REVIEW

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The limits of the attachment network

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Abstract

From the beginning, theories of attachment and caregiving have given rise to questions about minimum and maximum numbers of attachment figures. The child's tendency to direct attachment behavior to a specific figure rather than to whoever is nearby has led to the idea of monotropy, suggesting that a child would thrive best with one special attachment figure. From an evolutionary perspective kinship caregiving networks are more plausible as they would increase the chances of survival, and in hunter-gatherer and agricultural communities paternal care and kinship networks providing care for young children were indeed common. A recent development in cultural evolution is the invention of organized day care and children's homes and institutions. Although the attachment network may increase in size with the child's cognitive development, research on institutionalized care demonstrates that high numbers of caregivers preclude secure attachments. The limiting factor to attachment networks may however not be the number of caregivers, but the opportunities for the child to learn contingencies in social relationships that have an attachment component.

KEYWORDS

alloparents, daycare, institutionalized care, kinship networks, monotropy

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1 | INTRODUCTION

The famous African proverb: "It takes a village to raise a child" originates from the Nigerian Igbo culture and proverb "Oran a azu nwa", meaning "it takes a community or village to raise a child". Does that imply that the caregiving network is basically *unlimited*, and the more individuals feeling responsible for the caretaking of a child, the better? This raises questions about the consistency and stability of care, and whether there may be limits to the attachment network that a child can deal with. Starting with the definition of an attachment relationship and caregivers as attachment figures, we will review the ideas of monotropy and alloparenting, discuss day care and institutionalized care for children, and indicate what factors limit the attachment network as suggested by the available evidence.

2 | CAREGIVERS AS ATTACHMENT FIGURES

Central to this paper is the *size* of the attachment network, independent of its quality, although the two may be related. The question is thus not: "How many secure attachment relationships can a child establish?" but: Is there a maximum to the number of caregivers with whom the child can establish an attachment relationship? Two notions are important. First, not all caregivers are attachment figures. Caregivers serve multiple functions for children, and not all of these are attachment related. There may be many caregivers around a child, but not all of them will be part of the child's attachment network. Second, it is helpful to be reminded of the distinction between safety and security. As noted elsewhere (Van IJzendoorn & Bakermans-Kranenburg, 2021), Bowlby (1969) distinguished between the two in an unpublished manuscript by tracing the etymology of "safe" to the Latin word "salvus", that is, the absence of injury, and "secure" as originating from "se cura", that is, being without a care (see Duschinsky, 2020). The primary function of attachment figures and attachment relationships is to provide safety, increasing the child's chances for survival and reproductive fitness. In the best scenario, attachment relationships and figures also provide security. In an insecure attachment relationship, the caregiver may still provide safety even in the absence of security. When the limits of the attachment network are discussed, the focus is not on attachment security. The attachment relationships within this network may be secure or insecure.

What is an attachment relationship? Ainsworth (1989) outlined five conditions for affectional bonds: persistency over time (not transitory), specificity (not interchangeable with anyone else), emotional significance (Ainsworth notes joy on reunion—however, that seems more specific to *secure* relationships), the wish to maintain contact or proximity, dependent on age and context, and distress at involuntary separation. For attachment relationships Ainsworth phrased an additional, sixth criterion: when distressed, the individual seeks security and comfort in the relationship with the other. That does not imply that any figure to whom the child turns in times of distress is an attachment figure: The distressed child who runs to the pool attendant after being pushed under water by peers seeks safety and perhaps comfort from the pool attendant, but this fleeting relationship does not meet the five conditions of an affectional bond, and is thus not an attachment relationship.

It should be noted that these six conditions are not always considered as compelling. When Fearon and Schuengel (2021) suggest that children can rely on many individuals as lasting or temporary attachment figures, this seems at odds with the first condition for an affectional relationship (and thus also for an attachment relationship), that is, persistency over time. Indeed, foster parents or teachers may be temporary attachment figures in children's lives. Persistency may be affected by factors such as intensity and

duration of the relationship: the dyad should have the opportunity to learn interpersonal contingencies, to come to know and predict each other's behaviors and responses. In an examination of attachment formation in foster children using a diary, foster parents reported patterns of attachment behavior within 2 months for the majority of children (Stovall-McClough & Dozier, 2004). However, in a study on previously institutionalized children with independent observation of the degree to which children had developed a preferred relationship with the adoptive parent, only a third of the children showed full differentiation of the parent from other adults at 1–3 months after adoption. Ninety percent did so 7–9 months after adoption, with children exposed to greater preadoption adversity (including more care setting changes) taking longer to form an attachment to their adoptive parents (Carlson et al., 2014). These findings point to two conclusions with regard to persistency: First, attachment formation seems to request at least some months of interaction, and second, lack of persistency of caregivers in the past may lead to longer trajectories to form new attachments—which in turn points to the salience of persistency.

