The Benefits of Attachment Parenting for Infants and Children: A Behavioral Developmental View

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Abstract

Parents of infants and young children face many challenges when dealing with negative emotions such as crying, distress, fear and anger. If children experience such emotions chronically, and these are not mitigated by parents, evidence suggests that the stress can result in irreversible brain damage. These changes can increase the likelihood of serious problems in children's development. This paper shows that the use of Attachment Parenting practices both with infants and with older children can greatly reduce the child's stress and by so doing may produce both physical and psychological benefits. The major benefits occur as the result of the mitigation of potentially overwhelming negative emotional states. With infants, the specific Attachment Parenting practices include co-sleeping, breast feeding on demand, extensive carrying and holding of infants, and rapid response to infant crying. These have been shown to be associated with less crying and other expressions of distress. The effectiveness of these stress-reducing behaviors is probably due to the high degree of responsiveness to infant signals. Parents who bottle feed instead of breast feed, for example, or those who have their infants sleep nearby but not necessarily in the same bed can also practice highly responsive parenting. For older infants and children, Attachment Parenting consists of continuing to be highly responsive to the child, which especially includes behaviors that help children better regulate emotional states such as distress, fear and anger. The benefits that are discussed include less exposure to stress, which effects brain development and later reactions to stress. This has been shown to reduce mental health problems in later development. Another important psychological benefit is secure attachment, which is the tendency of the child to seek contact with a parent when distressed and to be effectively consoled by that contact. The result of more effective emotion regulation and secure attachment during infancy and childhood is that children engage more effectively with essential developmental tasks, including peer relationships and schooling.

A number of behaviors of infants and children present challenges to parents. For example, some infants may cry often and be difficult to console. Some older infants as well as children can be described as being overly fearful and anxious. They do not seem to engage easily in new situations with peers or teachers who act sometimes act in lieu of parents in this culture. Other children may act out in a variety of ways, grabbing toys, hitting children or adults, or engaging in other aggressive behaviors. All of these examples involve emotion and its regulation, or rather, its lack of regulation. Emotion regulation is something that develops throughout childhood, and to some extent, even into adolescence and adulthood.

When children of any age are distressed, angry or fearful, especially if these emotions are experienced chronically and parents and other caregivers do not mitigate them, the stress that results can have irreversible deleterious effects on the child's brain development (see Gunnar, 1998; and the National Council on the Developing Child, 2005 for summaries). Such damage increases the likelihood of severe problems in a large percent of children who incur it.

These stress-producing emotions in infants and young children may be reduced by child-centered parenting called Attachment Parenting. We will show that there are both physical and psychological benefits to Attachment Parenting techniques. The physical benefits include less stress, with its possible resultant effects on brain development. The psychological benefits are greater emotion regulation as well as a more adaptive attachment relationship to parents and to significant others. Finally, because Attachment Parenting has rarely been discussed as applying beyond the period of infancy, we will propose ways in which it can be implemented in older children, thereby continuing the goals of stress reduction, emotion regulation and attachment in those children.

ATTACHMENT PARENTING WITH INFANTS

The term Attachment Parenting (AP) was introduced by a number of researchers and practitioners, starting in 1998 (Frissell-Deppe, 1998; Granju, 1999; Sears & Sears, 2001). Publications using related terms (e.g. empathic parenting or natural parenting) also appeared around that time (Hunt, 2001, as cited in Schön & Silvén, 2007). The heart of AP, according to Sears and Sears (2001) is learning to read the cues of the baby and to respond appropriately to those cues. Parenting in this view is child-centered and not parent-centered.

A parent-centered child rearing technique is seen in a typical U.S. parent's approach to children's bedtimes (Richman, Miller & Solomon, 1988). American parents believe that having a specific bedtime is good for infants and children. A great deal of parental behavior in the U.S. is directed toward putting infants and children to bed at a specific time. This is done irrespective of whether the infant (or child) is ready for sleep. A more child-centered strategy is described by New (1988) in the same volume. In the Italian households that she studied, there was no specific bedtime for infants. Infants were included in the evening family rituals and were only put to bed if they fell asleep. In the Italian case, it is the infant's own sleepiness that serves as the signal to help them fall asleep and then put them to bed. In the American case, it is the parent's time-based rule that serves as the signal to put the child to bed. Perhaps not surprisingly, a number of researchers (e.g. Green, Groves, & Tegano, 2004) have related the parent-centered bedtime practices of American families to a greater use of transitional or security objects in infants and young children, and the need for bedtime routines (see Jenni & O'Connor (2005), for an extensive discussion).

AP is identified by some as a fixed approach in which the parent must breast feed exclusively and on demand, hold and carry the baby most of the time, co-sleep, and respond quickly to the baby's crying. That is not a correct view, however. Sears and Sears (2001) argue instead that parents might work or bottle feed and still be using AP, if their own parenting behavior is still as child centered as possible. These authors also argue that any parenting behavior, including holding, feeding and co-sleeping could be applied in a way that is not responsive to cues from the infant. What is most important is not the specific behavior, but whether or not it is responsive to cues from the infant.

It is nevertheless true that breast feeding on demand, holding, co-sleeping and responding quickly to infant crying are still a very important part of AP as it is practiced with most young infants. The reasons for this are several. First, and most importantly, these behaviors tend to be exactly what most young infants need. As long as they are used in a child-centered way they can have multiple beneficial effects, including helping infants to regulate their emotions, particularly those of distress, and promoting attachment to the caregivers.

According to Sears and Sears (2001), AP minimizes stress in infants, and results in children who are more psychologically healthy and resilient. It may, as a result, protect children from the negative effects of stress. It also promotes infants' secure attachment to parents and closer attachments to others. This notion of secure attachment has been extensively studied by Ainsworth and her colleagues (e.g. Ainsworth, Blehar, Waters & Wall, 1978; Weinfeld, Sroufe, Egeland & Carlson, 1999). In their work, a securely attached infant or child is one who appropriately relies on their parent for comfort and support, particularly when stressed, afraid or ill. These benefits of AP will be discussed more below.

PHYSICAL OR PHYSIOLOGICAL BENEFITS OF ATTACHMENT PARENTING WITH INFANTS

As argued in a number of sources (e.g. Barr, Konner, Bakeman & Adamson, 1991; Konner, 1977; LeVine et al., 1994; Schön & Silvén, 2007) the practices that are part of AP were adaptive in the environments in which humans originally evolved (the Environment of Evolutionary Adaptedness, or EEA, Bowlby, 1969). Because early humans lived in precarious circumstances in terms of possible exposure to predators as well as disease, it would make sense to keep infants as close as possible to an adult (as seen in co-sleeping and holding). Attending quickly to crying would help to maximize infant survival because crying might indicate current hunger, but also longer term conditions such as illness. Similarly, breast feeding on demand could be protective when infants are ill. LeVine et al. (1994) went so far as to say that some cultures have a *pediatric model* for infant care. In those cultures, a parent's most important goal is protecting the health and survival of the infant. That goal is reflected in how they interact with their infant. Such interactions include the AP behaviors already mentioned. From an evolutionary psychological perspective, having this kind of parenting would increase the likelihood that the parents' genes would be passed on.

