Does child care quality matter?

Associations between socio-emotional development and non-parental child care in a representative sample of Australian children

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Questions about the possible associations between young children’s attendance at child care and their socio-emotional development have intrigued researchers, parents and policymakers for over three decades. The resulting research is mixed and inconclusive, in part because “findings may hinge on the context in which those results were obtained” (Love et al., 2003, p. 1021).

While concerns have arisen from studies reporting adverse effects of early and extensive use of non-parental care (Belsky, 1988; National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 1998, 2001, 2003; Sylva et al., 2003), reassurances have come from these same studies, as well as others, linking better-quality programs with more positive outcomes (Love et al., 2003; Peisner-Feinberg et al., 2001; Sims, Guillfoyle, & Parry, 2005). For example, in the UK study of the Effective Provision of Preschool Education (EPPE), high levels of “group care” before age three, and particularly before age two, were associated with higher levels of anti-social behaviour at age three; however, when children who were showing high levels of anti-social behaviour at age three attended quality preschool programs between the ages of three and five years, their level of anti-social behaviour decreased (Sylva et al., 2003). In Australia, Sims et al. (2005), who used a biological measure of child stress (cortisol) to assess the impact of child care quality, reported that in settings achieving higher levels of quality, children’s cortisol levels dropped during the day, whereas in poorer quality centres cortisol levels remained high.

Such findings have led a number of authors to argue that when quality of care is high, negative associations between early and/or extensive care and behavioural development and social competence may be mitigated or even eliminated (e.g., Howes, Phillips, & Whitebook, 1990), reassurances have come from these same studies, as well as others, linking better-quality programs with more positive outcomes (Love et al., 2003; Peisner-Feinberg et al., 2001; Sims, Guillfoyle, & Parry, 2005). For example, in the UK study of the Effective Provision of Preschool Education (EPPE), high levels of “group care” before age three, and particularly before age two, were associated with higher levels of anti-social behaviour at age three; however, when children who were showing high levels of anti-social behaviour at age three attended quality preschool programs between the ages of three and five years, their level of anti-social behaviour decreased (Sylva et al., 2003). In Australia, Sims et al. (2005), who used a biological measure of child stress (cortisol) to assess the impact of child care quality, reported that in settings achieving higher levels of quality, children’s cortisol levels dropped during the day, whereas in poorer quality centres cortisol levels remained high.

Support for the expectation that centre-based child care should achieve a higher level of quality in Australia has been provided by Harrison, Skouteris, Watson, and Ungger (2006), who drew on data from four independent studies about the quality of infant–toddler centre-based child care. By selecting studies conducted before and after the introduction of the QIAS, the authors were able to shed light on the effectiveness of government-supported systems in promoting and achieving quality care. Each study collected observational data about care quality based on the Infant Toddler Environment Rating Scale (ITERS; Harms, Cryer, & Clifford, 1990), which uses criterion-based indicators to provide a global rating of quality (1 = inadequate, 3 = minimally adequate, 5 = good, 7 = excellent). Compared to US ratings for infant–toddler care, which typically attained an average ITERS score of 3.2 to 3.9 (Ellicker, Clawson, Hong, & Evanglou, 2006; Love et al., 2003; Whitebook, Howes, & Phillips, 1990), Australian centres achieved considerably higher scores—for the two pre-QIAS studies, the mean ITERS scores were both 4.7, with the scores ranging from a minimum of 2.6 to a maximum of 6.9. The post-QIAS studies reported higher overall means (5.2 and 6.0) and a higher minimum score (3.3).
Child care quantity

Large-scale US and UK studies have been relatively consistent in reporting links between a higher cumulative time in care from infancy through early childhood and poorer socio-emotional outcomes later in life (NICHD ECCRN, 2003; Sylva et al., 2003). Longitudinal data obtained by the US NICHD Study of Early Child Care and Youth Development showed that the more time children spent in non-maternal child care across the first 4.5 years, the more problem behaviour, assertiveness, disobedience and aggression were reported by their parents, caregivers and teachers at 54 months and in kindergarten (NICHD ECCRN, 2003). Findings were less consistent, however, at younger ages. At age 2, more hours of child care were significantly associated with more problem behaviours, as reported by caregivers, and less social competence, as reported by mothers; however, at age 3, “no significant effects for amount of child care could be detected” (NICHD ECCRN, 1998; see NICHD ECCRN, 2005, p. 278). Similarly, the association between caregivers’ ratings of negative/aggressive behaviour towards peers and quantity of care achieved significance at age 2 years but not age 3 (NICHD ECCRN, 2001).

