

**Relationships between centre-based child care and children's adjustment  
to the first year of school**

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**Trends in the provision and use of formal child care**

Children's adjustment to school is influenced by the complex interactions of their personal characteristics, family backgrounds, experiences and school context. For some children the transition experience can be relatively smooth, for others the path is more difficult.

Poor adjustment outcomes may arise when there are differences between children's individual developmental stages and maturity, and the challenges of the new situation. Children may therefore experience personal incompatibilities and dislocations as they commence the first year of schooling (Bronfenbrenner, 1986; Erikson, 1963). Social, emotional and academic difficulties in the early years of schooling have been shown to persist through schooling, and children's adjustment to the first year of schooling can predict risk of educational and social problems in the following 10 to 12 years (Cowan, Cowan, Schulz & Henning, 1994; Pianta, 1990). Thus, how well children make the transition and adjustment to schooling is critical for their future progress and development (Belsky & MacKinnon, 1994; Cowan, Cowan, Shultz & Henning, 1994; Keinig, 2000).

**Socio-political influences on early childhood experiences**

Within an ecological perspective, early childhood experiences, including child care attendance should be viewed as a source of variability in children's adjustment to school. Following the social trend toward smaller families and increased female employment there has been a shift in the structure of work and family life particularly since the mid-1960's (Clarke-Stewart, Gruber & Fitzgerald, 1994). This shift has resulted in children spending more time in non-maternal care (Clarke-Stewart, 1994; Ochilree, 1994; Silverstein, 1991). The notion of maternal employment and the need for child care services is supported by policies of the Australian Government which show a commitment to equity of access to affordable, regulated, quality child care services. The federal and state governments provide a range of funding to a variety of child care services which include centre-based child care, family day care, occasional care, preschool and outside-school-hours care. This funding is tied to quality assurance guidelines. As a result of government support for child care services there has been a rapid increase in the use of these services since 1986 (Wangman, 1995). Centre-based child care (long day care) services in Australia normally provide care for children from 6 weeks to 6 years of age for up to 8 hours a day, 5 days a week. Centres may be operated by community groups, local councils, private operators or schools. Some staff are required to hold certificates in child care but are generally not required to have early childhood teacher qualifications.

With increasing numbers of children in child care settings from very young ages and for extensive hours, there has been concern about the effect of this care on children's development and adjustment, and their progress in school (Belsky & Eggebeen, 1991; Clarke-Stewart, Gruber & Fitzgerald, 1994). Studies about the influence of long day care on children's development, and particularly on children's adjustment to schooling, have revealed mixed results about early entrance into long day care (Sylva, 1994). For example, positive outcomes related to extensive child care have been identified in studies by (Andersson, 1989; Broberg, Hwang, Lamb & Ketterlinus, 1989; Field, 1991; Harrison & Ungerer, 2000). Difficulties adjusting to school have been revealed in a range of other studies (Howes, 1990; Bates, Marvinney, Kelly, Dodge, Bennett & Pettit, 1994; Ochilree & Edgar, 1995; NICHD Early Child Care Research Network, 1999, 2000, 2001a, 2001b, 2003).

Research has also suggested that early experiences are critical for brain development and can support or hinder children's development. The stimuli activate genetic pathways and differentiate neuron function and affect the synaptic development. These neurological pathways affect health, learning and control (Begley, 1997). A recent study has shown increased levels of cortisol, a stress sensitive hormone that regulates bodily functions, were recorded for infants and toddlers in child care but not children at home (Watamura, Donzella, Alwin, & Gunnar, 2003). Further patterns of developmental outcomes have identified common trajectories that carry through from early childhood to adolescence. For example, low birth weight, maternal drug taking, neurological impairment, attention problems,

oppositional behaviour and social problems contribute to difficulties in adolescence (Margetts, 2002). There is reason for concern for children's adjustment to school particularly in relation to evidence for increased non-compliance and aggression and anxiety in children who experience child care before 3 years of age.

