variables, for all participants collectively, to produce standard z-scores. Different attachment style ratings were only associated to a degree, whereas the ratings in relation to the same and the opposite sex were strongly related in each of the four attachment styles, as shown by the Pearson correlation coefficients in Table 9.

TABLE 9 Intercorrelations of the attachment style ratings in relation to the same and the opposite sex.

Variables	1	2	3	4	5	6	7	8
1. Dismissing (SS)	-	.71***	-.22*	-.17	.21*	.18*	-.17	-.16
2. Dismissing (OS)	.68***	-	-.23**	-.23**	.06	.16	-.26**	-.20*
3. Secure (SS)	-.25**	-.18*	-	.76***	-.20*	-.19*	.16	.06
4. Secure (OS)	-.09	-.16	.80***	-	-.16	-.24**	.09	.06
5. Fearful (SS)	.19*	.11	-.37***	-.29***	-	.79***	.05	.06
6. Fearful (OS)	.15	.24**	-.22*	-.23**	.71***	-	.02	.08
7. Preoccupied (SS)	-.14	.01	.05	.13	-.09	-.02	-	.83***
8. Preoccupied (OS)	.08	.03	-.10	.07	.03	-.02	.77***	-

Note. *$p < .05$, **$p < .01$, ***$p < .001$. SS = in relation to the same sex; OS = in relation to the opposite sex. Pearson correlations for men are below and for women above the diagonal.

On the basis of the agglomeration schedule, no single cluster solution would best represent the data (agglomeration schedule coefficients were, from 1 to 11 clusters, the following: 2132, 1704, 1480, 1345, 1237, 1140, 1055, 996, 939, 890, 843). Therefore, cluster solutions from two to ten were examined in order to find the cluster solution

that would represent Bartholomew's (1990) four attachment styles. Clusters were compared for the clustering variables (standard z-scores) with a one-way ANOVA in the four-cluster solution and with an independent samples t-test against all other participants in all other cluster solutions. The cluster formation tree for hierarchical cluster analysis, using standard z-scores, is presented in Figure 3.

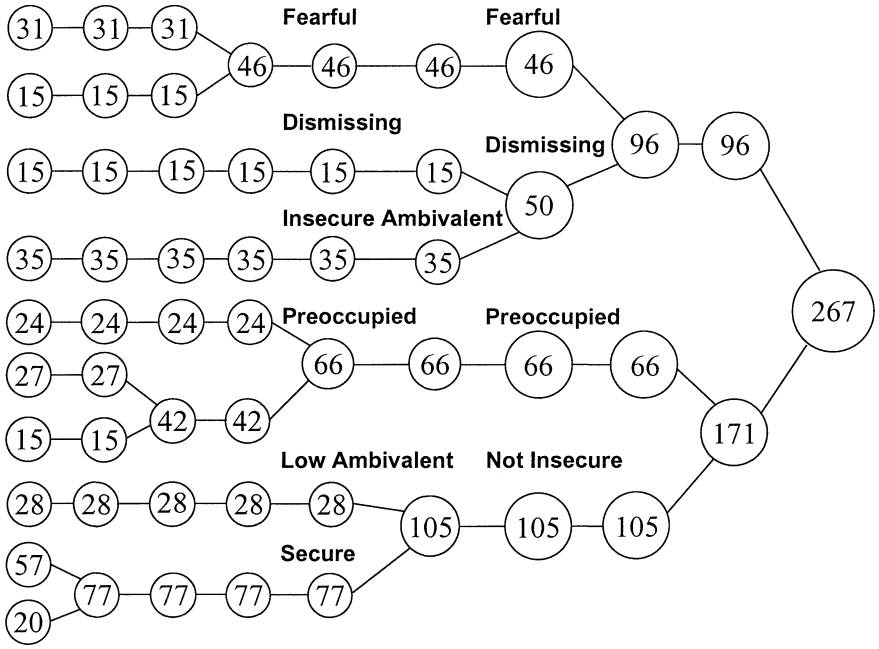


FIGURE 3 Attachment style cluster tree in a hierarchical cluster analysis, using standard z-scores, solutions from ten to one.

The two main clusters in the hierarchical cluster tree (Figure 3) differed from each other in an independent samples t-test in the dismissing, fearful, and secure attachment styles ($p = .000$) but not in the preoccupied attachment style. The larger main cluster ($n = 171$) was characterized by a moderate mean in the secure attachment style, whereas the smaller main branch ($n = 96$) was characterized by moderate means in the dismissing and fearful attachment styles.

The two main clusters consisted of two smaller clusters that, at the four-cluster level, were assumed to fit Bartholomew's (1990) four-category model of adult attachment and its secure, preoccupied, dismissing, and fearful attachment styles. However, the means and standard deviations (z-scores) of the clusters in the four-cluster solution, presented in Table 10, only supported three of Bartholomew's four attachment styles. The *Fearful* ($n = 46$), the *Dismissing* ($n = 50$), and the *Preoccupied* ($n = 66$) attachment style clusters differed from the other clusters as having the highest mean in the corresponding attachment style. The fourth cluster was characterized with low means in all except the secure attachment style; however, the secure attachment style means were still lower than in the preoccupied attachment style cluster. Therefore, the fourth attachment style cluster was labeled as the *Not Insecure* ($n = 105$).

Examination of the cluster solutions from five to ten revealed that the six-cluster solution was interpretable as representing all four Bartholomew's (1990)

TABLE 10 Means and standard deviations of the attachment styles (z-scores) in the hierarchical attachment style clusters in the four-cluster solution for standard z-scores, compared by means of an ANOVA, pairwise comparisons with a Scheffe test.

	Hierarchical attachment style clusters for standard z-scores								
	Fearful (46)		Dismissing (50)		Preoccupied (66)		Not Insecure (105)		
Attachment style	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,263)
Dismissing (SS)	0.33_{b}	0.87	1.17_{a}	1.08	-0.64_{c}	0.53	-0.31_{c}	0.69	61.219***
Dismissing (OS)	0.37_{b}	0.78	1.34_{a}	1.16	-0.63_{c}	0.19	-0.41_{c}	0.56	95.504***
Secure (SS)	-0.55_{c}	1.04	-0.57_{c}	0.91	0.66_{a}	0.72	0.10_{b}	0.88	25.574***
Secure (OS)	-0.59_{cd}	1.06	-0.33_{bd}	0.87	0.56_{a}	0.82	0.08_{b}	0.94	16.752***
Fearful (SS)	0.88_{a}	0.90	0.42_{a}	1.13	-0.16_{b}	0.99	-0.48_{b}	0.58	31.064***
Fearful (OS)	1.06_{a}	0.78	0.42_{b}	0.99	0.10_{c}	0.96	-0.60_{d}	0.54	52.621***
Preoccupied(SS)	-0.76_{c}	0.28	0.37_{b}	1.01	1.05_{a}	0.85	-0.51_{c}	0.57	86.999***
Preoccupied (OS)	-0.73_{c}	0.32	0.69_{a}	1.08	0.88_{a}	0.81	-0.56_{c}	0.54	85.760***

Note. ***p = .000. SS = in relation to the same sex, OS = in relation to the opposite sex. Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe pairwise comparison.

attachment styles, including also the *Secure* (n = 77) and two additional clusters that were not predicted by the four-category model. The *Insecure Ambivalent* (n = 35) had moderate means in all three insecure attachment styles, whereas the *Low Ambivalent* (n = 28) had low means in the dismissing, secure, and fearful attachment styles. In the four-cluster solution, the Insecure Ambivalent participants belonged to the Dismissing, and the Low Ambivalent participants belonged to the Not Insecure.

At the ten-cluster level (Figure 3), the Fearful branch consisted of one cluster that could be interpreted as representing the fearful attachment style (n = 31) and another (n = 15) that was characterized by moderate means in the secure, fearful, and dismissing attachment styles. The Dismissing branch consisted of two clusters also present at the six-cluster level, the Dismissing (n = 15) and the Insecure Ambivalent (n = 35). The Preoccupied branch consisted of three clusters, one of which (n = 24) was characterized by moderate means in all except the dismissing attachment style, the second (n = 27) by elevated secure and preoccupied attachment styles, and the third was interpretable as representing the preoccupied attachment style (n = 15). Finally, the Not Insecure branch included the Low Ambivalent (n = 28) and Secure (n = 20) clusters, also present at the six-cluster level, and a third cluster (n = 57) characterized by low values in the insecure attachment styles and elevated values in the secure attachment style. Therefore, the ten-cluster level was only partially interpretable as representing the theoretically and empirically meaningful categories, presented in Table 8.

10.2 Individual level differences and double-standardized clustering variables

In order to discover whether the participants had individual level differences in their attachment style ratings, the central tendency and scale level of the

participants' attachment style ratings were examined. The central tendency of the participants' attachment style profile (four attachment styles, each in relation to the same and the opposite sex) was described with the range of the ratings, and the level of the profile was described with the median of the ratings. Table 11 shows a cross-tabulation of the profile range and profile median. The *profile range* varied from zero to three: Zero indicated a flat attachment style profile (identical values for all eight ratings), value 1 that the participant had used only two adjacent values (1-2, 2-3, or 3-4), value 2 the use of values 1 to 3 or values 2 to 4, and value 3 indicated an attachment style profile where values 1 to 4, that is, the entire scale range was used in the ratings. The profile median varied from 1.0 to 3.5 for eight ratings on a four-point scale (1 to 4). Value 1.0 of the profile median indicated a profile in the lower part of the scale and values 3.0 and 3.5 in the upper part of the four-point scale.

TABLE 11 Cross-tabulation of the participants' attachment style profile ranges and profile medians of eight ratings on a scale of 1 to 4.

	Profile Range				
Profile Median	0	1	2	3	Total
3.5	0	0	0	1	1
3.0	0	0	3	9	12
2.5 (- 2.75)	0	4	11	16	31
2.0 (- 2.25)	1	24[t]	55	27[at]	107
1.5 (- 1.75)	0	8	39	24	71
1.0	0	8	19	18	45
Total	1	44	127	95	267

Note. Superscripts: t = typical, at = antitypical, on the basis of the absolute values of adjusted residuals > 2.0.

The frequencies in Table 11 show that the participants' attachment style profiles were located at all levels of the four-point scale, although the middle of the scale, profile mean 2.0, was the most frequently used and the lower part of the scale more frequently than the upper part of the scale. Particularly, the profiles of such participants who used only two adjacent values (*Profile range* = 1) were typical in the middle (*Median* = 2.0) of the four-point scale. Those profiles where both the median and the range were high indicated a peak downwards, that is, several attachment styles that described the participant very well and others that did not describe him or her at all. Conversely, those profiles where the median was low but the range was high had a peak upwards, indicating that most of the four attachment styles did not describe the participant, whereas one attachment style described him or her very well.

The use of the four-point scale was compared between the groups formed on the basis of the highest score, or rating themselves with more than one attachment style as the highest (the Unclassified). In particular, the participants rating themselves with the highest secure attachment style and the participants using ambivalent tied-high ratings differed in the scale range used ($F(4, 262) = 12.076$, $p = .000$) and the median of the profile ($F(4,262) = 14.767$, $p = .000$). The Secure had a wider scale range (range: $M = 2.40$, $Sd = .60$) and a lower profile level

(median: $M = 1.58$, $Sd = .46$) than the Unclassified (range: $M = 1.88$, $Sd = .73$; median: $M = 2.05$, $Sd = .51$). These results suggest that, when grouping participants by means of clustering analysis, individual differences in rating style and scale level use should be taken into account in order to assign the participants the most descriptive attachment style cluster.

In order to eliminate the individual level differences in the participants' attachment ratings, they were first standardized *within participants*. The standardization was made according to the standardization formula (e.g., Kline, 2000, 60) where the standard score (z-score) is calculated by dividing the deviation of each score from the mean by the standard deviation of the scores but counting the mean and the standard deviation for all (attachment style) variables within a person instead of all participants within a variable. The standardization within participants was made separately in relation to the same and the opposite sex; thus, four attachment variables constituted each set of standardized variables. Second, the variables standardized within participants were standardized again, now *within variables* (hereafter: double-standardized) for all participants in order to produce z-scores for the variables standardized within participants.

Appendix 2 provides some examples of value transformations. Data are presented on four scales: (1) raw data, (2) raw data standardized within variables (z-scores), (3) raw data standardized within participants, and (4) raw data standardized first within participants, and then within variables (double-standardized). As Appendix 2 shows, the form of the profile was changed according to the skewness of the variables forming the profile, when the raw scores were standardized within variables to produce z-scores. The secure attachment style was negatively skewed (*Skew* = -.30); therefore, the transformed values were shifted downwards. In contrast, the dismissing (*Skew* = 1.22), preoccupied (*Skew* = 1.12), and fearful (*Skew* = .84) attachment styles were positively skewed and, thus, their values were shifted upwards (the values are in attachment styles in relation to the same sex). In some cases, standardization only within variables changed the attachment style with the highest score in relation to the raw data (e.g., cases 1, 10, 11, 12) or emphasized one of several equally high scores (e.g., cases 4, 5, 7, 8, 9). In contrast, standardization within participants left the profile form unchanged and only transformed the values so that they were between -1.50 and 1.50. When the values standardized within participants were further standardized (double-standardized) within variables, the changes were comparable to those with the standard z-scores but weaker.

10.3 Hierarchical cluster analysis with double-standardized variables

A hierarchical clustering analysis (Ward method, Euclidean distances) was conducted with the double-standardized secure, dismissing, preoccupied, and fearful attachment styles in relation to the same and the opposite sex, that is, with eight clustering variables. The cluster formation hierarchy from ten to two clusters is presented in Figure 4, and the means of the clustering variables (double-standardized scores), compared by means of ANOVA and Scheffe pairwise test, are presented in Table 12.

The cluster formation tree (Figure 4) revealed two main branches along which the clusters combined. The division into these branches was guided by attachment security. The participants in the larger cluster (n = 196) were characterized by the secure attachment style, whereas in the smaller cluster (n = 70) they were characterized by the fearful attachment style. The participants in the smaller cluster were also less preoccupied than the participants in the larger cluster.

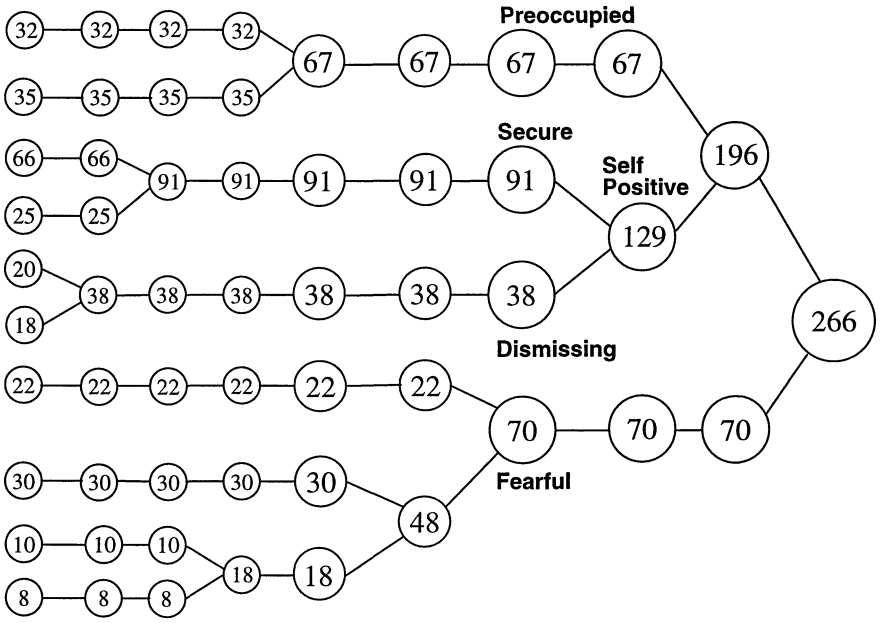


FIGURE 4 Attachment style cluster tree for hierarchical cluster analysis (double-standardized variables).

The larger branch (n = 196) consisted at the four-cluster level of three clusters that, together with the smaller cluster at the two-cluster level, could be interpreted as representing Bartholomew's (1990) four attachment styles (Table 12). The largest cluster at the four-cluster level was high in the secure attachment style, therefore, it was interpreted as representing the *Secure* (n = 91). The smallest cluster of the three was high in the dismissing attachment style and could, therefore, be interpreted as the *Dismissing* (n = 38). The Secure and the Dismissing combined at the three-cluster level to form the *Self Positive* (n = 129). The third cluster in the Secure branch was high in the preoccupied attachment style and could be interpreted as representing the *Preoccupied* (n = 67). The other main branch (n = 70) was higher than the other clusters in the fearful attachment style, also at the four cluster level, and could, therefore, be labeled as the *Fearful* (n = 70).

At the ten-cluster level, each of the four main cluster branches consisted of smaller clusters that differed from their complement group by a combination of attachment variables, including the attachment style characterizing the whole branch. The Preoccupied branch consisted of two smaller clusters, one of which was, in addition to the preoccupied attachment style, also higher than its

TABLE 12 Means and standard deviations of the attachment style ratings (double-standardized scores) in the hierarchical attachment style clusters for double-standardized variables in the four-cluster solution, compared by means of an ANOVA, pairwise comparisons with a Scheffe test.

	Attachment style clusters for double-standardized variables								
	Preoccupied (67)		Secure (91)		Dismissing (38)		Fearful (70)		
Attachment style	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,262)
Dismissing (SS)	-0.56_{c}	0.62	-0.16_{b}	0.59	1.21_{a}	0.99	0.05_{b}	1.17	36.789***
Dismissing (OS)	-0.55_{c}	0.44	-0.23_{bc}	0.55	1.50_{a}	0.94	-0.01_{b}	1.08	62.938***
Secure (SS)	0.19_{b}	0.82	0.60_{a}	0.41	-0.01_{b}	0.95	-0.99_{c}	0.99	56.410***
Secure (OS)	0.10_{b}	0.78	0.71_{a}	0.46	0.03_{b}	0.81	-0.95_{c}	0.92	67.405***
Fearful (SS)	-0.53_{c}	0.82	-0.07_{b}	0.48	-1.00_{d}	0.49	1.15_{a}	0.78	112.542***
Fearful (OS)	-0.72_{c}	0.53	-0.11_{b}	0.66	-0.68_{c}	0.50	1.23_{a}	0.75	130.455***
Preoccupied(SS)	1.22_{a}	0.78	-0.34_{b}	0.51	-0.46_{b}	0.59	-0.50_{b}	0.87	92.168***
Preoccupied (OS)	1.06_{a}	0.85	-0.42_{b}	0.51	-0.37_{b}	0.68	-0.27_{b}	1.05	53.955***

Note. ***p = .000. SS = in relation to the same sex, OS = in relation to the opposite sex. Within each row, the means with different subscripts differed significantly at $p < .05$ according to a Scheffe pairwise comparison.

complement in the secure attachment style and, thus, was interpreted as representing other-positive attachment (n = 35). The other cluster in the Preoccupied branch was only high in the preoccupied attachment style (n = 32). The Secure branch consisted of one cluster that was only high in the secure attachment style (n = 66) and another smaller cluster that was particularly low in the preoccupied attachment style and somewhat higher in the other three attachment styles (n = 25). The Dismissing branch also consisted of two smaller clusters, of which one was high only in the dismissing attachment style (n = 18) and another was high also in the secure attachment style (n = 20) and, thus, was interpreted to represent self-positive attachment.

The Fearful branch, present at levels four to two, consisted of three smaller clusters at the ten-cluster level. The largest of them had a higher mean than its complement in the fearful attachment style (n = 30). Another one was high in both the fearful and the dismissing attachment styles (n = 22) and was, accordingly, interpreted to represent other-negative attachment. The remaining two smaller clusters (n = 10 or n = 8) in the ten-level solution represented very insecure participants. The clusters were both particularly low in the secure attachment style; moreover, they were characterized by a combination of high means in different insecure attachment styles, in relation to either the same or the opposite sex.

In summary, the hierarchical cluster analysis for double-standardized scores produced a four-cluster solution that was interpretable as representing Bartholomew's (1990) secure, preoccupied, dismissing, and fearful attachment styles. Moreover, the ten-cluster solution was interpretable as consisting of seven theoretically and empirically meaningful attachment style clusters out of ten possible single highest, double-high, or ambivalent combinations of attachment styles, presented in Table 8. Furthermore, two of the remaining three clusters were characterized by both insecure and ambivalent features, thus resembling the ambivalent in the extended tied-high classification.

10.4 Iteration for the hierarchical four-cluster solution with double-standardized variables

An iterative K-Means cluster analysis was run for the hierarchical (double-standardized scores) four-cluster solution in order to reach the best possible cluster membership for all participants. The means of the hierarchical clusters (double-standardized scores) were used as initial cluster centers in the K-Means clustering analysis. The cluster centers were updated after all cases were assigned to a cluster. The clusters were compared by means of a one-way analysis of variance, and the pairwise comparisons were made with a Scheffe test. The results (Table 13) supported the interpretation that the clusters in the iterated four-cluster solution represented the dismissing, fearful, secure and preoccupied attachment styles presented in Bartholomew's (1990) four-category model of adult attachment.

In the iterated ten-cluster solution, only 20 participants moved to another cluster, compared to the non-iterated hierarchical ten-cluster solution for double-standardized variables. As the participants who changed clusters seemed to be randomly distributed, the clusters were interpreted as unchanged from the non-iterated ten-cluster solution. Naturally, the need for iteration depends on the number of clusters in the solution: the less clusters, the more there are participants who might better fit another cluster.

TABLE 13 Means and standard deviations of the attachment style ratings (double-standardized variables) in the iterated four-cluster solution, compared by means of an ANOVA, pairwise comparisons with a Scheffe test.

	Iterated attachment style clusters (double-standardized variables)								
	Preoccupied (67)		Secure (104)		Dismissing (39)		Fearful (56)		
Attachment style	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,262)
Dismissing (SS)	-0.58_c	0.67	-0.19_b	0.59	1.51_a	0.87	-0.07_b	1.01	67.015***
Dismissing (OS)	-0.58_c	0.54	-0.18_b	0.59	1.65_a	0.90	-0.14_b	0.92	88.371***
Secure (SS)	0.05_b	0.84	0.66_a	0.39	-0.35_b	0.99	-1.06_c	0.97	65.748***
Secure (OS)	0.13_b	0.77	0.64_a	0.52	-0.27_b	0.89	-1.06_c	0.91	67.287***
Fearful (SS)	-0.56_c	0.81	-0.16_b	0.58	-0.55_c	0.78	1.35_a	0.70	93.327***
Fearful (OS)	-0.66_c	0.63	-0.13_b	0.68	-0.43_b	0.70	1.37_a	0.73	102.399***
Preoccupied(SS)	1.23_a	0.78	-0.26_b	0.53	-0.78_c	0.62	-0.46_{bc}	0.82	103.734***
Preoccupied (OS)	1.18_a	0.76	-0.37_b	0.49	-0.65_b	0.76	-0.27_b	0.99	81.324***

Note. ***p = .000. SS = in relation to the same sex, OS = in relation to the opposite sex. Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe pairwise comparison.

10.5 Comparison of the attachment style classes and clusters

10.5.1 Comparison of the attachment style clusters

The participants were assigned to attachment style clusters, first, using a hierarchical cluster analysis with standard z-scores, second, using a hierarchical

cluster analysis with double-standardized variables, and, third, iterating with a K-Means cluster analysis the hierarchical cluster solution with double-standardized variables. The rationale behind these steps was, first, to take into account individual differences in how the participants assessed their attachment styles and, second, to move each participant to the cluster that best described his or her actual ratings. The distributions of the attachment styles in the four-cluster solutions are presented in Table 14.

The distribution of the attachment styles was quite identical in each four-cluster solution (Table 14). The secure attachment style was the most common, reaching 40%, and the proportions of the preoccupied, fearful, and dismissing attachment styles varied from about 14% to about 26%. The Preoccupied attachment style comprised about 25% of the participants in each four-cluster solution. The percentages of the Fearful and the Dismissing attachment styles were about equal, 18%, in the hierarchical cluster analysis with standard z-scores, whereas in the analyses using double-standardized scores the proportion of the Fearful participants was higher, over 20%, and the proportion of the Dismissing participants was lower, below 15%. Iteration of the hierarchical four-cluster solution (double-standardized scores) changed the proportions of the attachment styles only to a degree. The percentages of the Preoccupied and the Dismissing attachment styles were about the same, whereas the percentage of the Secure was slightly higher and the percentage of the Fearful slightly lower, in the iterated solution.

