Research Article

Maternal Employment and Temper Tantrum Behaviour Among Preschool Children: A Comparative Study

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Abstract

Objective: To compare temper tantrum behaviour by maternal employment status and its association with demographic variables among preschool children.

Methods: A comparative descriptive cross-sectional survey was conducted in selected playgroups in Anand city, Gujarat, from 11 April to 11 May 2022. A total of 136 mothers (68 working and 68 non-working) of children aged 3–5 years were recruited by purposive sampling. Children's temper tantrum behaviour was assessed by maternal report on a researcher-developed 20-item rating scale (score range 0–40) and categorised as mild, moderate or severe. Mean scores were compared using an unpaired t-test, and severity and its association with demographic variables were examined using exact tests (Fisher's exact test; Fisher–Freeman–Halton test for tables larger than 2×2).

Results: Children of working mothers had higher mean tantrum scores than children of non-working mothers (27.15±2.93 vs 24.41±1.97; mean difference 2.74, 95% CI 1.89 to 3.59; p<0.001; Cohen's d=1.10). No child had mild tantrums; severe tantrums were reported in 14.7% and 4.4% of children of working and non-working mothers, respectively (p=0.077). Working mothers were more highly educated than non-working mothers (97.1% vs 44.1% with higher secondary education or above). In exploratory analyses among children of working mothers, severe tantrums were associated with child's sex (p=0.031) and maternal education (p=0.020; only two mothers had primary education). Among non-working mothers, all three children with severe tantrums were boys (p=0.052); associations with religion and birth order were based on very few cases. None of the subgroup associations remained significant after correction for multiple comparisons.

Conclusion: Children of working mothers had higher temper tantrum scores than those of non-working mothers. Given the cross-sectional design, purposive sampling, an unvalidated rating scale and unadjusted differences between groups (notably maternal education), this indicates an association rather than a causal effect of maternal employment. The findings highlight the need for early screening and family-centred support for all families. Larger studies with adjusted analyses are recommended.

Key words: Behavioural problems; Preschool children; Working mothers; Non-working mothers; Temper tantrum; Maternal employment.

Introduction

Early childhood is a crucial stage of physical, cognitive, language, social and emotional development. The care and support children receive during this period influence their future learning, health and behaviour.[1] Preschool children are still learning to express their needs, manage frustration and follow rules; therefore, behavioural problems such as temper tantrums, aggression, shouting and non-compliance are common. Although these behaviours are often part of normal development, persistent or severe problems may affect family relationships, peer interactions and school readiness.[2,3]

Temper tantrums are common behavioural problems in preschool children and may include crying, screaming, kicking and hitting. They often occur due to frustration, tiredness, hunger or restrictions imposed by caregivers.[4–6] The frequency, intensity and severity of these behaviours help to distinguish normal tantrums from those that may require attention.[4]

Children's behaviour is influenced by the family environment, including parenting practices, family structure and socioeconomic conditions.[7] Maternal employment may also influence children's behaviour. Although it provides financial support and personal satisfaction, it may also reduce time with children, increase work–family stress[8] and lead to changes in childcare arrangements.[9] Previous studies have reported mixed findings regarding the relationship between maternal employment and child behaviour. Some studies have linked early maternal employment and longer hours in non-parental care with behavioural problems.[10,11] However, these effects may depend on the quality of

childcare, timing of employment and family environment.[12] Recent studies also highlight the importance of parent–child interaction and time spent together.[13–15]

Social learning theory explains that children learn behaviours by observing and imitating others and through reinforcement.[16] Ecological theory highlights the influence of family, childcare and community environments on child development.[17] Both theories suggest that children's behaviour is influenced by multiple factors, not maternal employment alone. To our knowledge, few studies from India have examined this question. Therefore, this study aimed to compare temper tantrum behaviour among preschool children of working and non-working mothers in Anand, Gujarat, and to explore its association with selected demographic variables.

Methods

Study Design and Setting: A comparative descriptive cross-sectional survey design was used in selected playgroups in Anand city, Gujarat, from 11 April to 11 May 2022.