Below, arguments about the physical benefits of AP practices will be presented in some detail. In almost all cases, the original studies of these issues were naturalistic, often anthropological or cross-cultural studies, of parenting practices. Their purpose and effects in the cross-cultural studies could only be inferred. As is possible, the naturalistic and anthropological data will be supplemented with existing quasi-experimental or experimental literature.

Co-sleeping. At the present time parents and infants sleep together in many cultures (see Jenni & O'Connor, 2005; McKenna, Ball & Gattler, 2007). Parents could be sometimes mothers or fathers only. These cultures include the !Kung San in southern Africa (Barr, Konner, Bakeman & Adamson, 1991; Konner, 1977), the Gusii of Kenya, studied by LeVine et al. (1994), the Mayans studied by Morelli et al. (1992), and many others (e.g., Latz, Wolf, & Lozoff, 1999; Welles-Nystrom, 2005). This practice generally lasts until the mother's next child is born, but can last into childhood (Welles-Nystrom) or even beyond (Caudill & Plath, 1966; Takahashi, 1990). It is primarily among white middle class parents in the U.S. and in some European groups that co-sleeping is not so common.

Reported rates of co-sleeping are found to vary somewhat from study to study, as would be expected from studies based on different samples. Studies in the U.S. have reported from 0% co-sleeping in the first few months of life (Morelli et al., 1992) to up to 15% (Latz, Wolf & Lozoff, 1999). McKenna (2007) reports that what seems most true is that many U.S. infants (as many as 68%) will sleep in their parent's bed at least some of the time. Many such parents will continue to report that they are not co-sleepers, especially if they are concerned about the reactions of their pediatricians. Note that those interested in a more extensive review of the history, prevalence and other information about co-sleeping can consult the studies above, as well as additional discussions by Schön and Silvén (2007), McKenna (2007) and Small (1998).

The original physical benefits of co-sleeping were thought to be protection from predators and allowing the infant to continue to breast feed on demand (see McKenna, Ball & Gettler, 2007). In the contemporary world, co-sleeping still provides the

important benefit of allowing breast feeding to take place more easily and frequently, with less wakefulness in the mother. In addition, McKenna and colleagues have argued that it may be associated with a reduction in Sudden Infant Death Syndrome (SIDS). The main reason for this is that an infant who sleeps "separated from the physiological regulatory effects of its mother's body is sleeping in an environment for which it is not designed biologically…" (McKenna, Ball & Gettler, 2007, p. 141). In other words, the mother's breathing and other behaviors help the infant to better regulate its own physiological functions, including breathing. McKenna and colleagues present both experimental and non-experimental evidence to support this view. In the laboratory, they have shown that both mothers and infants spend more time in lighter sleep states when co-sleeping. Both because of this and because of more frequent breast feeding, they believe that infants may be more likely to be able to arouse themselves should they have a serious episode of apnea sleep. Cross-cultural evidence provides some indirect support for McKenna's view, in that cultures in which parents and infants co-sleep have much lower incidences of SIDS (McKenna & Mosko, 1990).

Co-sleeping, in the U.S. context, is still controversial. The American Academy of Pediatrics, citing epidemiological data from two studies, have recommended against co-sleeping (American Academy of Pediatrics, 2005b). As McKenna and colleagues have argued about the Academy report, there continue to be many factors that are not controlled or even examined in many of the epidemiological studies, including maternal drug and alcohol use, fatigue, smoking, and bedding type. At the same time, the Academy recognizes that infants who sleep alone in a separate room have increased SIDS risk, and suggests that parents should have their infants in their rooms, if not in their beds. McKenna (2007) continues to be a strong supporter of co-sleeping, but he also describes ways to get as close to co-sleeping as possible, for example, by using a small bed that is either next to or attached to the parent's. It should be noted that modern sleeping arrangements were almost surely generated for reasons other than co-sleeping and do not inherently make for safe co-sleeping. A better co-sleeping environment would be one large mattress (perhaps even larger than King-sized) on the floor of a bedroom. Children could be well within reach, but not squashed into a double or queen-sized bed, not situated between two sleeping adults, not several feet off the floor, and not exposed to gaps between mattresses or between mattresses and a crib side. The latter situation – the gap between a crib mattress and the crib sides - has itself resulted in a number of deaths, including recently (see "Cribs recalled after two infant deaths", Fox News, October 21, 2008).

Breastfeeding on demand: When mothers sleep next to or very near to infants this facilitates breastfeeding. In many cultures breast feeding on demand both at night and during the day typically continues into the second year, and perhaps beyond, along with co-sleeping. In their studies among the Gusii of Kenya, LeVine et al. (1994) argued that frequent breast feeding has played an essential role in cultures where infant mortality was very high. It helps to ensure early weight gain and the possible maintenance of hydration in the presence of diarrhea. Among the !Kung San, breast feeding is even more frequent than among the Gusii, occurring in some mothers at some times up to four times an hour (Barr, Konner, Bakeman & Adamson, 1991; Konner, 1977). These authors have made similar arguments about the importance of on-demand breastfeeding for infant health and survival.

For modern societies, in which health risks are not present to such a great extent, breast feeding on demand still provides health benefits for infants (as well as mothers). The Academy of Pediatrics' (2005a) recent report on breastfeeding lists a large number of such benefits, including a reduction in a number of diseases during infancy (even in developed countries), decreased rates of SIDS, a reduction in later rates of diabetes, certain cancers, obesity and asthma in older children, and even some benefits in terms of a child's cognitive development. Despite the many benefits of breast feeding, the rates of maternal initiation of breast feeding remain at about 70% in the U.S., with only about 33% continuing to breast feed to any extent 6 months postpartum.

Even though this same Academy report (2005a) states that infants can continue to breastfeed as long as this is mutually desired by both mother and infant, there are few studies of the benefits or detriments of breast feeding beyond about the first year. Based on comparisons of weaning ages of related primates, Dettwyler (1994) has argued that the natural weaning age for humans falls somewhere 2.5 and 6 years of age. She also notes that the human immune system does not become fully mature until age 6, so that a continuation of breast feeding until that age might be maximally protective. In one of the few studies that have been conducted of AP parents, an average age of weaning of about 4 to 5 years has been reported (Sugarman & Kendall-Tackett, 1995). It has been suggested (Baldwin, 2001) that following a practice of child-lead weaning is most congruent with AP ideas.