Quantitative studies of children's adjustment to school have generally been conducted outside Australia where the quality of centre-based child care is not subject to a national accreditation system such as in Australia, where quality standards are linked to Commonwealth government funding (Harrison & Ungerer, 2000). In addition, the conclusiveness of evidence related to the effects of centre-based child care of young children has been limited by different research approaches. Research should also consider the background of children and parents, and the relationship between the type, extent and timing of care, and children's development within the Australian socio-cultural and child care context with generally consistent levels of quality.

### The Study

identified patterns of children's regular child care attendance in the 5 years prior to the commencement of the first year of schooling

explored the influence of the timing and extent of this care on children's early school adjustment.

an ecological framework to provide recognition for the influence of child characteristics, family demographics and school factors on children's adjustment to the first year of schooling.

### Participants

215 children from 12 preparatory classrooms across 4 Melbourne metropolitan government primary schools.

Age after 8 weeks of schooling - 52 months to 82 months ( $M = 67.22$ ,  $sd 4.61$ )

Gender: 129 male (60.0%) and 86 female (40.0%), ( $M = 0.40$   $sd 0.50$ )

### Measures of adjustment

The Social Skills Rating System (SSRS), (Elementary Level), (Gresham & Elliott, 1990)

social skills domain (Items 1-30)

includes subscales of cooperation

assertion

self-control

problem behaviour domain (Items 31-48)

includes subscales of externalising behaviour

internalising behaviour

hyperactivity

academic competence one small domain (Items 49-57)

### Background information

parent questionnaire

children's personal characteristics

family demographics,

school transition information

child care histories

### Analyses

Analyses of variance and hierarchical multiple regression analyses to determine which variables best accounted for most of the variance in the dependent or outcome variables and to determine the significance or otherwise of these contributions.

### Results

#### Patterns of attendance at centre-based child care

60.9% of children in this study regularly attended centre-based child care (ccc) at some time prior to school.

Details of the days and hours per week by year prior to schooling are identified in Table 1 and Table 2.

**Table 1. Days and hours of attendance at centre-based child care by year prior to schooling**

Year prior to school	n	0 days		1 day		2 days		3 days		4 days		5 days	
		n	%	n	%	n	%	n	%	n	%	n	%
5	215	171	79.5	11	5.1	8	3.7	12	5.6	1	0.3	12	3.8
4	215	137	63.7	10	4.7	25	11.6	21	9.8	6	2.8	16	7.4
3	215	114	53.0	13	6.0	26	12.1	26	12.1	10	4.7	26	12.1
2	215	111	51.6	11	5.1	23	10.7	25	11.6	13	6.0	32	14.9
1	214	144	67.3	14	6.5	11	5.1	11	5.1	12	5.6	22	10.3

**Table 2. Days and hours of attendance at centre-based child care by year prior to schooling**

Year prior to school	1-15 hours			16-30 hours		more than 30 hours	
	<i>n</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
5	206	10	4.9	14	6.8	11	5.3
4	202	19	9.4	30	14.9	16	7.9
3	203	24	11.8	38	18.7	27	13.3
2	203	18	8.9	45	22.2	29	14.3
1	205	24	11.7	16	7.8	21	10.2

Children's attendance at centre-based child care increased from 21.5% of children in year-5, to 48.4% of children in the year, two years prior to school. Attendance at centre-based child care dropped in the year immediately prior to schooling to 32.7% of children. By year-3 and year-2 prior to school, more than 47% of children regularly attended centre-based child care. In year 3 prior to school, 16.8% of children attended this care for 4 or 5 days per week and in year 2 this attendance increased to 20.9%. In year-2, two years prior to schooling children more frequently attended centre-based child care for 5 days per week. In year-5, year-4, year-3 and year-2, children more frequently attended centre-based child care for between 16 and 30 hours per week. In the year immediately prior to the commencement of schooling, fewer children attended than in the previous 3 years, and of these children, almost half the children attended for 4 or 5 days per week. In this year there was also an increase in the percentage of children who attended centre-based child care for only 1 day per week.

These data show the rapid entry of children into centre-based child care, often for extensive periods of time, and the variation in the extent of this attendance.

