Development of Multiple Attachment Relationships from Infancy to Adulthood: A Theoretical and Empirical Review of Attachment Hierarchy[1]

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Research on attachment theory has been growing in the past four decades. Previous research has particularly focused on two types of attachment relationships (1) between parents and their children and (2) between romantic partners. One reason for these research focuses is that these relationships are both important in childhood and adulthood, respectively. That is, people usually most frequently direct proximity, security, and comfort (called "attachment behaviors") toward parents in childhood and then toward the romantic partner in adulthood. Associations between these two types of relationships have been empirically demonstrated. For example, individuals who had secure relationships with their parents in childhood are more likely to have a secure relationship with their romantic partner in adulthood (CITATIONS). However, the developmental process of this transfer from parents to the romantic partner as important figures has remained unknown.

In attachment research, persons to whom individuals turn their attachment behaviors are called "attachment figures," and there is an area of attachment research particularly focusing on who the important attachment figure(s) is (are). Bowlby (1969/1982), as well as Ainsworth (1982), proposed that "a child's attachment figures could be arranged in hierarchical order" (p. 305). Although people develop multiple attachment figures (e.g., mothers, fathers, romantic partners, and friends), people have more preferred attachment figures than others, which have been termed "attachment hierarchy." This area of research on attachment hierarchy is recently growing, although the number of studies on attachment hierarchy is still lower than other domains of attachment research (e.g., attachment security).

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The goal of this review article is, therefore, to promote readers to deeper understand both theoretical and empirical frameworks of attachment hierarchy development from infancy to adulthood. First, we will describe theoretical ideas mainly developed by John Bowlby and Mary Ainsworth. Second, we will review empirical studies on attachment hierarchy in infants and young children, mostly using observational research. Third, empirical studies in older children, adolescents, and adults, which mostly use self-report methods, will be reviewed, particularly focusing on studies conducted in Czech Republic. Finally, we will discuss important issues for future research on attachment hierarchy. We will conclude that whereas attachment plays important roles throughout entire life, preferred attachment figures change from infancy to adulthood. Moreover, although empirical studies use different methods between studies for infants and young children and studies for older children and beyond (observational and self-report methods, respectively), these studies have shown that both children and adults activate their attachment behaviors toward their preferred attachment figures during the same emergency situations for self and attachment figures.

This is the first to introduce the concept of attachment hierarchy in Czech psychology research journals. In Czech Republic, attachment theory has been introduced. [We will describe how it has been introduced. E.g., the trilogy of Bowlby's books has been translated in Czech. Implications of attachment theory have been summarized in Psychoterapie.] Hence, enhancing a deeper understanding of a new concept in attachment theory and the knowledge of its related measures will help future attachment research in Czech Republic.

The Origin of Conceptualizations for Attachment Hierarchy

Bowlby (1969/1982) described that infants and young children have a tendency (or "bias" in his word; p. 309) to attach themselves to one principal caregiver. He called this phenomenon "monotropy." Bowlby elaborated this idea using evidence from observational studies of

mothers and their babies. For example, Ainsworth (1967) reported in her observation in Uganda that although babies seemed attached to their mother, siblings, and other caregivers, they reacted more negatively and protested harder when the primary caregiver left the room, compared to other caregivers. Hence, although "monotropy" implies that a child is attached to only one person, Bowlby and Ainsworth referred that "a child's attachment-figures could be arranged in hierarchical order" among multiple attachment figures (Bowlby, 1969/1982, p.305).

This hierarchical idea highlights one of the most important concepts in attachment theory. Drawing upon ethology, Bowlby proposed that attachment is an outcome of evolution. That is, attachment to a specific figure(s) increases infants' survival because attachment figure(s) protect(s) infants when it comes to danger, e.g., a predator is attacking the baby. This idea is consistent with the hierarchy concept because seeking help toward the one who is primarily caring for the baby increases a chance of his/her survival, compared to other caregivers who are only sporadically available. In addition, Bowlby emphasized that when babies are hungry, tired, or ill, they prefer to turn to the primary figure for their survivals. However, babies were less discriminative toward attachment figures when they are in a positive mood, such as when they are playing, because these moments are not particularly related to their survivals.