Conflicting findings for different ages of children are also apparent in reports based on data from the National Longitudinal Study of Canadian Youth (NLSCY). For example, Belsky (1988) drew on the NLSCY data to argue that extensive hours of child care when children were young placed them at risk for future socio-emotional problems. In contrast, Borge, Rutter, Côté, & Tremblay (2004), who restricted their analyses to data from 3,431 two- to three-year-olds, found that aggression was more common in children looked after by their own mothers than in those attending group day care, especially when children were from high-risk families.

In Australia, only a limited number of studies have examined the relationship between quantity of care and children’s socio-emotional development. Harrison and Unggerer (2000; see also Love et al., 2003), in their study of 145 first-born infants, found no association between weekly hours of care and parent ratings of child behaviour problems at 30 months and 5 years, or between hours of care and teacher ratings of socio-emotional adjustment in the first year of school. In their sample, stability rather than quantity of care was a key factor in explaining problem behaviours. Different findings were noted in a larger study of children under the age of 4 years attending regulated (long day care and family day care) settings in New South Wales (Bowes et al., 2004). Although the primary focus of the study was to assess the effects of multiple and changeable child care, weekly hours of care were also recorded. Analyses conducted by Unggerer et al. (2006) demonstrated moderate effect sizes (relationship strength) for quantity of child care and aspects of child social development—longer hours of care were associated with higher ratings for adaptive social play, as reported by mothers and caregivers, and also associated with more aggressive/angry interactions with peers, but only for caregiver ratings.

Approach

This paper will examine questions raised in the literature about the relationship between hours of early child care, the quality of that care, and children’s socio-emotional development and wellbeing, by drawing on data provided by the nationally representative study, Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC). The size and breadth of the LSAC sample provide a unique opportunity to test the expectation that the negative effects of longer hours of child care noted in US and UK research are ameliorated by the higher standards expected under the QIAS and state/territory regulations in Australian long day care centres and family day care services. The effects of care quality are also analysed by examining children’s socio-emotional wellbeing in child care settings that are achieving lower and higher levels of quality.

Data

Wave 2 data from the LSAC birth cohort were used for this study. The full sample comprised 4,606 children aged 2 to 3 years ($M = 33.92$ months, $SD = 2.93$), but most of the analyses focus on the 3,244 children ($M = 34.01$ months, $SD = 2.95$) who were receiving regular non-parental child care (NPC) at the time of the Wave 2 home interview.

Experience of non-parental child care

The child’s primary carer (Parent 1, who in most cases was the child’s mother) provided information on the child’s current experience of non-parental child care. Attendance at child care was recorded if the child was “looked at after regular times during the week by anyone other than the primary or secondary caregiver (Parent 2)”. Questions were asked about the type (or types) of care attended and the quantity of care received in each setting. Type of care referred to long day care centres, family day care services, occasional/leisure care centres, and care provided by grandparents, other relatives, babysitters, nannies and other home-based providers.

Just over 70% ($N = 3,244$) of children were reported to be attending child care; the remaining 1,375 (29.9%) did not receive any regular non-parental child care. The majority of children ($N = 1,906$, 41.4%) attended only long day care centres or

The authors argued that these data not only confirm the expectation that Australian child care is of a higher quality than typically seen in the US, but that quality ratings are likely to have increased as a result of the introduction of accreditation as a requirement for child care centres.
family day care homes, that is, settings that are classified as formal, government-accredited and/or regulated types of care. A smaller number ($N = 691, 15.0\%$) of children received care only from relatives, friends, sitters or a nanny; these care settings are classified as informal, non-accredited, unregulated types of care. Additionally, a sizable proportion ($N = 634, 13.8\%$) attended a mix of formal and informal care settings each week.

