

Parental Knowledge of Child Temperament and Parenting Practices in Kerala, India: A Cross-Sectional Study

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Abstract—Child temperament comprises early-emerging individual differences in emotional reactivity, activity, sociability, and regulation. Parents' understanding of temperament may be relevant to how they interpret children's behaviour, although knowledge and parenting practices are distinct constructs. This cross-sectional, descriptive-correlational study examined parental knowledge of child temperament, self-reported parenting practices, parent-rated child temperament, and selected demographic associations among caregivers of children aged 6–12 years residing in Kerala, India. An online, researcher-developed questionnaire was distributed using convenience and snowball sampling. Of 60 responses received, 59 were retained for analysis. The final sample included 47 mothers, 10 fathers, and two other primary caregivers. The mean temperament-knowledge score was 3.02 (SD = 0.97; possible range 0–4). Authoritative parenting had the highest mean score (M = 3.34, SD = 0.65), followed by authoritarian (M = 2.00, SD = 0.68) and permissive parenting (M = 1.84, SD = 0.59). Knowledge was negatively correlated with authoritarian parenting, but the association did not reach conventional statistical significance ($r = -.25$, $p = .060$). Knowledge was significantly associated with parental education, $F(2, 54) = 3.89$, $p = .027$, and respondents reporting on girls had higher knowledge scores than those reporting on boys, $t(50.3) = -2.35$, $p = .023$. Regression and moderation analyses did not establish significant predictive or interaction effects. Findings are preliminary given the small non-probability sample and brief researcher-developed measures. The results support further investigation of parental temperament knowledge and suggest that developmentally informed parent education merits evaluation in larger, methodologically stronger studies.

Index Terms—Child Temperament; Parental Knowledge; Parenting Practices; Kerala; India; Goodness of Fit

I. INTRODUCTION

Temperament refers to relatively early-emerging individual differences in emotional and behavioural reactivity, activity, attention, and self-regulation. Thomas and Chess's work described variation across dimensions such as activity, adaptability, intensity, mood, and persistence, while Rothbart's framework emphasized the interaction between reactivity and regulation (Rothbart, 2007; Thomas & Chess, 1977). Temperament is not, by itself, a measure of good or bad behaviour. A child's high activity, strong emotional reactions, or slow adjustment to unfamiliar situations may be interpreted differently depending on the expectations and responses of adults around the child.

Parenting-style research commonly distinguishes authoritative practices, which combine warmth with clear expectations; authoritarian practices, which emphasize obedience and control; and permissive practices, which involve warmth with less consistent limit-setting (Baumrind, 1967; Maccoby & Martin, 1983). These broad categories are useful but should not obscure the cultural and situational context in which parenting occurs. Parenting is also influenced by child characteristics, parental resources, and contextual stressors, rather than being solely a one-way influence on children (Belsky, 1984).

The goodness-of-fit perspective proposes that adjustment depends partly on the match between a child's temperamental characteristics and the demands and supports provided by the environment (Chess & Thomas, 1991). For example, a child who takes time to adapt may benefit from gradual introductions and predictable routines. If the same behaviour is interpreted as deliberate defiance, adult responses may become unnecessarily punitive. The knowledge a parent has about temperament is conceptually distinct

from the parenting practices that parent reports using: knowledge may inform responses, but stress, habits, and contextual constraints may prevent knowledge from translating into practice.

Research has documented reciprocal associations between child temperament and parenting, and reviews emphasize the importance of considering temperament within the parenting context (Kiff et al., 2011; Shewark et al., 2021). However, the supplied project report identifies a local evidence gap: relatively little research in Kerala has directly measured parental knowledge of temperament alongside reported parenting practices and parent-rated child temperament. The present study therefore examined these constructs among caregivers of children aged 6–12 years in Kerala. Given the exploratory design and sample size, the analyses are best understood as preliminary rather than as definitive tests of causal or developmental processes.

II. OBJECTIVES AND HYPOTHESES

The study aimed to (a) assess parental knowledge of child temperament; (b) describe self-reported authoritative, authoritarian, and permissive parenting practices; (c) examine associations between knowledge and parenting practices; (d) assess knowledge-score differences by parental education, family type, and child gender; and (e) explore whether child temperament, particularly emotionality, moderated the association between knowledge and authoritarian parenting.

The project proposed that knowledge would be positively associated with authoritative parenting and negatively associated with authoritarian and permissive parenting; that knowledge would predict parenting practices after adjustment for education and family type; and that child emotionality would moderate the knowledge–authoritarian parenting association. It also explored whether a high-emotionality/high-authoritarian profile was associated with lower knowledge scores.

III. METHOD

Design and participants

A quantitative, cross-sectional, descriptive-correlational design was used. Participants were parents or primary caregivers of children aged 6–12

years residing in Kerala who could complete the survey in English. The survey link was distributed online through the researcher’s personal, community, and social networks, with snowball referrals. Sixty responses were received between 22 August and 15 September 2026. One response was excluded because it did not contain sufficient data to compute the study variables, leaving 59 cases for analysis.