Operational definitions:

- Temper tantrum behaviour: Behaviours such as crying, kicking, hitting, shouting, breath-holding, limb movements and whining, as measured by the temper tantrum rating scale.
- Preschool children: Children aged 3–5 years.
- Working mothers: Mothers employed in the public or private sector for 5–8 hours per day.
- Non-working mothers: Mothers engaged in household activities without paid employment outside the home.

Study Population and Eligibility Criteria: Mother–child pairs were eligible for inclusion if the mother had a child aged 3–5 years, was available and willing to participate during data collection, and was able to read and understand Gujarati. Mothers were excluded if they were unwell during data collection, employed part-time (e.g., 2–3 hours per day), single parents, or caring for a child with physical, social or mental disabilities. Mothers who cared for their children at their workplace or business were also excluded.

Sample Size and Sampling Technique: The sample size was calculated to detect an expected mean difference (Δ) of 1 point, assuming standard deviations of 1.4 and 2.6 in the working and non-working mothers' groups, respectively (average σ = 2), with a two-sided 5% significance level (Zα/2 = 1.96) and 80% power (Z1−β = 0.84). The following formula was used:

$$n - 2\left(\frac{\sigma}{\Delta}\right)^2 (Z_{\alpha/2} + Z_{1\ \beta})^2$$

The calculated sample size was 62.72, rounded up to 63 participants per group. To allow for non-response, 68 participants per group were enrolled (total N = 136).

A non-probability purposive sampling technique was used to recruit preschool children from playgroups in Anand city. Of the 136 children enrolled, 68 were children of working mothers and 68 were children of non-working mothers. Participants were recruited from Nirmal Niketan Kindergarten (n = 50) and Divine Feet Preschool (n = 86).

Data Collection Instruments: A researcher-developed tool was prepared based on a review of relevant literature and consultation with experts in Child Health Nursing. It consisted of two sections:

Section A: Demographic Data: This section collected information on maternal age, religion, education, occupation, family type and number of children, as well as the child's age, sex and birth order.

Section B: Temper Tantrum Behaviour Rating Scale: This section included 20 items assessing temper tantrum behaviours, such as crying, kicking, hitting, shouting, breath-holding, limb movements and whining. Each item was scored as 0 (does not apply), 1 (applies sometimes) or 2 (certainly applies). Total scores ranged from 0 to 40 and were categorised, using researcher-defined cut-offs, as mild (1–20), moderate (21–30) or severe (31–40). These categories have not been validated against an external criterion and indicate relative severity within this sample rather than clinical thresholds.

Validity and Reliability: Content validity was assessed by experts in Child Health Nursing and a statistician. Their suggestions regarding item clarity and relevance were incorporated into the final tool. Reliability was assessed through a pilot administration among 20 mothers of preschool children (10 working and 10 non-working). The internal

consistency of the tool, measured using Cronbach's alpha, was 0.636, which is below the conventionally accepted value of 0.70 and indicates limited internal consistency; scores should therefore be interpreted with caution.

Data Collection Procedure: Data were collected from 11 April to 11 May 2022 after obtaining ethical clearance and permission from the respective playgroup principals. The researcher introduced herself to the teachers, parents and children and explained the purpose of the study. Written and verbal informed consent was obtained from the parents, who were assured of confidentiality and that the information would be used only for research purposes. Mothers completed the demographic questionnaire and the temper tantrum behaviour rating scale at the playgroup while dropping off or picking up their children.

Data Analysis: Data were analysed using SPSS version 20.0 (IBM Corp., Armonk, NY, USA). Demographic characteristics were summarised as frequencies and percentages, and tantrum scores as means and standard deviations (SD). Mean tantrum scores of the two groups were compared using an unpaired t-test, and the mean difference with its 95% confidence interval (CI) and Cohen's d[18] are reported. The proportions of children with severe tantrums were compared between the groups using Fisher's exact test. Within each group, associations between tantrum severity (moderate vs severe) and demographic variables were tested using Fisher's exact test for 2×2 tables and the Fisher–Freeman–Halton exact test for larger tables. Exact tests were used because only 10 and 3 children had severe tantrums, most expected cell counts were below 5, and chi-square tests are unreliable under these conditions.[19] These subgroup analyses were exploratory and were not adjusted for multiple comparisons. A two-sided p value <0.05 was considered statistically significant.