Holding and touching: In cultures such as the !Kung San (Barr, Konner, Bakeman and Adamson, 1991; Konner, 1977) and the Gusii, as well as others, infants, particularly young infants are held almost continuously, if not by the mother than by somebody else. For example, among the !Kung San, babies were in physical contact with someone more than 75% of the time during the first 20 weeks of life and more than 50% of the time until about 50 weeks. Among the Gusii, holding and physical contact occurred in about 80% of observations before 6 months, and about 50% between 9 and 12 months (Richman, Miller & Solomon, 1988). Richman, Miller and Solomon reported that, in contrast, U.S. mothers held their infants about 45% of the time at age 4 months, and only about 20% of the time at 10 months. Most of the remainder of the time, the younger American infants were placed into containers such as infant seats. Older infants might be as likely to be placed on the floor, to allow for exploration.

LeVine and colleagues (1994) consider the high rates of holding seen in settings in which infants are more vulnerable to be important for both the health and survival of the infants, as also discussed by Richman, Miller and Solomon. In the Environment of Evolutionary Adaptedness (Bowlby, 1969) holding would have been adaptive primarily in terms of protection from predators including other hominids.

A major benefit of holding infants in contemporary settings would be a reduction in their rate of crying. Hunziger & Barr (1986) assigned mothers of normal infants to two groups. In the "supplemental holding" group, mothers were asked to increase the time that they spent in supplemental holding, which was defined as holding that was not done in direct response to crying or while feeding. These mothers were found to hold their infants, on average, 1.8 hours more per day, and their infants cried and fussed on average 43% less at the peak time for infant crying (6 weeks). In a related study, St. James-Roberts et al. (2006) compared parents who held their infants a great deal of the time (on average 15 to 16 hours per day) versus those who held them much less. They found that the infants who were held much less cried 50% more overall.

There may be both physical and psychological benefits to reduced crying. LeVine and colleagues (1994) have argued that, in environments with higher infant mortality, minimizing caloric expenditure due to excessive crying and too much activity may improve infant survival. This benefit is likely to be less important for infants living in less vulnerable environments, but a reduction in infant crying could also affect how stressed infants and their caregivers might be. Soltis (2004), for example, summarizes literature suggesting that infant crying is an important cause or at least precipitating event for abuse and maltreatment in a number of cases.

Responsiveness to crying. Mothers whose behavior can be described as following the pediatric model tend to respond rapidly to crying, as well as showing high rates of holding and touching, as would also happen with AP. There is evidence (presented above) that non-contingent holding is related to lower rates of crying in infants, at least in young infants. What are the effects of responding to infant crying? This topic overlaps somewhat with the topic of infant holding, since picking up and holding would be a frequent response to crying, along with other behaviors. The distinction is that here, what is being looked at is the presence of a contingent response. The research on responsiveness to crying has not looked at the specific nature of responses to crying, only at how often parents (usually mothers) respond.

There has been disagreement on what the effects of responding to crying are. In 1972, Bell and Ainsworth reported that consistent and prompt maternal responding to the crying of infants during the first few months of life was related to a reduction in the frequency and duration of infant crying late in that first year. This might be interpreted as going against a behavioral view, which could suggest that responding to crying with attention and holding would reinforce its occurrence. Gewirtz and Boyd (1977), in fact, criticized the Bell & Ainsworth findings on a number of methodological grounds. Their most notable criticism was that Bell and Ainsworth were not looking at maternal responsiveness at all. Instead, they were looking at maternal ignoring of crying, and whether that was associated with later higher rates of crying. They assumed that maternal ignoring and maternal responsiveness would be reciprocal to each other, but they did not demonstrate that.

Gewirtz and Pelaez-Nogueras (e.g. 1991) have more recently presented results showing that in the case of separation protest at least, maternal responses can increase the frequency of such protests. Note that they used somewhat older infants, so this research would not necessarily contradict the Bell & Ainsworth (1972) finding. Hubbard & van Ijzendoorn (1991), in an attempted replication of the Bell and Ainsworth (1972) study, reported that maternal unresponsiveness to crying was associated with less crying overall. Although this would actually support the learning point of view, the finding also is problematic because it did not examine responsiveness directly, only unresponsiveness.

The safest conclusion appears to be that some kinds of crying, in some situations, could be reinforced by being responded to. Which types of crying, and when or how, remains to be established. The reason for this uncertainty, as also argued by Miller & Commons (2001), is that there has been no complete functional analysis of crying. Such a complete analysis would need to take into account a number of factors that have not been explicitly included in the above work.

First, it has been shown repeatedly that crying has a normal developmental course that is found across cultures (Barr, 1990; Barr et al., 1991). These studies show that crying increases over the first few weeks of life. The peak frequency of crying occurs at 6 weeks. There is then a gradual decrease in crying until about 3 or 4 months, after which it remains somewhat stable. Any study of crying, therefore, has to take into account the fact that it will normally tend to decrease over time, on average. This decrease must to some extent be independent of parental intervention, since it occurs in a large variety of cultures with different kinds of parental interventions.

Second, there are two variables that need to be taken into account: the type of cry that is being responded to; and the age of the infant. Even in the Gewirtz & Boyd (1977) paper, they mention that responding to cries that were elicited by some kind of physiological event would not tend to lead to increased crying, except in the case that the same elicitor occurred again. A related factor to this is the age of infant. For the youngest infants, crying is their primary mode of communication. Many more of the communications infants engage in are of the elicited type. As suggested also by the above findings on the developmental course of crying, this kind of crying may naturally decrease over time. Parents are also not well acquainted with the infant at first. Conscientious parents are likely to respond to most cries. Nevertheless, over time, these early cries tend to decrease.

Third, it is very important to consider where in a "cry bout" the response occurs. Crying is generally preceded by a series of behaviors. These might include an initial change of facial expression (to a more serious expression or even a grimace), increased bodily agitation, initial fussing sounds, looks to the mother, and other behaviors. These behaviors, along with the actual crying that occurs toward the end of that sequence, constitute a "cry bout." If the mother intervenes at any point during these initial behaviors, crying may never occur at all, and so could not be reinforced. It would be expected that a highly responsive parent would learn to recognize the early signs of distress and intervene before actual crying occurred. So sensitively responding by parents does not reinforce crying.

It is also important to realize that, at the same time that crying is beginning to decrease as the infant gets older, a separate communicative system of babbling, smiling and other interactive

behaviors is becoming increasingly reinforced and elaborated. The studies of crying have examined crying as if it is developing without relationship to other important behavior systems, such as this one. The development and elaboration of these new communicative behaviors can change what happens with crying in at least two ways. First, infants will gradually learn to communicate what they want using non-crying gestures and then verbalizations. Parents' responses can reinforce the use of these alternative communication methods. Second, parents can use positive interactive routines to distract infants if they are beginning to become distressed.