TABLE 14 Frequencies and percentages of the attachment style clusters in the different four-cluster solutions.

	Cluster formation method					
	Standard z-scores Hierarchical		Double-standardized Hierarchical		Double-standardized Hierarch. + iterative	
Attachment Style Cluster	f	%	f	%	f	%
Secure/ Not Insecure	105	39.3	91	34.2	104	39.1
Fearful	46	17.2	70	26.3	56	21.1
Dismissing	50	18.7	38	14.3	39	14.7
Preoccupied	66	24.7	67	25.2	67	25.2
Total	267		266		266	

Although the distributions of the attachment styles formed with different methods were quite identical, only 144 participants (54% of 266 participants) had the same attachment style in all four-cluster solutions. The overlap of the hierarchically clustered participants in the cluster solutions made either with standard z-scores or double-standardized scores was about 58% (157 participants), whereas the overlap between the hierarchical and iterated cluster solutions for the double-standardized scores was 86% (229 participants). Therefore, the use of double-standardized clustering variables changed cluster memberships for 109 participants, compared to the solution where standard z-scores were used. In contrast, the iteration of the hierarchical cluster solution with double-standardized scores only reclassified 37 participants.

A cross-tabulation in Table 15 shows how the use of double-standardized scores as clustering variables changed their cluster membership in the hierarchical

cluster analysis, compared to cluster analysis with standard z-scores. Table 15 demonstrates that of the Secure and Low Ambivalent participants (105) who would have been classified as Secure, using standard z-scores (Fig. 3), only 67 became Secure when using double-standardized scores. The rest were mostly classified into either the Dismissing (13+6) or the Preoccupied (5+12). In these cases, the participants' ratings usually included double-high scores where the secure attachment style was the highest in combination with either the dismissing or the preoccupied attachment style (see Appendix 3, cases 1-3). The hierarchical cluster analysis with double-standardized scores seemed to classify the participants' according to the more discriminating counterpart of the double-high scores.

TABLE 15 Cross-tabulation of the hierarchical attachment style clusters made using standard z-scores versus clusters made using double-standardized scores.

Clusters with standard z-scores	Non-iterated clusters with double-standardized variables				
	Secure	Fearful	Dismissing	Preoccupied	Total
Secure	**59**^{t}	0^{at}	13	5	77
Low Ambivalent	8	2^{at}	6	**12**^{t}	28
Fearful	12	**31**^{t}	3	0^{at}	46
Dismissing	0^{at}	5	**10**^{t}	0^{at}	15
Insecure Ambivalent	4^{at}	**17**^{t}	6	7	34
Preoccupied	8^{at}	15	0^{at}	**43**^{t}	66
Total	91	70	38	67	266

Note. Superscript t means typical, at antitypical, on the basis of absolute value of adjusted residuals > 2.0.

In Table 15 above, the hierarchical six-cluster solution (with standard z-scores) is cross-tabulated with the non-iterated hierarchical four-cluster solution (with double-standardized scores). The frequencies and their typicality (adjusted residuals > 2.0) show that the participants were typically assigned to the same attachment style cluster in the Secure, Fearful, Dismissing, and Preoccupied attachment styles. The Low Ambivalent participants, who would have been classified as Not Insecure in the four-cluster solution using standard z-scores (see Fig. 3), were typically assigned to the Preoccupied when using double-standardized variables. This seems reasonable, as the Low Ambivalent were characterized in the six-cluster solution by low means in the secure, fearful, and dismissing attachment styles but only slightly below average values in the preoccupied attachment style.

Also the participants in the Insecure Ambivalent cluster were assigned to a different attachment style when using double-standardized scores, instead of standard z-scores, as clustering variables. In the hierarchical four-cluster solution with standard z-scores (see Fig. 3), the Insecure Ambivalent associated with the Dismissing at the four-cluster level. In contrast, they typically merged with the Fearful when using the double-standardized scores; some also belonged to the Dismissing or the Preoccupied. These cluster memberships seemed adequate since the Insecure Ambivalent were characterized by significantly higher means in the dismissing, fearful, and preoccupied attachment styles.

An inspection of the participants' raw scores, in comparison with the cluster memberships, revealed that the hierarchical cluster analysis with standard scores seemed to classify the participants less adequately than the hierarchical cluster analysis with double-standardized scores. Appendix 3 provides examples (cases 4-10) of the participants who were not adequately classified when using the standard z-scores but who were classified more adequately when using double-standardized scores as clustering variables. The examples show that, in particular, the participants who used low range ratings or several equally high second-highest ratings (the secure being the highest) were classified inadequately when the standard scores were used. Therefore, the hierarchical cluster analysis with double-standardized scores seemed to take into account also other attachment styles than the highest and also kept the second-highest scores as discriminating in those variables in which high values were not typical.

When the hierarchical four-cluster solution with double-standardized variables was iterated, the cluster membership of a total of 37 participants was changed, as demonstrated in Table 16. As the frequencies and their typicality or atypicality (absolute value of adjusted residuals > 2.0) show, it was typical of the participants to be assigned to the same attachment style cluster both before and after the iteration of the hierarchical four-cluster solution with double-standardized scores. The changes were mostly directed to the non-iterated Fearful cluster and the iterated Secure cluster. The non-iterated Fearful (70 participants) lost 16 participants, as 8 were reclassified as Dismissing, 5 as Secure, and 3 as Preoccupied. In these cases, the iteration moved the participants to another equally high attachment style, to another second-highest attachment style, or for some participants to the highest secure attachment style (see Appendix 3, cases 11-13, for examples). On the other hand, the iterated Secure attachment style (104 participants) received 8 Preoccupied, 5 Dismissing, and 5 Fearful from the non-iterated clusters. In all these cases (see Appendix 3, cases 13-16, for examples), the participants had rated the secure attachment style as the highest but also had one or more second-highest ratings that had directed the classification in the non-iterated hierarchical cluster analysis with double-standardized scores. In conclusion, the reclassifications made with the iteration of the hierarchical cluster solution with double-standardized scores were for the most part reasonable and in accordance with the participants' raw scores.

TABLE 16 Cross-tabulation of the hierarchical (non-iterated) and iterated attachment style four-cluster solutions for double-standardized variables.

Non-iterated attachment style clusters	Iterated attachment style clusters				
	Secure	Fearful	Dismissing	Preoccupied	Total
Secure	**86**^{t}	1^{at}	0^{at}	4^{at}	91
Fearful	5^{at}	**54**^{t}	8	3^{at}	70
Dismissing	5^{at}	0^{at}	**31**^{t}	2^{at}	38
Preoccupied	8^{at}	1^{at}	0^{at}	**58**^{t}	67
Total	104	56	39	67	266

Note. Superscript t means typical, at antitypical, on the basis of absolute values of adjusted residuals > 2.0.

10.5.2 Iterated cluster solution compared with the extended tied-high classification

Table 17 presents the cross-tabulation of the extended tied-high attachment style classification (Table 8) and the iterated four-cluster solution for double-standardized scores. The tied-high classes are presented in relation to the same and the opposite sex, for all participants collectively. The frequencies in Table 17 indicate four distinct principles that govern the relation between the tied-high class membership and attachment cluster membership. First, the participants assessing their attachment with a single highest attachment style were typically assigned to the corresponding iterated attachment style cluster, as the typicality of the secure, fearful, dismissing and preoccupied attachment styles in both categorizations indicates. Second, the participants describing their attachment style with the secure attachment style in combination with the other self-positive (dismissing) or other-positive (preoccupied) attachment style were typically assigned to the corresponding attachment style cluster. In other words, the Self-Positives were categorized as Dismissing and the Other-Positives as Preoccupied in the cluster analysis. Third, the participants who described their attachment style with the fearful attachment style in combination with any other attachment style (Self Negative, Other Negative, or Polar Opposites classifications) were typically assigned to the Fearful. Fourth, the participants assessing their attachment styles with three or four attachment styles as equally descriptive (the Ambivalent class) were *not* assigned to the Secure in the iterated four-cluster solution.

TABLE 17 Cross-tabulation of the attachment tied-high classes in relation to the same and the opposite sex and the iterated attachment style clusters for double-standardized scores.

Attachment tied-high classification	Iterated attachment style clusters with double-standardized scores									
	Secure		Fearful		Dismissing		Preoccupied		Total	
	SS	*OS*	*SS*	*OS*	*SS*	*OS*	*SS*	*OS*	*SS*	*OS*
Secure	**101**^{t}	**87**^{t}	5^{at}	2^{at}	13^{at}	14^{at}	37	34	156	137
Fearful	0^{at}	0^{at}	**24**^{t}	**30**^{t}	0^{at}	0^{at}	0^{at}	2^{at}	24	32
Dismissing	0^{at}	0	1	0	**11**^{t}	**6**^{t}	0^{at}	0	12	6
Preoccupied	0	0	1	1	0	0	**3**^{t}	**4**^{t}	4	5
Self Positive	2	1	0	0	**9**^{t}	**8**^{t}	0	0	11	9
Self Negative	0	0	1	**4**^{t}	0	0	2	0	3	4
Other Positive	0^{at}	1^{at}	0^{at}	0^{at}	0	1	**15**^{t}	**22**^{t}	15	24
Other Negative	0^{at}	0	**6**^{t}	2	0	1	1	0	7	3
Polar Opposites	1^{at}	13	**14**^{t}	**15**^{t}	1^{at}	0^{at}	0^{at}	0	15	28
Ambivalent	0^{at}	1^{at}	4	2	5	**9**^{t}	**9**^{t}	5	18	17
Total	104	103	56	56	39	39	67	67	266	265

Note. Superscript t means typical, at antitypical, on the basis of absolute value of adjusted residuals > 2.0. SS = attachment tied-high class in relation to the same sex, OS = attachment tied-high class in relation to the opposite sex.

10.6 Summary of the results concerning outcomes of assigning participants to attachment style classes and clusters

The first research question in this study was directed at examining the outcomes of forming attachment style classes and clusters by using various analysis methods.

My aim was to consider this task from a point of view of both classifying and grouping participants, using cluster analysis techniques. I assumed that classifying participants by using the highest scores would leave a group of the participants unclassified. Furthermore, I assumed that the participants could be assigned to attachment style classes by using an extended classification system based on theoretically meaningful combinations of the four attachment styles. As for the cluster analysis, I assumed that using double-standardized clustering values would decrease the effect of individual level differences in the attachment style ratings and that an iteration of the chosen attachment style cluster solution would assign the participants to such attachment style clusters that would correspond to their attachment ratings and their combinations, reflected in the extended attachment style classification.

Classification of the participants according to the highest score left about one third of all participants unclassified because of their tied-high ratings. However, an extended attachment style classification allowed the classification of all participants. The extended tied-high classification included ten classes, four of which were based on the highest scores (Secure, Dismissing, Fearful, Preoccupied), another four classes were based on double tied-high combinations of attachment styles, depicting the positivity and negativity of the self and other dimensions of attachment (Self Positive, Self Negative, Other Positive, Other Negative). Two additional classes reflected opposing attachment style pairs (Polar Opposites) and three or four equally high attachment style ratings (Ambivalent). The results also revealed that a tendency to use two or more attachment styles in rating one's attachment styles was related to problems in psychosocial functioning and to a more vulnerable and less adaptive personality.

The participants had in their attachment ratings individual level differences that were taken into account by standardizing the participants' ratings first within participants and then within variables. An agglomerative hierarchical cluster analysis with these double- standardized clustering variables produced a four-cluster solution that was interpreted as representing Bartholomew's (1990) four attachment styles. In contrast, a comparable cluster analysis with standard z-scores did not differentiate the assumed four attachment styles in the four-cluster solution but, instead, did so in the six-cluster solution, complemented with two clusters that included those participants describing their attachment styles with either low or high scores in three or four attachment styles.

A comparison of the four-cluster solutions with the actual ratings of the participants also revealed that the attachment style profiles of the participants were distorted when standardizing the scores only within variables, resulting in an appreciable number of misclassifications in the cluster analysis. The distortion was due to the skewness of the clustering variables. When the clustering variables were standardized first within participants and then within variables, the number of misclassifications was minor. Iteration of the four-cluster solution with double-standardized scores only moved a minority of the participants to another attachment style cluster; however, the changes in the cluster memberships were reasonable when compared to the actual ratings of the participants.

The final iterated four-cluster solution was comparable with the extended tied-high attachment style classification according to the following main lines: The Secure attachment style cluster consisted mostly of the participants assessing

their attachment styles with the highest secure attachment style (Secure class). The Dismissing attachment style consisted of the participants assessing their attachment style with either the highest dismissing attachment style (Dismissing class) or with double tied-high attachment styles including the secure and dismissing attachment styles (Self Positive class). Similarly, the Preoccupied attachment style class consisted of the participants who assessed their attachment style with either the highest preoccupied attachment style (Preoccupied class) or with double tied-high attachment styles including the secure and preoccupied attachment styles (Other Positive class). Finally, the Fearful attachment style consisted of those who assessed the fearful attachment style as the highest, singly or in any combination with the other attachment styles (Fearful, Self Negative, Other Negative, Polar Opposites, and Ambivalent classes).

On the basis of these results, the grouping method where cluster variables are first standardized within participants and then within variables, followed by hierarchical cluster analysis for finding the best solution and an iteration with K-Means cluster analysis for checking the final cluster memberships, was chosen as producing such attachment style groups that corresponded to the participants' actual ratings. Furthermore, because particularly the four-cluster solution both corresponded well to the participants' actual ratings and was interpretable as representing Bartholomew's four attachment styles, the four attachment style clusters were, therefore, chosen as the basis of further examination. In Figure 5, the iterated attachment style clusters for double-standardized clustering variables

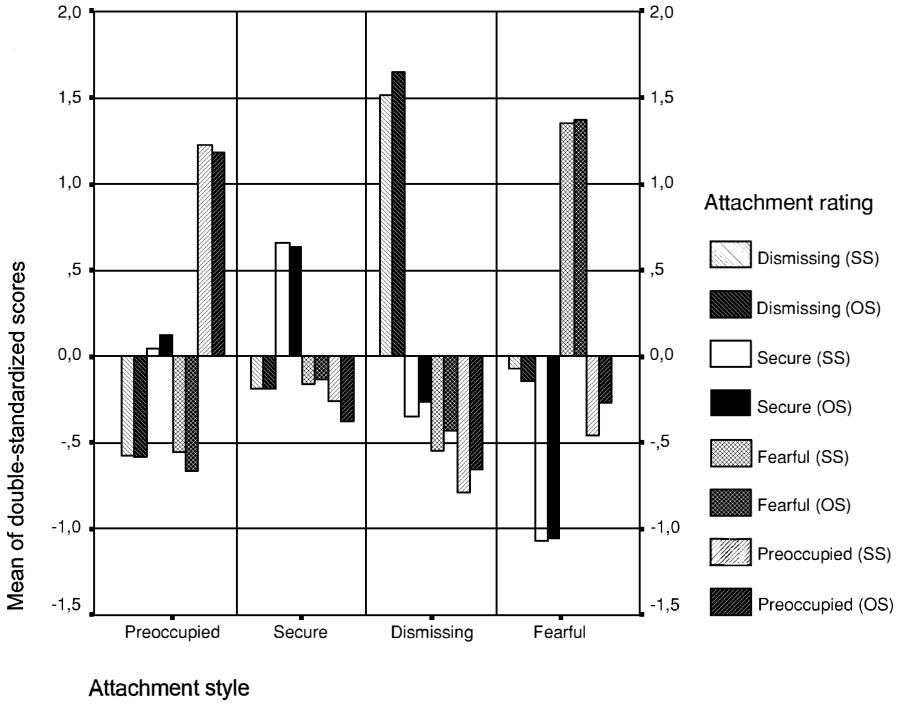


FIGURE 5 A bar chart showing the means of the attachment style ratings for each attachment style and in relation to both sexes. The bars represent the figures in Table 13.

are illustrated with a bar chart, showing the means of the attachment style ratings for each attachment style and in relation to both sexes.

In the iterated four-cluster solution for double-standardized clustering variables, the secure attachment style was the most common (104 participants, 39.1%) and the dismissing attachment style was the least common (39 participants, 14.7%). The proportions of the fearful (56 participants, 21.1%) and the preoccupied (67 participants, 25.2%) were quite equal.

11 GENDER DIFFERENCES IN ADULT ATTACHMENT

11.1 Women's and men's attachment style ratings

Table 18 presents the distributions of women's and men's attachment style ratings in relation to the same and the opposite sex. Most of the participants rated the dismissing, preoccupied and fearful attachment style prototypes as describing them only a little or not at all, whereas they reported that the secure attachment style prototype described them well or very well. A comparison of women's and men's ratings (Table 18) revealed that the men were more dismissing than the women, in relation to both their same sex and their opposite sex. On the basis of adjusted residuals (absolute values > 2.0), it was typical for men to rate the dismissing attachment style as describing them well but only in relation to their same sex, whereas for women it was typical to rate dismissing attachment style as describing them not at all in relation to either sex.

TABLE 18 The distributions of women's and men's attachment style ratings in relation to the same and the opposite sex.

	Ratings on a four-point scale								
	Women (%)				Men (%)				
Attachment style	1	2	3	4	1	2	3	4	χ^2
Dismissing (SS)	63	31	4	2	41	41	12	6	15.91**
Dismissing (OS)	72	24	3	1	58	33	7	2	7.87*
Secure (SS)	2	23	49	26	7	26	46	21	3.23
Secure (OS)	2	30	46	22	4	32	39	25	1.94
Fearful (SS)	49	34	12	5	34	44	15	7	4.04
Fearful (OS)	46	27	19	8	38	39	19	4	5.17
Preoccupied (SS)	51	36	11	2	54	37	6	3	3.67
Preoccupied (OS)	54	34	9	3	51	36	9	4	1.57

Note. *$p < .05$, **$p < .01$. 1 = Does not describe my view at all, 2 = Describes my view a little, 3 = Describes my view well, 4 = Describes my view very well. SS = in relation to the same sex, OS = in relation to the opposite sex.

The women's and the men's means of the attachment style ratings were equivalent in the secure, preoccupied, and fearful attachment styles but differed in the dismissing attachment style, the men having a higher mean in relation to their same and opposite sex (Table 19). In addition, the mean in the dismissing attachment style was higher in relation to the same sex than in relation to the opposite sex for both women and men. As for the fearful attachment style in women, the mean in relation to their opposite sex was higher than in relation to their same sex. An independent samples t-test was utilized to compare the means along rows; along columns, ratings in relation to the same and the opposite sex were compared separately for women and men by means of a paired samples t-test.

TABLE 19 Women's and men's means and standard deviations of attachment style ratings in relation to the same and the opposite sex.

		Women		Men		
Prototype	In Relation To	*M*	*SD*	*M*	*SD*	*t*(269)
Dismissing	Same Sex	1.45	0.68	1.82	0.86	-3.90***
	Opposite Sex	1.32	0.57	1.53	0.73	-2.61**
		t(129) = 3.05**		*t*(138) = 5.21***		
Secure	Same Sex	2.97	0.76	2.83	0.83	1.58
	Opposite Sex	2.88	0.78	2.86	0.84	0.28
		t(128) = 1.82		*t*(138) = -0.48		
Fearful	Same Sex	1.75	0.88	1.95	0.89	-1.90
	Opposite Sex	1.89	0.98	1.90	0.86	-0.06
		t(128) = -2.60*		*t*(137) = 0.90		
Preoccupied	Same Sex	1.62	0.74	1.58	0.74	0.41
	Opposite Sex	1.62	0.78	1.66	0.80	-0.46
		t(129) = 0.20		*t*(137) = -1.78		

Note. *$p < .05$, **$p < .01$, ***$p < .001$. The comparison was performed by means of independent samples t-test (rows) and paired samples t-test (columns).

11.2 Women's and men's attachment style clusters

Women's and men's attachment style clusters in the four-cluster solution, formed separately for women and men (eight double-standardized variables, hierarchical + iterative cluster analysis), were identifiable as representing Bartholomew's four attachment style clusters and, thus, were labeled as the Secure, Preoccupied, Dismissing, and Fearful gender-specific attachment styles. The frequency distributions of the attachment styles for women and men, presented in Table 20, were different ($\chi^2(3) = 11.70$, $p = .008$). For women, it was more typical to be Preoccupied and, for men, it was more typical to be Dismissing, on the basis of adjusted residuals.

Overall, the Secure attachment style was the most common attachment style, comprising about 40% both in the women and the men. The Fearful attachment style was the second most common, about 24%. In women, the Preoccupied

attachment style was the third most common, whereas in men the third most common attachment style was the Dismissing. They both comprised about 24% of the participants, whereas the percentage of the Dismissing women and Preoccupied men was about 10%.

TABLE 20 Women's and men's attachment style clusters.

Attachment Style Clusters	Women		Men	
	f	%	f	%
Secure	54	41.9	56	40.9
Preoccupied	30	23.3	15	10.9
Dismissing	15	11.6	33	24.1
Fearful	30	23.3	33	24.1
Total	129		137	

11.3 Attachment style clusters in relation to attachment targets of the same and the opposite sex

Attachment style clusters, formed collectively for all participants and separately in relation to the same and the opposite sex (four double-standardized variables, hierarchical + iterative cluster analysis), were partially different from Bartholomew's (1990) attachment styles. The means and standard deviations of the clustering variables are presented in Table 21. Two of the clusters were identifiable as representing the Secure and Preoccupied attachment styles. A third

TABLE 21 Means and standard deviations of the clustering variables (double-standardized variables) in the iterated attachment style clusters, formed for all participants collectively but separately in relation to the same and the opposite sex.

Clustering[1] variables	Iterated adult attachment style clusters: Secure		Preoccupied		Other negative		Other positive (SS)/ Fearful (OS)		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
				In relation to the same sex					
n	129		14		50		76		(3,265)
Dismissing (SS)	0.22_b	0.77	-0.03_b	0.78	0.79_a	1.16	-0.88_c	0.56	48.794***
Secure (SS)	0.62_a	0.32	-2.09_d	0.72	-1.32_c	0.78	0.23_b	0.47	268.830***
Fearful (SS)	-0.38_c	0.62	0.45_b	1.06	1.33_a	0.80	-0.32_c	0.85	69.288***
Preoccupied (SS)	-0.44_c	0.48	1.79_a	0.86	-0.89_d	0.51	1.00_b	0.62	202.667***
				In relation to the opposite sex					
n	86		81		42		58		(3,263)
Dismissing (OS)	0.53_b	0.83	-0.68_c	0.49	1.05_a	1.02	-0.62_c	0.46	86.520***
Secure (OS)	0.74_a	0.36	0.20_b	0.65	-1.71_d	0.75	-0.13_c	0.65	165.821***
Fearful (OS)	-0.64_b	0.38	-0.65_b	0.58	1.06_a	0.83	1.09_a	0.47	203.981***
Preoccupied (OS)	-0.48_b	0.38	1.15_a	0.67	-0.51_b	1.08	-0.53_b	0.52	121.113***

Note. ***p = .000. [1]Self-reported adult attachment styles in relation to same (SS) or opposite (OS) sex. The values have been calculated from double-standardized scores (first within participants, then within variables). Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe test.

cluster could be labeled as Other Negative on the basis that it differed from the other clusters in both the dismissing and the fearful attachment styles and in relation to both the same and the opposite sex. The fourth cluster was characterized by somewhat elevated means in the secure and preoccupied attachment styles in relation to the same sex and was, accordingly, labeled as the Other Positive (SS). In relation to the opposite sex, the fourth cluster was identifiable as the Fearful (OS).