Ainsworth (1989) further elaborated the development of attachment hierarchy after infancy. Children become more tolerant toward one's dissatisfaction from attachment needs. One reason is that the development of cognitive perspective taking enables children to understand other people's motivations and agreements/disagreements from their motivations. In addition, children become physically more capable by growing bigger and moving faster. Therefore, the need of caregivers for survival becomes less urgent and less salient overtime. Instead, as children develop, they become more interested in sexual reproductions. During adolescence, for example, people start seeking a romantic partner. Ainsworth (1989), therefore, proposed

that by spending time together, the romantic partner becomes the important attachment figure. She further elaborated that unlike parent-child relationships, romantic relationships are more reciprocal give-and-take; partners can take turn to provide security by providing care, comfort and reassurance. That is, whereas attachment relationships continue from infancy to adulthood, the hierarchy of attachment figures and behavioral patterns of attachment change over people's development.

Empirical Studies in Infants and Young Children

Based on these theoretical underpinnings by Bowlby and Ainsworth, empirical studies have been conducted for infants and young children. For example, Ainsworth's findings during her naturalistic observations in Uganda were also replicated in other naturalistic studies in other African countries. Infants in Efé families in Congo preferred the biological mother, although other caregivers also took care of infants in this culture (Morelli & Tronick, 1991). The authors interpreted that this preference seemed to emerge because Efé mothers care for their babies most often than other caregivers (e.g., comforting them at night). Infants in the ploymatric Hausa families in Nigeria did not necessary prefer their biological mother, but the caregiver who most frequently held or interacted with these infants (Marvin, VanDevender, Iwanaga, LeVine & LeVine, 1977). This study is important because it shows that infants are not biologically driven to attach to the biological mother as the most preferred attachment figure, but attachment hierarchy develops through their interactions with multiple caregivers after their birth.

More empirical studies on infants' and young children's attachment hierarchy have been conducted in the United States. Specifically, laboratory studies consistently found infants' preference for their mother over their father (Colin, 1985; Lamb 1976) and over their daycare providers (Cummings, 1980; Farran & Ramey, 1977). For example, Colin (1985) developed a

laboratory assessment in which an infant is left alone or with a stranger and then the mother

and the father enters the room at the same time. This procedure increased the infant's distress,

which enabled the researcher to observe from which parent infants seek comfort. This study,

as well as other U.S. laboratory studies, provided the evidence of babies' preferences for the

mother, who is usually the primary caregiver in Western cultures.

However, surprisingly, during home observations, Lamb (1977a; 1977b) found infants'

preferences for the father over the mother. Subsequent studies (Belsky, 1978, Clarke-Stewart,

1979), however, demonstrated that when parents' initiations of interactions with infants were

statistically controlled, infants' preferences for their fathers disappeared. One reason for these

mixed findings is that fathers more often engage in physically stimulating and "rough-and-

tumble" play, compared to mothers do (Clarke-Stewart, 1978; Hazen, McFarland, Jacobvitz,

& Boyd-Soisson, 2010; Paquette, 2004; Power & Parke, 1983). In addition, infants can more

confidently engage in play and other activities during home observations, compared to

laboratory observations, because it is a familiar place for them. Moreover, during home

observations, children's preferences were observed when they are distress and when they are

not distressed, unlike Colin's (1985) laboratory assessment in which babies were

systematically distressed by separations from parents. These differences between home and

laboratory studies are, therefore, consistent with the statement of Bowlby (1969/1982) that

babies are less discriminative when they are in a positive mood.

Interestingly, one study employing lesbian parents and their internationally adopted children

demonstrated children's preferences for one mother (Bennett, 2003). This study consisted of

15 lesbian couples and their adopted children between 1.5 and 6 years of age living together

at least one year after their adoption. Based on interviews from both couples individually, the

study found that 12 out of the 15 couples reported their children's preferences for one mother

over the other, although these couples reported that they engaged in the egalitarian division of

caregiving labors and shared parentings. Consistent with Bowlby's evolutionary perspective, these parents recalled that their children consistently asked one parent for comfort when frightened, hurt, stressed, or sad, as well as when it was in the middle of night. Even the non-preferred parents noticed their child's non-preferences for them and reported their feeling of jealousy toward their partner. Moreover, this study found that preferred mothers spent more time with their child and had a personality of "more nurturing," "more patient," and "more maternal" (p. 168). On the other hand, the non-preferred parents had a personality of "outgoing," "a risk-taker," "less cautious" and "more playful." They also enjoyed engaging in "rough-and-tumble" play with the child (p. 168). These findings suggest that, although lesbian couples conduct more egalitarian and shared parenting activities; their children's attachment hierarchy is likely to emerge based on their time spent and their experiences of emotional comfort with parents.