The sample comprised 47 mothers (79.7%), 10 fathers (16.9%), and two other primary caregivers (3.4%). Forty-one respondents (69.5%) reported living in nuclear families and 18 (30.5%) in joint or extended families. Education was reported as higher secondary or below by six respondents (10.2%), undergraduate degree by 17 (28.8%), and postgraduate degree or higher by 34 (57.6%); two did not report education. Children were aged 6–8 years ($n = 16$), 9–10 years ($n = 19$), and 11–12 years ($n = 24$). The reported child gender was girl for 29 cases, boy for 28, and prefer not to say for two.

Measures

All measures were brief, researcher-developed instruments. The Temperament Knowledge Scale contained four scenario-based multiple-choice items concerning activity, adaptability, emotional intensity, and persistence. Each correct answer received one point and incorrect answers zero, producing a total score from 0 to 4.

The Parenting Practices Scale contained six items: two each for authoritative, authoritarian, and permissive practices. Responses ranged from 1 (Never) to 4 (Always); each style score was the mean of its two items. The Child Temperament Scale contained four parent-rated items concerning activity, emotionality, sociability, and shyness, each rated from 1 (Not at all typical) to 4 (Very typical). The item concepts were informed by existing temperament and parenting frameworks, but the short forms used in this study were not established as validated instruments in the report.

Procedure and ethics-related reporting

The questionnaire was administered through Google Forms and included a consent/eligibility item. The project report states that participation was voluntary and responses were described as confidential and anonymous. It also records that the form captured email addresses for a subset of submissions despite the

anonymity assurance; the email column was removed from the working dataset and was not used in analysis. This procedural issue should be transparently addressed before journal submission. The supplied report does not provide an ethics committee approval number or a clear statement of formal ethics review; the authors should verify the applicable institutional requirements and report the accurate status. No approval or exemption should be claimed unless documented.

Statistical analysis

Descriptive statistics summarized participant characteristics and study variables. Pearson correlations examined associations among knowledge, parenting, and temperament scores. Inter-item Pearson correlations were reported for the two-item parenting subscales. Multiple linear regression examined each parenting-style score as an outcome with knowledge, education, and family type as predictors. Moderated regression tested the knowledge-by-emotionality interaction for authoritarian parenting using mean-centred predictors. Welch's independent-samples *t*-tests and one-way ANOVA were used for group comparisons. Analyses were reported as conducted in the project report; the raw dataset was not supplied with the report for independent recalculation.

IV. RESULTS

Descriptive findings

The mean knowledge score was 3.02 (*SD* = 0.97; range 0–4). Forty-eight respondents (81.4%) answered three or four knowledge items correctly, while five (8.5%) answered zero or one correctly. Mean parenting scores were 3.34 (*SD* = 0.65) for authoritative, 2.00 (*SD* = 0.68) for authoritarian, and 1.84 (*SD* = 0.59) for permissive practices. For parent-rated temperament, the means were 1.98 (*SD* = 0.86) for activity, 1.92 (*SD* = 0.70) for emotionality, 2.98 (*SD* = 0.84) for sociability, and 2.29 (*SD* = 0.79) for shyness.

Associations between knowledge and parenting

Knowledge was not significantly correlated with authoritative parenting ($r = .07$, $p = .583$) or permissive parenting ($r = .02$, $p = .882$). The association with authoritarian parenting was negative and did not meet the conventional .05 significance threshold ($r = -.25$,

$p = .060$). Thus, the hypothesized pattern was not statistically confirmed. The direction of the authoritarian association was consistent with the expectation that greater temperament knowledge might accompany lower authoritarian practices, but the data do not establish that relationship.

Regression and moderation analyses

After including education and family type, knowledge did not significantly predict authoritative parenting ($b = .03$, $p = .765$), authoritarian parenting ($b = -.13$, $p = .176$), or permissive parenting ($b = .02$, $p = .784$). The respective model R^2 values were .041, .117, and .018; none of the three models was statistically significant (reported overall p values .525, .085, and .805). In the moderation analysis, the knowledge-by-emotionality interaction was not significant ($b = -.12$, $SE = .12$, $t = -1.05$, $p = .299$; model $R^2 = .099$). The project report also indicates that exploratory interactions using activity, sociability, and shyness were non-significant.

Temperament-group and demographic comparisons

Respondents whose children were rated above the sample median for emotionality had a lower mean knowledge score ($M = 2.20$, $SD = 1.48$, $n = 10$) than the remaining respondents ($M = 3.18$, $SD = 0.75$, $n = 49$); the Welch test was not statistically significant ($t(10.9) = -2.05$, $p = .067$). A more restrictive high-emotionality/high-authoritarian group included only five cases and had a mean knowledge score of 1.80, compared with 3.13 in the remaining sample; this difference was also non-significant ($t(4.7) = -1.65$, $p = .172$). These small groups make the comparisons imprecise and exploratory.