The frequency distributions of the participants' attachment styles in relation to the same and the opposite sex are presented in Table 22. In relation to the same sex, nearly half of the participants chose the secure attachment style, whereas in relation to the opposite sex, only about 30% of the participants considered themselves securely attached. It is also noteworthy that while three attachment style classes were identical in relation to the same and the opposite sex, the fourth class, in relation to the same sex (the Other Positive), represented a positive attitude toward others, whereas, in relation to the opposite sex (the Fearful), it reflected a negative attitude toward both self and others. Summed together, the attachment classes reflecting positive attitude toward others (the Preoccupied and the Other Positive) comprised about 30% of the participants in relation to both the same sex and the opposite sex. However, the percentage of participants having preoccupied attachment style in relation to the same sex was minor compared to the preoccupied participants in relation to the opposite sex. The Other Negative alone (in relation to the same sex) or together with the Fearful (in relation to the opposite sex) comprised the remainder of the participants, about 20% in relation to the same sex and nearly 40% in relation to the opposite sex. In other words, the participants tended to assess attachment targets of their same sex with more secure and positive terms than attachment targets of the opposite sex.

TABLE 22 Frequency distributions of attachment style clusters in relation to the same and the opposite sex for all participants collectively.

Attachment style clusters	In relation to the same sex		In relation to the opposite sex	
	f	%	*f*	%
Secure	129	48.0	86	32.2
Preoccupied	14	5.2	81	30.3
Other Negative	50	18.6	42	15.7
Other Positive (SS)	76	28.3	-	-
Fearful (OS)	-	-	58	21.7
Total	269		267	

The attachment styles in relation to the same and the opposite sex (Table 22) were associated ($\chi^2(9) = 208{,}167$, $p = .000$). On the basis of cross-tabulation of the attachment styles in relation to the same and the opposite sex, it was typical for the participants to have the Other Negative (27 participants) or Secure attachment style (78 participants) in relation to both sexes (adjusted residuals > 2.0). In addition, it was typical to have the Other Positive attachment style in relation to one's same sex but the Preoccupied attachment style in relation to the opposite sex (54 participants) or, alternatively, the Preoccupied attachment style in relation to one's

same sex, but the Other Negative attachment style in relation to the opposite sex (7 participants). In contrast, it was atypical (adjusted residuals < 2.0) to have the Secure or Other Positive attachment style in relation to the same sex and the Other Negative attachment style in relation to the opposite sex or, vice versa, to have the Other Negative attachment style in relation to the same sex and the Secure or Preoccupied attachment style in relation to the opposite sex. In addition, of the 58 participants who were Fearful in relation to their opposite sex, 28 were Secure, 15 Other Positive, and only 15 Fearful in relation to their same sex.

11.4 Women's and men's attachment style clusters in relation to female and male attachment targets

In the third set of gender-specific attachment style clusters, the differences concerning both the sex of the rater of the attachment and the sex of the attachment target were taken into account. Four attachment style four-cluster solutions were extracted separately for women and men and also separately in relation to female and male attachment targets, adopting the principles described earlier (four double-standardized variables, hierarchical + iterative cluster analysis). The means and standard deviations of the clustering variables (double- standardized scores) in the attachment style clusters are presented in Table 23.

In relation to female targets, the four-cluster solutions clearly represented the secure, dismissing, fearful, and preoccupied attachment styles. In relation to male targets, the five-cluster solutions were better on the basis of the agglomeration schedule, but the four-cluster solutions could be better interpreted on the basis of the cluster means and also represented Bartholomew's (1990) four attachment styles. Therefore, the four-cluster solutions were chosen for examination in relation to both female and male attachment targets and for both women and men.

Women's and men's attachment style clusters were identical for the mean level of the clustering variables. The contents of women's and men's corresponding attachment style clusters were compared for the clustering variables by means of an independent samples t-test in order to find out whether identical attachment style clusters were formed in the separate cluster analyses. No differences were found in those variables that best characterized each cluster, and only a few differences were found in the other clustering variables. Men were, for example, more dismissing than women in the preoccupied attachment style in relation to their same sex ($t(36) = -3.29$, $p = 002$) and to their opposite sex ($t(23,451) = -2.92$, $p = .008$).

The proportions of women's and men's attachment style clusters in relation to female and male attachment targets are presented in Table 24. In relation to female attachment targets, the secure attachment style was typical of both women and men ($\chi^2(3) = 5.01$, $p = .017$). The proportion of the securely attached men was about 51%, whereas the proportion of securely attached women was even higher, about 63%. The other attachment styles were quite equally represented, except for the dismissing attachment style that was rather rare among women, comprising only about 8% of the women.

In relation to male targets (Table 24), the securely attached men comprised about the same, 50%, as in relation to female targets, whereas the women comprised clearly

TABLE 23 Means and standard deviations of the clustering variables (double-standardized scores) in the iterated attachment style clusters in relation to female and male attachment figures, separately for women and men.

Clustering[1] variables	Iterated adult attachment style clusters: Secure		Preoccupied		Dismissing		Fearful		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Women, in relation to female attachment targets									
n	82		20		10		18		(3,126)
Dismissing (SS)	-0.01_b	0.69	-0.93_c	0.50	2.40_a	0.54	-0.25_b	0.66	60.3***
Secure (SS)	0.61_a	0.19	-0.63_b	0.88	-1.57_c	1.06	-1.19_c	0.86	91.8***
Fearful (SS)	-0.37_b	0.60	-0.22_b	0.87	0.24_b	1.05	1.79_a	0.52	50.8***
Preoccupied (SS)	-0.16_b	0.66	1.73_a	0.42	-1.10_c	0.47	-0.58_{bc}	0.69	69.5***
Men, in relation to male attachment targets									
n	69		18		33		19		(3,135)
Dismissing (SS)	-0.36_b	0.57	0.08_b	0.88	1.32_a	0.62	-1.04_c	0.54	74.1***
Secure (SS)	0.77_a	0.15	-0.49_b	1.01	-0.85_b	0.85	-0.79_b	0.93	62.9***
Fearful (SS)	-0.33_c	0.49	-1.02_d	0.74	0.42_b	1.07	1.45_a	0.47	49.1***
Preoccupied (SS)	-0.12_c	0.63	1.66_a	0.73	-0.90_d	0.44	0.41_b	0.92	62.2***
Women, in relation to male attachment targets									
n	48		40		15		26		(3,125)
Dismissing (OS)	0.23_b	0.67	-0.68_c	0.43	1.86_a	0.82	-0.54_c	0.50	76.8***
Secure (OS)	0.78_a	0.20	0.19_b	0.58	-1.29_c	0.79	-0.98_c	0.97	70.2***
Fearful (OS)	-0.38_c	0.49	-0.68_c	0.51	0.48_b	1.17	1.46_a	0.34	80.7***
Preoccupied (OS)	-0.50_b	0.38	1.18_a	0.59	-1.01_c	0.68	-0.30_b	0.80	82.8***
Men, in relation to female attachment targets									
n	70		23		18		27		(3,134)
Dismissing (OS)	-0.27_b	0.51	-0.34_b	0.59	2.00_a	0.62	-0.34_b	0.94	67.4***
Secure (OS)	0.68_a	0.35	-0.01_b	0.76	-0.72_c	0.91	-1.28_d	0.80	74.1***
Fearful (OS)	-0.07_b	0.72	-1.12_c	0.30	-0.19_b	0.94	1.26_a	0.68	50.7***
Preoccupied (OS)	-0.34_c	0.52	1.55_a	0.67	-0.97_d	0.54	0.20_b	0.93	65.4***

Note. ***p = .000. [1]Self-reported adult attachment style in relation to same (SS) or opposite (OS) sex. The values have been calculated from standardized scores (first, within participants, then, within variables). Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe test.

less, only about 37%. Instead, the preoccupied attachment style was typical of women, comprising over 30% of them. In contrast, the dismissing and secure attachment styles were typical of men ($\chi^2(3) = 19.61, p = .000$). The dismissing attachment style comprised about 24% of the men in relation to male attachment targets.

In relation to the same sex, the secure attachment style was more typical of women, whereas the dismissing attachment style was more typical of men ($\chi^2(3) = 13.27, p = .004$). In relation to the opposite sex, the secure attachment style was more typical of men, and the preoccupied attachment style was more typical of women ($\chi^2(3) = 8.69, p = .034$). Furthermore, the proportion of the Fearful participants was somewhat lower in relation to the same sex, about 14%, compared to the number of the Fearful in relation to the opposite sex (about 20%) for both women and men.

A cross-tabulation of the attachment styles in relation to female and male attachment targets, separately for women and men, is presented in Table 25. Overall, the adult attachment styles in relation to female and male attachment targets were strongly associated, both in women ($\chi^2(9) = 137.65, p = .000$) and in men ($\chi^2(9) = 91.34$, $p = .000$). First, it was very typical of both women and men to have the same

TABLE 24 Women's and men's attachment style distributions in relation to female and male attachment targets.

Gender-specific attachment style clusters	In relation to female targets				In relation to male targets			
	Women		Men		Women		Men	
	f	%	*f*	%	*f*	%	*f*	%
Secure	82	63.1	70	50.7	48	37.2	69	49.6
Preoccupied	20	15.4	23	16.7	40	31.0	18	12.9
Dismissing	10	7.7	18	13.0	15	11.6	33	23.7
Fearful	18	13.8	27	19.6	26	20.2	19	13.7
Total	130		138		129		139	

attachment style in relation to female and male attachment targets. In particular, all women who had a secure attachment style in relation to male attachment targets also had a secure attachment style in relation to female attachment targets. Second, it was rather atypical of women and men to have the secure attachment style in relation to one sex and any of the three insecure attachment styles in relation to the other sex. However, some of the women and men who had secure attachment style in relation to female attachment targets also had preoccupied (22 women, 3 men), fearful (9 women, 6 men), or dismissing (2 women, 7 men) attachment styles in relation to male attachment targets. There were also some mismatches in the attachment styles in the men who had either secure or dismissing attachment style in relation to male attachment targets. In particular, a group of 10 men were dismissing in relation to male attachment targets and fearful in relation to female attachment targets.

TABLE 25 Cross-tabulation of the attachment styles in relation to female and male attachment targets for women and men.

Attachment styles in relation to male targets	Attachment styles in relation to female targets							
	Secure		Preoccupied		Dismissing		Fearful	
	W	*M*	*W*	*M*	*W*	*M*	*W*	*M*
Secure	**48**^{t}	**54**^{t}	0^{at}	8	0^{at}	3^{at}	0^{at}	3^{at}
Preoccupied	22	3^{at}	**17**^{t}	**10**^{t}	1	2	0^{at}	2
Dismissing	2^{at}	7^{at}	1	3	**8**^{t}	**13**^{t}	4	10
Fearful	9^{at}	6	2	2	1	0	**14**^{t}	**11**^{t}

Note. ^{t} = type, ^{at} = antitype. W = women, M = men.

11.5 Summary of the results concerning gender differences in attachment

The second research question in this study was directed at examining gender differences in adult attachment, which were studied by taking into account the differences between women and men but also between female and male attachment

targets. I hypothesized to confirm that men are more dismissing and women are more preoccupied. In addition, I assumed that attachment styles would differ in relation to the same and the opposite sex.

The results confirmed the hypothesized gender differences in adult attachment between women and men. The men reported higher dismissing attachment than the women. In addition, the dismissing attachment style was more common in the men, whereas the preoccupied attachment style was more common in the women, both comprising about 24%. The secure attachment style comprised about 40% and the fearful attachment style about 24% of the women and the men. The women's dismissing attachment style and the men's preoccupied attachment styles both comprised about 10%.

Attachment styles differed in relation to the sex of the attachment target. The other-positive attachment style clusters, secure and preoccupied, appeared as attachment targets of both sexes, whereas a third cluster reflected a positive attitude toward others in relation to the same sex (the Other Positive) but a negative attitude toward both self and others (the Fearful) in relation to the opposite sex. In addition, a fourth cluster reflecting negative attitude toward others was identified (the Other Negative) in relation to attachment targets of both sexes.

In relation to the same sex, the Secure, Preoccupied, and Other Positive attachment styles together comprised about 80% of the participants, whereas the Other Negative comprised the remaining 20%. In contrast, in relation to the opposite sex, the Secure and Preoccupied attachment styles comprised about 60% of the participants, whereas the remaining 40% was divided between the Fearful and the Other Negative. It was typical to have either Secure or Other Negative style in relation to both sexes. However, also mismatches between the attachment styles in relation to different sexes were found.

A set of gender-specific attachment style clusters was finally created, separately for women and men and separately for female and male attachment targets, adopting the method that was chosen on the basis of the earlier results. Each of the four gender-specific four-cluster solutions was identified as representing Bartholomew's (1990) four attachment styles, thus also validating the method for producing the cluster solutions.

The major differences in the distributions of the gender-specific attachment styles may be summarized as follows: The secure attachment style was the most common, at approximately 50% for men and ranging from 37.2%, toward male attachment figures, to 63.1%, toward female attachment figures, for women. In relation to female attachment targets, the secure attachment style was the most common for both women and men, whereas in relation to male attachment targets, the secure or the dismissing (about 24%) attachment style was more common in men and the preoccupied attachment style was more common in women (about 31%). Both women and men typically had the same attachment style in relation to female and male attachment targets. In addition, matches between the secure attachment style and any of the three insecure attachment styles were atypical. However, the secure attachment style in relation to female attachment targets also occurred together with insecure attachment styles in relation to male attachment targets, in both women and men.

12 PSYCHOSOCIAL FUNCTIONING AND PERSONALITY CHARACTERISTICS IN THE ITERATED ATTACHMENT STYLE CLUSTERS

12.1 Psychosocial functioning and personality vulnerability in the iterated attachment style clusters

The iterated four-cluster solution, based on eight double-standardized clustering variables, that was considered to be the best description of the participants' attachment style ratings at age 36 was examined in relation to different aspects of psychosocial functioning and personality vulnerability at age 36. Psychosocial functioning was described with variables concerning psychological functioning, behavioral problems, as well as cognitive and behavioral strategies and mood in the semi-structured research interview. Personality vulnerability was examined in relation to anxiety, introversion-extraversion, aggressivity, hostility, and conformity-nonconformity. The means and standard deviations of the psychosocial functioning and personality vulnerability variables (z-scores, standardized for all participants collectively) in the iterated attachment style clusters are presented in Tables 26 and 27. The clusters were compared by means of a one-way ANOVA, and the pairwise comparisons were made with a Scheffe test.

Psychosocial functioning differentiated most clearly the secure and fearful attachment style clusters from each other (Table 26). The Fearful had lower self-esteem and psychological well-being and also higher depression, more problems with emotional expression (alexithymia) and health problems than the Secure. In addition, the Fearful had more alcohol problems and a tendency toward criminality. In the interview situation, the Fearful tended to be less calm, less positive, and less active and engage in task-irrelevant behavior, and had lower expectations of success. The Secure, in contrast, had high self-esteem and good psychological well-being. They were also low in depression, alexithymia and health or alcohol problems, and showed the lowest tendency toward criminality. In the interview situation, their mood and cognitive strategies were not distorted either positively or negatively; instead, they concentrated on the task.

Personality vulnerability also differentiated the Secure and the Fearful, as

TABLE 26 Means and standard deviations of the psychosocial functioning variables (z-scores) in the iterated four-cluster solution for all participants collectively, using eight double-standardized clustering variables, compared by means of a one-way ANOVA, pairwise comparisons with a Scheffe test.

	Iterated attachment style clusters for double-standardized variables								
	Preoccupied		Secure		Dismissing		Fearful		
Psychosocial functioning	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,262)
Psychological functioning									
Self-esteem	-0.10	0.97	0.29_a	0.87	0.09_a	0.96	-0.50_b	1.11	8.469***
Psych. well-being	0.09_a	0.86	0.22_a	0.95	0.00	1.12	-0.52_b	1.01	7.352***
Depression	0.25_a	1.01	-0.25_b	0.92	-0.09	0.96	0.22_a	1.07	4.646**
Alexithymia	-0.02_b	0.97	-0.27_b	0.85	-0.12_b	1.13	0.63_a	0.97	11.056***
Health problems	0.35_a	1.08	-0.29_b	0.75	-0.11	0.92	0.22_a	1.20	7.198***
Behavioral problems									
Alcohol problems	0.00	1.09	-0.24_b	0.83	0.19	1.08	0.33_a	1.04	4.558**
Criminality	0.01	1.05	-0.19	0.69	0.12	1.22	0.27	1.20	2.804*
Mood in interview									
Negative and excited	-0.04	0.96	0.00	0.97	-0.22	0.65	0.20	1.25	1.377
Calm mood	-0.14	1.03	0.11	1.00	0.28	0.89	-0.22	1.00	2.767*
Positive and active	0.20	1.03	0.11	0.92	-0.13	1.10	-0.27	1.00	2.779*
Cognitive and behavioral strategies									
Success expectations	-0.01	1.05	0.00	0.95	0.38	0.90	-0.20	1.01	2.655*
Task-irrelev. behavior	0.17	1.03	-0.22_b	0.79	-0.21	1.01	0.33_a	1.19	5.059**
Mastery beliefs	0.07	1.01	0.08	0.93	0.08	0.92	-0.22	1.13	1.264

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe pairwise comparison. The numbers of the participants were as follows: Preoccupied, 63-67; Secure, 104; Dismissing, 37-39; Fearful, 56.

the results in Table 26 demonstrate. The Fearful were characterized by high anxiety in all forms and also by psychastenia. In addition, the Fearful were nonconforming, suspicious, irritable, and high in detachment. The Secure, instead, were low in all personality vulnerability areas but high in social desirability and socialization.

The results in Tables 26 and 27 also indicated that the attachment styles were different in psychosocial functioning and personality vulnerability along the Self dimension and the Other dimension. The participants with the self-positive attachment styles (the Secure and the Dismissing) had higher self-esteem and were calmer and more concentrated on the task in the interview situation than the Fearful. In addition, they had fewer problems with emotional expression, lower psychastenia, and less feelings of guilt. In contrast, the self-negative attachment styles (the Preoccupied and the Fearful) shared more depression and health problems than the Secure and had a tendency toward task-irrelevant behavior in the interview situation. Furthermore, they were more prone to anxiety-related personality vulnerability, particularly muscular tension, and guilt-type hostility than the Secure.

The participants with the other-positive attachment styles (the Secure and the Preoccupied) had better psychological well-being and tended to be more positive and active in the interview situation than the Fearful. In addition, they were lower in detachment than the other-negative attachment styles. In contrast, the other-negative attachment styles (the Dismissing and the Fearful) were high

TABLE 27 Means and standard deviations of personality vulnerability variables (z-scores) in the iterated four-cluster solution for all participants, using double-standardized variables, compared by means of a one-way ANOVA, pairwise comparisons with a Scheffe test.

	Iterated attachment style clusters for double-standardized variables								
	Preoccupied		Secure		Dismissing		Fearful		
Personality	(62)		(97)		(39)		(53)		
vulnerability	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,247)
Anxiety									
Psychic anxiety	0.20_b	0.91	-0.34_c	0.79	-0.12_b	1.29	0.47_a	0.99	9.605***
Somatic anxiety	0.15_a	1.00	-0.33_b	0.74	-0.06	1.03	0.48_a	1.18	8.997***
Muscular tension	0.14_a	0.93	-0.34_b	0.77	-0.03	0.98	0.51_a	1.21	9.626***
Psychastenia	0.22	0.93	-0.37_b	0.79	-0.23_b	1.13	0.58_a	1.01	14.054***
Inhib. of aggression	0.07	1.02	-0.20	0.86	0.06	1.11	0.25	1.09	2.602
Introversion - extraversion									
Impulsiveness	0.00	0.83	0.02	0.93	0.15	1.35	-0.15	1.02	0.666
Monotony avoidance	0.10	1.05	0.00	0.88	0.04	1.14	-0.14	1.06	0.569
Detachment	-0.48_b	0.94	-0.25_b	0.79	0.36_a	0.94	0.73_a	0.97	22.909***
Aggressivity									
Indirect aggression	0.13	0.97	-0.02	0.99	-0.10	0.96	-0.02	1.10	0.495
Verbal aggression	0.03	1.00	-0.08	1.03	-0.07	0.99	0.18	0.97	0.847
Irritability	0.10	0.99	-0.24_b	0.89	0.02	1.12	0.28_a	1.04	3.498*
Hostility									
Suspicion	-0.10	0.94	-0.27_b	0.84	0.29_a	1.21	0.41_a	1.00	7.045***
Guilt	0.33_a	0.93	-0.21_b	0.96	-0.29_b	1.06	0.24	0.96	6.087**
Conformity - nonconformity									
Socialization	0.01	1.05	0.25_a	0.89	-0.03	0.94	-0.41_b	1.06	5.220**
Social desirability	0.13	0.97	0.19_a	0.97	-0.20	1.10	-0.32_b	0.90	4.062**

Note. $^{**}p < .01$, $^{***}p < .001$. Within each row, means with different subscripts differed significantly at $p < .05$ according to a Scheffe pairwise comparison.

in detachment and suspicion-related hostility, had a tendency toward criminality and alcohol problems, and were also lower in social desirability than the Secure.

12.2 Personality characteristics in the iterated attachment style clusters

The four iterated attachment style clusters for all participants at age 36 were compared for personality characteristics at ages 27 and 33. Personality was described with extraversion, neuroticism, and psychoticism at age 27, and with the Big Five personality domains and facets at age 33. The comparisons were made with a one-way ANOVA, and the pairwise comparisons were made with a Scheffe test. The means and standard deviations (z-scores) of the personality characteristics in the four attachment style clusters are presented in Table 28.

The secure and fearful attachment styles at age 36 differed in psychoticism at age 27, in extraversion at age 27 and 33, and in neuroticism at age 33. As the figures in Table 28 show, the Secure were high in extraversion and low in psychoticism and neuroticism, whereas the opposite characterized the Fearful. In

addition, the Preoccupied were high and the Dismissing were low in neuroticism at age 33.

The attachment styles differed only partially along the Self and Other dimensions, as the significant differences between the Secure and the Fearful showed, indicated with different subscripts in Table 28. However, there was also a tendency of the self-positive attachment styles (the Secure and the Dismissing) to be more neurotic than average at age 27 as well. In addition, the other-positive

TABLE 28 Means and standard deviations of the major personality characteristics (z-scores) at ages 27 and 33 in the iterated attachment style clusters at age 36.

Personality characteristics	Iterated attachment style clusters for double-standardized variables								
	Preoccupied		Secure		Dismissing		Fearful		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Eysenck's dimensions (at age 27)									(3,226)
Neuroticism	0.24	0.95	-0.21	0.86	-0.25	1.11	0.26	1.10	4.482**
Extraversion	0.14	0.93	0.15_{a}	1.01	-0.12	0.97	-0.39_{b}	1.01	3.730*
Psychoticism	-0.10	0.91	-0.21_{b}	0.90	0.23	1.12	0.35_{a}	1.08	4.204**
NEO-PI Scales (at age 33)									(3,190)
Neuroticism	0.23_{ac}	1.03	-0.30_{bc}	0.91	-0.35_{c}	0.72	0.43_{a}	1.06	7.444***
Extraversion	0.11	0.97	0.21_{a}	0.90	-0.03	1.18	-0.43_{b}	0.98	4.289**
Openness	0.08	1.07	0.13_{a}	0.85	-0.07	1.13	-0.25_{b}	1.04	1.496
Agreeableness	0.22	0.94	0.09	0.98	-0.37	0.86	-0.17	1.13	2.722*
Conscientiousness	-0.01	0.99	-0.08	0.91	0.21	0.83	0.04	1.21	0.641

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Within each row, means with different subscripts differ at the .05 level of significance according to a Scheffe test. The numbers of the participants was at ages 27 and 33, respectively: Preoccupied: 61, 53; Secure: 89, 74; Dismissing: 33, 27; Fearful: 47, 44.

attachment style (the Secure and the Preoccupied) means were above average, whereas the other-negative attachment style (the Dismissing and the Fearful) means were below average in extraversion and agreeableness at age 33.

12.3 Personality facets in the iterated attachment style clusters

The iterated attachment style clusters were compared for facets of the three major personality domains at age 33. The personality facets comprising Neuroticism (anxiety, hostility, depression, self-consciousness, impulsiveness, vulnerability), Extraversion (warmth, gregariousness, assertiveness, activity, excitement seeking, positive emotions), and Openness to Experiences (fantasy, aesthetics, feelings, actions, ideas, values) were compared for the iterated attachment style clusters with a one-way ANOVA, and the pairwise comparisons were made with a Scheffe test. The means and standard deviations of the personality facets in the attachment style clusters are presented in Table 29.