One likely conclusion, given the above analysis of the "responsiveness to crying" issue is that there is every reason to expect that a high degree of responsiveness to early signs of distress in infants, those signs that occur before actual crying, should not lead to higher rates of crying, since crying itself may only rarely occur. Such rapid responsiveness is more likely to occur when infants are being held and otherwise kept close by a caregiver, such as is the ideal for AP parenting. Parents who are very responsive and keyed into their infants' signals are also likely to spend increasing amounts of time interacting with their infants in positive ways. This will lead to the development of a positive communication system, which will gradually and increasingly replace crying.

PSYCHOLOGICAL BENEFITS OF ATTACHMENT PARENTING

In developed and developing nations today, of course, infants are at much less risk for early death. There would seem to be less justification for the use of Attachment Parenting practices in terms of their benefits for physical survival. More importantly for those concerned about children is that there is increasing evidence that Attachment Parenting practices produce important psychological benefits that in turn have associated physiological benefits as well.

The most important psychological benefit of AP practices is that they minimize infant stress. This is true both during the first two- to three-months of life, when the infant is first establishing regulation of feeding, sleeping and arousal, and after (Emde, 1998; Emde, Gaensbauer & Harmon, 1976; Sander, 1975). During the early months of life there are many occasions when infants can become distressed. They cannot feed themselves, may continue to wake up during the night, and may cry for a number of other reasons. Crying is highly stressful, both for adults who hear it and for infants (e.g. Frodi & Lamb, 1978). Particularly during early development, research suggests that stress can have long term deleterious effects on the child's physical and psychological development.

There are two ways in which chronic stress at any time during the lifespan, and stress during early development in particular can be detrimental. Each of these will be discussed in turn.

There is an increasing amount of research on the influence of stress on the immune system and disease at various points in the lifespan. Exposure to chronic stress seems to be associated with physical disorders (for example, cardiovascular disease, cancer) and also psychological disorders such as depression and anxiety (see McEwen & Seeman, 1999). In some studies, exposure to high amounts of cortisol as a result of stressors has been shown to result in damage to the hippocampus (involved in learning and memory; e.g. Lupien et al., 1998) and the amygdala (involved in the processing of emotions; e.g. Wolterink et al., 2001)

Stressors that occur early in development can have an irreversible impact on the hypothalamic-pituitary-adrenocortical (HPA) axis and on the production of neurohormones, such as cortisol (e.g. Gunnar, 1998; Gunnar, Broderson, Krueger & Rigatuso, 1996), which are involved in the stress response. According to the extensive studies of Gunnar and colleagues, at birth, the human adrenocortical system is very responsive to stimulation. Therefore it can be more easily affected by experience. As can be seen from everyday observation, even minor events such as being undressed can be very distressing for many newborns. Measurements of cortisol levels during these situations show that there are also elevations in cortisol (Gunnar, 1992). Some infants, perhaps those who are temperamentally more reactive, and/or those who experience more situations that elicit distress (such as being left to cry alone for long periods of time), may experience multiple situations on a daily basis that result in high levels of stress hormones.

Long term effects of early stress: There is an increasing amount of research, with humans and with other animals, showing that early stress can have a number of detrimental effects on development. The work with animals is helpful in clarifying both what specific events are stressful, and what the effects of stress are on both the brain and on development. Experimental work on animals investigating these topics is more likely to be proposed and approved. By examining similar situations, generally non-experimentally, the research with humans can nevertheless show analogous behaviors and effects.

The long-term effects of stressful early rearing conditions have been experimentally investigated in nonhuman animals (e.g. Rosenblum et al., 1994; Suomi, 1987, 1991). For example, using rhesus monkeys, Suomi and colleagues have been investigating the differential effects of being reared by their mother in the traditional way or by being separated from the mother and being reared by peers. Although the peer-reared monkeys seemed to develop relatively normal social behavior as long as they were in familiar settings, when exposed to stressors, such as separations from other monkeys, they exhibited much more behavioral disruption, and a greater activation of the hypothalamic-pituitary-adrenal axis and other systems involved in dealing with stress. In more recent work, Suomi has found that there are also important individual differences in the reactivity of different individual monkeys both to the different rearing conditions and to the stressors. He has reported (e.g. Suomi, 1987) that roughly 20% of rhesus monkey infants can be labeled as highly reactive. Even when mother-reared, these monkeys will show much more extreme behavioral and physiological reactions to stressful situations. Such monkeys, for example, appear fearful in novel situations and have heightened levels of cortisol and ACTH (Adrenocorticotropic hormone). These patterns of behavior, both from monkeys who were reared by peers, and in the highly reactive monkeys, have been found to persist into later development.

Rosenblum and colleagues (1994), concerned that many of the studies of early stressful rearing conditions relied overly much on environmental conditions that were too severely

stressful, devised a situation in which infant monkeys were raised either by mothers who had an easy time foraging for food in a simulated foraging situation (Low Foraging Demand) or by mothers who had a more difficult time foraging (Variable Foraging Demand). Mothers under VFD conditions were assumed to be providing less than optimal caregiving which was somewhat stressful for their infants. The infants raised under VFD conditions were found to be behaviorally more timid, less social and more subordinate in their relationships with others, and as young adults responded differently to chemically administered stressors. Rosenblum and colleagues concluded that this was evidence that the neuronal systems involved in the stress response were permanently changed by exposure to this early stressful situation.

In humans, there has also been considerable work showing long-term effects of early traumatic experiences. The results of this work are concordant with the animal data. For example, Luecken (1998) found that adults who had lost a parent before the age of 16 showed a variety of less optimal cardiovascular and neurohormonal outcomes, including elevated blood pressure and cortisol, when engaged in tasks designed to be stressful. Studies have shown that infants subjected to early trauma or abuse also show differences in stress reactivity and brain development that continue into later childhood and adulthood (e.g. Essex, Klein, Cho & Kalin, 2002; Ito, Teicher, Glod, & Ackerman, 1998; Perry, 1997). It is important to emphasize that while some of the literature discusses primarily extreme situations, such as abuse or abandonment, other literature discusses stressors that a significant number of children are exposed to, including low socioeconomic status (Lupien et al., 2000), stress due to maternal depression (e.g. Ashman et al., 2002; Essex et al., 2002) and simply 'low quality maternal behavior' (Hane & Fox, 2006). Much of this research has been summarized in a recent report from the National Scientific Council on the Development of the Child (2005).

Do AP behaviors reduce reactions to stressful situations? One may conclude that early stressful situations elevates the chance of having long terms deleterious effects in humans and in other animals and is therefore important. In the context of the current paper, it is also important to mention that the kinds of touching and holding emphasized by AP have been shown to either reduce the effects of stressful early experiences or to result in more positive reactions to stress. For example, Blass and Barr (2000) found that the presence of a caregiver can moderate the negative physiological effects of a stressful medical procedure in human infants. In another study, toddlers exposed to a situation designed to produce wariness or mild fear, showed no elevations in the stress hormone cortisol when a parent to whom the child was securely attached was present. Toddlers who did not have secure relationships with their parents did show cortisol elevations (Nachmias et al., 1996). In an experimental study with nonhuman primates (Levine & Wiener, 1988), contact with mother was also shown to reduce stress reactions. Although it is harder to document long term effects, there is suggestive evidence from the experimental studies of Meaney and his colleagues. In one such study, Liu et al. (1997) found that infant rat pups that are licked and groomed more by their mothers showed, as adults, reduced hormone release in response to extreme stress.