**Quantity of care**

Total weekly hours of children’s care ranged from 1 to 90 ($M = 19.69$ hours per week, $SD = 13.17$). For the purposes of later analyses, quantity of care was grouped in lots of 10 hours per week. For total weekly hours, 944 (20.5\% of the total sample) attended for 1–10 hours per week; 1,001 (21.8\%) attended for 11–20 hours per week; 662 (14.4\%) attended for 21–30 hours per week; 380 (8.3\%) attended for 31–40 hours per week; and 238 (5.2\%) attended for 41 or more hours per week.

The same categories were created for hours in formal, accredited/regulated settings, and hours in informal, unaccredited/unregulated settings. Note that the 634 children who were reported as attending mixed care settings were included in groupings for formal hours as well as informal hours.

**Quality of child care**

Quality is conceptualised in the literature as encompassing the features of child care that are beneficial to children’s wellbeing, learning and development. Broadly, these features of the program are defined in terms of structures (those aspects that are partially governed by regulations, such as caregiver qualifications, group size, and ratios of children to adults) and processes (the recurring patterns and interactions that occur between children, staff and parents). Structural features are seen as providing the underlying conditions to support quality processes. For example, carers’/teachers’ general educational achievement and specific preparation in early childhood education have been found to predict the richness of children’s language and cognitive experiences, and the extent to which interactions with children are responsive, sensitive and positive (Whitebook et al., 1990; Howes, Phillipsen, & Peisner-Feinberg, 2000). The process components of good quality (as identified by the QIAC criteria) include positive caregiving behaviour and interactions, as well as management features of the environment that affect staff commitment, satisfaction and stability.

Ideally, the evaluation of quality in child care programs is made through observations of the environment and supported by interviews with staff. The size and diverse locations of the LSAC study were not able to support direct observation within programs; therefore, quality was assessed from information provided by caregivers via a mail-out questionnaire. Data were provided by 1,676 caregivers, of whom 1,143 (68.20\%) worked in centre-based child care settings, 207 (12.35\%) were family day care providers, and 326 (19.45\%) provided care in informal home-based settings.
The majority of the informal caregivers were grandparents of the LSAC children (n = 240; 14.32% of all caregivers who provided questionnaire data).

Information was collected at the level of the room or group where the LSAC child spent most time. The data generated two areas of information—structural features and practice features, each of which had been identified in previous research as indicators of child care quality.

Structural features of the program were described by demographic characteristics of the LSAC child's caregiver, including age, years of experience, level of educational achievement or qualification. Field of study was also collected for caregivers with post-secondary qualifications. Measures of overall quality at the room level were assessed by the number of children in the group (group size), the number of adults present when most of the children had arrived and, for centre-based child care, the qualifications (university degree, diploma, certificate) of staff in the room. Of these broad measures, group size, which was least likely to be affected by staff turnover, was felt to be a more stable indicator of quality and was selected for subsequent analyses. Furthermore, research has reported links between smaller group size and higher levels of observed care quality (Howes & Norris, 1997; NICHD ECRCN, 1996).

For the purposes of later analyses, group size was reduced to form five categories that were consistent with most state/territory licensing arrangements for infant–toddler and preschool-aged child care. The categories for group size and number of children in each group were: 1 to 5 children (n = 407, 25.8%), 6 to 10 children (n = 218, 13.8%), 11 to 15 children (n = 373, 23.7%), 15 to 20 children (n = 365, 23.2%), and more than 20 children (n = 212, 13.5%).

Practice features of the program were described by age-appropriate criteria, which for the infant–toddler age range referred to carer–child interaction in play and routine caregiving tasks. These were described by nine activities typical of home- and centre-based infant–toddler care settings. Four items described direct teaching/interaction in learning experiences: sitting and playing; singing, telling stories and reading books; active outdoor play; and taking part in pretend play. Two items described direct interaction in routine caregiving; giving individualised attention in routine care; and teaching good health practices. Two items described support and supervisory tasks related to teaching/interaction: organising space, equipment/toys and food/drink; and watching or supervising children's play. One item described difficult interaction: managing problem behaviour. Carers were asked to estimate the amount of time they typically spent in each of these nine activities (either with the LSAC child or groups of children), using a 4-point Likert rating scale, with scale points described as 1 = not at all, 2 = somewhat, 3 = quite a lot, and 4 = very much.