The results in Table 29 showed that personality facets belonging to neuroticism and extraversion differentiated between the attachment style clusters. The Fearful were more anxious, depressed, impulsive, and self-conscious, and

lower in positive emotions, and also less warm and gregarious than the Secure or the Preoccupied. Although the attachment style clusters did not differ in the domain of Openness to Experience (Table 28), the comparison in its facets revealed that the Preoccupied and the Secure had a tendency to be more aesthetic and experience more intense feelings than the Dismissing or the Fearful. The Dismissing were less anxious and less self-conscious than the Fearful.

TABLE 29 Means and standard deviations (z-scores) of personality facets belonging to neuroticism, extraversion, and openness to experiences at age 33 in the iterated attachment style clusters, compared by means of an ANOVA and a Scheffe test.

	Iterated attachment style clusters for double-standardized variables								
	Preoccupied		Secure		Dismissing		Fearful		
	(53)		(74)		(27)		(46)		
Personality facets	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3,196)
Neuroticism									
Anxiety	0.25_{a}	0.97	-0.17	0.96	-0.52_{b}	0.76	0.29_{a}	1.07	5.928**
Hostility	0.04_{a}	1.02	-0.07	0.99	-0.19_{a}	0.90	0.20_{a}	1.03	1.106
Depression	0.18	1.11	-0.28_{b}	0.80	-0.06	0.77	0.26_{a}	1.17	3.705*
Self-consciousness	0.24_{ab}	0.88	-0.35_{c}	0.91	-0.35_{bc}	0.89	0.51_{a}	1.04	10.808***
Impulsiveness	-0.02_{a}	1.07	-0.18_{b}	0.99	-0.13_{a}	0.87	0.37_{a}	0.94	3.133*
Vulnerability	0.22	0.99	-0.18	0.92	-0.37	0.87	0.23	1.12	3.742*
Extraversion									
Warmth	0.29_{a}	1.03	0.23_{a}	0.85	-0.31	1.17	-0.50_{b}	0.86	8.295***
Gregariousness	0.17_{a}	1.00	0.24_{a}	0.91	-0.10	1.04	-0.52_{b}	0.96	6.796***
Assertiveness	-0.16_{a}	1.06	0.15_{a}	0.95	0.28	0.85	-0.22_{a}	1.05	2.522
Activity	0.05	0.94	0.00	0.95	0.15	1.20	-0.15	1.05	0.599
Excitement seeking	-0.08	0.98	-0.11	1.08	0.21	0.91	0.14	0.93	1.119
Positive emotions	0.24_{a}	0.98	0.22_{a}	0.77	-0.29	1.25	-0.43_{b}	1.03	6.285***
Openness to Experience									
Fantasy	0.20	0.95	0.09	0.97	-0.19	1.14	-0.26	0.99	2.307
Aesthetics	0.08	0.99	0.22	0.89	-0.19	1.12	-0.30	1.03	3.062*
Feelings	0.20	0.99	0.14	0.90	-0.36	1.01	-0.21	1.07	3.174*
Actions	-0.01	1.06	0.05	0.93	0.21	1.13	-0.19	0.95	1.058
Ideas	-0.06	1.08	0.03	0.90	0.09	1.05	-0.01	1.06	0.166
Values	-0.06	1.20	0.00	0.95	0.28	0.91	-0.11	0.88	0.962

Note. $*p < .05$, $**p < .01$, $***p < .001$. Within each row, means with different subscripts differ at the .05 level of significance according to the Scheffe test.

The personality facets partly differentiated the attachment styles along the Self and Other dimensions of attachment. As the figures in Table 29 show, both self-negative attachment styles (the Preoccupied and the Fearful) were characterized by anxiety and high self-consciousness, whereas both self-positive attachment styles (the Secure and the Dismissing) were characterized by low self-consciousness. In addition, a tendency toward higher depression and vulnerability was visible in the self-negative attachment styles, although only some of the attachment styles differed from the other attachment styles in Scheffe pairwise tests. Similarly, warmth, gregariousness, and positive emotions were high in both other-positive attachment styles (the Secure and the Preoccupied) but low in both other-negative attachment styles (the Dismissing and the Fearful). In addition, the results indicated a tendency toward above-average aesthetics and feelings in the other-positive and for below-average aesthetics and feelings in the other-negative attachment styles.

12.4 Personality characteristics as discriminating features between the iterated attachment style clusters

Also the personality characteristics differentiating the attachment styles from each other were examined. A discriminant-function analysis was performed to assess the predictability of membership in each iterated attachment style cluster as compared with the other attachment style clusters, from a combination of personality characteristics at ages 27 and 33. The independent variables were chosen on the basis of the ANOVA results in Tables 28 and 29, as the personality characteristics that significantly differentiated between the attachment styles (extraversion, neuroticism, and psychoticism at age 27; anxiety, depression, self-consciousness, impulsivity, vulnerability, warmth, gregariousness, positive emotions, aesthetics, feelings, and agreeableness at age 33). Subjects with no missing data on the variables involved were included in the analyses. As the maximum significance for the variables entered in the model, $p = .10$. was used. The results of the discriminant analyses are presented in Table 30.

TABLE 30 Iterated attachment style clusters, compared pairwise in personality characteristics with discriminant analysis.

Predicted	Against	Function	Std. Coeff.	Chi-Square	Correctly Classified	Canonical Correlation
Fearful	Secure	Self-consciousness	.64	41.084***	75.7%	.60
		Impulsivity	.55			
		Vulnerability	-.49			
		Gregariousness	-.32			
		Positive emotions	-.45			
		Psychoticism	.35			
Preoccupied	Dismissing	Anxiety	.85	17.299***	75.6%	.48
		Agreeableness	.72			
Preoccupied	Secure	Self-consciousness	1.00	13.027***	63.3%	.34
Fearful	Dismissing	Self-consciousness	1.00	6.650*	73.0%	.34
Secure	Dismissing	Positive emotions	.84	14.326**	79.1%	.40
		Psychoticism	-.58			
Preoccupied	Fearful	Warmth	.90	25.340***	68.5%	.53
		Vulnerability	.53			
		Impulsivity	-.75			
		Psychoticism	-.40			

Note. Number of Secure was 62, Preoccupied 46, Dismissing 23, Fearful 35.

Table 30 presents discriminating personality variables for the attachment styles in the opposite corners of the four-category model. The Fearful differed from the Secure by high self-consciousness, impulsivity and psychoticism, and by low vulnerability, gregariousness, and positive emotions. The other pair of opposite attachment styles, the Preoccupied and the Dismissing differed by high anxiety and agreeableness, both describing the Preoccupied rather than the Dismissing. The percentage of correctly classified participants was quite high, about 76%, in both pairs of polar opposite attachment styles.

Differences between the attachment styles along the Self dimension of

attachment were also discovered. The Secure and Preoccupied, and also the Dismissing and Fearful, attachment style pairs were differentiated by the level of self-consciousness, a facet of neuroticism. High self-consciousness implied a self-negative attachment style (the Preoccupied or the Fearful), whereas low self-consciousness implied a self-positive attachment style (the Secure or the Dismissing). The percentage of correctly classified participants was somewhat higher between dismissing and fearful participants (73.0%) than between secure and preoccupied participants (63.3%).

Along the Other dimension, the differences between the attachment styles were clear but tied to the positivity or negativity of the Self dimension. Among the self-positive attachment styles, the Secure were differentiated from the Dismissing by high positive emotions and low psychoticism. Among the self-negative attachment styles, the Preoccupied were differentiated from the Fearful by high warmth and low psychoticism but also by high vulnerability and low impulsivity, which are facets of neuroticism. Now, the percentage of correctly classified participants was somewhat higher between the Dismissing and the Secure participants (79.1%) than between the Fearful and the Preoccupied participants (68.5%).

Taken as a whole, self-consciousness alone differentiated both self-positive attachment styles from their adjacent self-negative attachment styles. Furthermore, self-consciousness had a quite high standardized coefficient (.64) in the function that differentiated between the Secure and the Fearful but did not differentiate between the other opposing pair of attachment styles, the Preoccupied and the Dismissing attachment styles. Along the Other dimension, warmth and positive emotions had very high standardized coefficients in the function that differentiated between the adjacent other-positive and other-negative attachment styles. However, warmth differentiated between the Preoccupied and the Fearful, whereas positive emotions differentiated between the Secure and the Dismissing. Furthermore, positive emotions had a moderate standardized coefficient also in the function that differentiated the Secure and the Fearful.

Some of the differentiating factors seemed rather to be related to the diagonals of the four-category model than to the Self and Other dimensions. Anxiety and agreeableness jointly determined the differentiating function between the preoccupied and dismissing attachment styles, with appreciably high standardized coefficients. In addition to the above mentioned self-consciousness and positive emotions, also psychoticism had a moderate standardized coefficient in the function that differentiated between the attachment styles in the other diagonal, the secure and the fearful attachment styles. However, psychoticism also differentiated between the adjacent attachment styles along the Other dimension but not along the Self dimension.

12.5 Summary of the results concerning psychosocial functioning and personality characteristics in the iterated attachment style clusters

The third research question was directed at examining psychosocial functioning and personality characteristics in adult attachment styles. I assumed to confirm the earlier findings on the Secure as characterized with good psychosocial

functioning and an adaptive, extraverted personality, and the Fearful as characterized with poor psychosocial functioning, neuroticism, and anxiety-related personality vulnerability. I also expected to find these relations between the personality facets and attachment styles. Furthermore, I assumed that the results would give evidence of the relation between the underlying Self and Other dimensions of attachment with the two higher-order factors of personality.

The Secure and the Fearful differed in psychosocial functioning, personality vulnerability, personality characteristics, and some of their facets at ages 27 and 33, along the hypothesized lines. The Secure were characterized by good overall psychosocial functioning and an extraverted and sociable personality, whereas the Fearful were characterized by problems in several areas of psychosocial functioning, neuroticism and psychoticism, and an overall personality vulnerability.

The attachment styles differed from each other in relation to the underlying Self and Other dimensions of attachment. The self-positive attachment styles were characterized by high self-esteem and low self-consciousness, whereas the self-negative attachment styles were characterized by neuroticism-related facets (depression, high self-consciousness), health problems, guilt, and neuroticism-related personality vulnerability (anxiety, muscular tension). In contrast, the other-positive attachment styles were characterized by good psychological well-being and low detachment, as well as by some facets of extraversion (warmth, gregariousness, and positive emotions), whereas the other-negative attachment styles were characterized by suspicion, low warmth, low positive emotions, and high detachment.

The Self and Other dimensions of attachment were related to some aspects of neuroticism and extraversion. The combinations of personality characteristics and facets that differentiated between the adjacent attachment style pairs suggested that self-consciousness has a close relation to the Self dimension of attachment, whereas warmth and positive emotions have a quite close relation to the Other dimension of attachment; the former on the negative side of the Self dimension and the latter on the positive side of the Self dimension. Furthermore, some of the differentiating factors between the attachment styles seemed to be related to the diagonals of the four-category models rather than the Self and Other dimensions. Anxiety and agreeableness jointly determined the differentiating function between the preoccupied and dismissing attachment styles. Psychoticism, in contrast, had a moderate loading in the function defining the other diagonal.

13 DISCUSSION AND CONCLUSIONS

13.1 Summary of the main findings

The principal aim of this study was to examine the outcomes of defining attachment styles by using continuous ratings and both a classification and a cluster analysis method. An average of 30% of the participants rated their attachment styles by using two or more equally high attachment ratings (tied-high scores) instead of a single highest rating. In previous studies, these participants would have been excluded because they could not be classified on the basis of the highest attachment style ratings. In order to classify all participants irrespective of their attachment ratings, both an extended tied-high classification and a cluster analysis procedure were developed. The classification was based on theoretically valid and empirically present combinations of the highest attachment ratings. The cluster analysis procedure consisted of a hierarchical cluster analysis, followed by an iterative K-means cluster analysis, for clustering variables that were first standardized within participants and then within variables (double-standardized). An identical four-cluster solution was produced by using the cluster analysis method for all participants collectively and for subsamples of the data, consisting of either women or men who rated their attachment styles either in relation to female or male attachment targets. Both the classification and the cluster analysis methods are applicable in forming comparable secure, dismissing, preoccupied, and fearful attachment style groups. This classification method is easy to use and does not require any statistical skills but produces a solution that is only based on the highest ratings; in contrast, the cluster method requires statistical analysis but has the advantage of taking into account the strength and associations of all attachment ratings or their combinations, not only the highest ones.

The results also revealed that the tendency to use tied-high scores in rating one's attachment styles was linked to problems in psychosocial functioning and to a more vulnerable and less adaptive personality. In the extended tied-high classification, these participants were divided into six classes that were associated, through explicit rules, with the iterated four-cluster solution. In particular, the

participants who rated themselves with the highest fearful rating in combination with any other equally high ratings were comparable with the Fearful. Furthermore, those who rated themselves with the highest secure attachment style in combination with any equally high insecure attachment styles were not comparable with the Secure. Therefore, both the extended tied-high classification and the cluster analysis method seemed to group the participants who used tied-high scores quite reliably in comparison to their psychosocial functioning and personality characteristics.

The second aim of this study was focused on studying gender differences in adult attachment styles. The results showed that both the gender of the participant and the gender of the imagined attachment target had an effect on the attachment styles. The earlier finding that the preoccupied attachment style is more common in women and the dismissing attachment style is more common in men was only supported in relation to male attachment targets; in contrast, the secure attachment style was the most common for both women and men in relation to female attachment targets. In general, the participants described their attachment styles with more positive terms in relation to their same sex than in relation to their opposite sex; however, individual women and men typically had identical attachment styles in relation to both sexes, although also mismatches were found. These results suggest that the attachment target should be explicitly defined when assessing attachment styles; otherwise, the participants may choose to rate their attachment styles mainly in relation to male attachment targets.

The third aim was to investigate the relation of attachment styles and dimensions to personality characteristics and psychosocial functioning between ages 27 and 36. The Secure were characterized by good overall psychosocial functioning with extraverted and sociable personalities, whereas the Fearful were characterized by problems in several areas of psychosocial functioning, neurotic and psychotic personality characteristics, and also personality vulnerability in many areas. The relation between the attachment styles and personality facets was largely similar. Depression, self-consciousness, and impulsiveness characterized the Fearful, whereas warmth, gregariousness, and positive emotions characterized the Secure.

Since Openness, Conscientiousness, and Agreeableness did not differentiate between the attachment styles, a relation between attachment dimensions and the two higher-order factors of personality was not supported. Instead, the results suggested that the attachment self dimension was related to self-consciousness and that the attachment other dimension was related to either warmth or positive emotions, depending on the level of self-consciousness. In addition to these general relations, the self-negative attachment styles differed from the self-positive attachment styles in self-esteem, health problems, guilt and anxiety-related vulnerability, and the other-negative attachment styles differed from the other-positive attachment styles in psychological well-being, detachment, and suspicion. Furthermore, anxiety and agreeableness differentiated between the Dismissing and the Preoccupied, whereas psychoticism seemed to be linked to the differences between the Secure and the Fearful.

As the framework of the study, Bartholomew's (1990) four-category model of adult attachment was used where the secure, dismissing, preoccupied, and fearful attachment styles were defined in relation to the positivity or negativity of

the underlying attachment self and other dimensions. Adult attachment styles were measured in relation to the same and the opposite sex by means of the Relationship Questionnaire (Bartholomew & Horowitz, 1991), using a four-point scale. This study was a secondary analysis of the data that was collected during the ongoing Jyväskylä Longitudinal Study of Personality and Social Development, conducted by Professor Lea Pulkkinen.

13.2 Methods for classifying all participants into attachment styles

13.2.1 Tied-high scores and the extended tied-high classification

The number of reported participants rating their attachment with more than one attachment styles comprised approximately one third of the participants in this study, which is at the upper limit of the variance in the proportion of the tied-high scores discovered in other studies. Roberts et al. (1996) found 8% tied-high scores with a 10-point scale, whereas Kirkpatrick and Davis (1994) found 11% tied-high scores for women and 16% for men with a 5-point scale, rating three prototypes. When using four attachment styles and a 5-point scale (Diehl et al., 1998; Kemp & Neimeyer, 1999) or a 4-point scale, as in this study, the proportion of tied-high scores comprised approximately one third of the participants. It may be that the probability of tied-high scores increases with the number of alternative attachment styles; in turn, a more extensive and, consequently, more discriminating scale may decrease the proportion of tied-high scores as it enables the participants to describe the relations of the different alternatives more accurately. Therefore, the high proportion of tied-high scores in this study may be an artifact of the method and, as such, imply a need to improve the accuracy of measurement.

The tied-high phenomenon has, however, not been found in most attachment studies. This is explained by methodological differences between this study and other studies. First, the participants' attachment styles need to be measured with continuously rated prototypic descriptions for this tendency to be revealed, and these measures need to be used for defining attachment styles for the participants. Therefore, variable-oriented attachment studies never encounter the tied-high scores. Second, also the need to use two different methods for comparing highest scores and only accept the matches as attachment styles (Mikulincer et al., 1990) may imply an attempt to resolve the tied-high issue. Although Mikulincer et al. (1990) did not explicitly state if any of several equally high matches were accepted, the small proportion of mismatches (mostly below 10%) suggested that. On the other hand, Pietromonaco and Barrett (1997) found 18% of unqualified participants by using a comparison between a forced choice and a highest rating, with four attachment styles. Therefore, it seems that the proportion of the discovered tied-high scores is dependent on the method used for measuring attachment and defining attachment styles.

On the other hand, the presence of tied-high scores in this and also other studies (Kemp & Neimeyer, 1999; Kirkpatrick & Davis, 1994; Roberts et al., 1996) supports Bartholomew's (1990) proposal that there usually are such participants whose attachment styles are best described with more than one attachment style,

which, in turn, suggests that a tendency to use two or more equally high attachment styles is a real but unstudied phenomenon in attachment. The results of this study suggested that a tendency to rate one's attachment with several attachment styles indicates lower psychosocial functioning and a less adaptive personality, which, in turn, might indicate a less secure attachment style. This finding, of course, needs to be replicated in other studies; furthermore, the prevalence of the tied-high phenomenon needs to be studied by using various self-report measures and scales.

Assuming that tied-high scores reflect a less-known aspect of attachment, it should be possible to describe the participants by using tied-high scores with attachment terms. The extended attachment classes presented in this study may be interpreted to represent such participants whose feelings in close relationships are guided more with either one of the underlying self and other dimensions, whereas the four-category model (Bartholomew, 1990) implies that these dimensions are equally balanced. An Other Positive participant, for example, may feel quite secure with others most of the time but may, instead, vacillate between doubt and certitude about his or her own worth, depending, for example, on the situation and its demands. Similarly, a Self Positive participant may feel self-confident most of the time but occasionally trust some people and distrust others.

Another explanation is necessary for those describing themselves with either three or all four alternative attachment styles as equally high. If attachment styles are considered as strategies for coping in the environment (Crittenden, 1997), choosing several equally high attachment styles might either imply an ability to possess several different attachment strategies or indicate difficulties in assessing one's strategies in relationships. Still, this explanation does not consider whether the use of these strategies would be adaptive. Low tied-high scores might imply difficulties in assessing one's strategies but, also, helplessness with a lack of strategies, unwillingness to cooperate, or a strong desire to protect oneself and to defend by not revealing information about oneself. All these alternatives indicate aspects of insecurity with an emphasis ranging from helplessness to suspicion. As such, they resemble Crittenden's (1997) insecure A/C and AC strategies. According to Crittenden, the environment for developing these strategies has been so complex and demanding that using both A and C strategies has been necessary for coping with the dangerous environment.

The tied-high attachment styles might also be considered as reflecting multiple working models of attachment that one has learned in interaction with his or her primary and secondary attachment figures, representing several different attachment styles, and having different attachment targets. The poorer psychosocial functioning of these participants is in accordance with the findings of Bowlby (1973, 205) and Bretherton (1985) and further supports a link between multiple, incompatible working models and tied-high scores in ratings. Furthermore, the participants with tied-high scores resembled in many aspects the Fearful who, in turn, were more vulnerable to psychopathology via their negative representations of self and others (Dozier et al., 1999).

13.2.2 Cluster analysis method with double-standardized scores

This study provided evidence of the utmost importance of the choice and manipulation of the clustering variables, which may be generalized for all

groupings of participants by using cluster analysis. The critical role of the choice of the clustering variables for successful cluster analysis has been recognized (e.g., Aldenderfer & Blashfield, 1984; Bergman & Magnusson, 1989; Norusis, 1994b). However, emphasis has usually been placed on choosing clustering variables that are theoretically reasonable and represent the concept of similarity under which a study operates (Aldenderfer & Blashfield, 1984, 20). This is naturally important because cluster analysis is a structure-seeking method and, consequently, always produces clusters, whereas the identifiability and interpretability of the clusters is highly dependent on the contents of the clustering variables. In this study, the clustering variables were chosen on a theoretical basis to represent each of the four attachment styles in Bartholomew's (1990) four-category model of attachment. Therefore, they may be considered as forming a theoretically reasonable set of variables with previously known relations, on the basis of which the assumption of producing four attachment styles, as well as the logic according to which they were identified, were well grounded.

Usually, clustering variables are routinely standardized to a mean of 0 and to unit variance (Aldenderfer & Blashfield, 1984, 20; Norusis, 1994b, 96), as was also done in this study when demonstrating attachment clusters that were formed routinely. However, the results demonstrated that cluster variables should not be routinely transformed but the properties of variables, such as skewness, should be carefully taken into account before transforming variables, or later analyses may produce unexpected clusters and cluster memberships as artifacts of the method. In this study, the secure attachment style was negatively skewed because the participants had the most often rated the secure attachment style as describing them best in close relationships. The dismissing, preoccupied, and fearful attachment styles, in contrast, were positively skewed. Furthermore, most of the participants had rated several of the three insecure attachment styles as describing them nearly as well as the secure attachment style, which the most often was the highest rating in individual attachment style profiles. When attachment styles were standardized within variables, the second-highest insecure attachment styles became the highest and, thus, enabled an insecure attachment style classification for the participants despite the highest secure rating (Appendices 2 and 3). Standardization within variables also produced similarly flat profiles where an originally slightly higher secure attachment style was reduced to the level or below the level of the other attachment styles, thus producing clusters with either high or low profiles where several attachment styles were equally high. As the distance measures in cluster analysis reflect variables with higher values (Norusis, 1994b, 96), these participants formed separate clusters, such as the Low Ambivalent and the Insecure Ambivalent (Fig. 3) in this study.

The question of manipulating clustering variables also involves whether or not to weigh variables, that is, "manipulation of a value of a variable such that it plays a greater or lesser role in the measurement of similarity between two cases" (Aldenderfer & Blashfield, 1984, 22). Kline (2000, 180) claimed that there is no theoretical reason why each item should contribute to the score equally. In this study, the form and level of the cluster variable profile was considered important; therefore, the Euclidean distance was chosen as a measure of similarity (Bergman & Magnusson, 1989). However, the Euclidean distance may reflect differently those profiles that have approximately identical form but different relations between

the separate attachment styles, for example, a low and flat profile with an upward peak of varying height. A solution to this was sought by standardizing the participants first within participants; that is, weighting the value of each variable to all other values for that participant. Thus, the rank order of the attachment scores remained identical within each participant but the profiles of different participants were more comparable. When these ratings were further standardized within variables, the rescaling had only a minor effect on the interrelationships of the clustering variables and, thus, the low and high scale scorers, as well as the participants with low and high range ratings were treated more equally in the cluster analysis.

Both the extended tied-high classification and the cluster analysis methods provide a means to classify all participants irrespective of their attachment ratings. However, Bergman (1988) suggested that coverage below 100% could sometimes improve the chances of finding the structure in the data. He proposed a separate analysis for those participants that were excluded from the cluster analysis as outliers but represented real though rare patterns. Also, the approaches of some attachment studies (Mikulincer et al., 1990; Pietromonaco & Barrett, 1997; Searle & Meara, 1999), by excluding mismatches between attachment styles produced with different measures or scales for the same participants, seem to suggest seeking pure attachment styles rather than classifying all participants. This approach certainly is justified in some cases, as Bergman (1988) suggested. However, when the focus is rather on assigning the participants into predetermined categories in a way that reflects the actual patterns and variability of the phenomenon under study, determining who should be classified and who should be regarded as outliers is more controversial. What is sufficient justification for excluding up to one third of the participants (e.g., Kemp & Neimeyer, 1999) or drawing a line somewhere between the "pure" cases only and the rest of the participants? Methodological issues should not determine whether to examine all participants or not. The solution should not lie in excluding participants but improving the methods.