3 | MONOTROPY VERSUS KINSHIP NETWORKS

The child's tendency to direct attachment behavior to a specific figure rather than to whoever is nearby (the specificity condition) has been represented and misrepresented with the term "monotropy". Bowlby used the term monotropy first in 1958, and then refers to it in the first volume of his trilogy on Attachment in 1969 (Duschinsky, 2020). In 1958 he defines monotropy as "the tendency for instinctual responses to be directed towards a particular individual or group of individuals and not promiscuously towards many" (p. 370), meaning a restriction on the individuals or groups towards whom a response is directed on the basis of experience (Hinde, 1986). The term is meant to highlight the personal significance for the child of attachment figures, who are not interchangeable with other adults. However, in 1969 Bowlby refers to monotropy omitting the second half of his own 1958 definition and he notes the bias of a child to attach himself "especially to one figure" (Bowlby, 1969/1982). Duschinsky (2020) clarifies, based on his letters where he refutes the idea of only one attachment figure as "nonsense", that Bowlby never meant to say that a child would ideally have only one attachment figure, nor a "special" attachment figure.

Nevertheless, it has been argued that from an evolutionary perspective there may be good reasons for something like monotropy (Cassidy, 2016). In case of danger, the child knows instantaneously to whom it should turn for protection, without any doubt about who is in charge or would provide the best care or protection at the moment. Moreover, the caregiver knows that he or she is the responsible one so will not hesitate or wait to respond—and when she is the biological parent, this will also maximize her inclusive fitness. These two processes, especially when acting in concert, increase the child's chances of survival. However, a caregiver that is solely responsible for the child is also a big risk, and thus evolutionary improbable. First, the death of this one and only caregiver would be deadly to the child that has no alternative caregiver. Second, a caregiver who is always "on charge" would easily be overburdened and not able to provide for the child, especially in case of more than one offspring. Sara Hrdy (2009) notes in Mothers and Others that it takes 13,000,000 calories to provide for a child from birth to independence. Mothers need others to do so. Indeed, the sociobiological perspective leads to the expectation that not only mothers take responsibility for childcare. Fathers would take such responsibility as well, especially if their paternity is reasonably certain, but also other close relatives such as grandparents, aunts and uncles, and older siblings would increase their inclusive fitness

by investing the care of a specific child. Allomothering is observed in most group-living primates. The benefits of alloparenting are manyfold: it provides inexperienced mothers with the opportunity to practice mothering skills, allows some freedom for the mother, and increases the child's chances of survival if the mother dies (Hrdy, 1976, 2009). At the same time, children with multiple attachments may still prefer their principal attachment figure in times of stress (Bowlby, 1969/1982), which points to a hierarchy of attachment relationships.

In hunter-gatherer communities paternal care and kinship networks providing care for young children were common, including breastfeeding by non-related females (Smith, 1980). This was even more true in settled communities. When the subsistence agricultural and peasant activities were away from the home, shared care has been common. This included grandmothers, other wives of the same husbands, and older siblings (Kaye, 1962). Based on a survey in 186 non-industrial societies, Weisner and Gallimore (1977) found that only in five of them the mother was indicated as the almost exclusive caretaker of the child during infancy. In early childhood, others had important caretaking roles in 80% of these societies. These alloparents ease the caregiving burden, and make the lives of the mother easier. But is it also the more the merrier for the child? Or is there reason to believe that there is not only a minimum number of caregivers, but also a maximum?