A principal components analysis generated two factors: active engagement in play and organisational focus.2 Active engagement in play included four items assessing carers’ involvement with children in play, direct teaching and focused interaction. Scores ranged from 1 (low engagement) to 4 (high engagement) (M = 3.02, SD = 0.55). Organisational focus consisted of four items relating to routine care and organisational features of caregivers’ work. Scores ranged from 1.25 (low organisational focus) to 4 (high organisational focus) (M = 2.82, SD = 0.58). For the purposes of later analyses, quartiles for these two measures of quality were formed. The lower and upper quartiles were designed to represent “low” and “high” levels of quality; the middle quartiles were combined to represent “moderate” levels of quality. For active engagement in play, scores were as follows: “low engagement”: M = 2.28, SD = 0.25; “moderate engagement”: M = 3.00, SD = 0.18; “high engagement”: M = 3.74, SD = 0.22. For organisational focus, scores were: “low organisational focus”: M = 2.11, SD = 0.19; “moderate organisational focus”: M = 2.74, SD = 0.20; “high organisational focus”: M = 3.58, SD = 0.29.

Child socio-emotional development
Child socio-emotional development was measured via parents’ and caregivers’ ratings on the Brief Infant Toddler Social and Emotional Assessment (BITSEA) scale (Briggs-Gowan & Carter, 2002). The BITSEA was designed as a screener for identifying social-emotional/behavioural problems and delays in social-emotional competence in 12- to 36-month-old children.3 It is suitable for use by parents as well as child care staff/non-parental caregivers.

A reduced set of items was used in the LSAC study. The social competence subscale included 11 items (10 in the child care caregiver version) assessing children's social relatedness with parents and peers (e.g., “is affectionate with loved ones”, “tries to help when someone is hurt”, “plays well with other children”), and competence (e.g., “shows pleasure when she/he succeeds”). The behaviour problems subscale included 23 items assessing internalising problems (e.g., “seems nervous, tense or fearful”, “is afraid of certain places, animals or things”, “worries a lot”), externalising problems (e.g., “hits/shoves, kicks or bites children”, “cries or tantrums until exhausted”), and problems of dysregulation (e.g., “has trouble falling asleep”, “gags or chokes on foods”). Items were rated on a 3-point scale: 1 = not true/rarely; 2 = somewhat true/sometimes; 3 = very true/often.

Internal consistency of the subscales has been reported by Briggs-Gowan et al. (2004) as acceptable for the problems subscale (α = .79 for parent ratings; α = .80 for child care provider ratings) and marginal for the competence subscale (α = .65 for parents; α = .66 caregiver ratings). Results for the LSAC sample achieved similar levels, as follows: parent-rated competence (α = .64); parent-rated...
problems ($\alpha = .74$); carer-rated competence ($\alpha = .76$); and carer-rated problems ($\alpha = .88$). Following Briggs-Gowan and Carter (2002), items were summed to form subscale variables for social competence and behaviour problems. Descriptive statistics and inter-correlations for these four measures are presented in Table 1.

**Results**

**Children receiving and not receiving regular non-parental child care**

Initial analyses compared parent-reported social competence and behaviour problems for children attending or not attending regular non-parental child care. Results showed small but significant differences in ratings for the two groups. Children receiving regular child care were rated by their parents as being more socially competent ($M = 28.50$, $SD = 2.79$) and having fewer behaviour problems ($M = 30.67$, $SD = 4.78$) than children not receiving child care ($M = 28.70$, $SD = 2.59$ and $M = 30.18$, $SD = 4.40$, respectively).

Further analyses compared four groups of children according to the type of care received—formal care (long day care and family day care), informal care (relatives, nanny, friends), mixed formal and informal care, and not attending care—using univariate ANOVA and post-hoc tests to compare groups. Results are presented in Table 2. For social competence, higher ratings were reported for children receiving regular child care in mixed formal and informal settings compared to children who were not in child care. For behaviour problems, scores were lower for children receiving regular child care in informal settings or mixed formal and informal care settings than for children who did not attend child care. A further difference was noted within the group of children receiving regular child care: behaviour problems were higher for children attending formal care settings and lower for children attending mixed formal and informal care.