### Relationships between centre-based child care and measures of adjustment to school

Measures of adjustment to school were obtained for a cohort of 163 children within the larger group. Of these children, 102 were male (62.6%) and 61 were female (37.4%), ( $M = 0.43$ ,  $sd 0.50$ ). Distributional characteristics of data for days and hours that children attended centre-based child care per week were inspected and exploratory correlation analyses conducted to determine possible modifications of interval data to categorical data. As a result of these investigations days of centre-based child care per week was recoded; '0' = none to 3 days, and '1' = 4 or 5 days. Hours of care was recoded; '0' = none to 15 hours, '1' = 16 to 30 hours per week, '2' = more than 30 hours per week.

To determine if significant associations existed between the indexes of centre-based child care and children's adjustment to school, bivariate Spearman's rank correlations were computed. Measures of adjustment to the first year of schooling as rated by teachers included: co-operation (tsc); assertion (tsa); self-control (tss); summed cooperation, assertion and self-control (tscas); externalising behaviour (tse); internalising behaviour (tsi); hyperactivity (tsh); summed externalising, internalising and hyperactivity (tseih); and academic competence (sac). (results in unabridged paper) Correlations suggest that year, days and hours of centre-based child care vary in their association with measures of adjustment to the first year of schooling. Correlations also suggest that particular years are more significant than others in determining the association between centre-based child care and measures of adjustment.

Correlation analyses indicate that attendance, as against non-attendance, at centre-based child care in year-1, year-2 and year-5 was significantly and negatively related to children's adjustment to the first year of schooling. Furthermore, attendance for 4 or 5 days per week at centre-based child care in year-5, year-4, year-3, and year-2 were significantly and negatively related to measures of school adjustment, and attendance for more hours per week in year-5, year-4, year-2, and year-1 were also negatively associated with school adjustment measures. Results also suggest that self-control, externalising behaviour and hyperactivity were most vulnerable to attendance at centre-based child care. Of interest, were the albeit nonsignificant but positive relationships between hours of attendance per week and assertion, and the negative relationships between indexes of child care and internalising behaviour. These results suggest that attendance at child care may have had a positive, but insignificant influence on adjustment to schooling, by increasing levels of assertion, and reducing internalising behaviours.

### Contribution of centre-based child care, personal, demographic, and school factors to measures of adjustment

To identify significant or trend predictors of each measure of adjustment to the first year of schooling, hierarchical regression analyses were conducted with linear control for variables that might mediate or confound the influence of the significant indexes of centre-based child care identified in Table 3. Background variables were selected for entry in the regression analyses based on significant correlations with measures of adjustment. It is important to note that because control variables are included in regression analyses on the basis of significant associations with the outcome variable, the

variables that are included in regression equations vary for different measures of adjustment. For the most part, variables related to personal characteristics such as gender, language spoken at home (lang) – English, English and other language; language other than English, or child’s order of birth (bord) were entered first. Family demographic variables such as level of father employment (femp) – full-time, part-time, unemployed, or level of mother employment (memp) - full-time, part-time, unemployed, and receipt of family payment (fpay) – government allowance for lower income families were entered next, followed by school related variables such as numbers of transition experiences (trans) or attendance at before-school (bef) or after-school care (aft). Measures of attendance at centre-based child care (ccc) were entered separately at the final step. Control variables for each measure of adjustment are identified in Table 4.

Results for regressions performed on the different measures of adjustment to school are summarised and presented in diagrammatic form in Table 4 and explained in the following text.