Attachment hierarchy does not, however, differ due to their relationship quality with different caregivers. Numerous studies (see Wolff & van IJzendoorn, 1997, for meta-analysis) have shown that when the caregiver sensitively notices her/his child's emotional signals and appropriately respond to these signals, the child is securely attached to her/his caregiver. In contrast, when the caregiver does not provide her/his child with sensitive and responsive care, the child is insecurely attached to the caregiver. These secure versus insecure attachment patterns can vary from relationship to relationship; that is, some babies are securely attached to the mother but insecurely attached to the father and vice versa. Umemura, Jacobvitz, Messina, and Hazen (2013) have examined whether toddlers prefer the primary caregiver or the caregiver with whom they had a secure history in infancy. The study found that regardless of attachment security, toddlers preferred the primary caregiver when they were distressed. However, they did not show preferences to the specific parent when they were happy. This finding is consistent with Bowlby's evolutionary perspective, according to which attachment

is activated when babies are in danger. Attachment security is, however, evaluated based on children's multiple abilities: to seek comfort from the caregiver and to use the caregiver from which to explore the environment. That is, attachment hierarchy is particularly heightened during children's distressed moments, whereas attachment security is during their distressed and confident moments.

In summary, observational research on infants and young children's attachment hierarchy has revealed that children prefer their primary caregiver over other caregivers. Attachment hierarchy is particularly activated when children are distressed but not necessarily when they are confident. This finding is consistent with Bowlby's evolutionary perspective, according to which attachment is an outcome of human survival.

Empirical Studies in Older Children, Adolescents, and Young Adults

While attachment hierarchy research in infants and young children has mainly used observational methods, research in older children, adolescents, and adults has solely used self-report methods. One reason is that, as aforementioned, when children become older, they develop their cognitive and physical abilities and become capable of better evaluating dangerous versus safe situations and physically protecting themselves. As such, they rarely show their behaviors pertaining to their survival. Due to this developmental change, it is more difficult for researchers to observe specific moments during which older children and adolescents show strong attachment preferences (e.g., when children feel in danger of their lives). Nonetheless, previous self-report research has revealed specific patterns of attachment hierarchies beyond young childhood.

Compared to young children who focused solely on parents, the unique developmental pattern of older children and adolescents is their increasing preferences for non-parental figures. These transitions from parents to non-parental figures seem occurring in different

developmental timings depending on subcategories of their attachment. As one of the first empirical studies on attachment hierarchy in older children and adolescents (aged from 6 to 17 years), Hazan and Zeifman (1994) developed an interview in four subcategories: *proximity seeking* (e.g., "Whom do you like to be close to?"), *safe haven* (e.g., "Whom do you turn to for comfort when you are upset?"), *separation protest* (e.g., "Whom do you not like to be away from?"), and *secure base* (e.g., "Whom do you feel you can always count on?"). The authors have demonstrated that older children, as well as adolescents, show higher preferences to seek proximity to peers (including friends and romantic partners) than to parents. More than half of older children (younger than 11 years of age), however, still answered their parents as a safe haven, although more than half of adolescents (older than or equal to 11 years) answered their peers as a safe haven. Finally, the majority of children and adolescents (aged younger than 15 years) reported their parents as their secure base and felt most desperate to separate parents, whereas approximately half of older adolescents (aged older than or equal to 15 years) reported their peers for these subcategories of secure base and separation protest. Consistent with this study, other studies have also shown that older children and adolescents start showing their preferences for peers particularly in the *proximity seeking* and *safe haven* subcategories, but not in the *secure base* subcategory (Kerns, Tomich, & Kim, 2006; Nickerson & Nagle, 2005). Taken together, these studies demonstrated that older children and adolescents seem to experience transitions of these attachment functions from parents to peers.

During late adolescence and young adulthood, the preference for the romantic partner (not for friends) particularly increases. Earlier studies (e.g., Fraley & Davis, 1997; Hazan & Zeifman, 1994; Pitman & Scharfe, 2010; Umemura, Lacinová, & Macek, 2015) used cross-sectional data to demonstrate the increase in romantic preferences during the first a few years of romantic relationship. For example, Hazan and Zeifman's (1994) study found that among late

adolescents who named their peers in all the four subcategories (41% of all late adolescents), the majority of them (83%) actually named their romantic partner. Later studies replicated this increase in romantic preferences (Fagundes & Schindler, 2012; Umemura, Lacinová, Macek, & Kunnen, 2016). These findings are important because it supports a hypothesis that the primary attachment figure is transferred from parents to the romantic partner (Fraley & Davis, 1997; Hazan & Zeifman, 1994).

