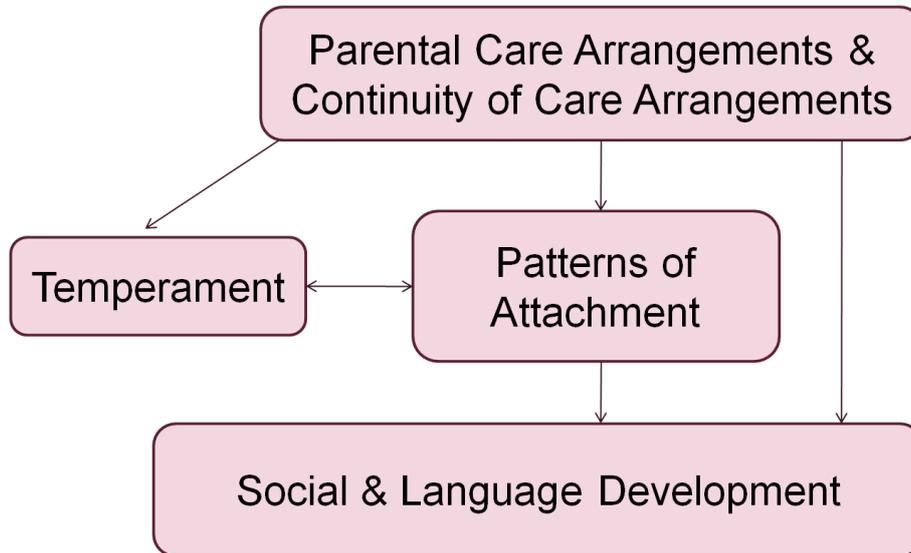


AN ONGOING LONGITUDINAL STUDY ON ATTACHMENT FROM INFANCY

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Introduction

In typical studies of parent-child attachment, parents are primary caregivers. However, Singaporean children are often cared for by a range of possible caregivers through arrangements which may change over time. Few local studies have examined the impact of diverse caregiving arrangements on children's socio-emotional development. This ongoing longitudinal study thus aims to identify developmental factors that might be important for children's development in the first three years of life, as indicated in the preliminary model shown here:



Method & Sample

Three cohorts of first-time mothers who are Singapore citizens or permanent residents and their healthy infants born at the KK Women's and Children's Hospital are planned for the study. The mothers are interviewed face-to-face and complete questionnaires, when their children are 4, 18 and 36 months old.

The study is ongoing. Data analysis will be repeated once the second and third cohorts are complete; in the meantime, this poster will present the preliminary findings gathered from our first cohort, which has a total of 47 mother-child pairs. There were almost equal numbers of girls (23) and boys (24). The ethnic composition of mothers comprise of 39 Chinese, 2 Malays, 4 Indians and 2 of other ethnicities. More than half of the mothers (31) in our sample worked full-time.

Findings – Child care arrangements

Grandmothers are the modal caregivers at 4 months and 18 months, but by 36 months childcare centres are the preferred care arrangement relative to other caregiving categories (as can be seen in Figure 1).

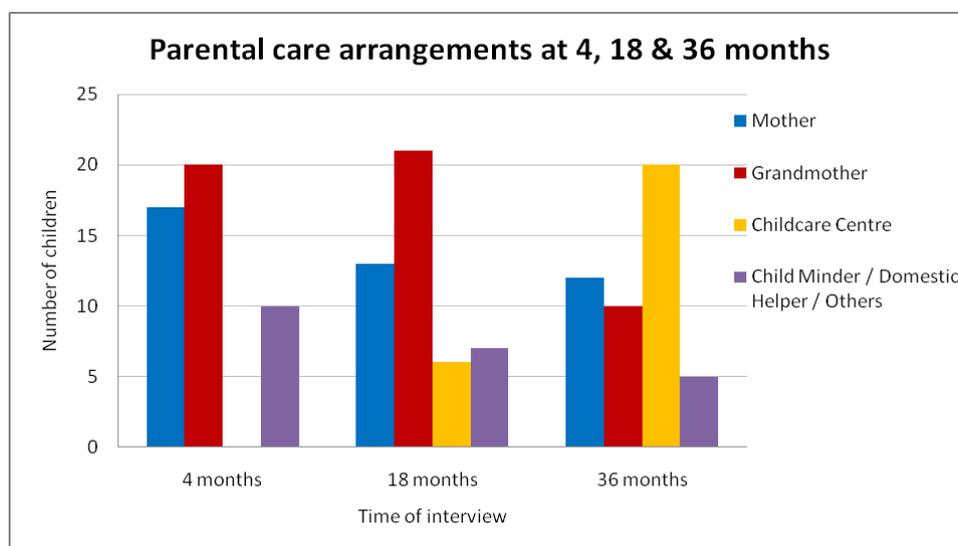


Figure 1: Graph of parental care arrangements at 4, 18 and 36 months.

By 36 months a majority of the children had experienced up to 2 changes in their care arrangement.

Findings – Temperament

Temperament was measured with the Short Temperament Scales (Sanson, Prior & Garino, 1987). Lower scores as rated by parents indicate a more approachable, more rhythmic and more persistent child.

Table 1.
Temperament subscale t-test results

Temperament Subscales	Mean at 18 months	Mean at 36 months	t-test	df	p value
Approachability	3.09	3.03	.35	46	.73
Rhythmicity	3.08	2.97	.55	46	.59
Persistence	3.30	3.56	-1.55	46	.13

Consistent with previous research (Pedlow, Sanson, Prior, Oberklaid, 1993), our findings suggest that mothers' rating of their child's temperament at 18 months and 36 months did not differ significantly on any subscale, implying that temperament remained stable (see Table 1).