The relationship between the use of AP and secure attachment: There is a considerable amount of research that shows that a mother's sensitivity to infant signals is significantly related to secure attachment of that infant to that mother. This has been found in the original studies of Ainsworth and her colleagues on this topic (e.g. Ainsworth et al., 1978) and in more recent studies in which the concept of maternal sensitivity has been broadened to better fit a variety of situations as well as the dyadic nature of the mother-infant interaction (for examples, see work by van den Boom & Hoeksma, 1994 and the NICHD Early Child Care Research Network, 1997). These studies did not explicitly examine the AP behaviors discussed here. They simply examined responsiveness of any kind. Because responsiveness involves sensitivity to infant cues, the findings nevertheless are most likely related.

Being rated as securely attached has been related to a large number of positive outcomes in both infants and children (see Martin & Britner, 1999; Thompson, 1999; Weinfield et al., 1999 for extensive reviews). Some of the positive outcomes include: a) responding in a more flexible way when placed in a frustrating situation, b) seeking help from adults more appropriately, c) showing more persistence and enthusiasm in problem solving situations, d) showing greater competence in interaction with peers, and e) showing greater understanding of both self's and other's emotions.

None of the work cited above looked specifically at the AP behaviors being discussed here. One of the few studies to do so (Anisfeld, Casper, Nozyce & Cunningham, 1990) found that when low-income mothers were assigned to carry their young infants more, their infants were more likely to be securely attached at 13 months. Some of the other literature that supports the idea that AP may lead to more secure attachment is cross-cultural. In the Dogon culture (True, Pisani & Oumar, 2001), who breastfeed on demand, hold their infants a large portion of the time, respond quickly to crying, and co-sleep, 87% of infants were found to be securely attached, according to criteria used in the original Ainsworth study (Ainsworth et al., 1978). In middle-class American households, the rate of secure attachment is reported to be around 65% (Ainsworth et al, 1978) or even somewhat lower in some samples. The remaining infants among the Dogon were classified as "resistant" rather than secure. A "resistant" infant is one who, although extremely upset by being separated from the mother, engages in angry-appearing behavior (pushing away, getting off the mother's lap, even though they are still crying). As a result, they are not able to be easily consoled. In Japanese infants, who also experience a great deal of holding and who co-sleep with their mothers, security of attachment was similar in frequency to that seen in American infants, with the remaining infants being classified as resistant (Takahashi, 1990; see also Rothbaum et al., 2000). Both Takahashi (1990) and LeVine and Miller (1990) argued that in cultures in which mothers and infants spend a great deal of time being physically close, such as the Japanese culture, that the separations that occur in the situation in which attachment is assessed can be so upsetting for the infants that they will not

be easily consolable by their mothers. They may, as a result, end up being classified as resistant.

Other Positive Socialization Benefits of Attachment Parenting: There may be other benefits of Attachment Parenting. One such benefit could be a closer sense of "connection" to other people. Because physical contact and touching is a less salient aspect of Western, and particularly Northern European cultures, this possible benefit has rarely been studied. At the very least, parents who engage in highly responsive caregiving serve as models for their children. Thereby they may promote higher frequencies of responsive and even empathetic behavior toward others, as also noted by Bandura (1989). Some anthropological studies (e.g. Hewlett, Lamb, Leyendecker & Schölmerich, 2000) support the idea that warmer and more responsive caregiving are associated with cultures that are more trusting and accepting.

■ ATTACHMENT PARENTING WITH OLDER INFANTS AND YOUNG CHILDREN

During the early months Attachment Parenting practices can be highly beneficial for both physical and psychological development. According to some research, it can also prevent long term negative effects of stressful child-rearing practices, such as having infants sleep alone and not responding when they cry. As infants continue to develop in many ways including attachment (Commons, 1991), their behavior and physiology changes. According to Gunnar (1998), during the period between 3 and 12 months there is a relative decrease in cortisol reactivity in a variety of stressful situations, even when behavioral evidence of distress to these situations may continue. During this same period of time, infants' frequency of crying decreases, and their frequency of other vocalizations, gestures, and positive emotional expression increases. Infants also become increasingly mobile, particularly in the second half year. Emde and others (Emde, 1998; Emde, Gaensbauer, & Harmon, 1976; Sander, 1975) see the new behaviors that appear around 7 to 8 months as representing a second biobehavioral shift. These new behaviors do make infants more able to initiate actions on their own and therefore less dependent upon caregivers.

Nevertheless, human infants continue to be quite helpless, and to rely a great deal on caregivers, particularly to help regulate negative emotions. To what extent does it still make sense for the parent to continue to follow the child's lead, at least in dealing with emotional development?

In responding to this question, it needs to be understood that developmental changes in the child should naturally bring about changes in the AP practices discussed thus far. Clearly, for example, as children become more mobile, they will spend more time away from their parents and not being held. As research has also shown (e.g. Anderson. 1972) when the child initiates the departure from contact, and can rely on the parent remaining in the same location, they are more likely to freely explore. When the parent initiates the separation, children have a great deal more trouble coping. In this case, children will be more likely to protest and if possible to return to the parent's side (e.g. Ainsworth et al., 1978).

As foods other than breast milk are introduced, the frequency of breast feeding will naturally decrease, although breast feeding may continue for variable periods of time. One interesting, although nonscientific, small-sample study, reports that among parents who practice Attachment Parenting, 44% were still breast feeding when their children were 3 years of age, with 2.5 years being the average age of weaning in this sample (Sugarman & Kendall-Tackett, 1995). In many cultures, co-sleeping may come to an end when the mother has another baby, as mentioned previously. In a number of cases, co-sleeping may continue with the parents beyond infancy, the child may transition to room sharing rather than bed-sharing, or they may transition to sleeping with other family members (e.g. Latz, Wolf, & Lozoff, 1999; LeVine et al., 1994; Welles-Nystrom, 2005). In Western cultures, co-sleeping also may become modified, with some parents placing their infant on a small bed or mattress nearby, but still in the same room. From an AP perspective, such changes in care would only occur if they seemed to be accepted without distress by the developing infant or child. A high degree of responsiveness, particularly to emotions of distress, would likely continue to be a feature of Attachment Parenting.