Studies in Czech Republic. However, one unanswered research question still remained. If the preference of attachment figures is hierarchical, some attachment figures are placed higher in one's hierarchy, and *other attachment figures should be placed lower in his/her hierarchy*. A series of our studies using a Czech sample contributed to the understanding of this research question (Umemura et al., 2015; Umemura et al., 2016; Umemura, Lacinová, Kotrčová, & Fraley, *under review*). As a part of data from the project conducted by Petr Macek and his research team to understand Czech young adults' psychological, relationship, and career/education paths to adulthood (see Macek et al., 2016, for details), we collected approximately 1,000 young adults' (aged from 18 to 29 years) data on their hierarchical preferences once a year over three years. We translated (into Czech) a self-report questionnaire, the WHOTO (Fraley & Davis, 1997) which was modified from the abovementioned Hazan and Zeifman's interview and has been used the most commonly to assess adolescents' and young adults' attachment hierarchy. The WHOTO consists of three subcategories: *proximity seeking* (e.g., "Who is the person you most like to spend time with?"), *safe haven* (e.g., "Who is the person you want to be with when you are feeling upset or down?"), and *secure base* (e.g., "Who is the person you can always count on?"). Our studies both cross-sectionally and longitudinally found that as romantic relationship progressed, the preference for the romantic partner increased, the preference for friends decreased, but the preference for the mother and for the father did not change. These findings

were illustrated in Figure 1. We interpreted that by the early adulthood, the transfer of

preference from parents to peers may have already completed; therefore, changes in

attachment hierarchy was found only in peer relationships. This finding is particularly

important because it further uncovered a process of attachment transfer toward the romantic

partner.

[Figure 1 will be attached about here]

Although these above studies examined only changes when romantic relationships continue

progressing, the same patterns of changes in attachment hierarchy were also found at the start

and end of a romantic relationship. Specifically, using the same data (Macek et al., 2016), we

examined changes between two waves which are one-year apart from each other (Umemura

et al., 2016). Young adults who were not in a romantic relationship in the first wave but

started a romantic relationship before the second wave were more likely to increase their

attachment preference for the romantic partner and decrease their preference for friends.

Conversely, young adults who were in a romantic relationship in the first wave but were not

in the second wave decreased their preference for the partner and increased their preference

for friends. In both of these groups, however, attachment preferences for the mother or for the

father did not change. In sum, our studies provided cumulative evidence of interdependent

and independent patterns of changes in attachment hierarchy during early adulthood.

After our translation of the WHOTO in Czech, more studies on attachment hierarchy were

conducted in our Masaryk University students' Bachelor and Master theses, which explored

interesting and important ideas in attachment hierarchy research. For example, two studies

focused on associations of young adults' attachment hierarchy with characteristics of today's

young adults. Arnett (2000) proposed that many young adults today do not consider

themselves to be adults yet but take a while to develop their feelings of adult status (he called

this developmental stage "emerging adulthood"). Employing 382 young adults ($M = 22.5$ years of age), Kypetová (2014) found that those who reported themselves as an adolescent were more likely to prefer their parents as the primary caregivers, whereas those who report themselves as adults were more likely to prefer their romantic partner as the primary attachment figure. Another important issue for today's young adults is over-involvement of young adults' parents (called "helicopter parenting") because it prevents them to develop autonomy from their parents (e.g., Schiffrin et al., 2014). Corresponding to this idea, using 604 young adults ($M = 22.4$ years of age), Pichová (2015) found that those who reported a high score of their mother's helicopter parenting had a high attachment preference for the mother, and similarly those with a high score for their father's helicopter parenting had a high preference for the father. These two studies highlight that attachment hierarchy differs with respect to characteristics of today's young adulthood.