13.3 Gender differences in adult attachment styles

The results confirmed the earlier findings (Bartholomew & Horowitz, 1991; Brennan & Morris, 1997; Feeney et al., 1994) that men perceive themselves as more dismissing and women perceive themselves as more preoccupied. However, a new finding in this study was that this only applied in relation to male attachment targets. Asendorpf and Wilpers (2000) also measured attachment in relation to attachment targets of different sex, that is, mother, father, same-sex peers and opposite-sex peers. Gender differences were not the focus of their study; however, the means of attachment security in their study (Asendorpf & Wilpers, 2000, Table 3) suggest a similar tendency as found in this study. In their study, attachment security was slightly lower in relation to father than to mother and, similarly, lower in relation to opposite-sex peers than to same-sex peers. Mikulincer et al. (1995) noted that mothers and same-sex friends were perceived as providing more support than opposite-sex friends and fathers, which is also in line with the other

studies mentioned here. On the other hand, Rosen and Burke (1999) found no differences between mothers and fathers in the security of attachment to their children. However, they used the Strange Situation assessment for younger children and Attachment Q-sort ratings for older children; therefore, methodological differences might also contribute to whether the differences appeared.

In relation to female attachment targets, the secure attachment style was the most common for both women and men in this study. This finding may reflect the fact that the mother has, until recently and at least in Finland, been the primary caregiver during the early stages of the child's development when the basic security forms, whereas the father has been less involved in taking care of the child during that time. Usually the father's role becomes more important when the child has learnt to speak and needs companions to play with or requires support for developing the exploration system (Grossmann et al., 1999). Mothers have also been found to outrank fathers for secure base and safe haven behaviors (Trinke & Bartholomew, 1997) and to contribute more to the development of the attachment system than the father (Grossmann et al., 1999). These explanations suggest that fathers should participate more in the caregiving of their children from the very beginning.

Several studies have provided evidence (see, e.g., Cassidy, 1999; Weinfield, Sroufe, Egeland, & Carlson, 1999) that a child develops secure attachments with a sensitive and responsive caregiver, whereas more avoidant and more ambivalent attachments result from deficiencies in caregiving. The less secure attachment styles in relation to males might also be explained with fathers' being less skilled at interacting with their children, feeling more helpless than mothers and also less capable of promoting a sensitive and responsive relationship with their children. These explanations would be reassuring since these factors could be corrected by training fathers' caregiving and interaction skills and thus enabling them to contribute more to the caregiving of their children.

Why do men become more dismissing and women more preoccupied in relation to male attachment targets? A common explanation is that the stereotypical male and female behaviors underlie the differences in the dismissing and preoccupied attachment styles, men presenting themselves more avoidant and uncomfortable with closeness and women presenting themselves more clinging and anxious (Feeney & Noller, 1996, 122). This explanation implies that it is mainly the environment that determines individual differences, whereas Vaughn and Bost (1999) concluded that attachment and temperament domains are related to a modest degree in childhood, although the nature and implications of the relations between these domains remain to be worked out. Belsky (1999), on the other hand, has suggested that security-insecurity may be a heritably determined feature in some children and a rearing-determined one in others. According to Maccoby (1998, 291), productive language and self-regulatory capacities may mature more rapidly in toddler girls than in toddler boys because of differences in physiological development, partially explaining the more reciprocal aspects of female play. It is also known that parents of both sexes play more roughly with boys and discuss feelings more frequently with girls (Maccoby, 1998, 296). Perhaps the development of the secure and fearful attachment styles is determined more by the individual's dispositions at the time when an infant still lacks language skills, whereas the

development of the dismissing and preoccupied attachment styles might be affected more by verbal and nonverbal interaction with others in later stages of development? In general, the findings concerning gender differences supported the suggestion of Owens et al. (1995) that, in order to examine adult attachment more comprehensively, men and women should be analyzed separately. Furthermore, the attachment target should be defined explicitly.

In this study, gender differences in attachment security seemed to affect the women more than the men. Approximately one half of the men were securely attached both in relation to the same and the opposite sex, whereas the proportion of securely attached women was approximately 63% in relation to female attachment targets and only 37% in relation to male attachment targets. In attachment terms, the internal working models of male attachment targets evoked insecure feelings in the participants and, thus, represented some kind of danger or lack of protection. In women, the insecurity of the male representations was either stronger or more generalized than in men. Explanations for this may be found, for example, in the development of gender identity, through which one's own sex becomes more familiar than the opposite sex (Maccoby, 1998) and, consequently, less frightening. According to Maccoby (1998), a tendency to prefer same-sex playmates is already visible in the third year of life and continues in different forms throughout life. This tendency may be explained with a combination of biological (e.g., perinatal androgen), cognitive (gender stereotypes, gender identity), social (peer-group influence, in-home socialization), as well as cultural factors.

Another, less attractive explanation might be found in later unfortunate experiences with males, particularly with women. In Finland, the results of a systematic sample of 7,100 Finnish women aged 18-74 years showed that 40% of adult women have been victims of male physical or sexual violence or threats; moreover, up to 52% of all women have been victims of sexual harassment or sexually offensive behavior after their 15th birthday (Heiskanen & Piispa, 1998). Furthermore, 29% of all women have experienced violence or sexually threatening behavior or have been forced into sexual relations before their 15th birthday (Heiskanen & Piispa, 1998). These figures tell that women are not unreasonable if their attitude reflects insecurity in relation to males, particularly when the media undertake to publicize these experiences. However, these suggestions and also other explanations for the gender differences in attachment require further scrutiny before any conclusions can be drawn.

13.4 Relation between attachment styles and personality characteristics in late early adulthood

The Secure had better psychosocial functioning and more positive personality characteristics, whereas the Fearful had poorer psychosocial functioning, less adaptive personality characteristics, and personality vulnerability in many areas. Overall, these results were in agreement with earlier studies concerning the relation of attachment to personality (Carver, 1997; Diehl et al., 1998; Shaver & Brennan,

1992), to psychosocial functioning (e.g., Bartholomew & Horowitz, 1991; Diehl et al., 1998; Goldberg, 2000), and to personality vulnerability (e.g., Dozier et al., 1999; Diehl et al., 1998; Meyers, 1998). It may be that estimating oneself as securely attached is an element of the overall, even illusory (Taylor & Brown, 1988), maintenance of a well-adapted personality, and a tendency to describe oneself in terms of positive rather than negative attributes (Pulkkinen, Männikkö, & Nurmi, 2000). On the other hand, the emphasis on the secure attachment style may also reflect its socially desirable nature.

Unlike most previous studies, the present study examined the relation between attachment and personality by using a number of personality measures and also longitudinal, prospective data. The three personality dimensions were measured at age 27 and their five equivalents, including the subfacets, at age 33. Furthermore, personality vulnerability areas that were associated with certain personality areas (af Klinteberg, 1986, 1990) were measured at age 36. The results revealed that the relation between attachment styles and personality characteristics remained quite stable during the period of nearly ten years covered in this study. This finding supported Diehl et al. (1998) who suggested that attachment styles were linked to personality characteristics throughout adult life. Furthermore, attachment styles were related to all measured areas of personality with a coherent and meaningful way, supporting Bowlby's (1980) notion that attachment theory can be seen as a general theory of personality development. Also Diehl et al. (1998) paid attention to the consistency of their results with broader conceptualizations of adult personality development. However, it seems that attachment styles differ from each other more clearly when the four-category model is used (e.g., Diehl et al., 1998) than when three attachment styles are used (e.g., Shaver & Brennan, 1992).

The revealed differences between the attachment styles in the personality characteristics in this study were in line with earlier studies (Brennan & Shaver, 1992; Carver, 1997). The relation between attachment and personality mostly involved the Neuroticism and Extraversion dimensions of personality (Feeney & Noller, 1996, 126-128). The Secure were extraverted, the Preoccupied and Fearful were neurotic, and the Dismissing were low in both neuroticism and agreeableness. Conscientiousness and Openness did not differentiate between the attachment styles; furthermore, low Agreeableness was related to attachment styles that reflected avoidance (Becker et al., 1997; Brennan & Shaver, 1992; Carver, 1997). In accordance with Diehl et al. (1998), also this study found fewer differences between the Dismissing and the Preoccupied than between the Secure and the Fearful. However, the differentiating factors were different: the level of detachment and the type of hostility were the differentiating factors in this study, whereas Good Impression was higher in the Dismissing in Diehl et al.'s (1998) study.

As for the personality facets, the results in this study and Diehl et al.'s (1998) study differed concerning the differences between the insecure attachment styles in the facet scales. It appears that the Anxious and Avoidant groups of Diehl et al. (1998) contained such participants who would have been classified as Fearful when using the four-category model. For example, in Diehl et al. (1998), the secure attachment style differed from the two insecure attachment styles in self-consciousness and gregariousness, whereas in this study the Dismissing were similar to the Secure in self-consciousness and the Preoccupied were similar to

the Secure in gregariousness. Furthermore, hostility and vulnerability differentiated between the attachment styles in Diehl et al. (1998), contrary to this study. Otherwise, most of the differences were largely similar despite the differences in the framework and methods used.

On the other hand, only some areas of personality were related to attachment styles, supporting the conclusion of Vaughn and Bost (1999) that "attachment security cannot be considered as redundant with temperament in the explanation of personality and/or in explanations of qualities of interpersonal action", concerning infancy and early childhood, as only some aspects of personality were related to attachment in adulthood. Also Brennan and Shaver (1992) concluded that attachment styles were not redundant with the Big Five, although meaningfully related to them. It is also noteworthy that conscientiousness and openness did not differentiate between the attachment styles in this study, showing that attachment and personality are not related at the level of the two higher order metatraits of personality (Digman, 1997) and further confirming that the attachment system and the personality have some overlap but are otherwise separate. Diehl et al. (1998) suggested that Bartholomew's (1990) way of approaching Bowlby's (1973) internal working models through a model of the self and a model of others converges with general theoretical views on personality development and with recent thinking on adult development, suggesting that adult personality development proceeds along a self dimension and an other dimension.

In attachment studies, a replicable two-dimensional structure has usually been achieved where the dimensions correspond to anxiety and issues concerning avoidance-closeness (Brennan et al., 1998; Feeney et al., 1994b; Sanford, 1997; Simpson et al., 1992). These two factors seem to correspond to Bartholomew's (1990) self dimension and other dimension, respectively, as they may be measured with self-esteem, subjective distress, and self-acceptance, or with sociability and the warmth versus coldness dimension of the Interpersonal Circle (Bartholomew & Horowitz, 1991). However, Brennan and Bosson (1998) derived two factors corresponding to attachment insecurity and defensive emotional style, which corresponded to the diagonals of the four-category model, or were the equivalents of the other two-dimensional structures after a 45-degree rotation. According to Brennan and Bosson (1998), the first factor concerned security versus fearfulness and the second factor concerned dismissiveness versus preoccupation.

The results concerning the personality characteristics and differences in them between the attachment styles and along the attachment dimensions were somewhat contradictory with earlier findings. In this study, the self-dimension was mainly characterized by self-consciousness but not by anxiety, as suggested by most other studies (Brennan et al., 1998; Feeney et al., 1994b; Sanford, 1997; Simpson et al., 1992). In contrast, the diagonal of the four-category model, with the dismissing and preoccupied styles as its poles, which is the equivalent of the second factor in the two-factor structure described by Brennan and Bosson (1998), was described by anxiety, in combination with agreeableness. Furthermore, psychoticism did not operate as the opposite pole for neuroticism, as suggested by Digman (1997), but rather seemed to characterize negative attitude toward others; agreeableness, in turn, was related to the other diagonal of the four-category model (Bartholomew, 1990) instead of the self-dimension.

A potentially important finding was also that there were more differences between the secure and fearful attachment styles than between the dismissing and preoccupied attachment styles. Diehl et al. (1998) made the same discovery when they compared the attachment styles and personality variables that were measured with the California Psychological Inventory. On the other hand, Cozzarelli et al. (2000) found that the model of self had more numerous and generally stronger effects on psychological adjustment that the model of others, which, in turn, was related to the relationships-relevant outcomes. In this study, the personality correlates of the other-dimension, positive emotions or warmth, appeared to depend on the level of self-consciousness that characterized the self-dimension. All these findings support an underlying two-dimensional system where the self dimension is related to attachment security and/or attitude toward self and the other dimension is related more to the interpersonal area and attitude toward others. However, these findings also seem to suggest that the other dimension is somewhat more dependent, or weaker, than the self dimension is, whereas the four-category model implies that the dimensions have an equal impact on the attachment styles. Therefore, a question may be raised whether the diagonals of the four-category model really are the rotated equivalents of the self and other dimensions or whether they represent some other aspects of attachment?

The diagonals of the four-category model become interesting in the light of Birchnell (1987) who suggested a two-dimensional system for classifying interpersonal attitudes and behavior. In his system, the first dimension concerned closeness versus separateness (attachment versus detachment) and the second dimension concerned dominance versus submissiveness. The first dimension appears to be a close equivalent of the preoccupied-dismissing diagonal of the four-category model of adult attachment, whereas the second dimension might be an equivalent of the other dimension in the Interpersonal Circle by Wiggins, Phillips, and Trapnell (1989). On the other hand, the results in this study implied that the attachment self and other dimensions would partially correspond to the Neuroticism and Extraversion dimensions of the Big Three of personality, respectively. Therefore, the most often replicated two-dimensional system might be the link between attachment and personality, whereas the more weakly supported diagonals of the four-category system might associate attachment styles to the interpersonal field and shed more light on the interpersonal (Asendorpf & Wilpers, 2000; Cook, 2000; Diehl et al., 1998) and reciprocal (Rosen & Burke, 1999) nature of attachment security, which has begun to emerge in attachment studies.

13.5 Methodological evaluation

In this dissertation, only data collected with self-reports and personality questionnaires were used, with the participants as the sole informants. Moreover, adult attachment was only measured at age 36 and only by using a prototypic self-report measure. The choice of self-reports for assessing adult attachment was due to the nature and aim of the Jyväskylä Longitudinal Study, which was designed as a study of personality and social development where the focus was in emotional

and behavioral regulation, not in attachment. When the data collection for age 36 was being planned in 1994, Bartholomew's (1990) four-category model and the Relationship Questionnaire (Bartholomew & Horowitz, 1991) were innovations in the area of adult attachment and among the best methods that were available, based on the knowledge of that time. Simpson and Rholes (1998) even stated that Bartholomew's approach was a major contribution to attachment research. Furthermore, as the introduction part of this dissertation shows, attachment self-reports have been widely used in attachment studies and have served attachment research well. The problems associated with them are more due to the diverse practices in operationalizing and defining attachment styles.

An interview method for assessing adult attachment would have given a different type of insight into the participants' attachment (Simpson & Rholes, 1998); however, conducting the AAI for over 300 participants in addition to the semi-structured interview would have been unreasonably time-consuming and exhausting for the participants. Moreover, for the AAI codings to be reliable, they need to be done by specially trained persons. However, this training is not always available. The AAI method has also proven valid and reliable (Bakermans-Kranenburg & van IJzendoorn, 1993; van IJzendoorn, 1995; van IJzendoorn & Bakermans-Kranenburg, 1996). From attachment self-reports, the psychometric properties of the Relationship Questionnaire and also the construct validity of the four-category model have proven satisfactory (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994).

According to Simpson and Rholes (1998), self-reports and the interview method measure different components of an individual's internal working models at different levels of consciousness. However, Shaver, Belsky, and Brennan (2000) remarked that both the state of mind in relation to attachment, measured with interviews, and the attachment styles, measured with self-reports, are thought to emerge from a person's history of attachments, beginning with the parents. Therefore, it seems likely that they should be related, at least to a degree. De Haas, Bakermans-Kranenburg, and van IJzendoorn (1994) compared the AAI classifications and self-reported attachment styles but found no association between them. The reason for this may, however, lie in how the self-reported attachment styles were derived in their study (Hazan & Shaver prototypes, both a forced-choice and a 7-point continuous scale). On the other hand, Crowell, Treboux, and Waters (1999) found a trend toward a relation between AAI and RQ forced-choice classifications between the Secure and the Insecure attachment style groups. A review of adult attachment measures by Crowell and Treboux (1995) clearly illuminates the problem of comparing and integrating the results obtained with different attachment measures.

Self-reports are, however, known to produce systematic biases with questions about certain types of behaviors and characteristics (Bachrach, 2000). For example, some participants may have a tendency to present themselves in a socially desirable way, which may lead to overreports of socially desirable behaviors or to underreports of threatening behaviors (Schaeffer, 2000). Moreover, the magnitude of the bias may not be constant across all subjects (Miller, Gribble, Mazade, Rogers, & Turner, 2000). The secure attachment style obviously represents socially desirable behaviors, and the insecure attachment styles more or less undesirable behaviors; therefore, the emphasis on the secure attachment style in most attachment studies

(see Table 5) might partly represent the effect of social desirability and not reflect a true distribution of attachment styles. The use of only the highest score in determining attachment styles necessarily reflects this bias and may be an explanation for the variability in the proportions of attachment styles in different studies, thus making the results of different studies less comparable and, possibly, also leading to erroneous inferences and misleading conclusions (Bachrach, 2000) about the relations of attachment to other areas in an individual's life. However, it should also be remembered that even if a person responds to several questionnaires, he or she still functions as an organized whole, and, thus, the bias should be consistent in each of the measures, providing also mutual validation.

In this study, the participants filled out the attachment self-reports during semi-structured interviews. Since attachment appears to be situation and relationship-specific (Asendorpf & Wilpers, 2000; Baldwin et al., 1996; Cook, 2000; Cozzarelli et al., 2000), the nature of the interview situation and its consistency for all participants is important when assessing attachment. Also Kobak (1994) emphasized that the context should always be taken into consideration when measuring attachment because of its dual nature as both a personality construct and a relationship construct. In this study, the interviewers were specially trained psychologists of approximately identical age and status; consequently, the interviewers should not have influenced the attachment assessments. The interviews were conducted at locations suggested by the participants, the alternatives varying from their work places to their homes. The participants' choices were undoubtedly made by considering many aspects; however, at least some participants might have chosen a place that felt secure enough for participating in interviews where also difficult questions were asked, which they knew on the basis of the earlier data collection. On the other hand, the participants' attachment styles might have more reliably reflected the "danger," i.e. being interviewed in a strange place, if all participants had been interviewed in similar locations.

The instructions that were given to the participants for filling out the attachment style self-reports directed them to think of any close relationships with persons of their same or opposite sex, not with any particular individuals. Therefore, the participants might have thought of their relationship, for example, with their spouses, parents, or friends. According to Crowell et al. (1999), attachment relationships can be distinguished from other adult relationships on the basis of the feelings of security and belonging, loneliness, and restlessness. This rules out some types of relationships that our participants might have thought of when they answered the self-report, such as companionships or purely sexual relationships. Thus it is not certain whether all participants were thinking of their attachment figures when they answered and, consequently, assessed their attachment styles.

In this study, attachment styles were assessed by using a four-point scale, from "Does not describe me at all" to "Describes me very well". In their original interview measures, Bartholomew and Horowitz (1991) used even a seven-point scale; furthermore, most other attachment studies have used a five-point scale at least. It may be that the four-point scale used in this study gave the participants insufficient alternatives for differentiating between their attachment styles with an accuracy that would have been appropriate. Therefore, the large percentage of

the participants who had tied-high scores might partly be an artifact of the four-point scale, instead of reflecting the true extent of tied-high score use. In general, the number of alternatives on the measurement scale does affect the variability of the answers and is, consequently, related to the scope of the differences that may be discovered. According to Kline (2000, 189), the reliability of a Likert-type scale is dependent on the number of steps on the scale, increasing up to the point of seven steps and then gradually leveling off. Psychological constructs are mostly difficult to operationalize and often abstract and fuzzy; however, this should not result in inaccurate measurement practices, which further reduce the chances of discovering anything except the most evident relations between constructs.

The participants in this study were in transition between young adulthood and middle age, in contrast to most earlier studies whose participants have been students or covered a wide age range. Furthermore, due to the representativeness of the sample, the results of this study are widely generalizable. The results are also in accordance with those studies that have used a four-category model as a framework in assessing adults' attachment and have defined attachment styles using a clustering analysis method (Feeney et al., 1994b; Carver, 1997). The secure attachment style was the most common in Finland, as it has appeared to be in other countries and cultures as well. The percentages of the dismissing, fearful, and preoccupied attachment styles were approximately equal, which is also in line with other studies. This study also confirmed that men tend to be more dismissing and women more preoccupied, which appears to be more than a mere sociocultural feature. Therefore, the results presented here should also be generalizable to middle-aged adults in other western cultures. However, this study also revealed that the differences in attachment styles are related to both the gender of the participant and the attachment figure. Studies in other countries and cultures are needed to determine whether the differences in the dismissing and preoccupied attachment styles are similarly gender-specific also in other cultures.

As long as the stability and change in adult attachment styles or the cohort effect on adult attachment are not properly known, the generalizability of the results in this study to other than middle-aged adults is uncertain. Attachment theory suggests that attachment styles are quite stable throughout life after their basis has been formed in early caregiving relations because they have been coded into unconscious inner working models that guide one's behavior during one's entire life (Bowlby, 1969, 1973, 1980, 1988). Evidence for both stability and change have been presented (Benoit & Parker, 1994; Main et al., 1985; Main & Cassidy, 1988; Rothbart & Shaver, 1994) although the general opinion seems to favor Bowlby's original proposition. However, a long-standing relationship with, for example, a therapist or a securely attached partner are suggested as sources of change for the better, whereas traumatic experiences and changes in life conditions are suggested to make the situation more insecure (Ricks, 1985; van IJzendoorn, 1995). Quite recently Crittenden (1997) has even proposed that maturing itself may adjust attachment styles toward a more secure condition. All these factors, combined with the unresolved questions of measurement issues, suggest that one should not generalize these results for persons much older or much younger than middle-aged.

The present author had the invaluable opportunity of utilizing for her dissertation the data collected during the Jyväskylä Longitudinal Study of

Personality and Social Development when she began her dissertation study in 1998. Therefore, the author was not able to participate in the most important phases in the beginning of that research project when the research questions were formulated and data gathering was planned to fulfill the requirements of the research questions. When the author entered the longitudinal project in 1997 for her master's thesis, the data had already been collected and stored. Therefore, the author can neither make a merit of the idea of measuring attachment styles in relation to the same and the opposite sex at age 36 nor of choosing the measures for personality characteristics or psychosocial functioning at different ages. However, the rich longitudinal data in the still ongoing longitudinal project contains large amounts of information concerning several areas of the participants' lives, excellent for performing so-called secondary analysis of data (e.g., Brooks-Gunn, Phelps, & Elder, 1991; McCall & Appelbaum, 1991) and also solving such research questions that were not planned in detail in advance.

13.6 Implications and suggestions for future research

A difficult question in adult attachment research has been the diversity of both the methods for measuring adult attachment and the attachment styles that are determined from the data. Griffin and Bartholomew (1994b) described this situation nicely: "... a rigorous consideration of measurement issues is often bypassed by researchers because it seems dry and boring next to the simple pleasure of theoretical musing or the tingling excitement of data collection." In the light of this study, their description seems to be regrettably accurate. Crowell et al. (1999) explain the variability as due to the independence and different domains of interest of the investigators in this field.

However, this variability leaves important questions in adult attachment unanswered, complicates the comparison of the results in different studies, and makes it difficult to examine the relationship of adult attachment to other aspects of a person's life. Both measuring attachment and defining attachment styles or dimensions, by reducing the raw data, are equally important and form the basis of all attachment research and the bedrock of its reliability. The shortcomings of measurement might not be corrected in the later phases of a study, yet they may considerably undermine the reliability of the results - if there would be any findings to begin with. General phenomena and large-scale rules may be discovered even with crude measures and coarse measurement scales; however, when more specific phenomena are searched for, the measurement practices must conform to the demands of the measurement target, or else the phenomena cannot be determined or the results may be contradictory, artifacts of the measurement.