During the second half year of life, infants exhibit a more distinct and active attachment to their caregivers. In the Western setting, this attachment is typically expressed toward the mother, and, if present, father or other parent. This emerging attachment has a characteristic pattern, at least among Western infants. Rothbaum et al. (2000) discuss how such relationships differ in Japan. The Western parent's goal, according to Rothbaum et al., is to support the child enough so that the child can become more independent. A "healthy" balance between contact or connection to the attachment figure and exploration away from that figure is a central aspect of Ainsworth's theory (e.g. Ainsworth et al., 1978). Developing a healthy balance between exploration and attachment at this point is considered predictive of later more adaptive behavior. This balance is best exemplified by determining whether the infant can use the caregiver as a "secure" base for exploration. The notion of a secure base can easily be operationalized in behavioral terms. Children who will readily explore a new environment when their caregiver is present are said to be using the caregiver as a secure base for their exploration (Ainsworth et al., 1978; Anderson, 1972). Should the caregiver leave or move away, the child's exploring behavior will show a decrease in frequency, and the types of exploration behaviors will change. If the caregiver returns, they will seek contact, either by approaching the caregiver or possibly by indicating that they wish to be picked up. After some period of contact, with a high degree of frequency, they will show a tendency to move away from the caregiver again (Ainsworth et al., 1978). Similar behavior of moving away and moving back near the caregiver is also seen in situations of uncertainty, such as when a stranger approaches.

A parent's behavior when interacting with the infant is considered to be an important determinant of how this balance between attachment and exploration develops. Parents who behave in a sensitive fashion (as originally described by Ainsworth et al., 1978) are more likely to have infants who develop more secure and adaptive attachment and exploration behaviors. Ainsworth et al. used a 9-point rating scale of maternal sensitivity. A maximally sensitive mother "is able to see things from her baby's point of view. She is alert to perceive her baby's signals,

interprets them accurately, and responds appropriately and promptly, unless no response is the most appropriate..." (Ainsworth et al., 1978, p. 142). The least sensitive mother is one who intervenes with the baby entirely according to her own goals, completely ignoring the baby's signals.

To what extent can an AP approach and sensitive parenting be equated? It surely seems as if the two approaches would coincide. We would argue, however, that one could apply AP techniques in a non-sensitive fashion, especially as an infant gets older. This would be especially true if a parent understood AP to consist only of the four behaviors introduced at the beginning, rather than as a general approach to parenting. There are two senses in which continuing to use these behaviors in the same way as with younger infants could represent insensitive parenting. First, a parent who was not sensitive to their older child's new tendency to explore the environment away from the parent, but instead was oriented toward holding the child as much as earlier, might be behaving consistently with a non-developmental and non-sensitive application of AP. Second, there are temperamentally-based individual differences between infants. While these differences exist to some extent in younger infants, they begin to be more pronounced with older infants (Goldsmith et al., 1987, Kagan, 1994, Rothbart & Bates, 1998). Some infants may seek physical contact more than others. Some infants may be more easily consoled than others. Some infants may continue to sleep best with a parent or parents, whereas others may sleep well separately. The more sensitive parent would therefore apply AP practices as appropriate to the child's own preferences and adjust them as possible for the developmental level of the child. Finally, it also should be noted that Ainsworth et al.'s (1978) notion of sensitivity did not require parents to use high degrees of physical contact, co-sleeping and other AP practices. It is possible, although this has not been shown empirically, that infants of parents who use AP practices in a sensitive fashion are more likely to become securely attached (or that is what AP theory would suggest).

There is a great deal of evidence to support the view that continuing to buffer the older infant from stressful events would be what a sensitive caregiver would do (see also Gunnar, 1998), but that this goal might be achieved with some variation from the parenting practices as discussed above. To illustrate how parental behavior might change we will discuss several kinds of child behavior that can be challenging to parents, and what an AP approach might consist of.

Children's Fears: At around the age of two, there is another shift in the kinds of behaviors that the child exhibits.

In Emde's (1998) account, it is around this time that one sees of beginnings of self-reflective awareness. In behavioral terms, children often begin to label themselves in terms of their name, gender and perhaps other characteristics. The child shows what have been called 'moral emotions.' For example, they may become distressed when they violate standards for behavior and they may engage in helping behaviors toward others. This is also a period of time when there are major changes in the child's thinking and problem solving. Piaget (1963) discussed this as the onset of mental representation or the ability to use symbols. In behavioral terms, such representations of the world are seen in the child's early efforts at pretend play, at drawing, and of course, in the increasing use of more complex language (Sentential stage 5, Commons & Miller, 2007).

Another example of these new representational behaviors is that children of this age begin to exhibit a number of new fears (Craske, 1997; Miller, 1998). Whereas, prior to this general age period, children might cry and avoid situations in which they were immediately fearful (for example, seeing a loud barking dog), they now begin to react fearfully to entities that they imagine (e.g. monsters) or that are not present (crying before going out in anticipation of seeing a loud barking dog). The average number of fears reported by Miller for children between the ages of about two and four, was 11.4; this is comparable to the number of fears reported for children over 4 (for example, by Ollendick et al., 1996). These fears were both of real situations and of imaginary entities. While parents can try their best to avoid situations in which reality based fears will occur (such as avoiding barking dogs), they cannot control their child's imagination. Helping a child to cope with both types of fears can present a challenge to parents, especially for some children, whose fears may be severe enough to meet the diagnostic criterion of being a phobia (e.g. Muris & Merckelbach, 2000).

In reviews of literature about children's fears (e.g. Craske, 1997), it is apparent that little has been written about how parents and young children together and separately cope with the child's fears, especially when these are at a nonclinical level. In Miller's work (1998), three types of coping strategies were discussed by parents: emotional reassurance of the child, which was the most commonly used; explaining something about the feared entity; and/or giving the child some action to perform with respect to the feared entity (such as spraying water under the bed to get rid of the monster). All three strategies were reported by the parents to be successful in that the child was reported to become calmer after parental intervention. According to these same parents, however, the fears in these situations tended to recur for an average of a year's time, so parents' interventions were not of the kind that could convince the child to not be fearful.

How do these reduction strategies fit or not fit with AP? Emotional reassurance is holding the child, soothing him or her in various ways. It seems to be consistent with the AP point of view. But for all three strategies mentioned above, simply being ready to apply them in the situation to reduce the child's emotional distress may be what is most consistent with AP ideas. The intervention should ideally occur a good deal before the full blown fear occurs, so as not to reinforce it, although different parents' tendencies to anticipate children's fears in this way was not explicitly studied in Miller's work. Although rapid and even anticipatory parental intervention would be the most sensitive, it would not be strictly necessary that the intervention used by the parent consist of holding, for example. Some children may be able to be well consoled simply by hearing an explanation or performing an action in response to their fear. In terms of other AP ideas, it has been shown that nighttime fears may be reduced by co-sleeping (Forbes et al., 1992), although other forms of nighttime intervention may also be effective (this has not been explicitly studied). It has surely been an anecdotal observation of these authors that, even for infants and toddlers

who had been successfully trained to sleep in their own beds, there may be a 'return migration' to the parent's bed during this age period. There is little systematic work on what parents do under these circumstances.