Ethical Considerations: Ethical approval was obtained from the Institutional Ethics Committee (CHA/IEC/ADM/21/11/1643.01). Permission was obtained from the respective playgroup principals, and written informed consent was obtained from the parents before data collection.

Results:

Most mothers were aged 27 years or above (working: 80.9%; non-working: 92.6%) and most were Hindu (95.6% and 86.8%, respectively). Most working mothers (97.1%) had higher secondary education or above, compared with 44.1% of non-working mothers, half of whom (50.0%) had primary education only. Nuclear families were slightly more common among working mothers (61.8% vs 51.5%). The most common age of the children was 4 years in both groups (45.6% and 51.5%), but 3-year-olds were more frequent among children of working mothers (26.5% vs 10.3%). Most children were female and first- or second-born (Table 1).

Table 1. Demographic characteristics of mothers and children (n = 68 per group)

Variable	Category	Working mothers, f (%)	Non-working mothers, f (%)
Mother's age	24–26 years	13 (19.1)	5 (7.4)
	≥ 27 years	55 (80.9)	63 (92.6)
Religion	Hindu	65 (95.6)	59 (86.8)
	Muslim	3 (4.4)	7 (10.3)
	Other	0 (0.0)	2 (2.9)
Mother's education	Illiterate	0 (0.0)	4 (5.9)
	Primary	2 (2.9)	34 (50.0)
	Higher secondary and above	66 (97.1)	30 (44.1)
Family type	Nuclear	42 (61.8)	35 (51.5)
	Joint	26 (38.2)	33 (48.5)

Variable	Category	Working mothers, f (%)	Non-working mothers, f (%)
Child's age	3 years	18 (26.5)	7 (10.3)
	4 years	31 (45.6)	35 (51.5)
	5 years	19 (27.9)	26 (38.2)
Child's sex	Male	25 (36.8)	26 (38.2)
	Female	43 (63.2)	42 (61.8)
Birth order	First	31 (45.6)	32 (47.1)
	Second	36 (52.9)	30 (44.1)
	Third	1 (1.5)	6 (8.8)

Children of working mothers had higher mean tantrum scores (27.15 ± 2.93) than children of non-working mothers (24.41 ± 1.97). The mean difference of 2.74 points (95% CI 1.89 to 3.59) was statistically significant ($t = 6.393$, $df = 134$, $p < 0.001$), and the effect size was large (Cohen's $d = 1.10$). No child had mild tantrums. Severe tantrums were more frequent among children of working mothers (14.7% vs 4.4%), but this difference did not reach statistical significance (Fisher's exact $p = 0.077$) (Table 2).

Table 2. Temper tantrum scores and severity (n = 68 per group)

Group	Mean ± SD	Moderate, f (%)	Severe, f (%)
Working mothers	27.15 ± 2.93	58 (85.3)	10 (14.7)
Non-working mothers	24.41 ± 1.97	65 (95.6)	3 (4.4)

SD, standard deviation. Mean difference 2.74 (95% CI 1.89–3.59); $t = 6.393$, $df = 134$, $p < 0.001$ (unpaired t-test); Cohen's $d = 1.10$. Severe versus moderate tantrums: Fisher's exact $p = 0.077$. No child had mild tantrums.

Table 3 shows the association between tantrum severity and demographic variables within each group (exact p values). Among children of working mothers, severe tantrums were more frequent in boys than in girls (28.0% vs 7.0%; $p = 0.031$) and in children whose mothers had primary education (both of the two such children, compared with 12.1% of children whose mothers had higher secondary education or above; $p = 0.020$). Severe tantrums were also more frequent in nuclear (21.4%) than in joint families (3.8%), but this was not statistically significant ($p = 0.076$). Among children of non-working mothers, all three children with severe tantrums were boys (11.5% of boys vs 0% of girls; $p = 0.052$), and two of them were third-born (2 of 6 third-born children; $p = 0.019$ for birth order). Religion was also associated with severity in this group (Muslim 2 of 7 vs Hindu 1 of 59; $p = 0.044$). No other variable was significantly associated with tantrum severity.