Changes in caregiving arrangements were found to have an impact on temperament. Two independent sample t-tests comparing changes in caregiving with temperament subscales found that children who experienced two or less changes were more approachable ($t(45) = -2.84, p < .05$) and less persistent ($t(45) = 2.52, p < .05$) than those who experienced three or more changes over the first 36 months of their lives.

Findings – Attachment

Attachment of the children to their mothers was measured by the Attachment Q-Set developed by Waters and Dean (1985). Two local expert sorts with discussion of discrepancies were done to obtain a basis for local evaluation of the Q-Set measures. Mothers' attachment security scores were obtained by correlating each individual mother's sort with the criterion sort that resulted from the local evaluation. Each mother would end up with an r score reflecting their perception of the attachment security of their child.

As seen from Figure 2, a paired samples t-test of mothers' mean scores (M) at 18 ($M = .22, SD = .16$) and 36 months ($M = .28, SD = .14$) revealed small but significant differences, $t(46) = 2.86, p < .05$. Mothers perceived their child to be more securely attached as they grew older.

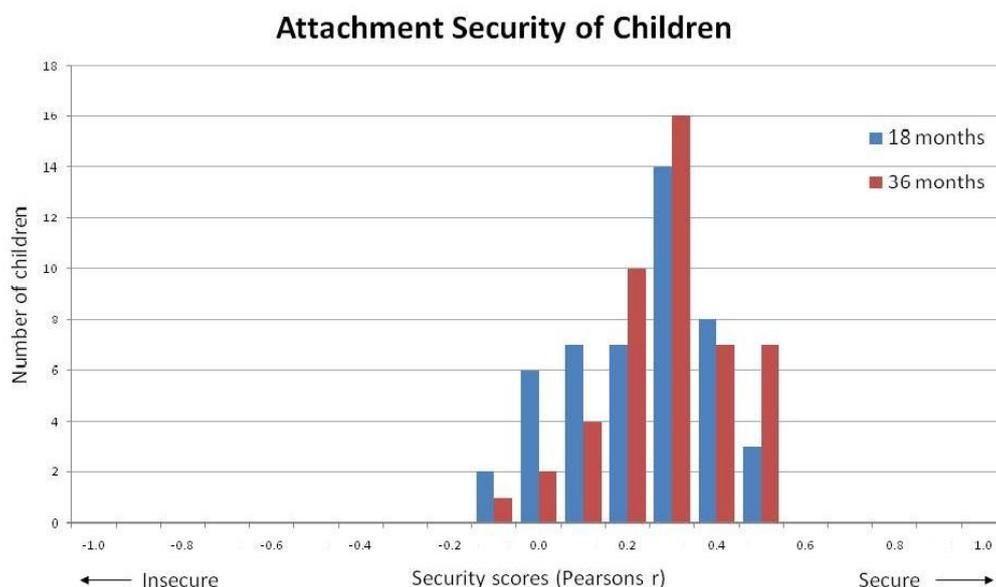


Figure 2. Spread of attachment scores in children at 18 and 36 months.

Bivariate correlation between temperament subscales at 36 months and attachment revealed significant correlations for rhythmicity ($r = -.430, n = 47, p < .05$), inflexibility ($r = -.316, n = 47, p < .05$), and persistence ($r = -.307, n = 47, p < .05$). Higher attachment security is correlated with a more rhythmic, more persistent, and more flexible temperament, again consistent with previous research (Szewczyk-Sokolowski, Bost & Wainwright, 2005).

Choice of main caregiver found to have no impact on children's attachment. A one way between groups analysis of variance (ANOVA) comparing changes in main caregiver against attachment ($F(2,44) = .572, p$

> .05), found no significant difference. Similarly, an independent samples t-test revealed that changes in caregiving arrangements did not have an impact on attachment, $t(45) = 1.08, p > .05$.

Findings – Development

Children's social-emotional development was assessed using the Ages and Stages Questionnaire-Social Emotional (ASQ-SE) developed by Squires, Bricker and Twombly (2003). An independent samples t-test revealed small but significant differences in development scores between children who attended childcare and children who were cared for by other means, $t(45) = 2.30, p < .05$, with children who attended childcare scoring better in the ASQ-SE.

Choice of main caregiver (one way between groups ANOVA, $F(2,44) = 2.61, p > .05$) and changes in caregiving arrangement (independent sample t-test, $t(45) = -.66, p > .05$) were not significant, implying that caregiving arrangements in general did not impact a child's social-emotional development.

Language development was measured at 18 and 36 months using the Singapore Communicative Development Inventories (SCDI), adapted from the MacArthur Communicative Development Inventories (Fenson *et al.*, 1993). A Pearson's correlation of receptive vocabulary at 18 months and mean length of utterance (MLU) at 36 months revealed a moderate correlation of $r = .453, n = 38, p < .05$. As the children grew older, their vocabulary size increased from $M = 76, SD = 72$ at 18 months to $M = 430, SD = 167$ at 36 months, $t(41) = 14.8, p < .05$.

Conclusion

- This sample is small, and results must be regarded as provisional.
- Caregiving arrangement had no association with attachment, temperament and developmental outcome measures except for social-emotional development.
- Changes in caregiving arrangement had an effect on temperament at 36 months.
- Mothers' perception of their child's attachment improved from 18 to 36 months; their perception of their child's temperament remained stable.

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