Other students' theses focused on special populations, which are particularly important because, by our knowledge, none of the studies published in empirical journals have examined attachment hierarchy in special populations. For example two studies examined adults who had a life-threatening job, such as soldiers and firefighters. Specifically, Cvrčková (2015) employed a sample of 71 Czech members ($M = 33.25$ years of age) of combat units and found that colleagues from deployment are placed as their important attachment figures [More specific results needed]. Cvrčková interpreted that [DETAILS]. This study is currently under review in a scientific journal. Similar findings emerged in a study of 153 firefighters ($M = 36.00$ years of age; Rozehnalová, 2014). Firefighters also tended to place their colleagues in their attachment hierarchy, especially in the domains of [SUBCATEGORIES]. Rozehnalová interpreted that [DETAILS].

Two studies examined more elderly adults whose romantic partners are not available as an attachment figure. These adults seem to seek themselves for their attachment needs.

Specifically, employing 84 elderly adults ($M = 69.75$ years of age), Jurkasová (2015) found that they prefer to seek themselves as a *safe haven* but prefer their children in the domains of *proximity seeking*, *secure base* and *separation distress*. According to Jurkasová, the availability of partner and the age of children play important roles in their hierarchy. Specifically, [Details of interpretations.] Kalina (2015) collected 62 adults ($M = 51.81$) whose spouses suffer long-term ill to examine their spouse's position in their attachment hierarchy. Consistent with the above results of eldery adults, participants named themselves when they were asked for their *safe haven*. He interpreted this result as [Details of interpretations]. These findings in older adults are unique because younger adults mostly name other people but rarely themselves as a safe haven.

Finally, one study has been conducted in a clinical population. Vejrych (2015) recruited 61 drug users who were currently under treatment in a psychiatric clinic ($M = 25.9$ years of age) and 61 non-drug users ($M = 23.1$ years of age). Drug treatment clients were more likely to *seek proximity* to their mother and less likely to use romantic partners and friends as a *secure base*, compared to non-drug users. The author concluded that young adults who are under a psychiatric treatment may have a slower rate of transfer of their primary attachment figure from their parents to peers because [interpretations]. By our knowledge, none of the studies published in scientific journals have examined attachment hierarchy in clinical population. Taken together, all these studies show a great potential that Czech psychological research will contribute to the literature of attachment hierarchy. Although these studies conducted by students are all interesting and important, a limitation of these studies is small sample sizes. By enlarging sample sizes, results of these studies will be more promising.

In summary, previous studies have found that older children start preferring peers, and late adolescents and young adults start preferring particularly their romantic partner (e.g., Hazan & Zeifman, 1994). Our Czech studies further revealed that, in young adulthood, attachment

preferences for parents seem no longer changes, but preferences for friends decrease as preferences for romantic partner increases (e.g., Umemura et al., 2015). These finding suggest that by young adulthood, the transfer from parents to peers seem to have already completed. Other Czech studies conducted by students have demonstrated variations of attachment preferences in different life contexts, such as older generations and clinical populations, suggesting that different populations may have different patterns of attachment hierarchy development.

Important Issues for Future Research

Subcategories of attachment hierarchy. Although multiple studies have cumulatively demonstrated the consistent evidence of attachment hierarchy development, several important issues remain unclear, which should be solved in future research. For example, what should be measured as attachment behaviors have been an important question not only in attachment hierarchy research but also in other attachment research. For example, the same behaviors (e.g., seeking proximity) can be considered a part of attachment in some situations and other behavior systems in different situations, such as affiliation (see Sroufe & Waters, 1977). Bowlby (1969/1982) and Ainsworth (1982) emphasized that attachment is particularly activated when people feel tired, ill, or separated from the attachment figures. Consistent with this idea, previous observational research in infants and young children demonstrated the preference for their mother (or the primary caregiver) when they are distressed, but not when they are happy (e.g., Umemura et al., 2013). Moreover, laboratory observations (Colin, 1985), which involve separations between parents and their child to increase the child's distress, detected higher levels of attachment preferences, compared to naturalistic home observations, which do not involve separations (e.g., Belsky, 1978; Clarke-Stewart, 1979). Hence, observing behaviors during the activation of attachment maximizes the detection of attachment hierarchy in infants and young children.