**Table 3 Summary of significant centre-based child care, personal, demographic and school predictors of children’s adjustment to the first year of schooling**

Index of care	Measures of adjustment to school								
	tsc	tscas	tss	tscas	tse	tsi	tsh	tseih	tsac
ccc5			#		#				
ccc5dr			#†	#†	#		#	#*	#*
ccc5hr	#†		#*	#	#*		#*	#*	#*
ccc4									#
ccc4dr			#*	#*	#		#	#	
ccc4hr			#		#†				
ccc3									
ccc3dr			#		#†				
ccc3hr									
ccc2									
ccc2dr	#		#	#	#†		#†	#†	#
ccc2hr	#		#	#					
ccc1									
ccc1dr	#						#†		
ccc1hr	#		#†						#
<b>other significant predictors</b>	gender* lang† fpay	memp fpay trans	gender femp* trans	gender femp† fpay* trans*	gender* bord† femp* bef* bef*	gender femp fpay aft	gender* lang femp* bef*	gender* femp fpay† bef	lang age trans
<b>non-significant predictors</b>	bord								gender fpay

# significant child care predictors <.05; <.01

\* level of significance <.005

† level of significance  $p < .10$

#### Cooperation (tsc)

Children who exhibited higher levels of cooperation were girls, from families not receiving family payment, had fewer than 4 days per week or fewer hours of centre-based child care particularly in year-2 or year-1.

#### Self-control (tss)

Children who exhibited higher levels of self control were more likely to be girls, who had fathers who were employed full-time, had comprehensive transition experiences, and had less extensive experiences of centre-based child care in the years prior to commencing the first year of schooling. In models where the index of centre-based child care was a significant predictor of self control, all predictors contributed 14.2% to 16.7% of the adjusted variance in self-control.

#### Summed social skills (tscas)

These results indicated that children who were girls, had a father employed full-time, in families that did not receive family payment, who had more transition experiences, and less extensive centre-based child care were more likely to have higher levels of summed social skills.

#### Externalising behaviour (tse)

Children who were rated with higher levels of externalising behaviour were more likely to be boys, first born children, had fathers not employed full-time in the first year of schooling, had attended before-school care, and had attended centre-based child care and for more extensive periods than other children.

#### Hyperactivity (tsh)

Results suggest that higher levels of hyperactivity were predicted by children who were boys, who did not speak English at home, had fathers not employed full-time, and who had extensive attendance at centre-based child care. Conversely, children who exhibited lower levels of hyperactivity were girls, who spoke English at home, had fathers employed full time, and did not have extensive centre-based child care particularly in year-5 and year-4 before commencing schooling. As with the externalising behaviour outcome, control variables reduced the association of child care variables with hyperactivity.

#### Summed problem behaviours (tseih)

High levels of summed problem behaviour were predicted by children who were boys, who had fathers not employed full-time, in families that received family payment, attended before-school care and had extensive centre-based child care in the years closest to birth.

#### Academic competence (tsac)

Children who were rated higher in academic competence were more likely to speak English at home, be older, from families that did not receive family payment, have had more transition experiences, and attended less extensive centre-based child care in year-5, year-4, year-2, and year-1. It is worth noting that extensive attendance at child care 5 years, 4 years, or 2 years prior to schooling were the strongest predictors of lower academic competence. Numbers of transition experiences was the next strongest predictor of this outcome in the direction of more transition experiences predicting higher levels of academic competence.

## DISCUSSION

The results of this study suggest that attendance at centre-based child care, and particularly more extensive attendance and attendance in the years closer to birth, was negatively associated with adjustment to the first year of schooling after allowing for the influence of control variables. Children who experienced more hours, particularly more than 30 hours per week, or 4 or 5 days of centre-based child care per week were more likely to have lower levels of social skills, higher levels of problem behaviours, and lower levels of academic competence.

Results for different indexes of care showed mixed results in relation to the timing or year prior to schooling and measures of adjustment. Cooperation was best predicted by indexes of care in the 2 years closest to schooling, and more days of centre-based care in year-1, whereas self-control was predicted by indexes of care in all years prior to schooling, although at a barely significant level by this type of care in year-1. Summed social skills was predicted by indexes of care in year-5, year-4 and year-2 prior to schooling.

Behavioural and academic outcomes were more strongly predicted by care in the earliest years (year-5 and year-4), which suggests that extensive early centre-based child care has a pervasive long term influence on children's behavioural and academic development. Indexes of care in the early years contributed strongly to the variance in measures of problem behaviour. Significant indexes of attendance at centre-based child care contributed 2.2% to 4.8% of the variance in measures of social skills and problem behaviours. More notable, more days and more hours of centre-based care in year-5 respectively contributed 6.0% and 5.1% of the variance in academic competence.