Table 3. Association between severe temper tantrums and selected demographic variables, by maternal employment status (n = 68 per group)

Variable	Working mothers (n = 68)				Non-working mothers (n = 68)			
	Category	n/N (%)	Test	P value	Category	n/N (%)	Test	P value
Mother's age (years)	24–26	1/13 (7.7)	FE	0.673	24–26	0/5 (0.0)	FE	1.000
	≥27	9/55 (16.4)			≥27	3/63 (4.8)		
Religion	Hindu	9/65 (13.8)	FE	0.384	Hindu	1/59 (1.7)	FFH	0.044*
	Muslim/ other†	1/3 (33.3)			Muslim	2/7 (28.6)		
					Other	0/2 (0.0)		

Education	Illiterate/ primary‡	2/2 (100.0)	FE	0.020*	Illiterate	0/4 (0.0)	FFH	0.369
					Primary	3/34 (8.8)		
	Higher secondary and above	8/66 (12.1)			Higher secondary and above	0/30 (0.0)		
Family type	Nuclear	9/42 (21.4)	FE	0.076	Nuclear	1/35 (2.9)	FE	0.608
	Joint	1/26 (3.8)			Joint	2/33 (6.1)		
Child's age (years)	3	5/18 (27.8)	FFH	0.225	3	1/7 (14.3)	FFH	0.207
	4	3/31 (9.7)			4	2/35 (5.7)		
	5	2/19 (10.5)			5	0/26 (0.0)		
Child's sex	Male	7/25 (28.0)	FE	0.031*	Male	3/26 (11.5)	FE	0.052
	Female	3/43 (7.0)			Female	0/42 (0.0)		
Birth order	First	6/31 (19.4)	FFH	0.569	First	1/32 (3.1)	FFH	0.019*
	Second	4/36 (11.1)			Second	0/30 (0.0)		
	Third	0/1 (0.0)			Third	2/6 (33.3)		

n/N = number of children with severe temper tantrums / total number of children in the category; percentages in parentheses. FE, Fisher's exact test; FFH, Fisher–Freeman–Halton exact test.

* $p<0.05$ (exact test). With 14 comparisons, none remained significant after Bonferroni correction ($\alpha = 0.05/14 = 0.0036$).

† Muslim and other religions combined for working mothers.

‡ Illiterate and primary education combined for working mothers (none was illiterate; n = 2 had primary education).

Because of the small number of severe cases (10 and 3) and the 14 comparisons made, these associations are exploratory and their estimates are imprecise. The association with maternal education among working mothers rests on only two mothers and should be interpreted with particular caution.

Discussion

The present study found that preschool children of working mothers had higher mean temper tantrum scores than children of non-working mothers, with a large standardised difference (Cohen's d = 1.10). Severe tantrums were also more common among children of working mothers (14.7% vs 4.4%), but this difference was not statistically significant (Fisher's exact p = 0.077). The 2.74-point difference represents about 7% of the 40-point range of the scale, and because the scale has not been validated against an external criterion, its clinical importance is uncertain. The findings indicate a difference in temper tantrum scores between the two groups but do not establish a causal relationship with maternal employment.

Comparison with previous studies and possible explanations

The findings are consistent with previous studies reporting an association between early maternal employment, non-parental childcare and childhood behavioural problems.[10,11] Reduced parent–child interaction time, work–family conflict and changes in caregiving arrangements may contribute to differences in children's behaviour,[8,9,15] although these mechanisms were not measured in the present study. According to social learning theory, children develop behaviours through observation, imitation and reinforcement.[16] Similarly, ecological theory explains that child development is influenced by interacting family, childcare and community environments.[17] These perspectives suggest that the higher tantrum scores observed in the present study may be related to differences in children's daily experiences and caregiving environments.

However, maternal employment does not necessarily have a negative effect on child behaviour. It may improve family income, provide social support and promote maternal well-being. Previous studies have reported mixed findings, indicating that the effects of maternal employment depend on factors such as the quality of childcare, working hours, timing of employment and family support.[12–14] Therefore, the present findings should not be interpreted as evidence that maternal employment itself increases temper tantrums. Differences in family circumstances and caregiving practices may also contribute to the observed results.