4 | EAT AN ELEPHANT ONE BITE AT A TIME

In most of the modern western world, shared care is the rule. It may however be the case that this is easier to deal with for somewhat older children than for young infants. Evidence for that idea comes from a study in Scotland in the 1960s, that is reviewed here because of the insights in the development of attachments over time. Schaffer and Emerson (1964) report on 60 children in Glasgow who were followed throughout their first year. The families of these children lived in a working-class area in Glasgow, in tiny flats in proximity to the child's grandparents. Although the mothers in these families had the chief responsibility for child care, many of them spent the afternoon with their children in the maternal grandmother's home, with other family members providing social contact and alloparental child care.

During regular home visits, research assistants asked the mothers about their infants' behaviors when they were left alone in a room, left with other people, put down after being held, left in their pram outside a shop, left in their cot at night, etc. The mothers were asked whether, in each of these situations, the infant showed any form of protest, how intense the protest was, and to whom it was directed, that is, whose departure did elicit their protest. Seven such response-to-separation items formed what was called an "attachment scale". Attachment was thus based on protest against the separation of a specific person, although, considering Ainsworth's (1969) criteria for affectional bonds and attachment relationships, protest against an involuntary separation marks an affectional bond but is not the hallmark of attachment. In the Glasgow study, 71% of the children showed selective protests first with one person—their mother—mostly starting at around 6 months of age, and later with additional persons. 29% showed selective protests with more than one person from the first measurement. Six months later the average number of attachment figures had increased, with 22% of the children showing separation protest with only their mother, 78% with more than one person, and as many as 28% showing such protest with five or more persons (Schaffer & Emerson, 1964).

If we take separation protest as an indicator for attachment, these data indicate two things. First, at the end of the first year of life, most children seemed to have established

attachment relationships with more than one caretaker. Second, the number attachment relationships increased with the cognitive development of the child. For the development of the first attachment relationship(s), the child needs to be able to distinguish the attachment figure from other adults and to have a mental representation of the attachment figure in his or her absence (Piaget's criterion of object conservation). Having distinct representations of several different attachment figures, with accompanying expectations about behavioral do's and don'ts in each of the specific relationships, requires more complex cognitive processes and may thus only be feasible for somewhat older children. It follows that the attachment network may increase in size with the child's cognitive development. At the same time, not every caregiver is an attachment figure, and not every social relationship is an attachment relationship. The additional attachment figures were in the Glasgow study, in order of prevalence, fathers, grandparents, friends or neighbors, siblings, other relatives, or other children. Mothers were the primary attachment figures in these traditional families where only one mother had a full-time job, but the majority of children had a network of caregivers with whom they had established attachment relationships based on frequent interactions over an extended period.

Shared care is thus rather common in human history, and in many parts of the world. However, a rather recent development in cultural evolution is the invention of organized professional day care on the one hand, and children's homes and institutions for 24/7 care on the other hand.

5 **DAY CARE**

For children attending day care, their parents provide continuity of care for a substantial part of their lives: evenings, nights, and weekends. Most studies indicate that day care attendance does not negatively impact the child's attachment relationships at home (e.g., NICHD Early Child Care Research Network, 1997; Howes & Spieker, 2016), that children can establish attachment relationships with their day care providers (Ahnert, Pinquart, & Lamb, 2006), and that a secure attachment relationship with the day care professional may even compensate for an insecure infant-parent attachment relationship (Van IJzendoorn et al., 1992). It has been estimated that the total number of caretakers who substantially interact with children attending day care amounts to but generally does not exceed 10 (Smith, 1980). For a young infant that may be a number exceeding the number of distinct representations the child is able to have in mind, but for 3- or 4-year-old children this number does not seem to overcharge their cognitive system. Importantly, the parents are continuous factors in the children's lives, which may make it easier for them to handle a variety of caregivers during the day (but not during the night, as practiced in kibbutzim with collective sleeping arrangements, Sagi et al., 1994). Nevertheless, high infant-caregiver ratios increase the risk of insecure attachment. In a large Israeli study, children experiencing infant-caregiver ratios of 3:1 or less were more often securely attached to their mother than children experiencing higher infant-caregiver ratios, and infants who entered center day care in the first year of life were less often securely attached than infants in individual or family care in their first year of life (Sagi et al., 2002). Moreover, in the NICHD study the number of caregivers in day care and the child-caregiver ratio were (negative) indices of the quality of child care, which in turn predicted children's developmental outcomes (Vandell et al., 2010). Thus, continuity and stability of day care providers should be among the most important ambitions of day care centers, especially for young children. The same may be true for children who due to their intellectual capacities may have difficulties dealing with several different caretakers.