Therefore, several improvements for the measurement and analysis practices of self-reported adult attachment are suggested on the basis of this study. First, it might be useful to give more accurate instructions to the subjects concerning what types of relationships they should think of. There are, naturally, several options for doing that. The instructions can be formulated carefully - and should also be reported in the discussion of measurement practices of attachment research. If attachment styles are measured in general, the attachment self-questionnaire might

be preceded with questions about attachment figures and their defining features in order to direct the participants to think of attachment relationships. The attachment styles may also be measured in relation to defined attachment targets, which could be labeled to represent the same and the opposite sex in general or such persons that are highly likely to be attachment figures, such as mother, father, female sibling, male sibling, female friend, male friend, and so on. When using prototypic descriptions, the wording of the descriptions should be changed to fit those attachment figures that are sought. Second, a five-point scale at least, and preferably a seven-point scale should be used in future studies for capturing the differences between the attachment styles within each individual, unless there is an explicit justification for reducing the width of the scale. Third, this study also suggested two different methods for overcoming some of the deficiencies in determining adult attachment styles from prototypic, continuously rated self-reported data. These methods may be utilized both in research and in practice since they are not culture-sensitive and they are also suitable for other scale measures than the four-point one. Fourth, when analyzing the data, any potential differences between women and men should be taken into account.

Those responsible for applying the results of attachment research, particularly those working with attachment disorders, have long yearned for a method for assessing attachment easily. The interview method, of course, is quite suitable for clinical purposes; however, it is time-consuming, requires special training that is often unavailable, and may involve difficult coding and poor reliability between raters. Moreover, the extension of AAI (Crittenden, 1997) and its coding system for clinical purposes is still under construction, whereas the earlier AAI system (Main et al., 1985) was only intended for a normative sample. Several self-reports have been designed to meet the demands of clinical work (see Table 4) but none of them have yet proven their superiority. The four-category division of attachment styles may not be accurate enough for clinical purposes; however, the extended tied-high classification might do better, and would also be easily coded. However, the suitability of the Relationship Questionnaire and the extended classification system to other than research purposes needs to be examined.

Traditionally, researchers have adopted Bartholomew's (1990) description of the four attachment styles and the positivity or negativity of the self and other dimensions, style by style. However, another view is obtained when emphasizing the similarities rather than the differences between the attachment styles. Thus, both the secure and the preoccupied attachment styles have a positive model of other, whereas both the dismissing and the fearful attachment styles have a negative model of other. Analogously, both the secure and the dismissing attachment styles have a positive model of self, whereas both the preoccupied and the fearful attachment styles have a negative model of self. The advantage of this view is that it gives the tied-high scores a theoretical justification and also expands the view of the "forced single highest attachment style" tradition.

The results of this study showed that in the double tied-high scores, the secure attachment style was quite often a component and any one of the insecure attachment styles, the dismissing, the preoccupied, or the fearful attachment style, was its counterpart. Therefore, it appeared that both positive attitude toward self (as in the dismissing attachment style), positive attitude toward others (as in the preoccupied attachment style), or particularly both of them in combination (as in

the secure attachment style) may be considered as a protective factor in attachment security. Thus, the division between the secure and insecure attachment styles would need to be reexamined because the dismissing and the preoccupied attachment styles share adaptive characteristics, despite being usually considered as insecure attachment styles. Fearful attachment, on the other hand, implies, by definition, negative attitude toward self and others and is also manifested as psychosocial dysfunctioning, personality vulnerability, and less adaptive personality characteristics; consequently, the fearful attachment style may clearly be considered to represent insecure attachment and a strategy that would be adaptive only in such environments where danger or its menace is constantly present.

The results of this study showed that both the gender of the participant and the gender of the attachment figure had an effect on the attachment styles. It may be that the early care of the child should be defined more accurately as a female/male child's interaction with a female primary caregiver and a male secondary caregiver and their effects on the development of the attachment style of the child. Studies of multiple attachments within families have shown that the mother and the father do not always share the same attachment style (Kimmerly & Schafer, 1991; Rosen & Burke, 1999) and, further, both concordance and discordance have been found in children's attachment styles toward mothers and fathers (Baldwin et al., 1996; Main et al., 1985; Rosen & Burke, 1999). These results seem reasonable since it would be surprising if the transmission of attachment style would be straightforward from parents to children without any other influence. On the other hand, they do not reveal much that would help interpret the significance of gender for the development of the attachment styles.

If the gender differences in attachment exist in several different cultures, they should be adaptive from the point of view of human development and evolutionary psychology. Taking this into account, Simpson (1999) suggested that women and men might have faced different adaptive problems with regard to mating and reproduction and, thus, the more dismissing attachment style of men and the more preoccupied attachment style of women would reflect different reproductive strategies conditioned by evolution to enhance reproductive fitness in certain environments. According to Simpson (1999), ambivalence might have evolved to redress deficiencies in caregiving by young, naive, overburdened, or underinvolved parents, whereas avoidance might reflect caregiving provided by highly distressed, hostile, or unmotivated parents. Belsky (1999) further proposed that limited and unpredictable resources would have caused parents to provide insensitive and rejecting care in order to emphasize mating over parenting and, thus, to promote reproductive fitness by production of many offspring. In turn, the capacity for developing resistant (ambivalent) attachments would have evolved as a means of indirectly fostering reproductive "helper-at-the-nest" behavior in one's own offspring and promoting dependency and physical proximity in order to keep the offspring susceptible to parental manipulations and involved in the caregiving. The suggestions of both Simpson (1999) and Belsky (1999) are highly interesting and illustrate the nature of individual differences in adult attachment and also gender differences in the avoidant and ambivalent attachment styles. However, their links to modern western culture need to be clarified further.

A generally accepted beginning for the development of one's attachment

style is the early interaction with the primary caregiver and how it succeeds in fulfilling the child's needs (e.g., Ainsworth et al., 1978). This explanation, however, fails to address the possible developmental order of the different patterns of attachment. General support for the early development of the secure-fearful continuum may be found in the psychosocial development theory (e.g., Erikson, 1963, 1968, 1982) and object relations development theory (e.g., Mahler, Pine, & Bergman, 1975; Stern, 1985a, 1985b). Erikson (1982), for example, recognized that a failure to develop the basic trust during the earliest phases of the development might seriously interfere with a child's sense of security. However, in these theories only the phases that follow the early phases include an ability to see others separate from oneself and an ability to form mental representations concerning oneself and others, which, in turn, are necessary for interaction with others. Also the development of attachment propensities (Marvin & Britner, 1999; Simpson, 1999) is in accordance with these suggestions.

Without reviewing developmental theories in more detail, these general notions have led me to ponder whether the earliest phases of development could contribute more to the development of attachment security and manifest themselves along the secure-fearful dimension and whether the development of the preoccupied and dismissing attachment could be more affected by the subsequent early phases of human development? Longitudinal studies of attachment might produce more evidence for solving these issues, for example, if the secure and fearful attachment styles would prove to be more stable and the dismissing and preoccupied attachment styles more prone to change. However, before the attachment styles that are established at different ages may be reliably compared, the issues concerning the measurement and definition of attachment styles should be resolved.

My approach in this thesis is person-oriented, implying that these results apply both to individuals and to groups of individuals. I have also pursued a holistic view in examining the relations of attachment styles to the totality of man: personality characteristics, social and interpersonal relations, emotions, cognitive strategies, problem behavior, inner and outer problems, and personality vulnerability. This holistic view confirms that attachment truly has a coherent effect on several aspects of life, both in the good and in the bad. Deviations from the development of a secure attachment base in childhood may be the origin of maladaptive functioning, emotional and behavioral problems, less adaptive personality characteristics, and problems in interpersonal relations in later life. On the other hand, the secure attachment style, or at least positive attitude toward self or others, builds a foundation for adaptive personality with good psychosocial functioning and gives protection against dangers and strength in the faced challenges also in later life. Therefore, fostering the development of secure attachment and enabling insecurely attached individuals to develop and internalize more positive attitudes toward themselves and others should be of utmost importance for the society. Furthermore, these could be some of the most effective means of improving the overall well-being of the general population.

YHTEENVETO

Aikuisten kiintymystyylit

Aikuisiän kiintymyksellä tarkoitetaan ihmisen pysyvää pyrkimystä muodostaa läheisiä ihmissuhteita sekä taipumusta toimia siten, että olemassaolevat ihmissuhteet säilyisivät tyydyttävinä. Kiintymys ilmenee kiintymyskäyttäytymisenä, joka näkyy esimerkiksi ärtyvyytenä ja protestointina, kun ero läheisestä ihmisestä uhkaa tai toteutuu, tai toisaalta esimerkiksi avuttomuuden tunteina ja apeana mielenä, kun itse on lohdutuksen ja avun tarpeessa. Aikuisiän kiintymyssuhteet ovat usein vastavuoroisia, ja ensisijainen kiintymyshahmo onkin yleensä oma elämänkumppani. On kuitenkin tavallista, että yksilöllä on myös muita, toissijaisia kiintymyshahmoja, kuten omat vanhemmat, ystävät, ja työkaverit.

Aikuisten kiintymyksen mittaamiseen käytettyjen menetelmien kehittely on parhaillaan menossa. Kehitystyö etenee pääasiassa kahden eri suuntauksen sisällä, joista toinen keskittyy itseraportointien ja toinen haastattelumenetelmien kehittämiseen. Sekä eri kehityssuuntien kesken että myös saman suuntauksen sisällä aikuisten kiintymyksen mittaamisessa ja määrittämisessä on vaihtelevuutta, joka vaikeuttaa tutkimusten toistettavuutta ja vertailtavuutta, sekä näin haittaa kiintymyksen tutkimista ja kiintymyssuhdeteorian kehittämistä. Myös tutkittavien näkökulmasta on hankalaa, mikäli heille määritetty kiintymystyyli vaihtelee käytetyn menetelmän mukaan, tai jos heidät jopa suljetaan pois tutkimuksesta sen takia, ettei heidän kiintymystyyliään voida määrittää. Tällöin voi vaarana olla myös se, että menetetään mahdollisuus tutkia joitakin kiintymykseen olennaisesti liittyviä, mutta pienimuotoisempia tai heikompia ilmiöitä.

Tässä tutkimuksessa päätavoitteenani oli kehittää aikuisten itseraportoidun kiintymyksen mittaamista ja kiintymystyylien päättelemistä itseraportoidusta kiintymysdatasta. Toisena tavoitteenani oli selvittää naisten ja miesten eroja tavassa kiintyä nais- tai miespuolisiin kiintymyshahmoihin. Kolmanneksi tavoittenani oli tutkia eri kiintymystyyliryhmiin kuuluvien ihmisten persoonallisuuden piirteiden ja psykososiaalisen toimintakyvyn eroja.

Käytin tutkimukseni viitekehyksenä Bartholomewin (1990) esittämää neliluokkaista aikuisten kiintymyksen mallia. *Turvallinen, takertuva, itseriittoinen ja pelokas kiintymystyyli* määritellään mallissa suhteessa kahteen taustalla olevaan dimensioon ja näiden myönteisyyteen tai kielteisyyteen. Toinen dimensioista liittyy käsitykseen itsestä, kun taas toinen dimensioista liittyy käsitykseen muista ihmisistä. Myönteinen käsitys itsestä ja muista luonnehtii turvallista kiintymystyyliä, kun taas kielteinen käsitys sekä itsestä että muista on tyypillistä pelokkaassa kiintymystyylissä. Turvallisesti kiintyneiden myönteinen käsitys itsestä ilmenee hyvänä itsetuntona ja psyykkisenä hyvinvointina, joiden taustalla on luottamus omaan osaamiseen, hyvyyteen ja rakastettavuuteen, sekä myös odotus muiden hyväksynnästä ja arvostuksesta itseä kohtaan. Myönteinen käsitys muista puolestaan ilmenee vuorovaikutustaitoina ja sosiaalisuutena, joiden taustalla on luottamus muiden apuun ja tukeen sekä myönteiseen suhtautumiseen silloinkin, kun itse on avun tarpeessa, sekä mahdollisuus antaa muille apua ja tukea silloin kun nämä sitä tarvitsevat. Pelokkaasti kiintyneet

puolestaan suhtautuvat kieltei-sesti sekä itseensä että muihin. Sen mukaisesti he tuntevat olonsa ahdistuneeksi sekä yksin ollessaan että muiden seurassa. He eivät luota omiin taitoihinsa ja kykyihinsä, mutta eivät silti uskalla pyytää muiden apua, koska eivät luota muiden haluun auttaa heitä. Niinpä pelokkaasti kiintyneet ovatkin selkeästi muita alttiimpia sekä mielenterveyden ongelmille että psykososiaaliselle pahoinvoinnille.

Takertuvassa kiintymystyylissä käsitys itsestä on kielteinen, mutta käsitys muista myönteinen, kun taas itseriittoisessa kiintymystyylissä päinvastoin käsitys itsestä on myönteinen ja käsitys muista kielteinen. Yleensä kielteinen käsitys itsestä ilmenee itsen ja omien kykyjen väheksyntänä sekä omien toiveiden ja tarpeiden mitätöintinä, joka heijastuu myös odotuksina siitä, millaista kohtelua on mahdollista ja oikeutettua saada muilta ihmisiltä. Kielteinen käsitys muista puolestaan estää luottamasta muiden apuun ja hyväksyntään silloinkin, kun niitä kipeästi tarvitsisi, sekä vähentää muiden tuen ja seuran etsimistä. Itseriittoisesti ja takertuvasti kiintyneillä on mahdollisuus kompensoida kielteisiä käsityksiään painottamalla myönteistä käsitystä joko itsestä tai muista. Itseriittoisesti kiintyneillä tämä ilmenee korostuneen hyvänä itsetuntona, haluna pärjätä yksin ja taipumuksena painottaa tiedollisten asioiden hallintaa. Avun pyytäminen ja heikkouden näyttäminen on kuitenkin heille hyvin vaikeaa. Takertuvasti kiintyneet puolestaan ovat tunteikkaita ja seurallisia, saavat muut viihtymään ja mielellään turvautuvat muiden apuun silloinkin, kun se ei ole välttämätöntä. Yksin joutues-saan he kuitenkin ahdistuvat ja voivat oireilla muun muassa terveysongelmien kautta.

Tutkimukseni otos koostui 130 naisesta ja 141 miehestä, jotka edustivat valikoitumattomasti jo vuonna 1968 alkaneen ja yhä jatkuvan, akatemiaprofessori Lea Pulkkisen johtaman Lapsesta aikuiseksi -pitkittäistutkimuksen osanottajia. Käytin tässä tutkimuksessa aineistoa, joka on kerätty itseraportoinneilla ja persoonallisuuskyselyillä tutkittavien ollessa 27-, 33- ja 36-vuotiaita. Tutkimukseen osallistuneet edustivat sekä 27- että 36-vuotiaina valikoitumattomasti sekä alkuperäistä satunnaisotosta (173 tyttöä ja 196 poikaa) että omaa, vuonna 1959 syntynyttä ikäkohorttiaan muun muassa siviilisäädyn, lasten lukumäärän, koulutuksen ja työttömyystilanteen suhteen. Tutkimukseni tulokset ovat sovellettavissa suomalaisiin keski-ikäisiin aikusiin, niin ryhmiin kuin yksittäisiin ihmisiinkin.

Tutkittavien kiintymystyyliä mitattiin 36-vuotiaana Bartholomewin ja Horowitzin (1991) kiintymyksen itseraportointimittarilla, jossa tutkittavat arvioivat neliportaisella asteikolla neljän kiintymystyylikuvauksen sopivuutta itseensä suhteessa sekä omaa että vastakkaista sukupuolta oleviin läheisiin ihmisiin. Tutkittavien persoonallisuutta mitattiin 27-vuotiaana Eysenckin ja Eysenckin (1975) EPQ-persoonallisuusmittarilla sekä 33-vuotiaana Costan ja McCraen (1985) NEO-PI -mittarin suomalaisella versiolla. Tutkittavien psykososiaalista toimintakykyä mitattiin 36-vuotiaana sekä KSP-persoonallisuuskyselyllä että useilla itserapor-tointimittareilla, jotka mittasivat itsetuntoa, psyykkistä hyvinvointia, depres-siivisyyttä, tunteiden ilmaisuvaikeuksia ja terveysongelmia. Tutkittavat täyttivät itseraportointilomakkeet puolistrukturoidussa haastattelussa, jonka alussa he lisäksi arvioivat tunnetilaansa sekä haastattelun loppupuolella kognitiivisia strategioitaan. Tutkittavien alkoholismia ja rikollisuutta tutkittiin valtakunnallisten rikosrekisteritietojen avulla.

Kehitin tutkimuksessani sekä luokitteluun perustuvan että tilastollisen menetelmän kaikkien osanottajien luokittelemiseksi kiintymystyyliryhmiin. Laajensin aikaisemmin käytettyä luokittelumenetelmää siten, että myös useammalla kuin yhdellä kiintymystyylillä itseään kuvanneet tutkittavat voitiin luokitella kiintymystyyliryhmiin. Laajennettu kiintymystyyliluokittelu sisälsi kymmenen luokkaa, joista neljä perustui aikaisempaan luokittelukäytäntöön korkeimman arvon saaneen kiintymystyylin mukaan. Laajennus käsitti kuusi luokkaa, joista viisi pohjautui viitekehyksenä käytetyn neliluokkaisen kiintymysmallin taustalla oleviin dimensioihin sekä niiden myönteisyyteen tai kielteisyyteen. Kuudes luokka puolestaan sisälsi kaikki ne osanottajat, jotka olivat kuvanneet kiintymystään yhtäläisesti joko kolmella tai kaikilla neljällä kiintymystyylillä.

Kaksivaiheinen tilastollinen menetelmä puolestaan sisälsi kaksivaiheisen klusterianalyysin, jossa ensin määritettiin agglomeratiivisella hierarkkisella klusterianalyysillä (Wardin menetelmä, Euklidiset etäisyydet) optimaalinen klusteriratkaisu ja sen jälkeen iteroitiin kyseinen ratkaisu K-Means-klusterianalyysin avulla. Käytin tutkimuksessani klusterointimuuttujia, jotka oli ensin standardoitu henkilöittäin ja sitten muuttujittain. Tällä menetelmällä sain muodostettua merkitsevästi toisistaan eroavat ja tulkinnallisesti selkeät neljä kiintymystyyliryhmää (turvallinen, takertuva, itseriittoinen, pelokas) sekä kaikille osanottajille yhdessä että myös neljälle osaotokselle, joissa naiset tai miehet arvioivat kiintymystään suhteessa nais- tai miespuolisiin kiintymyshahmoihin. Kiintymystyyliluokittelu ja neljän kiintymystyyliklusterin ratkaisu olivat yhteydessä toisiinsa selkeiden sääntöjen kautta, mikä mahdollistaisi myös kaikkien tutkittavien luokittelemisen neljään kiintymystyyliryhmään kymmenen asemesta. Luokittelumenetelmä on helppokäyttöinen eikä vaadi tilastollisia taitoja, mutta tuottaa ratkaisun, jossa on otettu huomioon vain korkeimmat kiintymystyyliarvot. Klusterointimenetelmä puolestaan vaatii tilastollisten menetelmien käyttöä, mutta pystyy ottamaan ryhmittelyssä huomioon myös muut kuin korkeimmat kiintymystyyliarvot, sekä lisäksi myös kiintymystyylien keskinäiset suhteet.

Tutkimukseni toi uutta tietoa sukupuolieroista kiintymyksessä. Totesin, että takertuva kiintymystyyli luonnehtii naisia ja itseriittoinen kiintymystyyli luonnehtii miehiä, mutta ainoastaan miespuolisten, ei kaikkien kiintymyshahmojen suhteen. Naispuolisten kiintymyshahmojen suhteen turvallinen kiintymystyyli oli tässä tutkimuksessa tyypillinen sekä miehille että naisille. Yleisesti ottaen saman henkilön kiintymystyylit nais- ja miespuolisia läheisiä ihmisiä kohtaan olivat yhteydessä toisiinsa. Toisaalta, kun tarkastelin kaikkia osanottajia yhdessä suhteessa joko omaa tai vastakkaista sukupuolta olevaan kiintymyshahmoon, totesin että osanottajat kuvasivat kiintymystään vastakkaista sukupuolta kohtaan kielteisemmin kuin omaa sukupuoltaan kohtaan. Selitystä näille sukupuolieroille on perinteisesti haettu varhaisesta vuorovaikutuksesta lapsen ja häntä hoitavien ihmisten välillä, kulttuurisista naisen ja miehen roolia koskevista stereotypioista sekä jopa ihmisen lajikehityksestä. Nämä selitykset eivät kuitenkaan koske sitä, miksi tutkittavat kuvasivat vastakkaista sukupuolta kielteisemmin kuin omaa sukupuoltaan tai miksi varsinkin miehiin kohdistuva kiintymys oli turvattomampaa kuin naisiin kohdistuva. Jatkotutkimukset ovat tarpeen sekä tuloksen varmentamiseksi että

koko ilmiön ymmärtämiseksi.

Aikaisemmissa tutkimuksissa luokittelematta jääneiden henkilöiden tutkimus toi esille aiemmin kuvaamattoman puolen kiintymyksestä. Totesin tutkimuksessani, että taipumus kuvata omaa kiintymystä useammalla kuin yhdellä kiintymystyylillä liittyi yleiseen psykososiaalisen toimintakyvyn laskuun, neuroottisiin ja psykoottisiin persoonallisuuden piirteisiin sekä persoonallisuuden haavoittuvuuteen. Näillä tutkittavilla oli turvallisesti kiintyneitä enemmän sekä ongelmia oman mielenterveytensä kanssa että käytösongelmia. Heidän itsetuntonsa ja psyykkinen hyvinvointinsa oli heikentynyt, he olivat ahdistuneem-pia, masentuneempia ja helpommin ärtyviä, heillä oli terveysongelmia ja alkoholiongelmia, eivätkä he sopeutuneet ympäristön vaatimuksiin tai olleet sosiaalisesti suosittuja. Haastattelutilanteessa he tunsivat itsensä stressaantu-neemmiksi ja arvioivat itseään kielteisemmin kuin muut. Lisäksi heidän persoonallisuuspiirteensä, neuroottisuus ja psykoottisuus, olivat pysyviä 27-vuotiaasta 33-vuotiaaksi, ja tulivat 36-vuotiaana esille muun muassa ahdistu-neisuustyyppisinä häiriöinä sekä irrallisuuden tunteena. Nämä samat piirteet luonnehtivat myös pelokkaasti kiintyneiden ryhmää, joista suuri osa olikin arvioinut itseään pelokkaan kiintymyksen lisäksi myös yhdellä tai useammalla muulla yhtä hyvin kuvaavalla kiintymystyylillä.

Turvallinen kiintymystyyli oli yhteydessä hyvään psykososiaaliseen toimintakykyyn sekä ulospäinsuuntautuneeseen ja sosiaaliseen persoonallisuuteen. Turvallisesti kiintyneet olivat hyväitsetuntoisia ja psyykkisesti hyvinvoivia, eikä heitä vaivannut mikään tässä väitöksessä tutkituista psyykkisen hyvinvoinnin ongelmista. Haastattelutilanteessa turvallisesti kiintyneet olivat aktiivisia, asennoituvat tilanteeseen myönteisesti sekä pystyivät keskittymään käsillä olevaan tehtävään. Turvallisesti kiintyneitä ei myöskään luonnehtinut persoonallisuuden haavoittuvuus millään osa-alueella; sen sijaan he olivat sopeutuneet hyvin yhteiskunnan normeihin ja olivat lisäksi sosiaalisesti suosittuja. Persoonallisuuspiirteiltään turvallisesti kiintyneet olivat ulospäin suuntautuneita ja avoimia. Erityisesti heitä luonnehti lämpimyys, seurallisuus sekä myönteinen tunteiden ilmaisu.