Role of maternal education and family environment

Maternal education differed considerably between the two groups. Nearly all working mothers (97.1%) had higher secondary education or above, compared with 44.1% of non-working mothers. Maternal education may influence parenting knowledge, socioeconomic conditions and childcare practices.[7] Despite their higher educational attainment, working mothers reported higher mean tantrum scores among their children, which suggests that educational attainment alone may not prevent behavioural difficulties. Within the working group, both children whose mothers had primary education had severe tantrums (2 of 2, compared with 12.1% of children whose mothers had higher education); however, this comparison involves only two mothers, was one of 14 unadjusted exploratory tests, and should not be generalised. Other factors, including parent–child interaction, time availability and caregiving support, may also influence children's behaviour. Although nuclear families were more common among working mothers (61.8% vs 51.5%), family type was not significantly associated with tantrum severity. Support from grandparents and other family members in joint families may provide additional caregiving; however, the influence of family structure may vary according to the quality of support available.[17]

Association with selected demographic characteristics

In the exploratory analyses, child's sex was significantly associated with tantrum severity among working mothers ($p = 0.031$). Among non-working mothers the association was borderline ($p = 0.052$), with all three severe cases occurring in boys. Previous research has reported sex differences in externalising behaviours during early childhood, including aggression and behavioural difficulties.[20] However, the small number of severe cases limits interpretation, and statistical significance in one group but not in the other does not necessarily indicate a difference between the groups. Among children of non-working mothers, religion ($p = 0.044$) and birth order ($p = 0.019$) were also associated with tantrum severity. These findings may reflect differences in family practices, parenting patterns and socioeconomic circumstances. However, they were based on only three severe cases in sparse categories (two Muslim and two third-born children with severe tantrums), and none remained significant after correction for multiple comparisons; they should therefore be regarded as hypothesis-generating rather than conclusive.

Implications of the findings: The higher mean tantrum scores among children of working mothers highlight the importance of early identification and appropriate management of behavioural difficulties in preschool children. Parent education, positive parenting practices, consistent caregiving and quality parent–child interaction may help children develop better emotional regulation. Support should be provided to all families according to their needs, irrespective of maternal employment status. Maternal employment should be considered alongside maternal education, family environment and caregiving practices when interpreting children's behaviour, and larger studies using adjusted analyses are needed to confirm these findings and identify the factors contributing to temper tantrum behaviour.

Limitations: The cross-sectional design does not allow causal conclusions, and purposive sampling from two playgroups in one city limits the generalisability of the findings. The groups were not matched and differed in maternal education and child's age (3-year-olds were more frequent among children of working mothers). No adjusted analysis was performed, and other factors, such as family income, maternal working hours, childcare arrangements, maternal stress and parenting practices, may also have influenced the results. Tantrum behaviour was assessed with a single researcher-developed rating scale of limited internal consistency (Cronbach's alpha = 0.636) and unvalidated severity cut-offs, rather than a validated tool covering multiple behavioural domains; the findings therefore relate specifically to temper tantrums rather than overall behavioural problems. Mothers rated their own children's behaviour at drop-off or pick-up, which may have introduced reporting bias. The small number of severe cases, sparse categories and 14 unadjusted exploratory tests limit the interpretation of the demographic associations, and the sample size was calculated for the comparison of mean scores only. Future studies should include larger representative samples, adjust for potential confounders, use validated behavioural assessment tools (ideally with more than one informant) and follow children over time to examine changes in emotional regulation.

Conclusion

Children of working mothers had higher temper tantrum scores than those of non-working mothers. Given the cross-sectional design, purposive sampling, the unvalidated rating scale and the differences between groups in maternal education and child's age, the findings indicate an association rather than a causal relationship with maternal employment. Severe tantrums were relatively uncommon and occurred mostly in boys, but these subgroup findings

are exploratory. The findings highlight the importance of early screening and family-centred support for all families, and the need for larger studies that adjust for potential confounders.

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