**Quantity of care**

The relationship between quantity of child care and children’s socio-emotional development was examined in a series of analyses. Mean scores for parent-rated social competence and behaviour problems, and carer-rated social competence and behaviour problems were compared across the five categories of weekly hours of care. Separate analyses were conducted for total hours of care received each week, hours of informal child care, and hours of formal child care, using analysis of variance (ANOVA) to test between-group differences and linearity in the relationship across weekly hours categories. Results, with significant $F$ ratios for ANOVA/linearity tests, are presented in Table 3.

Parents’ ratings of social competence and behaviour problems showed few associations with hours of child care received. For total hours of care, between-group differences and linearity across groups did not achieve significance for either measure. For hours of informal care, between-group
whether this was for informal care \((F(1, 517) = 5.09, p < .05)\), formal care \((F(1, 1361) = 8.97, p < .01)\), or total hours of care \((F(1, 1551) = 11.49, p < .001)\). Carer ratings of behaviour problems were also associated in a linear direction with total hours of care \((F(1, 1438) = 9.14, p < .01)\), but this relationship only achieved a marginal level of significance for hours of informal care \((F(1, 479) = 3.10, p = .08)\) and hours of formal care \((F(1, 1265) = 3.23, p = .07)\).

Quality of care

Two sources of information were drawn on to test the relationships between quality of care and child socio-emotional development. Group size provided...
a measure of the structural features of the program attended by the LSAC child. Although very few 
Australian states/territories have mandated 
requirements for group size, national and interna-
tional organisations recommend a group size of 10 
or less for children under 3 years of age (Press, 
2006). Smaller groups are felt to be particularly 
important for younger children, who need greater 
support from caregivers to manage their emotions 
and learn to use pro-social behaviour with peers.

Indeed, results presented in Table 4 showed that carer 
ratings of social competence were higher when chil-
dren were cared for in smaller groups ($F(1, 1461) = 
12.41, p < .001, Eta2 = .010$). Carer-rated behaviour 
problems did not appear to be affected by group size.

Parent-rated behaviour problems differed across the 
categories of group size ($F(4, 1554) = 2.35, p < .05$), 
but did not show significant between-group differ-
ences in post-hoc analyses.

Carer ratings of their own practices (active engage-
ment in play organisational focus) provided further 
indicators of child care quality. Mean scores for 
each of the four measures of child socio-emotional 
development were compared across the three catego-ies of practice quality (low, moderate, high), 
using analysis of variance testing of between-group 
differences and linearity across groups. Results, 
presented in Table 5, showed a consistent pattern of 
results for linearity across groups. As carers 
reported spending more time in active engagement

Table 4 Structural features of child care quality (group size), by child socio-emotional development

<table>
<thead>
<tr>
<th>Number of children in group</th>
<th>1–5 ($M$ ($SD$))</th>
<th>6–10 ($M$ ($SD$))</th>
<th>11–15 ($M$ ($SD$))</th>
<th>15–20 ($M$ ($SD$))</th>
<th>21+ ($M$ ($SD$))</th>
<th>ANOVA F Ratio</th>
<th>Linear F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent-rated n</td>
<td>405</td>
<td>214</td>
<td>369</td>
<td>360</td>
<td>211</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social competence</td>
<td>28.85 (2.45)</td>
<td>28.92 (2.37)</td>
<td>28.83 (2.61)</td>
<td>28.80 (2.49)</td>
<td>28.38 (2.80)</td>
<td>3.53</td>
<td>5.75</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>30.73 (4.21)</td>
<td>30.05 (4.00)</td>
<td>30.65 (4.42)</td>
<td>30.00 (4.19)</td>
<td>30.00 (4.43)</td>
<td>2.35</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social competence</td>
<td>25.63 (2.95)</td>
<td>25.12 (3.29)</td>
<td>24.96 (3.38)</td>
<td>24.92 (3.54)</td>
<td>24.71</td>
<td>3.53</td>
<td>12.41</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>27.01 (4.12)</td>
<td>27.11 (4.96)</td>
<td>27.23 (4.63)</td>
<td>26.50 (4.08)</td>
<td>26.65</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 5 Process features of child care quality, by child socio-emotional development