Knowledge differed across parental education groups, $F(2, 54) = 3.89$, $p = .027$. Mean scores were 2.00 ($SD = 1.41$) for higher-secondary education or below ($n = 6$), 3.06 ($SD = 0.83$) for undergraduate education ($n = 17$), and 3.15 ($SD = 0.89$) for postgraduate education or higher ($n = 34$). The report did not provide post-hoc comparisons, so the significant omnibus test does not establish which specific pairs of education groups differed. Knowledge scores did not differ by family type: nuclear families $M = 3.02$ ($n = 41$), joint/extended families $M = 3.00$ ($n = 18$), $t(33.7) = 0.09$, $p = .930$. Respondents reporting on girls had higher knowledge scores ($M = 3.31$, $SD = 0.81$, $n = 29$) than those reporting on boys ($M = 2.71$, $SD = 1.08$, $n = 28$), $t(50.3) = -2.35$, $p = .023$.

V. DISCUSSION

Three findings merit attention. First, the sample's mean knowledge score was relatively high on the four-item measure, although the brevity and researcher-developed nature of the measure limit the conclusions that can be drawn about broader parental knowledge. Second, parental education was associated with knowledge scores. This finding is compatible with the possibility that formal education provides greater exposure to developmental information, but the study cannot establish the mechanism or whether the association generalizes beyond this sample. The absence of post-hoc tests also means the specific education-group contrasts should not be overstated.

Third, knowledge showed a negative association with authoritarian parenting, but this association and the adjusted regression coefficient were not statistically significant. The moderation hypothesis was also unsupported by the present data. These results should not be reframed as proof that a relationship exists but the study was simply underpowered. A small sample may reduce power, but non-significant findings remain inconclusive and may reflect small effects, measurement limitations, sampling variation, or no meaningful association. Larger studies with reliable measures are needed to distinguish these possibilities. The observed child-gender difference in knowledge scores is exploratory. The design cannot show whether it reflects differences in the child's behaviour, the responding caregiver, reporting patterns, or other variables. It should not be interpreted as a general difference in parents' understanding of girls and boys. A future study could measure caregiver gender, the number of caregivers involved, and the context in which parents encounter or discuss children's behaviour, and could use interviews to understand the finding.

The goodness-of-fit framework remains a useful theoretical lens for the question, but this study did not directly measure fit using a validated dyadic measure. The high-emotionality/high-authoritarian subgroup was very small, and temperament was measured with single items. Consequently, the results do not provide a definitive test of goodness of fit. Future work should operationalize fit in advance, use validated multi-item measures, and recruit a sample sized for interaction analyses.

VI. LIMITATIONS

- The convenience and snowball sample was small and cannot represent middle-class families in Kerala as a whole.
- The sample was predominantly mothers and highly educated respondents, limiting demographic balance and generalizability.
- The knowledge scale had four items, parenting subscales had two items each, and each temperament dimension was measured with a single item; validity and measurement precision are therefore limited.
- All key variables were reported by the same respondent, creating potential social-desirability and common-method bias.
- The cross-sectional design cannot establish temporal order or causation.
- The exploratory subgroup used to represent a possible temperament-parenting mismatch contained only five respondents.
- The report notes that email addresses were inadvertently collected for some responses despite an anonymity statement. This must be handled transparently in any publication, with institutional guidance sought as appropriate.
- The supplied report does not document an ethics approval or exemption identifier. This information must be verified rather than inferred.

VII. IMPLICATIONS AND FUTURE RESEARCH

The education-related finding suggests that accessible, developmentally informed resources may be worth evaluating for parents with different educational backgrounds. However, the present study did not test an intervention, so it cannot show that psychoeducation improves parenting. A stronger follow-up study could use validated temperament and parenting instruments, recruit a larger and more diverse sample across districts and socioeconomic groups, pre-register hypotheses, and report effect sizes with confidence intervals. It could also examine whether knowledge predicts observed or longitudinal parenting responses, and whether any intervention changes parental interpretation of child behaviour.

VIII. CONCLUSION

In this exploratory sample of 59 caregivers in Kerala, parental education was associated with scores on a brief temperament-knowledge measure, and knowledge scores differed by the reported gender of the child. The hypothesized associations between knowledge and parenting practices, including moderation by child emotionality, were not statistically confirmed. The negative association between knowledge and authoritarian parenting may warrant further study, but should be treated as inconclusive. The contribution of this study is preliminary evidence from a Kerala sample and a direct focus on parental knowledge as distinct from parenting behaviour. Replication with a larger sample, validated instruments, transparent ethics reporting, and a stronger sampling strategy is needed.

IX. DECLARATIONS TO COMPLETE BEFORE SUBMISSION

- Ethics approval / exemption: Insert the exact committee's name, approval or exemption status, and reference number only after verification.
- Informed consent: Confirm the wording and procedure actually used in the survey.
- Data availability: State whether de-identified data can be shared, subject to participant consent and institutional policy.
- Funding: State the accurate funding status.
- Conflict of interest: State the accurate disclosure.
- Author contributions: Confirm author eligibility and contributions with the supervisor and institution.
- Institutional publication permission: The source report's undertaking says publication or conference presentation requires written approval from the project guide and programme director. Obtain the required written approval before submission.
- Data verification: Recheck all statistics from the original de-identified dataset before submission, including denominators, coding, missing-data handling, post-hoc education comparisons, and confidence intervals.

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