Whatever the interventions, studies of children's' anxiety and of 'behavioral inhibition' suggest that fear and anxiety show a high degree of continuity over time. For example, in one study, children who were seen as anxious in the first grade remained anxious in the fifth grade (Ialongo et al., 1995). In a longer term study, Kagan and colleagues (Kagan et al., 2007) found that at least some infants who exhibited inhibited behavior in the face of uncertainty had a tendency to continue to show related behavior through adolescence. This could suggest a strong temperamental and possibly an inherited biologically-based component to these kinds of behaviors, which is not easily overcome by any kind of parenting. There is also some research that suggests a parental contribution to this anxiety and inhibition. Although in these cases it may be difficult to separate the parent's genetic contribution to the child's behavior from the effect of their behavior on the child. For example, Krohne and Hock (1991) found that when parents gave frequent negative feedback to children and attempted to restrict the child's behavior more, that children were more anxious. Barrett et al. (1996) found that parents of children who were anxious tended to interpret ambiguous situations in a threatening way, as did their children; the parents also expected more avoidance from their children. Both of these kinds of strategies seem antithetical to AP, which would be responsive and accepting of the child's fears and seek other ways of coping with them.

Emotion regulation: Emotion regulation consists of the external and internal behavioral processes that occur once an emotion has been activated (Cole, Martin, & Dennis, 2004). Generally, the purpose of emotion regulation behaviors is to reduce the negative effects of emotions. Such negative effects can include external effects. For example, if a young child has a toy taken away by another child, he or she might immediately strike out at the offending child. Such a behavior would show a lack of regulation, and would result in negative social consequences. Parents and teachers, among others, encourage young children to "use their words" when another child takes a toy away, rather than immediately striking out at the other child. The fact that a child can acquire a behavior such as using his or her words in this situation suggests an ability to regulate their emotions. While emotion regulation begins developing in infancy, it continues to develop at least through adolescence, with the preschool period being an important period where such regulation begins to require less input and control from parents (Mischel, Shoda, & Rodriguez, 1989; Rothbart & Bates, 1998).

As discussed previously, helping a child to deal with fear and anxiety is also a case of emotion regulation. When a child is excessively fearful, she may not be able to explore new environments or play with other children. In this case, emotion regulation would consist of learning strategies that would reduce fear and anxiety so that the child could more often participate in school and other environments. In this section, the discussion will focus on how to help children learn to control their emotions so that they do not act aggressively toward others.

Interactions between parents and children, as well as teachers and children are important influences on the development of emotion regulation. A useful model of how regulation and deregulation can develop has been suggested by Scaramella and Leve (2004). This model is called the early child coercion model. That model starts by proposing that a child's temperament influences emotion regulation. The model is to apply especially to the degree of emotional reactivity that the child exhibits. First of all, intense emotional arousal may be more difficult for the child to regulate on his or her own. Second, when children react intensely, parents are more likely to respond with more punitive and rejecting and less sensitive strategies. The harsh parental response has been associated with even more intense arousal in children, and a corresponding increase in difficulty in emotion regulation. This elicits more harsh and insensitive parental behaviors. This cycle is similar to what has been suggested by Patterson and colleagues (e.g. Patterson, Reid & Dishion, 1992), however, it is more specific about the behavioral patterns engaged in by children and parents.

This model of what can go wrong in the context of the development of emotion regulation suggests strategies for interacting with children in these situations that are more in accord with an AP point of view. First, and foremost, a parent would need to anticipate, based on his or her previous experience with the child, how both the child and the parent are likely to react to a situation. This part of an AP strategy for emotion regulation is based on the basic mandate of the parent to be sensitive to the child's signals, and to respond to them quickly. To the extent that a parent can anticipate a child's reaction to a situation he or she can plan ahead so as to avoid an intensely negative reaction. For some children, this may, require a rearrangement of parents' own priorities and plans. To give one example, if a parent knows that a child will be extremely tired and irritable close to dinner time, this is probably not a good time to take that child out to run errands. Parents also may distract a child from an emotionally arousing event (Grolnick, et al., 1998), or provide choices rather than attempting to force a child into a situation. Gardner, Ward and Burton (2003) have shown that parents who are better at helping their children to avoid emotionally arousing situations have children who exhibit better control over their emotions and are easier to deal with.

For the majority of children, such parental anticipation could be relatively easy and effective. There will be times when something cannot be anticipated, and a child, particularly a highly reactive child, becomes intensely distressed in a situation. An AP strategy in this situation is to help the child to reduce his or her distress. Clearly, the strategies of threatening, yelling, punishing the child will have the opposite effect, as noted by Scaramella and Leve (2004). With respect to that individual child, parents will need to develop interactions and situations that will help that child to become calmer. Such strategies might include withdrawal from the over stimulating situation, a toning down of the emotional level of the situation, physical contact between parent and child, or in some cases, an overall reduction of stimulation (as described, for example, in Sacks, 1995, for Temple Grandin).

According to Scaramella and Leve (2004), sensitive parents become less involved in children's emotion regulation as children move from toddlerhood to the preschool years. They allow

the child to try and regulate him or herself and only if that fails do they step in.

CONCLUSIONS

The first benefit of Attachment Parenting is that it helps children become physiologically and psychologically healthy. Attachment Parenting prevents damaging long bouts of crying and mitigates other emotions in response to stressful situations. Being exposed to high levels of stress, especially without close contact with an attachment figure, such as a parent, can have a deleterious effect on the brain that can be irreversible. Such damage results in impaired learning and emotional regulation increasing the likelihood of severe problems in a large percent of children who have experienced it.

A common feature of the Attachment Parenting way of responding to children at these different times in development is that they are directed not only toward attachment but also toward emotion regulation and the reduction of emotions such as fear, anxiety, or anger. Each of these points will be taken up in turn.

By being highly responsive to the child's signals, and particularly by providing and supporting distress relief in infancy and beyond, parents provide a warm and accepting environment for children. Specifically, both the warm, positive tone of interactions and the distress relief, reinforce contact seeking with the parents providing those consequences, and thereby, lead to secure attachment. Alternatively, when parents leave their children alone, especially when the child is distressed, the child learns that the parent cannot be relied upon for relief (that is, they do not learn to turn to their parents when distressed). In both cases, there is evidence (briefly presented above) that such learning generalizes at least to early peer relationships.

There has been confusion in behavioral research on responsiveness to crying, with some arguing that responding to crying would reinforce it and increase its likelihood (e.g. Gewirtz & Boyd, 1977). The Attachment Parenting response to this has two parts. First of all, for the youngest infants, crying is not an operant response. It starts out as a respondent. Crying is the only way they have to communicate that they need something. Such crying is elicited by internal bodily states, such as hunger, and does not tend to occur otherwise. Since the crying is preceded by strong stimulus conditions, the consequence of the parent's response only becomes associated with those stimulus conditions. This should not lead to general 'spoiling.' Second, at this point in the infant's development, parents are still learning about their infant and how to intervene. As parents become more familiar with the infant, they can begin to understand and anticipate the infant's signals better and so can respond to signals that occur prior to outright crying. If crying is only allowed to occur rarely, it is unlikely to become reinforced. As has been discussed, Attachment Parenting practices, both for infants and for older children, do reduce distress, and in most cases do so in an anticipatory fashion.