<table>
<thead>
<tr>
<th>Active engagement in play</th>
<th>Low ($M$ ($SD$))</th>
<th>Moderate ($M$ ($SD$))</th>
<th>High ($M$ ($SD$))</th>
<th>Anova F Ratio</th>
<th>Linear F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent-rated n</td>
<td>379</td>
<td>832</td>
<td>429</td>
<td>3.00</td>
<td>5.75</td>
</tr>
<tr>
<td>Social competence</td>
<td>28.50 (2.67)</td>
<td>28.78 (2.44)</td>
<td>28.93 (2.66)</td>
<td>p &lt; .001</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>30.22 (4.31)</td>
<td>30.07 (4.12)</td>
<td>29.99</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Carer-rated n</td>
<td>335–357</td>
<td>747–796</td>
<td>357–399</td>
<td>19.12</td>
<td>36.23</td>
</tr>
<tr>
<td>Social competence</td>
<td>24.43 (3.58)</td>
<td>25.12</td>
<td>25.84</td>
<td>p &lt; .001</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>27.07 (4.39)</td>
<td>26.91</td>
<td>26.82</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organizational focus</th>
<th>Low ($M$ ($SD$))</th>
<th>Moderate ($M$ ($SD$))</th>
<th>High ($M$ ($SD$))</th>
<th>Anova F Ratio</th>
<th>Linear F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent-rated n</td>
<td>406</td>
<td>788</td>
<td>442</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social competence</td>
<td>28.85 (2.52)</td>
<td>28.70 (2.50)</td>
<td>28.76 (2.69)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>30.10 (4.31)</td>
<td>30.11 (4.21)</td>
<td>30.07 (4.32)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Social competence</td>
<td>24.96 (3.23)</td>
<td>25.12 (3.24)</td>
<td>25.40 (3.28)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Behaviour problems</td>
<td>26.29 (3.86)</td>
<td>27.02 (4.50)</td>
<td>27.40 (4.88)</td>
<td>p &lt; .01</td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>
with the children, both parent-rated scores and carer-rated scores for social competence increased ($F(1, 1636) = 5.75, p < .05$, and $F(1, 1550) = 36.23, p < .001$, respectively). In contrast, but also supporting the importance of quality for positive socio-emotional development, when carers reported spending more time on the organisational aspects of their work, ratings for behaviour problems increased ($F(1, 1435) = 11.22, p \leq .001$, $\eta^2 = .008$). Parent ratings of the child’s behaviour problems or competence were not associated with this aspect of care quality.

**Discussion**

The Longitudinal Study of Australian Children was designed to examine key factors in the home and external environment that influence children’s socio-emotional development over the early years. Of these, the use of non-parental child care features highly for the vast majority of LSAC children and their families. Results for Wave 2 show that by age 2 to 3 years, the proportion of LSAC children receiving regular child care reached 70%, nearly double the proportion (36%) reported two years previously by Harrison & Ungerer (2005) in their analysis of Wave 1 data. An even more dramatic increase was seen in the number of families using formal, government-accredited and/or regulated child care services, with the proportion increasing from 15% in Wave 1 to 55.2% in Wave 2. Notably, the proportion of children receiving informal care from relatives, friends, or a nanny remained relatively stable over this two-year period, increasing by less than 4% (from 25% in Wave 1 to 28.8% at Wave 2).

The focus of the present paper was to examine the impact of child care quantity and quality on children’s socio-emotional development and wellbeing. It has been argued that Australia’s Quality Improvement and Accreditation System (QIAS) of quality assurance and state/territory regulations contribute to higher standards of quality in formal child care services than are typically reported for US and UK settings. Furthermore, it has been posited that such standards may ameliorate the negative effects of quantity of care that have been reported in overseas research. The results presented in this paper provide the first evidence from a large nationally representative sample to support the expectation that attendance at child care in Australia may impact differently on children’s socio-emotional development than has been reported in US and UK studies.

**Experience of non-parental child care**

Results for the LSAC sample as a whole showed minimal differences in socio-emotional development between the groups of children receiving and not receiving child care. Although achieving significance, effect sizes were very small (less than 0.5% of the variance). Nonetheless, the direction of the findings suggested that child care had a positive rather than a negative effect on children’s social and emotional wellbeing. Children who attended child care were rated by their parents as being more socially competent and having fewer behaviour problems than children who did not attend regular child care.

