

What About The Children?

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RESEARCH SUMMARY

Infants' stress responses and protest behaviors at childcare entry and the role of care providers

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The purpose of this research, conducted over a period of five months, was to determine what actions could minimise stress when infants are adapting to a new care environment by studying cardiac responses during the transition and the potential buffering role of attachment.

The Research Participants

The 70 infants chosen for the study (36 girls, 52 firstborn) with an average age of 15 months were from middle class families in Berlin, Germany. Before entering childcare for 40 hours per week, the children had been cared for at home, primarily by their mothers. They then entered one of 37 childcare centres with high-quality ratings. The care providers were all female, had middle class backgrounds and had attended a specialized three-year training courses at a medical college. Each care provider was responsible for a group of between four to six infants.

Measures

Prior to starting childcare, the children were categorised into one of the four groups of attachment types (with their own mother) according to the Strange Situation method (see Ainsworth and Wittig, 1969). The procedure was repeated at 5 months after entry with childcare staff.

Other measurements were taken using heart rate monitors to compare the stress of the infants, firstly at home relaxing with their main parent, then during an adaptation period of 10 to 14 days, at several days when the mother was absent and at the end of 5 months. To measure stress, the heart-beat was measured and expressed as a time between heart beats. As the infant was soothed and became calm, the gap between their heart beats increased. Additional measurements of stress were recorded using videotape, to see the emotions of the infants when their mother left them at the setting and for how many minutes they continued to show signs of distress and crying. The videotapes also recorded the response of the care providers to the distress.

Heart Rate

The heart rate is affected by environmental stress through its two parallel systems, the sympathetic and the parasympathetic branches of the autonomic nervous system. Stress stimulates the former and depresses the calming effects of the latter due to the effect of the vagal nerve on the heart. During stress, the heart rate increases, leading to a shorter gap between beats (measured as a decreased respiratory sinus arrhythmia - RSA). The regulation of RSA via the vagus nerve is tightly linked to the parts of the brainstem which responds to facial expression and vocal intonation (of the Carer). Thus, cardiac stress is reduced, and the RSA rate is increased when emotional social engagement (comfort) is available to the child.

To get a baseline, measurements were taken using heart monitors (ECG electrodes) placed on the infant's chest taken at home with the mother holding their child, as they looked at a book together. A further measure was taken following a few minutes' settling in time with the mother after arrival at the nursery. Subsequent readings were taken when the mother had left, and then later when the infant entered play and was apparently settling in. This was repeated on various days of the adaptation phase, also at 1, 5 and 9 days from when the mother was absent and then at 5 months.

Results

1. Attachment

For the purposes of this study, the four attachment categories (see Ainsworth and Wittig, 1969) were merged into two groups 'secure' and 'insecure'. At baseline almost half (49%) were rated as secure with their mothers, the remainder (51%) labelled insecure. After 5 months, of the original 70 infants, 64 were scored for attachment with care providers and 39% were rated secure with 61% insecure. About a third (35%) were initially insecure with mothers and also subsequently with the care provider. One quarter (26%) were secure with mother and insecure with care provider; 20% were secure with both mother and care provider. However, 19% of the children, insecurely attached to their mother at baseline were secure with the care provider 5 months later.

2. Emotional expression and stress

These scores indicated that the infants who protested more and appeared more stressed initially (low RSA), showed larger RSA increases over time when they were comforted, having had their distress calmed by the staff. These children were more likely to form secure attachments with their care providers.

The infants could be divided into two groups regarding their level of emotion.

One, the 'high protesters', had mostly been initially measured as having a secure attachment with their mothers. Their high levels of vocalisation and distress and low RSA indicated a low capacity for self-regulation being previously reliant on the parent for being comforted. The other, the 'low protesters' were mostly from the group of children judged initially to have demonstrated an insecure-avoidant style of attachment indicating that these infants have learned to cope with stress on their own. They tend to hide their negative emotions and thus cope silently. This group actively avoided proximity and contact with the care provider and were less likely to develop secure attachments with them. A proportion of the infants in the insecure group (less than 12/64) did show overly intense expressions of distress, and this

further obstructed better infant care provider attachments. By month 5, all infants had reduced their heart rate to the level with mother at the start of the study, or sometimes even slower heart rate.

In summary, the 'insecure' infants who could regulate their emotions did better in the settings, whereas insecure infants who had poor regulatory abilities risked long-lasting stress exposure.

3. Reactions of the care providers

The care providers responded by providing comfort to calm the distress of infants who cried when the mothers left the setting. As stated above, the securely attached children generally cried more and were given appropriate attention. This eventually led to some developing a securely attached relationship with their care provider. The insecurely attached (avoidant) infants fussed less and were not calling for attention. Most of them settled in quickly and gradually became adapted to their surroundings. Some insecurely attached infants, however, were inconsolable and had continued stress, and the heart rate continued to be fast, for longer periods.

Discussion

The entry into childcare is stressful for a young child, demonstrated in previous studies by increased cortisol levels, and in this study by faster heart rate. During the adaptation phase, when the mother stayed with the child at the care setting for 2 to 4 hours for about two weeks, this helped reduce the stress, especially if there was a secure attachment with the mother, but not if there was an insecure attachment to the mother. On the first day when the mother was not present, 35% of the infants fussed and cried extensively, which predicted who would form secure attachments with care providers when measured at 5 months. The more extensive the stress of the infant, the more the care providers needed to comfort them to help them cope with the emotional and physical effects of this.

Some infants regulated the stress of entering childcare themselves, fussing less were less likely to form secure attachments with the care providers. Those infants who were less able to regulate their stress themselves, and who had been used to comforting by their mothers, demanded more attention and a need to be comforted by the care providers. This ultimately led to a stronger bonding with them.

Implications for practice

Some infants (the 'low protest group') do not express substantial distress on entering childcare and are likely to have insecure attachment to their primary carer. While not protesting, they may need particularly sensitive and supportive actions from carers to develop carer attachment as they settle in the new environment.

Secure attachment to a primary carer provides a buffer to the stress of entering childcare, but this is less likely for infants with lower capacity to regulate stress, which can be identified with temperament questions. They may need extra support at home prior to entry.

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