The second benefit of Attachment Parenting is that is helps the child to become resilient and therefore more independent. Effective emotion regulation is a key aspect of being resilient. We would argue that in each of the cases discussed above parents are helping their child to develop emotion regulation, and therefore, resilience. Early in the child's development the parent is most active in helping him or her to regulate emotions, particularly negative emotions, as practices such as holding, co-sleeping, frequent breast feeding and responsiveness to crying have been shown to do. If a parent engages in these practices in a way that is sensitive to the infant's needs, the infant will most likely develop a secure attachment relationship with that parent. A secure attachment relationship serves as an emotion regulation system as well, but one in which the older infant is more active. When the child becomes distressed or fearful, he or she will seek contact with the parent. When their emotions are under control, they can resume exploring the world. Parents dealing with children's' fears, as well as children who act out, also are working on that child's emotion regulation. To the extent that parents help children to better cope with these disruptive emotions and associated behaviors, the children should be able to engage more with the environment. In effect, they should be increasingly more resilient as they develop. Parents do this (as discussed above) by modeling emotion regulation strategies, by using direct instruction about such strategies, by anticipating and helping the child to anticipate situations which may be difficult for that child, and, when the child fails at emotion regulation, by continuing to provide a warm and responsive context for distress reduction so that ultimately the child will become more successful at emotion regulation.

Again, a misunderstanding can occur that children somehow will continue to be dependent upon their parents for emotion regulation if a parent uses AP practices. A number of studies that have examined this issue have not found this to be true. For example, in families in which the parents have chosen to co-sleep with their infants from the beginning, the children when at preschool age were reported to be more self-reliant and to show greater social independence (Keller & Goldberg, 2004). In that study, these outcomes were indexed by such behaviors as the child being able to dress him or herself, and being able to work out problems with peers on his or her own. In a related study, preschoolers who had been securely attached as infants exhibited significantly less dependence than those who had been insecurely attached as infants (Sroufe, Fox, & Pancake, 1983). Those children with insecure histories had more interactions with teachers, sat next to them more often during circle time and were judged to be more dependent overall. The children with secure histories sought teacher attention in a more positive way and this did not detract from the frequency and quality of their interactions with peers.

While these studies do suggest that using AP practices will not result in increased dependence, they were not able to show directly why this does not happen. It would seem that effective parents are able to both model more mature behavior and - in situations in which the child is not greatly upset-give direct instruction in emotion regulation (as well as reinforcing spontaneously occurring behaviors). As was already discussed above, this seems to lead to the development of more mature behavior (as shown by Gardner, Ward, & Burton, 2003). It may also be true that support in emotion regulation is an important component of relationships with peers, especially beginning in adolescence, and in romantic relationships.

Why is emotion regulation so important? There is considerable evidence that optimal emotion regulation is what makes it possible for children to better engage with the world. Children who regulate their emotions better have more successful peer interactions (e.g. Eisenberg, Fabes, Carlo & Karbon, 1992; Kochanska, Murray & Harlan, 2000). There is ample evidence that young children who have better self-regulation are more socially competent, have fewer problem behaviors, show more 'internalized' control of behavior, and in general, show fewer 'externalizing' behavior problems (e.g., to name just a few studies, Kochanska & Knaack, 2003; Murphy et al. 2004; Olson, Sameroff, Kerr, Lopez & Wellman, 2005). For example, Kochanska and Knaack first tested childrens' self-regulation using a series of behavioral tasks, including amount of time a child was able to delay getting a snack, suppressing or initiating an activity in response to a signal, the extent to which they could slow down a motor activity upon request. Mothers rated the extent of a child's externalizing behavior (from very true or characteristic of the child, to not at all true) using a checklist of 30 behaviors (such as "destroys own or others' belongings" or "fights with other children."). They found that children who showed greater self-regulation (called effortful control in this and other studies) also showed fewer behaviors such as "irritable, quick to fly off the handle", "fights with other children" and other antisocial behaviors. The Olson et al. study used the same behavioral tasks to measure self-regulation, but measured externalizing using the Achenbach Child Behavior Checklist, a much longer list of behaviors (99 items), but that are also rated on a three point scale from "often or very true" to "not at all true." They also found a significant relationship between self-regulation and the externalizing behaviors that were measured. These variables were significantly related even when the researchers controlled for parenting behavior and the degree of family risk.

Most importantly, a culmination of evidence (as discussed in, for example, Blair, 2002; Raver, 2002), has suggested that emotional 'readiness' for school, especially in terms of emotion regulation, is as important if not more important than readiness in terms of specific school-related skills. Emotion regulation, therefore, makes effective engagement with learning situations possible.

One point that needs to be mentioned that has not been extensively addressed is the issue of individual differences. Many parents and others will observe that even though they did not use AP techniques, their children seem to be fine. This criticism can be addressed in a number of ways. First of all, there are significant individual differences between children, as briefly alluded to above in discussions of the work of Suomi (1987; 1991), and Kagan and colleagues (2007). It is for children who are highly reactive that AP will be particularly useful, especially for stress reduction and resilience. For other children, who may be at least overtly less reactive, parents may be able to 'get away with' putting the child to sleep on his or her own, not holding the child very much, and shaping the child much more toward goals such as traditional independence or separateness, that parents may value. What the child may learn, with such socialization, is that human relations are generally ones in which physical and emotional distance between people is expected. In the end, one sleeps alone, and one relies upon oneself for consolation. We would theorize that being able to tolerate doing this is not the same as being able to flourish. Since most of the research has related more extreme early child rearing situations to more extreme forms of psychopathology, this latter idea is not one that has been empirically investigated.

Generally, the implications for intervention with diverse populations of children seem clear. Both parents and teachers should take the general issues of promoting attachment and emotion regulation more seriously. These issues are just beginning to be studied with different groups of children. A recent study (van Ijzendoorn et al., 2007), for example, has suggested that the parents of a small group of autistic children who were studied were as sensitive as other parents. The autistic children themselves were less likely to be rated as securely attached when compared with other children. The children's behavior was more disorganized and they were less involved with their parents during play. . Van Ijzendoorn and colleagues speculate that neurologically-based deficits may interfere with the effects of parental sensitivity for these children. We would add that the actual nature of what constitutes "sensitive parenting" may be different for an autistic child. .

From the evidence that exists, Attachment Parenting is associated with positive attachment outcomes. It might be particularly useful to teach to parents with attachment issues of their own so that their parenting becomes more adequate.

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