6 | INSTITUTIONALIZED CARE: TOO MANY ELEPHANTS

In contrast with children attending day care, for children in residential care facilities there is no home to return to at the end of the day. The number of children worldwide that are housed in institutions is estimated at 7.5 million children (Desmond et al., 2020). A recent meta-analysis on more than 300 studies, including more than 100,000 children in 65 countries showed that growing up in an institution is associated with severe delays in physical growth, brain development, cognition, and attention; and an overrepresentation of atypical attachments (Van IJzendoorn et al., 2020). For physical growth and for head circumference, an indicator for brain development, the effect sizes were d = 1.18 and d = 1.44, respectively, indicating more than a standard deviation difference between institutionalized children and their peers. Comparison of the meta-analytic results with the findings from the Bucharest Early Intervention Project (Nelson, Fox, & Zeanah, 2014) indicates that these effects cannot be accounted for by selection mechanisms. Moreover, dose-response associations between duration of institutionalization and delays in developmental outcomes point to the devastating effects of spending time in residential care facilities, in spite of the availability of healthy food and medical care. This supports the idea that such developmental delays are associated the structural neglect that is inherent to institutional care with its multiple shifts and frequent change of caregivers (Van IJzendoorn et al., 2011).

In one of our own studies in Ukraine (Dobrova-Krol et al., 2010) children were reported to have had more than 50 caregivers before their fourth birthday, the same number as was noted by Tizard and Rees (1975) in London in the 1970s. Children at the Mitera Babies Centre in Greece had an average of 29 caregivers over a 6-month period (Stevens, 1971). In those situations, children do not thrive. Apparently, there is a maximum number of caregivers that children can deal with. The situation may be somewhat better in small group homes, such as SOS villages. However, although the number of studies on small group homes is modest, the results are mixed, and child outcomes are hardly any better than in conventional institutions (Van IJzendoorn & Bakermans-Kranenburg, 2021). The evidence showing that children recover rapidly in many (though not all) domains of development when placed in a foster or adoptive family only adds fuel to the idea that in terms of the number of caregivers "less is more". These findings highlight the urgent need for transitions from institutional care to family-based care, and recommendations for further action on the global, national and local levels have been done (Goldman et al., 2020).

7 | CONCLUSION

Attachment networks provide havens of safety for the child in a complex and potentially dangerous world. The chances for child survival and procreation increase if the burden of caretaking is not on the shoulders of a single person, and indeed, the child is well prepared to establish a network of attachment relationships. However, a child needs to spend time with a caregiver to build up a library of shared experiences to create (feelings of) contingency with that specific caregiver. The younger a child is, the more difficult it will be to have distinct representations of different attachment figures, limiting the number of attachment relationships. The number of attachment figures may increase in size with the child's cognitive development. Having said that, research on institutionalized care clearly demonstrates that the caregiving net can be spread too wide. High numbers of caregivers preclude stability and feelings of safety.

About four decades ago, Smith (1980) estimated that the number of caretakers who substantially interact with the child in most cultures does not exceed ten, and that care

shared between up to five caretakers would not lead to problems in attachment formation. The past 40 years have not seen systematic research on the number of attachment relationships children can deal with. Doing such research should take into account the child's cognitive development and temperament. But for toddlers and school age children the pertinent question is perhaps not: "How many attachment figures is the maximum?" but a better question may be: "What social relationships have an attachment component, without being defined by this component? And what are the conditions for optimizing the quality of this attachment component?" Many relationships in children's lives are not unidimensional. A parent is not only an attachment figure, but also an educator, and sometimes a playmate. A teacher is mostly an educator, but sometimes an attachment figure. Sibling and peer relationships have attachment components that can be more or less pronounced depending on developmental stage and context. The limiting factor may not be the number of caregivers, but the number of opportunities for the child to learn contingencies, the time for relationships to become emotionally significant, the richness of experiences that fuel expectations based on persistency over time. If these conditions are met, safety and comfort in times of distress can be found in a network of such relationships.

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CONFLICT OF INTEREST

No conflict of interest.

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