Although research in infants and young children has mainly been conducted as observational research, and research after young childhood has relied on self-report methods, this activation of attachment seems continuously important after young childhood. For example, Rosenthal and Kobak (2010) developed a self-report scale of attachment hierarchy for adolescents and young adults (named "Important People Interview" or IPI), consisting of three subcategories: *attachment bond* ("closeness, separation distress, and emergency situation"), *support seeking* ("comfort or support in daily contexts"), and *affiliative proximity seeking* ("enjoyable social contact"). Rosenthal and Kobak interpreted that the *attachment bond* subcategory involves in emergency situations such as danger to self and threat to the availability of the attachment figure (e.g., when waking up at a hospital emergency room and when flying away by oneself), which leads to high levels of attachment activations. However, the *support seeking* subcategory was constructed as non-emergent and therefore less-intense attachment situations (e.g., when having a bad day and when experiencing a social rejection). Finally, the *affiliative proximity seeking* subcategory involves ideas of whom people prefer to spend time with when having fun or when having a free time and, therefore, does not include any intensity of attachment behaviors. Rosenthal and Kobak's (2010) factor analyses revealed that adolescents and young adults differently responded among these three subcategories.

In summary, the activation of attachment (or the high intensity of attachment) seems continuously playing important roles in attachment hierarchy from infancy to adulthood. However, the majority of research on attachment hierarchy has not had paid close attention to its subcategories. To examine continuity and changes in attachment hierarchy from infancy to adulthood, future research needs to distinguish subcategories consistently across development.

Roles of friends in attachment hierarchy. Caregivers (usually parents) are the primary caregivers in attachment hierarchy in infancy and young childhood, and romantic partners are the most preferred attachment figure in late adolescence and adulthood. However, roles of

friends are less certain in attachment hierarchy research; that is, it is unclear how friends play a role in its transition from parents to the romantic partner. Our Czech studies have demonstrated that in young adulthood, as the preference for the romantic partner increases, the preference for friends decreases whereas the preference for parents do not change (e.g., Umemura et al., *under review*). We interpret that young adults have already completed their transfer from parents to peers. Consistent with this finding, some leading researchers in adolescent relationship research believe that friends mediate attachment from parents to the romantic partner because friendships allow young people to learn give-and-take reciprocal patterns of relationships and romantic relationships are also reciprocal (parent-child relationships are not or at least less). For example, Collins and van Dulmen (2006) stated that "romantic relationships begin as an informal extension of friendship groups" (p. 221). Empirically, Furman, Simon, Shaffer, and Bouchey (2002) revealed that during adolescence, the association between attachment security with friends and with romantic partners is more consistent, compared to the one between romantic partners and parents. Moreover, they found that after controlling for attachment security with friends, the association between attachment security with parents and with the romantic partner was no longer significant. These findings suggest that friends may be a mediator of the transition from parents to romantic partners in the course of attachment development to adulthood.

However, when more closely looking at subcategories of attachment hierarchy, Hazan and Zeifman (1996) reported that it was very unlikely that older children, adolescents, and adults to nominate friends (but only parents and romantic partners) in all the four subcategories of their scale: *proximity seeking*, *safe haven*, *separation protest*, and *secure base*. Friends were nominated frequently in *proximity seeking* and *safe haven*, whereas parents or romantic partners are more frequently nominated in the *separation protest* and *secure base* subcategories. As Rosenthal and Kobak (2010) mentioned some subcategories are more

important in attachment hierarchy, Hazan and Ziefman interpreted that people choose their friends whom they engage in *proximity seeking* and *safe haven* due to their convenience. However, because *secure-base* and *separation protest* are more considered "the true makers of attachment" (p. 160), friends may not be nominated in their top of hierarchy in these more core aspects of attachment situations. Since only a limited number of studies focus on subcategories, more studies are needed to understand roles of friends in attachment hierarchy.

Outcomes of attachment hierarchy. All the aforementioned information is about the normative patterns of attachment hierarchy development, and effects of the deviation from its normative pattern are unclear. For example, children who spend extremely long hours in daycare may not develop clear preferences for their parents or may take longer time to develop. These children may develop their preference for a daycare provider, but when this preferred daycare provider is changed to someone else (e.g., due to the daycare provider's turnover or children's completion of daycare), their transfer from the one to another one may influence children's emotional development. For example, one study found that infants who experience more than 60 hours of nonmaternal care in a week are more likely to develop the disorganized pattern of attachment with their mother, compared to infants who do not (Hazen, Allen, Christopher, Umemura, & Jacobvitz, 2015). One characteristic of disorganized attachment is that infants show unexplainable behaviors in front of their mother (Main & Solomon, 1990). These children who experience extremely long hours without their mother may not know how to direct their attachment behaviors toward their mother.