These findings, which differ from results for US children of a similar age, are likely due, at least in part, to Australia’s national and state/territory systems of
quality assurance, which monitor levels of quality in all child care centres and family day care homes and ensure that minimum standards for staff–child ratios, staff qualifications, space and equipment are met.

Within the overall category of “receiving regular non-parental child care”, the more optimal ratings were received by the group of children receiving a mixture of formal and informal care. In relation to behaviour problems, lower scores were noted for children in informal or mixed formal/informal arrangements, suggesting that, for 2- to 3-year-old children, one-to-one or family care from a close relative or familiar adult may be protective against problems of emotional dysregulation, anxiety and aggression.

**Quantity of care**

Results for hours of care further suggested that regular care with a relative, friend or nanny may have benefits for children’s socio-emotional problems, but this pattern was only evident for parents’ ratings of behaviour problems. Results for quantity of informal care showed no relationship between behaviour problems as reported by parents and weekly hours of care; however, for quantity of formal care, parent-rated problems increased as hours increased. Carer ratings, on the other hand, did not differ by type of care. Carers reported more behaviour problems as children attended longer hours of care, for both informal and formal care settings. Although achieving significance, it is important to note that effect sizes for these analyses were very small, ranging from 0.3% to 1.4% of the variance.

It is also noteworthy that carer and parent ratings differed for social competence. Carers’ ratings of children’s social competence increased as children attended more hours of care, but parents’ ratings did not. These differences between parent and carer reports are not unexpected. Although the ratings from these two sources were correlated, the degree of overlap was modest ($r_s$ of .19 and .20). Carer ratings, for the most part, would be restricted to the child’s behaviour and interactions in the care setting, whereas parental ratings of the child would encompass the home and other settings, with less accounting for behaviour in child care.

Despite the inconsistencies between results for parents and carers, the findings presented in this paper suggest that longer hours of child care have both positive and negative effects for children’s socio-emotional development at age 2 to 3 years—positive effects were seen in higher levels of social competence and negative effects were seen in elevated behaviour problems. These results, while smaller in magnitude and effect size, are remarkably similar to results reported by Ungerer et al. (2006) for an Australian sample of a similar age attending formal, accredited/regulated child care settings. Both positive and negative effects of longer hours of care on children’s social interaction were also noted in the large multi-site NICHD ECCRN study (2001). At age 2 to 3 years, children who had more experience in care were observed to be more socially skilful in a semi-structured play session with a peer, but were also rated by carers as being more negative in peer play.

**Quality of care**

More consistent findings were noted for the impact of child care quality, particularly for children’s social competence. Reports by parents and carers linked more child-focused practice by carers with higher ratings for social relatedness and overall competence. Additionally, and for carer’s ratings only, social competence was higher when group size was smaller, and behaviour problems were higher when carers were more involved with the organisational aspects of providing care. Notably, effect sizes for these analyses, while still accounting for a relatively small proportion of the variance, were larger (0.8% to 2.3%) than those reported for quantity and type of care (0.1% to 1.4%).

These findings are in keeping with reports from a growing field of international research studies linking higher quality care with more positive socio-emotional outcomes for children (Love et al., 2003; NICHD ECCRN, 2005; Peisner-Feinberg et al., 2001; Sylva et al., 2003). What is different in the present study, however, is the reliance on caregiver self-report for computing a measure of quality. By asking caregivers to estimate the proportional amounts of time they spend in various activities during their child care day, LSAC gives emphasis to what carers do, rather than using external criteria to assess the level of quality (as used in the US NICHD ECCRN, UK EPPE and Australian Child Care Choices studies). To date, there are no studies that have used both self-report and external criteria to measure quality. Future analysis of the Wave 2 LSAC data will be able to draw on linked data provided by the National Childcare Accreditation Council to compare external ratings of quality with carer self-report measures.