Tutkimuksessani kiintymystyylit ja persoonallisuuden piirteet olivat yhteydessä toisiinsa tässä tutkitun ajanjakson ajan, 27-vuotiaasta 36-vuotiaaksi. Varsinkin neuroottisuus ja sen alaskaala, alemmuudentunne, sekä ekstraversio ja sen alaskaalat lämpimyys ja myönteinen tunneilmaisu olivat yhteydessä kiintymykseen ja sen taustalla oleviin, itseä ja muita koskeviin käsityksiin. Mitä voimakkaampi alemmuudentunne tutkittavalla oli, sitä kielteisempi käsitys hänellä oli itsestään. Kun alemmuudentunne oli vähäistä, turvallisesti kiintyneiden suhtautumista muihin luonnehti myönteinen tunneilmaisu ja itseriittoisesti kiintyneitä luonnehti kielteinen tunneilmaisu, kun taas voimakas alemmuuden-tunne liittyi takertuvasti kiintyneillä lämpimyyteen ja pelokkaasti kiintyneillä lämpimyyden puutteeseen. Tutkimukseni tulokset tukevat käsitystä kiintymyksestä ja persoonallisuudesta erillisinä, mutta mielekkäällä tavalla toisiinsa yhteydessä olevina osa-alueina ihmisen kehityksessä. Persoonallisuudella lienee vahvempi temperamenttiperusta, kun taas yksilöllinen kiintymystyyli kehittyy suurelta osin ihmisten välisessä vuorovaikutuksessa.

Tutkimukseni tulosten perusteella suosittelen, että kiintymyksen mittaamiseen ja kiintymystyylien määrittämiseen tulisi kiinnittää enemmän

huomiota, jotta eri tutkimusten tulokset olisivat paremmin vertailukelpoisia ja päästäisiin käsiksi yhä tarkempaa mittaamista vaativiin ilmiöihin myös psykologiassa. Tässä tutkimuksessa esitettyjä kiintymystyylien määritysmenetelmiä voidaan soveltaa sekä tutkimuksessa että käytännön työssä, vaikkakin lisätutkimukset ovat tarpeen kiintymysmittarin ja laajennetun luokittelun soveltuvuuden testaamiseksi myös käytännössä. Erityisesti suosittelen, että kiintymyksen mittaamisessa käytettäisiin riittävän moniportaista asteikkoa ja että kiintymyksen kohde määriteltäisiin selkeästi. Kiintymystutkimuksissa pitäisi myös kiinnittää entistä enemmän huomiota naisten ja miesten eroihin, varsinkin eri sukupuolta oleviin läheisiin ihmisiin suuntautuvassa kiintymyksessä.

Tutkimukseni tulokset myös vahvistivat käsitystä kiintymystyylien laaja-alaisista yhteyksistä aikuisen elämän eri puoliin. Kiintymystyylin perusta luodaan varhaislapsuuden ihmissuhteissa, joissa saadut myönteiset tai kielteiset kokemukset tallettuvat muistiin suhteellisen pysyviksi, itseä ja muita koskeviksi käsityksiksi. Nämä käsitykset ohjaavat havaitsemista, tulkintaa, käyttäytymistä ja tunnereaktioita myöhemmissä ihmissuhteissa, eri elämäntilanteissa ja kaikilla elämänalueilla. Muutos turvallisemman kiintymyksen suuntaan mahdollistuu pitkäkestoisessa terapiassa tai kiinteässä suhteessa sellaisiin ihmisiin, joilla on paremmin toimiva kiintymystyyli. Toisaalta, elämän vastoinkäymiset tai eläminen turvattoman kiintymyksen luonnehtimassa ympäristössä voivat muuttaa varhaisen turvallisen kiintymystyylin myös turvattomampaan suuntaan.

Varhaisten kiintymysvaurioiden korjaaminen on pitkäkestoista, hankalaa ja kallista, joten yhteiskunnan tulisi kaikin tavoin edistää turvallisten kiintymyssuhteiden syntymistä jo lapsuudessa. Tällöin erityishuomio tulisi kiinnittää vanhempien taitojen ja jaksamisen tukemiseen sekä sellaisten yhteiskunnan rakenteiden luomiseen, jotka mahdollistaisivat lasten ja vanhempien turvallista kiintymystä rakentavan yhdessäolon. Erityisesti turvattomasti kiintyneiden lasten olisi lisäksi tärkeä saada korjaavia kokemuksia muiden aikuisten (esim. opettaja, kummitäti, urheiluvalmentaja) kanssa, mikäli omat vanhemmat eivät jostakin syystä kykene riittävään hyvään ja turvalliseen vanhemmuuteen.

Tukea tarvitsevat myös ne aikuiset, jotka kärsivät turvattoman kiintymystyylin mukanaan tuomista ongelmista. Heille puolestaan pitäisi järjestää mahdollisuuksia olla turvalliseksi koetussa ympäristössä ja turvallisesti kiintyneiden ihmisten seurassa. Myös yksilölliset erot olisi syytä ottaa huomioon, jotta kuntoutuksesta olisi mahdollisimman paljon hyötyä. Eri tavoilla kiintyneet ihmiset tarvitsevat erilaista tukea kiintymyksensä muuttamiseksi turvallisempaan suuntaan. Itseriittoisesti kiintyneiden on vaikea solmia ihmissuhteita ja luottaa muihin ihmisiin, kun taas takertuvasti kiintyneiden ongelmana on itseluottamuksen puute ja ahdistava riippuvuus muiden ihmisten tuesta. Pelokkaasti kiintyneillä puolestaan on ongelmia suhtautumisessa sekä itseensä että muihin, mikä tekee heistä eniten ja kiireellisimmin tukea tarvitsevan ryhmän. Turvallisten kiintymyssuhteiden tukeminen olisi mahdollisesti yksi keino, jolla voitaisiin parantaa kaiken ikäisten ihmisten yleistä turvallisuuden tunnetta nykyyhteiskunnassa sekä auttaa ihmisiä selviämään nykyisen elämänmenon heille asettamista haasteista ja paineista eri elämänalueilla.

REFERENCES

Ainsworth, M. D. S. (1989). Attachments beyond infancy. *American Psychologist, 44,* 709-716.

Ainsworth, M. D. S. (1991). Attachments and other affectional bonds across the life cycle. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds.), *Attachment across the life cycle* (pp. 33-51). London: Routledge.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation.* Hillsdale, NJ: Erlbaum.

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis.* California: Sage.

Allport, G. W. (1937). *Personality: A psychological interpretation.* New York: Holt.

Anderberg, M. R. (1973). *Cluster analysis for applications.* New York: Academic Press.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationships to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16,* 427-454.

Aro, S. (1988). Stress development and psychosomatic symptoms in adolescence. Study of 14 to 16 year old school children. *Acta Universitatis Tamperensis ser. A, 242.*

Aro, S., & Hänninen, V. (1984). Life events or life processes as determinants of mental strain? A 5-year follow-up study. *Social Science & Medicine, 18,* 1037-1044.

Asendorpf, J. B., Banse, R., Wilpers, S. & Neyer, F. J. (1997). Beziehungsspezifische bindunggskalen fur erwachsene (Relationship-specific attachment scales for adults). *Diagnostica, 43,* 289-313.

Asendorpf, J. B., & Wilpers, S. (2000). Attachment security and available support: Closely linked relationship qualities. *Journal of Social and Personal Relationships, 17,* 115-138.

Bachrach, C. A. (2000). Self-reporting sensitive events and characteristics. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman, & V. S. Cain (Eds.), *The science of self-report. Implications for research and practice* (pp. 101-103). Mahwah, NJ: Lawrence Erlbaum Associates.

Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (1993). A psychometric study of the Adult Attachment Interview: Reliability and discriminant validity. *Developmental Psychology, 29,* 870-879.

Baldwin, M. W., Keelan, J. P. R., Fehr, B., Enns, V., & Koh-Kangarajoo, E. (1996). Social-cognitive conceptualization of attachment working models: Availability and accessibility effects. *Journal of Personality and Social Psychology, 71,* 94-109.

Banai, E., Weller, A., & Mikulincer, M. (1998). Inter-judge agreement in evaluation of adult attachment style: The impact of acquaintanceship. *British Journal of Social Psychology, 37,* 95-109.

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7,* 147-178.

Bartholomew, K. (1994). Assessment of individual differences in adult attachment. *Psychological Inquiry, 1,* 23-27.

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.

Bartholomew, K., & Shaver, P. R. (1998). Methods of assessing adult attachment: Do they converge? In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 25-45). New York: Guilford.

Baumeister, R. F. (1999). On the interface between personality and social psychology. In In L.A. Pervin & O. P. John (1999). *Handbook of personality. Theory and research* (pp. 367-377). New York: Guilford Press.

Becker, T. E., Billings, R. S., Eveleth, D. M., & Gilbert, N. W. (1997). Validity of scores on three attachment style scales: exploratory and confirmatory evidence. *Educational and Psychological Measurement, 57,* 477-493.

Bell, M., Billington, R., & Becker, B. (1986). A scale for the assessment of object relations: Reliability, validity, and factorial invariance. *Journal of Clinical Psychology, 42,* 733-741.

Belsky, J. (1999). Modern evolutionary theory and patterns of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 141-161). New York: Guilford.

Benoit, D., & Parker, K. C. H. (1994). Stability and transmission of attachment across three generations. *Child Development, 65,* 1444-1456.

Bergman, L. (1988). You can't classify all of the people all of the time. *Multivariate Behavioral Research, 23,* 425-441.

Bergman, L. (1998). A pattern-oriented approach to studying individual development. In R. B. Cairns, L. R. Bergman & J. Kagan (Eds.), *Methods and models for studying the individual* (pp. 83-121). Thoasand Oaks: Sage Publications.

Bergman, L. (2000). The application of a person-oriented approach: Types and clusters. In L. R. Bergman, R. B. Cairns, L.-G. Nilsson & L. Nystedt (Eds.), *Developmental science and the holistic approach* (pp. 137-154).

Bergman, L. R., & Magnusson, D. (1991). Stability and change in patterns of extrinsic adjustment problems. In D. Magnusson, L. R. Bergman, G. Rudinger & B. Törestadt (Eds.), *Problems and methods in longitudinal research: Stability and change* (pp. 323-346). Cambridge: Cambridge University Press.

Berman, W. H., Heiss, G. E., & Sperling, M. B. (1994). Measuring continued attachment to parents: The continued attachment scale - parent version. *Psychological Reports, 75,* 171-182.

Berman, W. H., & Sperling, M. B. (1994). The structure and function of adult attachment. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults* (pp. 1 - 30). New York: Guilford.

Birchnell, J. (1987). Attachment - detachment, directiveness - receptiveness: A system for classifying interpersonal attitudes and behavior. *British Journal of Medical Psychology, 60,* 17-27.

Bookwala, J., & Zdaniuk, B. (1998). Adult attachment styles and aggressive behavior within dating relationships. *Journal of Social and Personal Relationships, 15,* 175-190.

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

Bowlby, J. (1973). *Attachment and loss. Vol. 2 Separation: Anxiety and anger.* New York: Basic Books.

Bowlby, J. (1979). *The making and breaking of affectional bonds.* London: Tavistock.

Bowlby, J. (1980). *Attachment and loss. Vol. 3 Loss.* New York: Basic Books.

Bowlby, J. (1988). *A secure base. Clinical applications of attachment theory.* London: Routledge.

Bradford, E., & Lyddon, W. J. (1994). Assessing adolescent and adult attachment: An update. *Journal of Counseling & Development, 73,* 215-219.

Brennan, K. A., & Bosson, J. K. (1998). Attachment-style differences in attitudes toward and reactions to feedback from romantic partners: An exploration of the relational bases of self-esteem. *Personality and Social Psychology Bulletin, 24*, 699-714.

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

Brennan, K. A., & Morris, K. A. (1997). Attachment styles, self-esteem, and patterns of seeking feedback from romantic partners. *Personality and Social Psychology Bulletin, 23*, 23-31.

Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21*, 267-283.

Brennan, K. A., Shaver, P. R., & Tobey, A. E. (1991) Attachment styles, gender, and parental problem drinking. *Journal of Social and Personal Relationships, 8*, 451-466.

Bretherton, I. (1985). Attachment theory: retrospect and prospect. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research. *Monographs of the Society for Research in Child Development, 50*(1-2, Serial No. 209), 3-35.

Bringle, R. G., & Bagby, G. J. (1992). Self-esteem and perceived quality of romantic and family relationships in young adults. *Journal of Research in Personality, 26*, 340-356.

Brooks-Gunn, J., Phelps, E., & Elder, G. H. Jr. (1991). Studying lives through time: Secondary data analyses in developmental psychology. *Developmental Psychology, 27*, 899-910.

Cafferty, T. P., Davis, K. E., Medway, F. J., O'Hearn, R. E., & Chappell, K. D. (1994). Reunion dynamics among couples separated during operation desert storm: an attachment theory analysis. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships, 5* (pp.309-330). London: Jessica Kingsley.

Carnelley, K. B., & Janoff-Bulman, R. (1992). Optimism about love relationships: General vs specific lessons from one's personal experiences. *Journal of Social and Personal Relationships, 9*, 5-20.

Carver, C. S. (1997). Adult attachment and personality: converging evidence and a new measure. *Personality and Social Psychology Bulletin, 23*, 865-883.

Cassidy, J. (1999). The nature of the child's ties. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 3-20). New York: Guilford.

Chappell, K. D., & Davis, K. E. (1998). Attachment, partner choice, and perception of romantic partners: An experimental test of the attachment-security hypothesis. *Personal Relationships, 5*, 327-342.

Cicirelli, V. G. (1995). A measure of caregiving daughters' attachment to elderly mothers. *Journal of Family Psychology, 9*, 89-94.

Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality. Theory and reseach* (pp. 399-423). New York: Guilford..

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663.

Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships, 5,* 53-90. London: Jessica Kingsley.

Cook, W. L. (2000). Understanding attachment security in family context. *Journal of Personality and Social Psychology, 78,* 285-294.

Costa, P. T. Jr., & McCrae, R. R. (1985). *The NEO Personality Inventory manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Costa, P. T. Jr., & McCrae, R. R. (1992). *The NEO PI-R Professional manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Costa, P. T., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64,* 21-50.

Cozzarelli, C., Hoekstra, S. J., & Bylsma, W. H. (2000). General versus specific mental models of attachment: Are they associated with different outcomes? *Personality and Social Psychology Bulletin, 26,* 605-618.

Crittenden, P. M. (1985). Maltreated infants: Vulnerability and resilience. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 26,* 85-96.

Crittenden, P. M. (1988). Relationships at risk. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 136-176). Hillsdale, NJ: Lawrence Erlbaum.

Crittenden, P. M. (1994). Peering into the black box: An exploratory treatise on the development of self in young children. In D. Cicchetti & S. Toth (Eds.), *Rochester symposium on developmental psychopathology: Vol. 5. The self and its disorders* (pp. 79-148). Rochester, NY: University of Rochester Press.

Crittenden, P. M. (1995). Attachment and psychopathology. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 367-406). Hillsdale, NJ: The Analytic Press.

Crittenden, P. M. (1997). Truth, error, omission, distortion, and deception: The application of attachment theory to the assessment and treatment of psychological disorder. In S. M. C. Dollinger, & L. F. DiLalla (Eds.), *Assessment and intervention issues across the life span.* Mahwah, NJ: Lawrence Erlbaum.

Crittenden, P. M. (2000). A dynamic-maturational approach to continuity and change in pattern of attachment. In P. M. Crittenden & A. H. Claussen (Eds.), *The organization of attachment relationships. Maturation, culture, and context* (pp. 343-357). Cambridge: Cambridge University Press.

Crittenden, P. M., Partridge, M. F., & Claussen, A. H. (1991). Family patterns of relationships in normative and dysfunctional families. *Development and Psychopathology, 3,* 491-512.

Crowell, J. A., & Feldman, S. S. (1991). Mothers' working models of attachment relationships and mother and child behavior during separation and reunion. *Developmental Psychology, 27,* 597-605.

Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measures of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (p. 434-465). New York: Guilford.

Crowell, J. A., & Treboux, D. (1995). A review of adult attachment measures: Implications for theory and research. *Social Development, 4,* 294-327.

Crowell, J. A., Treboux, D., & Waters, E. (1999). The adult attachment interview and the relationship questionnaire: Relations to reports of mothers and partners. *Personal Relationships, 6,* 1-18.

Davis, M. H., Morris, M. M., & Kraus, L. A. (1998). Relationship-specific and global perceptions of social support: Associations with well-being and attachment. *Journal of Personality and Social Psychology, 74,* 468-481.

De Haas, M., Bakermans-Kranenburg, M., & van IJzendoorn, M. (1994). The adult attachment interview and questionnaires for attachment style, temperament, and memories or parental behavior. *Journal of Genetic Psychology, 155,* 471-486.

Depue, R. (1987). *General Behavior Inventory.* Department of Psychology, Cornell University, Ithaca, NY.

Diehl, M., Elnick, A. B., Bourbeau, L. S., & Labouvie-Vief, G. (1998). Adult attachment styles: Their relations to family context and personality. *Journal of Personality and Social Psychology, 74,* 1656-1669.

Digman, J. M. (1997). Higher-order factors of the Big Five. *Journal of Personality and Social Psychology, 73,* 1246-1256.

Dozier, M., Stovall, K. C., & Albus, K. E. (1999). Attachment and psychopathology in adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 497-519). New York: Guilford Press.

Erikson, E. H. (1963). *Childhood and society.* New York: Norton.

Erikson, E. H. (1968). *Identity, youth, and crisis.* New York: Norton.

Erikson, E. H. (1982). *The life cycle completed: A review.* New York: Norton.

Eysenck, H. J. (1990). Biological dimensions of personality. In L. A. Pervin (1990), *Handbook of personality. Theory and reseach* (pp. 244-276). New York: Guilford.

Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire.* London: Hodder and Stoughton.

Eysenck, S. B. G., & Haapasalo, J. (1989). Cross-cultural comparisons of personality: Finland and England. *Personality and Individual Differences, 1,* 121-125.

Feeney, J. A. (1996). Attachment, caregiving, and marital satisfaction. *Personal Relationships, 3,* 401-416.

Feeney, J. A. (1999a). Adult romantic attachment and couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (p. 355-377). New York: Guilford.

Feeney, J. A. (1999b). Issues of closeness and distance in dating relationships: Effects of sex and attachment style. *Journal of Social and Personal Relationships, 16,* 571-590.

Feeney, J. A., & Noller, P. (1990). Attachment style as predictor of adult romantic relationships. *Journal of Personality and Social Psychology, 58,* 281-291.

Feeney, J., & Noller, P. (1996). *Adult attachment.* Thoasand Oaks: Sage Publications.

Feeney, J. A., Noller, P., & Callan, V. J. (1994a). Attachment style, communication and satisfaction in the early years of marriage. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships, 5,* 269-308. London: Jessica Kingsley.

Feeney, J. A., Noller, P, & Hanrahan, M. (1994b). Assessing adult attachment: Developments in the conceptualization of security and insecurity. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults: Theory, assessment, and treatment* (s. 128-152). New York: Guilford Press.

Feeney, J. A., & Ryan, S. M. (1994). Attachment style and affect regulation: Relationships with health behavior and family experiences of illness in a student sample. *Health Psychology, 13,* 334-345.

Florian, V., Mikulíncer, M., & Bucholtz, I. (1995). Effects of adult attachment style on the perception and search for social support. *Journal of Personality, 129*, 665-676.

Fox, N. A. , Kimmerly, N. L., & Schafer, W. D. (1991). Attachment to mother/ attachment to father: A meta-analysis. *Child Development, 62*, 210-225.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*, 132-154.

Fraley, R. C., & Waller, N. G. (1998). Adult attachment patterns: A test of the typological model. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 77 - 114). New York: Guilford.

Fraley, R. C., Waller, N. G., & Brennan, K. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 2*, 350-365.

Garbarino, J. (1998). Comparisons of the constructs and psychometric properties of selected measures of adult attachment. *Measurement & Evaluation in Counceling & Development, 31*, 28-46.

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

Gerlsma, C., Buunk, B. P., & Mutsaers, C. M. (1996). Correlates of self-reported adult attachment styles in a dutch sample of married men and women. *Journal of Social and Personal Relationships, 13*, 313-320.

Goldberg, S. (2000). *Attachment and development*. London: Arnold.

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

Griffin, D., & Bartholomew, K. (1994b). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships: Vol. 5. Attachment processes in adulthood* (pp. 17-52). London: Jessica Kingsley.

Gross, C. A., & Hansen, N. E. (2000). Clarifying the experience of shame: the role of attachment style, gender, and investment in relatedness. *Personality and Individual Differences, 28*, 897-907.

Grossmann, K., Fremmer-Bombik, E., Rudolph, J., & Grossmann, K. E. (1988). Maternal attachment representations as related to child-mother attachment patterns and maternal sensitivity and acceptance of her infant. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families* (pp. 241-260). Oxford: Oxford University Press.

Grossmann, K., & Grossmann, K. E. (2000). Parents and toddlers at play. Evidence for separate qualitative functioning of the play and the attachment system. In P. M. Crittenden & A. H. Claussen (Eds.), *The orgaization of attachment relationships. Maturation, culture, and context* (pp. 13-37). Cambridge: Cambridge University Press.

Grossmann, K. E., Grossmann, K., & Zimmermann, P. (1999). A wider view of attachment and exploration: Stability and change during the years of immaturity. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 760-786). New York: Guilford Press.

Grossmann, K. E., Grossmann, K., Winter, M., & Zimmerman, P. (in press) *Attachment relationships and appraisal of partnership: From early experience of sensitive support to later relationship representation.*

Haapasalo, J. (1990a). *Eysenckin persoonallisuuskyselyn ja Zuckermanin elämyshakuisuusasteikon faktorirakenteet ja pisteitys Suomessa* [Factor structures of the Eysenck Personality Questionnaire and Zuckerman's Sensation Seeking Scale in Finland] (Report No. 311) Jyväskylä, Finland: University of Jyväskylä, Department of Psychology.

Haapasalo, J. (1990b). The Eysenck personality questionnaire and Zuckerman's sensation seeking scale (Form V) in Finland: Age differences. *Personality and Individual Differences, 5,* 503-508.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52,* 511-524.

Hazan, C., & Shaver, P. (1988). *Measures from our Adult Attachment Studies.* Unpublished document.

Hazan, C., & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry, 5,* 1-22.

Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In K. Batholomew & D. Perlman (Eds.), Attachment processes in adulthood. *Advances in Personal Relationships, 5,* 151-177.

Heiskanen, M., & Piispa, M. (1998). *Faith, hope, battering: a survey of men's violence against women in Finland.* Tilastokeskus: Helsinki.

Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395-433). New York: Guilford Press.

Hindy, C. G., Schwartz, J. C., & Brodsky, A. (1989). *If this is love why do I feel so insecure.* New York: Atlantic Monthly.

Howes, C. (1999). Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 671-687). New York: Guilford Press.

Hämäläinen, M., Pulkkinen, L., Allik, J., & Pulver, A. (1994). *NESTA-persoonallisuustestin (NEO-PI) standardointi 'viiden suuren' persoonallisuuden piirteen arvioimiseksi* [Standardization of NESTA Personality Inventory (NEO-PI) for assessment of 'the Big Five' personality traits]. (Report No. 327) Jyväskylä, Finland: University of Jyväskylä, Department of Psychology.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L.A. Pervin & O. P. John (1999). *Handbook of personality. Theory and research* (pp. 102-138). New York: Guilford Press.

Kanninen, K., & Punamäki, R.-L. (1997). *Adult attachment content analysis.* University of Helsinki: Department of Psychology.

Kanninen, K., & Punamäki, R.-L. *Adult attachment and emotional responses to traumatic memories.* Manuscript submitted for publication.

Kemp, M. A., & Neimeyer, G. J. (1999). Interpersonal attachment: Experiencing, expressing, and coping with stress. *Journal of Counceling Psychology, 46,* 388-394.

Kenny, M. E. (1987). The extent and function of parental attachment among first-year college students. *Journal of Youth and Adolescence, 16,* 17-27.

King, L. A., & Emmons, R. A. (1990). Conflict over emotional expression: Psychological and physiological correlates. *Journal of Personality and Social Psychology, 58,* 864-877.

Kirkpatrick, L. A. (1994). The role of attachment in religious belief and behavior. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships* (pp. 239-265). London: Jessica Kingsley.

Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology, 66*, 502-512.

Kirkpatrick, L. A., & Hazan , C. (1994). Attachment styles and close relationships: A four-year prospective study. *Personal Relationships, 1*, 123-142.