Regarding deviations in adolescence and adulthood, by our knowledge, only one study has found associations of adolescents' and young adults' low preference for fathers and high preference for friends with both internalizing and externalizing behavior problems (Rosenthal & Kobak, 2010). Rosenthal and Kobak explained that adolescents' high reliance on peers and low reliance on parents are at risk for their development of problem behaviors because these

hierarchical characteristics indicate adolescents' premature autonomy. More studies are needed to explore roles of deviations from normative patterns of attachment hierarchy in negative psychological functioning, such as poor mental health and psychopathological symptoms.

Conclusions

Attachment relationships begin with caregivers (usually parents) in infancy. Later, adolescents and young adults start reporting their romantic partner as their most important attachment figure. In this study, we summarized theoretical explanations on attachment hierarchy. Drawing upon the evolutionary perspective, during emergency situations for self and attachment figures, people activate their behaviors to seek closeness and emotional support toward their attachment figures who are the caregivers in infancy and young childhood and the romantic partner in older childhood and beyond. Although empirical studies use different methods between studies for infants and young children and studies for older children and beyond (observational and self-report methods, respectively), this theoretical idea has been supported consistently from infancy to adulthood. In addition, we highlighted that attachment hierarchy is a timely research topic in attachment research, and Czech studies have been contributing to the research field. Specifically, we demonstrated that young adults' romantic preferences were interdependent with their friend preferences but not with their parental preferences. Czech students' theses demonstrated unique attachment hierarchies in special populations, employing samples of participants with life-threatening jobs, adults with unavailable partners, and young adults with drug problems. Finally, we focused on future research directions. There are only a limited number of studies exploring subcategories of attachment hierarchy, roles of friends during the transition from childhood to adulthood, and outcomes of deviation from normative patterns of attachment hierarchy development.

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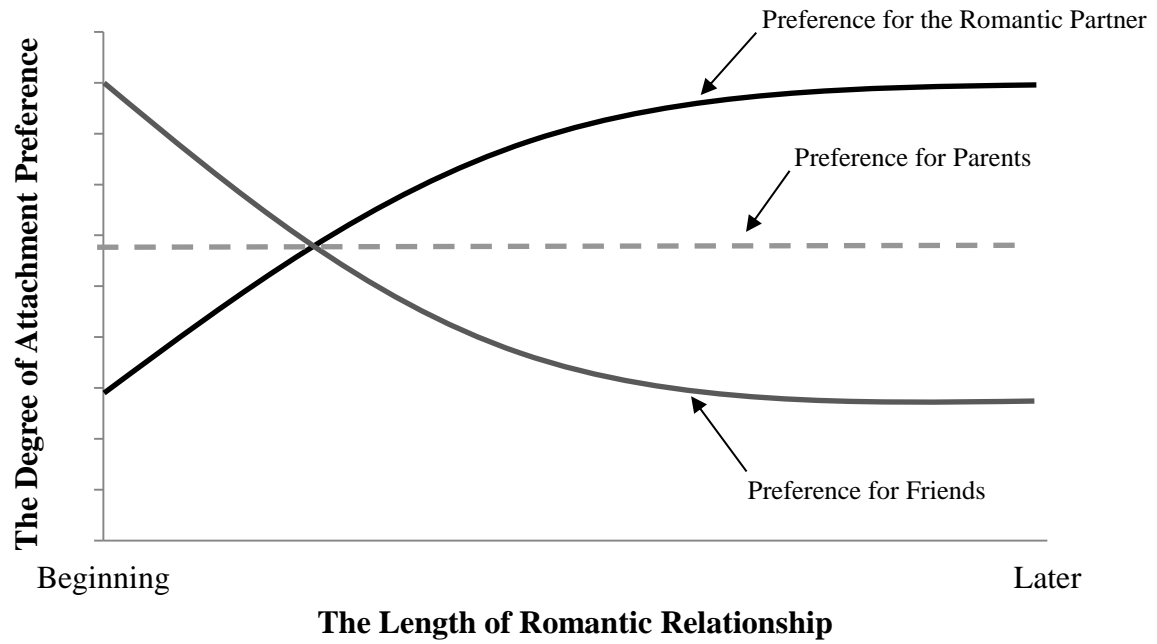
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Abstract

[300 words]

Keywords

Attachment hierarchy; attachment theory; parent-child relationship; romantic relationship; peer relationship.

Figure 1. A conceptual model of adult hierarchical preferences for attachment figures in relation to the length of romantic relationship. (This figure was originally published in English in Umemura, Lacinová, Kotrčová, & Fraley, under review.)