Further factors are also likely to explain the pattern of results for informal care, which was associated with more optimal ratings by parents for social competence and behaviour problems. Recall that the majority of informal care providers were grandparents of the LSAC child. Grandparent care is most likely to be provided for one child alone or for small family groupings. Low carer-to-child ratios provide a greater opportunity for focused engagement and interaction. Grandparents also provide young children with the supportive, nurturing environment they need for healthy emotional development. Gray, Misson, and Hayes (2006), in their analysis of Wave 1 LSAC data, found that grandparents reported higher levels of warmth and open communication in their relationships with infants than did centre-based caregivers.

In summary, accumulated evidence from international studies, and now from Australia, underlines the key role that child care quality plays in ensuring...
young children’s positive socio-emotional development. In this paper, the findings have shown the importance of what caregivers do in explaining the links between child care quality and enhanced positive as well as reduced negative behaviours in a large sample of 2- to 3-year-old children. Clearly, quality is a feature of child care that cannot be underestimated or remain unquestioned when child care providers seek to elucidate and act on research in their practice. Attention must be given to the time that caregivers have to be actively engaged with the children in their care, and the ways in which services recognise and support this critical aspect of how quality care is provided.

Limitations and future directions
The results reported in this paper have assessed the direct effects of the quantity and quality of children’s current child care experience on measures of their social and emotional development. Further analyses using multivariate approaches are required to examine more complex relationships between quality and quantity within formal and informal types of care. Assessment of children’s cumulative time in care, and the quality of that care over time, is also required to be able to fully understand the impact of child care. The depth and detail of the information that is being collected in LSAC from parents, carers and teachers, and the longitudinal nature of the study, will ensure that future analyses can assess the impact of care on different aspects of children’s development and at different times.

A further limitation of the present paper is that other factors, such as family demographics and child characteristics, have not been included in the analyses. A wealth of existing research, including analyses of Wave 1 LSAC data (Harrison et al., in press), has confirmed that a wide array of family and child characteristics are related to use of child care. Furthermore, family and child characteristics are key explanatory factors for child socio-emotional development, often achieving effect sizes far in excess of the effects seen for child care (NICHD ECCRN, 2003). The richness of the LSAC dataset will ensure that future analyses will be able to take account of important covariates and contextual features in assessing the role of child care in children’s lives.

Endnotes
1 “Extensive” use of care has been defined differently in these studies. Belsky’s (1988) early work referred to more than 20 hours per week. The NICHD ECCRN (2003) study did not identify a threshold effect for hours per week, but referred to a cumulative pattern of “more time in care” or “increased” amounts of care as being problematic; mean hours increased from 21.0 hours per week at age 3–6 months (minimum = 0, maximum = 62.5) to 26.8 hours per week at 25–36 months (minimum = 0, maximum = 68.8). Sylva et al. (2003) referred to “a longer time (in years and months)”, particularly when children began care in the first two years, as being a concern.
2 Principal components analysis using Pearson product moment correlations as input, revealed two factors accounting for 42.6% and 14.4% of the common factor variance. Internal reliability was within the acceptable range: Factor 1, $\alpha = .80$; Factor 2, $\alpha = .74$. One item (watching/supervising children’s play) loaded equally weakly on both factors and therefore was not included in the factor structure.
4 Analysis of variance tests for “receiving regular NPC” vs “not receiving NPC” groups were significant, but effect sizes were very small: social competence, $\eta^2 = 0.023$. Social competence, $\eta^2 = 0.023$.
5 Effect size for parent-rated behaviour problems by quantity of care was very weak, $\eta^2 = 0.003$.
6 Effect sizes for carer-rated social competence by quantity of care were as follows: for total hours, $\eta^2 = 0.009$; formal hours, $\eta^2 = 0.009$; informal hours, $\eta^2 = 0.009$.
7 Effect sizes for carer-rated behaviour problems by quantity of care were as follows: for total hours, $\eta^2 = 0.009$; formal hours, $\eta^2 = 0.009$; informal hours, $\eta^2 = 0.009$.
8 Effect sizes for the association between quality practices and child social competence were lower for parent ratings ($\eta^2 = 0.009$) and higher for carer ratings ($\eta^2 = 0.023$).
9 Existing indications from an analysis of Wave 1 data (Harrison, 2006) are that the LSAC self-report items do accord with these independently collected assessments of quality.
References


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