Being a girl was the strongest predictor of higher levels of cooperation, and lower levels of hyperactivity and summed problem behaviours in these models. More transition experiences importantly predicted higher levels of self-control, summed social skills and academic competence. Attendance at before-school care most strongly predicted higher levels of externalising behaviour, and was reliably associated with higher levels of other measures of problem behaviours. In association with other variables, level of father employment and receipt of family payment were strong predictors of outcome measures. Generally, children who had fathers in full-time employment and were in families in receipt of family payment had higher levels of social skills and lower levels of problem behaviours.

It is interesting to note that the predictor or control variables generally compounded the relationship between indexes of centre-based child care and positive adjustment measures of social skills and

academic competence. They also compounded the association between indexes of care and measures of problem behaviours.

The results of the present exploratory study are validated by recent research linking characteristics of the child, family, and school setting, with child care indexes (NICHD, 2000b; 2003).

This study implies that children in families with the demographic and social resources to potentially facilitate the development of skills and behaviours that support adjustment to schooling, are advantaged when compared with children who do not have these resources.

### **Implications for extensive care**

In attempting to develop a comprehensive theory of the impacts of child care experiences on children's development the term "dislocation" has been applied as a term to reflect the relative stress a child must cope with at each new experiential interface. When considering the young child's experience as they move through a range of new contexts with a limited capacity to cope, a limited ability to express themselves, and being relatively dependent on choices that have been made for them, it is possible to imagine some children's experiences as producing minimal dislocation while others may be more significant. The concept of dislocation considers the impact of dissonance. As children move in and out of different care situations it is they who have to cope and adjust. Their adaptability will be mediated by their constitution, prior experience and other mediating factors. It is this magnitude of coping and adjusting that has the power to impact positively or negatively on each child (Margetts, 2002).

Furthermore, staff employed in the care and education of young children should be encouraged to critically reflect on their interactions with, and experiences they provide for young children. Early years are critical for children's development and especially their sense of self as an individual and their sense of self in relation to others. As young children move between parental and non-parental child care contexts they are vulnerable to a sense of dislocation or disconnectedness. Continuity of care and connections with care givers are critical for secure attachment relationships, a sense of trust, autonomy and increasing responsibility (Erikson, 1963). The optimal number of children being cared for may vary with children's age and developmental needs. Infants may benefit from individualised or small group care and low adult to child ratios. Preschool children may benefit from larger group sizes and adult to child ratios that require them to share, work with others and develop social, behavioural and academic skills through interactions with peers. Given the range of different child care influences on children's development it may be that extensive care is too isolating and restrictive, and too little organisation and focus on the child is overly stressful for young children. If so, there needs to be a balance between meeting the children's needs for security and comfort, and creating opportunities for the child to adapt to the needs and requirements of others, and to self-regulate. Adults caring for children should support children's need for predictability and belonging and also support children's developing social, behavioural and academic competence.

It is important to critically reflect on conditions of care and education for young children. It may be that the optimal number of children in a group may vary with age and developmental needs; that children need a variety of contexts and experiences that provide opportunities to adapt to the needs and requirements of others, and to self regulate; and extensive care may be too restrictive. The identification of ways in which extensive care in particular settings benefits or limits early school adjustment is therefore important. As young children move between parental and non-parental contexts they are vulnerable to a sense of dislocation or disconnectedness. Continuity of care and connections with care givers are critical for secure attachment relationships, a sense of trust and autonomy and increasing responsibility.

### **Limitations**

### **Recommendations**

identify the conditions that nurture these skills and behaviours and to identify the ways in which extensive care in particular settings benefits or limits early school adjustment.

implement practical and viable strategies prior to schooling that positively impact on the child's experiences during the transition to schooling - children and their families should be given many opportunities to visit the school prior to commencement as part of a comprehensive transition program.

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