Kline, P. (2000). *Handbook of psychological testing*. 2nd edition. London: Routledge.

af Klinteberg, B. (1996). Biology, norms, and personality: A developmental perspective. *Neuropsychobiology, 34*, 146-154.

af Klinteberg, B., Schalling, D., & Magnusson, D. (1986). *Self-report assessment of personality traits* (Report No. 64). University of Stockholm, Department of Psychology.

af Klinteberg, B., Schalling, D., & Magnusson, D. (1990). Childhood behavior and adult personality in male and female subjects. *European Journal of Personality, 4*, 57-71.

Klohnen, E. C., & John, O. P. (1998). Working models of attachment: A theory-based prototype approach. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 115-140). New York: Guilford.

Kobak, R. (1994). Adult attachment: A personality or relationship construct. *Psychological Inquiry, 1*, 42-44.

Kobak, R., Ferenz-Gillies, R., Everhart, E., & Seabrook, L. (1994). Maternal attachment strategies and emotion regulation with adolescent offspring. Special issue: Affective processes in adolescence. *Journal of Research on Adolescence, 4*, 553-566.

Kobak, R. R., & Hazan, C. (1991). Attachment in marriage: Effects of security and accuracy of working models. *Journal of Personality and Social Psychology, 60*, 861-869.

Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development, 59*, 135-146.

Kreppner, K. (1987). Attachment inside the family. In L. W. C. Tavecchio & M. H. Van Ijzendoorn (Eds.), *Attachment in social networks. Contributions to the Bowlby - Ainsworth attachment theory* (pp. 227-266). Amsterdam: Elsevier.

Latty-Mann, H., & Davis, K. E. (1996). Attachment theory and partner choice: Preference and actuality. *Journal of Social and Personal Relationships, 13*, 5-23.

Levy, K. N., Blatt, S. J., & Shaver, P. R. (1998). Attachment styles and parental representations. *Journal of Personality and Social Psychology, 74*, 407-419.

Levy, M. B., & Davis, K. E. (1988). Lovestyles and attachment styles compared: Their relations to each other and to various relationship characteristics. *Journal of Social and Personal Relationships, 5*, 439-471.

Lichtenstein, J., & Cassidy, J. (1991). *Adult Attachment Questionnaire*. Unpublished manuscript, Pennsylvania State University, State College, PA.

Lipson-Parra, H. (1990). Development and validation of the Adult Attachment Scale: Assessing attachment in elderly adults. *Issues in Mental Health Nursing, 11*, 79-92.

Lopez, F. G., & Gover, M. R. (1993). Self-report measures of parent-adolescent attachment and separation-individuation: A selective review. *Journal of Counceling & Development, 71*, 560-569.

Lopez, F. G., Gover, M. R., Leskela, J., Sauer, E. M., Schirmer, L., & Wyssman, J. (1997). Attachment styles, shame, guilt, and collaborative problem-solving orientations. *Personal Relationships, 4*, 187-199.

Lyddon, W. J., Bradford, E., & Nelson, J. P. (1993). Assessing adolescent and adult attachment: A review of current self-report measures. *Journal of Counceling & Development, 71*, 390-395.

Maccoby, E. E. (1998). *The two sexes. Growing up apart, coming together*. Cambridge, Massachusetts: Belknap Press.

Magnusson, D. (1995). Individual development: A holistic integrated model. In P. Moen, G. H. Elder, Jr. & K. Luscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 19-60). Washington, DC: American Psychological Association.

Magnusson, D. (1998). The logic and implications of a person-oriented approach. In R. B. Cairns, L. R. Bergman, & J. Kagan (Eds.), *Methods and models for studying the individual* (pp. 33-64). Thoasand Oaks: Sage Publications.

Magnusson, D. (1999). Holistic interactionism: A perspective for research on personality development. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality. Theory and reseach. 2nd edition*. New York: Guilford.

Magnusson, D. (2000). The individual as the organizing principle in psychological inquiry: A holistic approach. In L. R. Bergman, R. B. Cairns, L.-G. Nilsson, & L. Nystedt (Eds.), *Developmental science and the holistic approach* (pp. 33-47).

Mahler, M., Pine, F., & Bergman, A. (1975). *The psychological birth of the human infant: Symbiosis and individuation.* New York: Basic Books.

Main, M,. & Goldwyn, R. (1992). *Adult attachment scoring and classification systems.* Unpublished manuscript. University of California, Berkeley.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infants in disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 161-182). Chicago: University of Chicago Press.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the point of representation. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 66-106). *Monographs of the Society for Research in Child Development, 50* (1-2, Serial No. 209).

Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern: Procedures, findings, and implications for the classification of behavior. In T. B. Brazelton & M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95-124). Norwood, NJ: Ablex.

Main, M., & Weston, D. R. (1981). The quality of the toddler's relationships to mother and to father: Related to conflict behavior and the readiness to establish new relationships. *Child Development, 52*, 932-940.

Mallinckrodt, B., Gantt, D. L., & Coble, H. M. (1995). Attachment patterns in the psychotherapy relationship: Development of the client attachment to therapist scale. *Journal of Counceling Psychology, 42*, 307-317.

Marvin, R. S., & Britner, P. A. (1999). Normative development: The ontogeny of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 44-67). New York: Guilford.

Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology, 55*, 102-111.

Mayfield, D., McLeod, G., & Hall, P. (1974). The CAGE questionnaire: Validation of new alcoholism screening instrument. *American Journal of Psychology, 131*, 1121-1123.

McCall, R. B., & Appelbaum, M. I. (1991). Some issues of conducting secondary analysis. *Developmental Psychology, 27*, 911-917.

McCrae, R. R., & Costa, P. T., Jr. (1999). A five-factor theory of personality. In L.A. Pervin & O. P. John (1999). *Handbook of personality. Theory and research* (pp. 139-153). New York: Guilford Press.

Meyers, S. A. (1998). Personality correlates of adult attachment style. *The Journal of Social Psychology, 138*, 407-409.

Mikulincer, M. (1997). Adult attachment style and information processing: Individual differences in curiosity and cognitive closure. *Journal of Personality and Social Psychology, 72*, 1217-1230.

Mikulincer, M. (1998a). Adult attachment style and affect regulation: Strategic variations in self-appraisals. *Journal of Personality and Social Psychology, 75*, 420-435.

Mikulincer, M. (1998b). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology, 74*, 513-524.

Mikulincer, M. (1998c). Attachment working models and the sense of trust: An exploration of interaction goals and affect regulation. *Journal of Personality and Social Psychology, 74*, 1209-1224.

Mikulincer, M., & Arad, D. (1999). Attachment working models and cognitive openness in close relationships: a test of chronic and temporary accessibility effects. *Journal of Personality and Social Psychology, 77*, 710-725.

Mikulincer, M., Birnbaum, G., Woddis, D., & Nachmias, O. (2000). Stress and accessibility of proximity-related thoughts: Exploring the normative and intraindividual components of attachment theory. *Journal of Personality and Social Psychology, 78*, 509-523.

Mikulincer, M., Florian, V., & Tolmacz (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personality and Social Psychology, 58*, 273-280.

Mikulincer, M., & Horesh, N. (1999). Adult attachment style and the perception of others: The role of projective mechanisms. *Journal of Personality and Social Psychology, 76*, 1022-1034.

Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology, 61*, 321-331.

Mikulincer, M., & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology, 68*, 917-925.

Miller, H. G., Gribble, J. N., Mazade, L. C., Rogers, S. M., & Turner, C. F. (2000). The association between self-reports of abortion and breast cancer risk: Fact or artifact. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman & V. S. Cain (Eds.), *The science of self-report. Implications for research and practice* (pp. 123-141). Mahwah, NJ: Lawrence Erlbaum Associates.

Männikkö, K. (1997). *Aikuisten kiintymystyylien määritys itsearviointimenetelmällä ja niiden yhteydet sosiaalisen vuorovaikutuksen laatuun* (Assessing adult attachment styles with a self-report measure; the relation of attachment styles to the quality of social interaction]. Unpublished master's thesis. University of Jyväskylä, Finland.

Männikkö, K. (1999). Miten aikuisen kiintymystyylin voi määrittää [How to assess adult attachment?]. *Psykologia, 3*, 199-209.

Noller, P., & Feeney, J. A. (1994). Relationship satisfaction, attachment, and nonverbal accuracy in early marriage. Journal of Nonverbal Behavior, 18(3), 199-221.

Norusis, M. J. / SPSS Inc. (1994a). *SPSS Advanced statistics 6.1.* SPSS Inc., USA.

Norusis, M. J. / SPSS Inc. (1994b). *SPSS Professional statistics 6.1.* SPSS Inc., USA.

Norusis, M. J. / SPSS Inc. (1994c). *SPSS Base System Syntax Reference.* SPSS Inc., USA.

Nurmi, J.-E., Salmela-Aro, K., & Haavisto, T. (1995). The Strategy and Attribution Questionnaire: Psychometric properties. *European Journal of Psychological Assessment, 11,* 108-121.

Owens, G., Crowell, J. A., Pan, H., Treboux, D., O'Connor, E., & Waters, E. (1995). The prototype hypothesis and the origins of attachment working models: Adult relationships with parents and romantic partners. In E. Waters, B. E. Vaughn, G. Posada & K. Kondo-Ikemura (Eds.), Caregiving, cultural and cognitive perspectives on secure-base behavior and working models. New growing points of attachment theory and research (pp. 216-233). *Monographs of the Society for Research on Child Development, 60* (2-3, Serial. No 244).

Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Medical Psychology, 52,* 1-10.

Pietromonaco, P. R., & Barrett, L. F. (1997). Working models of attachment and daily interactions. *Journal of Personality and Social Psychology, 73,* 1409-1423.

Pottharst, K. (Ed.) (1990). *Explorations in adult attachment.* New York: Peter Lang.

Pulkkinen, L. (1982). Self-control and continuity from childhood to adolescence. In B. P. Baltes & O. G. Brim, Jr. (Eds.), *Lifespan development and behavior* (Vol.4, pp. 63-105).Orlando, FL: Academic Press.

Pulkkinen, L. (1988). Nuoren aikuisen elämänrakenne [Life structure of young adults]. *Reports from the Department of Psychology, University of Jyväskylä, 293.*

Pulkkinen, L. (1998). Levels of longitudinal data differing in complexity and the study of continuity in personality characteristics. In R. B. Cairns, L. R. Bergman & J. Kagan (Eds.), *Methods and models for studying the individual* (pp. 161-184). Beverly Hills, CA: Sage.

Pulkkinen, L., Männikkö, K., & Nurmi, J.-E. (2000). Self-description and personality styles. In L. R. Bergman, R. B. Cairns, L.-G. Nilsson, & L. Nystedt (Eds.), *Developmental science and the holistic approach* (pp. 265-280). Mahwah, NJ: Lawrence Erlbaum.

Pulver, A., Allik., J., Pulkkinen, L., & Hämäläinen, M. (1995). A Big-Five Personality Inventory in two Non-Indo-European languages. *European Journal of Personality, 9,* 109-124.

Radke-Yarrow, M., Cummings, E. M., Kuczynski, L., & Chapman, M. (1985). Patterns of attachment in two- and three-year-olds in normal families and families with parental depression. *Child Development, 56,* 884-893.

Rholes, W. S., Simpson, J. A., & Orina, M.M. (1999). Attachment and anger in and anxiety-provokin situation. *Journal of Personality and Social Psychology, 76,* 940-957.

Ricks, M. H. (1985). The social transmission of parental behavior: Attachment across generations. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and reseach (pp. 211-230). *Monographs of the Society for Research in Child Development, 50* (1-2, Serial No. 209).

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology, 70,* 310-320.

Rosen, K. S., & Burke, P. B. (1999). Multiple attachment relationships within families: Mothers and fathers with two young children. *Developmental Psychology, 35,* 436-444.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rothbart, J. C., & Shaver, P. R. (1994). Continuity of attachment across the life span. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults* (pp. 31-71). New York: Guilford.

Rutter, M., Quinton, D., & Hill, J. (1990). Adult outcome of institution-reared children: Males and females compared. In L. N. Robins & M. Rutter (Eds.), *Straight and devious pathways from childhood to adulthood* (pp. 135-157). Cambridge: Cambridge University Press.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069-1081.

Rönkä, A., Kinnunen, U., & Pulkkinen, L. (2000). *International Journal of Behavioral Development, 24,* 442-450.

Rönkä, A. (1999). The accumulation of problems of social functioning. Outer, inner, and behavioral strands. *Jyväskylä Studies in Education, Psychology, and Social Research, 148.* Jyväskylä: University of Jyväskylä.

Sanford, K. (1997). Two dimensions of adult attachment: further validation. *Journal of Social and Personal Relationships, 14,* 133-143.

Schaeffer, N. C. (2000). Asking questions about threatening topics: A selective overview. In A. A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman & V. S. Cain (Eds.), *The science of self-report. Implications for research and practice* (pp. 105-121). Mahwah, NJ: Lawrence Erlbaum Associates.

Scharfe, E., & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. *Personal Relationships, 1,* 23-43.

Scharfe, E., & Bartholomew, K. (1998). Do you remember?: Recollections of adult attachment patterns. *Personal Relationships, 5,* 219-234.

Searle, B., & Meara, N. M. (1999). Affective dimensions of attachment styles: Exploring self-reported attachment style, gender, and emotional experience among college students. *Journal of Counceling Psychology, 46,* 147-158.

Shaver, P. R., Belsky, J., & Brennan, K. (2000). The adult attachment interview and self-reports of romantic attachment: Associations arcoss domains and methods. *Personal Relationships, 7,* 25-43.

Shaver, P. R., & Brennan, K. A. (1992). Attachment styles and the "Big Five" personality traits: Their connections with each other and with romantic relationship outcomes. *Personality and Social Psychology Bulletin, 18,* 536-545.

Sinkkonen, M., & Pulkkinen, L. (1996). Elämänrakenne parhaassa aikuisiässä [Life structure in the best years of adulthood]. *Reports from the Department of Psychology, University of Jyväskylä, 333.*

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59,* 971-980.

Simpson, J. A. (1999). Attachment theory in modern evolutionary perspective. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 115-140). New York: Guilford.

Simpson, J. A., & Rholes, W. S. (1998). Attachment in adulthood. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 3-21). New York: Guilford.

Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support-seeking and support-giving within couple members in an anxiety provoking situation: The role of attachment style. *Journal of Personality and Social Psychology, 62,* 434-446.

Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71,* 899-914.

Sperling, M. B., & Berman, W. H. (1991). An attachment classification of desperate love. Journal of Personality Assessment, 56, 45-55.

Sperling, M. B., Foelsh, P., & Grace, C. (1996). Measuring adult attachment: Are self-report instruments congruent? *Journal of Personality Assessment, 67,* 37-51.

Stein, H., Jacobs, N. J., Ferguson, K. S., Allen, J. G., & Fonagy, P. (1998). What do adult attachment scales measure? *Bulletin of the Menninger Clinic, 62,* 33-82.

Stern, D. N. (1985a). *The first relationship: Infant and the mother*. Cambridge, Mass.: Harward University Press.

Stern, D. N. (1985b). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.

Taylor, S. E., & Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103,* 193-210.

Thompson, R. A (1999). Early attachment and later development. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 265-286). New York: Guilford Press.

Trinke, S. J., & Bartholomew, K. (1997). Hierarchies of attachment relationships in young adulthood. *Journal of Social and Personal Relationships, 14,* 603-625.

Tucker, J. S., & Anders, S. L. (1999). Attachment style, interpersonal perception accuracy, and relationship satisfaction in dating couples. *Personality and Social Psychology Bulletin, 25,* 403-412.

Tulving (1987). Multiple memory systems and consciousness. *Human Neurobiology, 6,* 67-80.

Van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive value of the Adult Attachment Interview. *Psychological Bulletin, 117,* 387-403.

Van IJzendoorn, M. H., & Bakermans-Kranenburg, M. (1996). Attachment representations in mothers, fathers, adolescents and clinical groups: A meta-analytical search for normative data. *Journal of Consulting and Clinical Psychology, 64,* 8-21.

Vaughn, B. E., & Bost, K. K. (1999). Attachment and temperament: Redundant, independent, or interacting influences on interpersonal adaptation and personality development. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 198-225). New York: Guilford.

Weinfield, N. S., Sroufe, L. A., Egeland, B., & Carlson, E. A. (1999). The nature of individual differences in infant-caregiver attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment. Theory, research, and clinical applications* (pp. 68-88). New York: Guilford.

Weiss (1982). Attachment in adult life. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behavior* (pp. 171-184). New York: Basic Books.

Weiss, R. S. (1991). The attachment bond in childhood and adulthood. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds.), *Attachment across the life cycle* (pp. 66-76). London: Tavistock/Routledge.

West, M., & Sheldon, A. E. R. (1988). Classification of pathological attachment patterns in adults. *Journal of Personality Disorders, 2*, 153-159.

West, M. L., & Sheldon-Keller, A. E. (1994). *Patterns of relating: An adult attachment perspective*. New York: Guilford Press.

West, M., Sheldon, A., & Reiffer, L. (1987). An approach to the delineation of adult attachment: Scale development and reliability. *Journal of Nervous and Mental Disease, 175*, 738-741.

Wiggins, J. S., Phillips, N., & Trapnell, P. (1989). Circular reasoning about interpersonal behavior: Evidence concerning some untested asssumptions underlying diagnostic classifications. *Journal of Personality and Social Psychology, 56*, 296-305.

Young, A. M., & Acitelli, L. K. (1998). The role of attachment style and relationship status of the perceiver in the perceptions of romantic partner. *Journal of Social and Personal Relationships, 15*, 161-173.

APPENDICES

APPENDIX 1 A modified version (Finnish translation) of Bartholomew and Horowitz's (1991) Relationship Questionnaire

Seuraavassa on 4 kuvausta erilaisista tavoista suhtautua läheisiin ihmisiin. Arvioi, missä määrin kuvaukset sopivat sinuun ja merkitse viivoille sopivan vastausvaihtoehdon numero. Arvioi erikseen suhtautumistasi läheisiin ihmisiin, jotka ovat

a) samaa sukupuolta kuin sinä
b) eri sukupuolta kuin sinä

1 = ei kuvaa minua lainkaan

2 = kuvaa minua jonkin verran

3 = kuvaa minua hyvin

4 = kuvaa minua erittäin hyvin

1. Minun on aivan hyvä olla ilman läheisiä ihmissuhteita. Minulle on erittäin tärkeää, että voin tuntea itseni riippumattomaksi ja omillani toimeen tulevaksi. En mielelläni turvaudu toisiin enkä toivo toisten turvautuvan minuun.

   Samaa sukupuolta:_____ Eri sukupuolta:_____

2. Minun on suhteellisen helppo ystävystyä läheisesti toisten ihmisten kanssa. En tunne oloani hankalaksi silloin, kun,joudun turvautumaan toisiin, enkä silloin, kun toiset tur-vautuvat minuun. Toisaalta en ole huolissani, vaikka joutuisin joskus olemaan itsekseni tai toiset eivät hyväksyisi minua.

   Samaa sukupuolta:_____ Eri sukupuolta:_____

3. Syvempi ystävystyminen on minulle melko tukalaa. Toivon kyllä läheisiä ihmissuhteita, mutta minun on vaikea luottaa muihin täysin, tai olla heistä riippuvainen. Välistä pelottaa antautua liian läheiseen suhteeseen jonkun kanssa.

   Samaa sukupuolta:_____ Eri sukupuolta:_____

4. Pyrin mahdollisimman läheisiin ihmissuhteisiin, mutta monet tuntuvat kaihtavan niin suurta läheisyyttä kuin toivoisin. Minun on hankala elää ilman läheisiä suhteita. Joskus pelottaa, etteivät toiset arvosta minua yhtä paljon kuin minä heitä.

   Samaa sukupuolta:_____ Eri sukupuolta:_____

Note. The first description is for the dismissing, the second for the secure, the third for the fearful, and the fourth for the preoccupied attachment style. The descriptions are given in English in Table 1.

APPENDIX 2 Examples of data transformation when raw ratings (attachment styles in relation to the same sex) were standardized within participants or within variables in the study sample.

	Raw Scores				Standard z-scores				Standardized within participants				Standardized within participants and variables			
Case	D	S	F	P	D	S	F	P	D	S	F	P	D	S	F	P
1	1	2	1	1	-.81	-1.11	-.96	-.82	-.50	1.50	-.50	-.50	-.22	.88	-.52	-.14
2	1	3	1	1	-.81	.13	-.96	-.82	-.50	1.50	-.50	-.50	-.22	.88	-.52	-.14
3	1	4	1	1	-.81	1.37	-.96	-.82	-.50	1.50	-.50	-.50	-.22	.88	-.52	-.14
4	2	2	1	2	.44	-1.11	-.96	.54	.50	.50	-1.50	.50	1.26	-.56	-1.93	1.41
5	2	2	2	2	.44	-1.11	.17	.54	.00	.00	.00	.00	.52	-1.30	.18	.64
6	2	2	3	2	.44	-1.11	1.30	.54	-.50	-.50	1.50	-.50	-.22	-2.01	2.28	-.14
7	2	3	3	1	.44	.13	1.30	-.82	-.26	.78	.78	-1.31	.13	-.15	1.28	-1.39
8	2	3	3	2	.44	.13	1.30	.54	-.87	.87	.87	-.87	-.76	-.03	1.39	-.70
9	2	3	3	3	.44	.13	1.30	1.89	-1.50	.50	.50	.50	-1.70	-.56	.88	1.41
10	1	3	2	1	-.81	.13	.17	-.82	-.78	1.31	.26	-.78	-.64	.60	.55	-.58
11	2	3	2	1	.44	.13	.17	-.82	.00	1.23	.00	-1.22	.52	.49	.18	-1.26
12	3	3	2	1	1.70	.13	.17	-.82	.78	.78	-.26	-1.31	1.68	-.15	-.19	-1.39
13	4	3	2	1	2.95	.13	.17	-.82	1.16	.39	-.39	-1.16	2.24	-.73	-.36	-1.16

Note. D = Dismissing, S = Secure, F = Fearful, P = Preoccupied. Case numbers do not refer to participants' ID numbers.

APPENDIX 3 Examples of participants who were not adequately classified when using the standard z-scores and who were reclassified more adequately when using double-standardized scores.

	Attachment style ratings								Attachment style clusters		
Case	D(SS)	D(OS)	S(SS)	S(OS)	F(SS)	F(OS)	P(SS)	P(OS)	Hier(z-scr)	Hier(d-std)	Iter(d-std)
1	2	2	2	2	1	1	1	1	Secure	Dismissing	Dismissing
2	1	1	2	2	2	2	1	1	Secure	Fearful	Fearful
3	1	1	2	2	2	2	2	2	Secure	Preoccupied	Preoccupied
4	2	2	3	3	3	3	2	2	Dismissing	Fearful	Fearful
5	2	2	3	2	3	2	3	2	Dismissing	Preoccupied	Preoccupied
6	2	2	3	3	2	2	2	2	Dismissing	Secure	Secure
7	4	2	3	3	2	2	1	1	Fearful	Dismissing	Dismissing
8	2	2	3	3	2	2	1	1	Fearful	Secure	Secure
9	1	1	3	3	3	3	2	2	Preoccupied	Fearful	Fearful
10	1	1	4	4	2	2	2	2	Preoccupied	Secure	Secure
11	2	2	2	2	2	2	1	1	Fearful	Fearful	Dismissing
12	1	1	3	2	2	2	2	2	Preoccupied	Fearful	Preoccupied
13	1	1	4	4	3	3	2	2	Preoccupied	Fearful	Secure
14	1	1	4	3	2	2	2	2	Preoccupied	Preoccupied	Secure
15	2	2	4	4	1	1	1	1	Secure	Dismissing	Secure
16	1	1	3	2	1	2	2	1	Secure	Preoccupied	Secure

Note. D = Dismissing, S = Secure, F = Fearful, P = Preoccupied attachment style. SS = In relation to same sex, OS = In relation to opposite sex. Hier(z-scr) = Hierarchical cluster analysis with standard z-scores. Hier(d-std) = Hierarchical cluster analysis with double-standardized clustering variables, Iter(d-std) = Iterated cluster solution for Hier(d-std). Case numbers do not refer to participants' ID-numbers.