RESEARCH PAPER

Linking Parental Mental Health and Child Psychological Outcomes During COVID-19 in Kerala: A CB-SEM Approach

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Abstract:
Due to the Covid-19 pandemic and lockdowns in Kerala, India in 2021 kids had to deal with school closures, less social interaction and family stress. All these things put a lot of pressure on their well-being. We wanted to know how parents' mental health, their attitude towards parenting, family details and child psychological issues are connected. So, we did a survey with 340 parents and their children aged 5 to 15 years. We used a method called Covariance-Based Structural Equation Modelling (CB-SEM) with Smart PLS software to analyse the data. The data included 12 types of measurements (using scales and categories). 3 Types of variables (Depression, Anxiety and sleep disorder). These showed the symptoms of health problems in children as reported by parents. In this study we found four areas: Parental Mental Health, Child Information, Parents Attitude Toward Child and Child Mental Health. These came from checked and validated models. We looked at how parents' mental health affects their kids. Lockdowns and Covid-19 impacted kids mental health. Parents attitude, towards children also plays a role. Child Mental Health problems were noted, Parental Mental Health was analysed, Parents Attitude Toward Child was studied, Child Information was evaluated. The connection between parents and kids is really important. Mental distress and child psychological problems are related in a big way. For example, when parents are really stressed their kids are more likely to have issues. This relationship is very strong. The numbers show that when parents are stressed it affects their kids a lot (the estimate is 1.287 the standard error is 0.231 and it is very significant). Also, when parents are too harsh it affects their kids more (the estimate is 3.021 the standard error is 0.276 and it is very significant). Parental distress also affects how parents treat their kids. When parents are stressed, they are more likely to have a parenting attitude (the estimate is 0.228 the standard error is 0.043 and it is very significant). This means that when parents are stressed it can make them treat their kids badly which can lead to the kid's developing depression, anxiety and sleep disorders. Mental distress and parenting practices have a big impact on children's mental health. Family structure is not as important as mental health and parenting practices. These findings show that parents need to take care of their health so they can take care of their kids. Parental mental health and parenting practices are really important, for children's health.

Keywords: Children Mental Health, Parental Mental Health, CB-SEM, Covariance-Based SEM, Smart-PLS, Kerala, India
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1. Introduction

One of the biggest disruptions to children's development and wellbeing in recent decades was brought on by the COVID-19 epidemic. Children worldwide were subjected to long-term school closures, social isolation from classmates, disruption of regular routines, and changes in home dynamics in addition to the direct health hazards of infection (Singh et al., 2020; Jiao et al., 2020). Many households in Kerala, one of India's most populous states with a heavy reliance on migrant labor and an educational sector that was essentially shut down for over a year, have been further burdened by the second wave that struck in 2021. As a result, children were more likely to experience psychological issues such as depression, anxiety, irritability, and insomnia (Ramachandran et al., 2026; Yeasmin et al., 2020).

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Research has demonstrated that the impact of the pandemic on children's mental health was mostly dependent on the quality of the family environment rather than just the virus itself. Some of the proximal factors affecting children's psychological adjustment during the COVID-19 pandemic include parenting style, parental well-being, and financial status (Goodman et al., 2011; Cluver et al., 2020). Parents who experience financial hardship, boredom, or psychological distress during extended quarantine periods are less able to give their children loving care and are more likely to take harsh and punitive actions (Conger et al., 2010; Yeasmin et al., 2020).

The aforementioned links have already been examined using sophisticated statistical modeling techniques. In particular, covariance-based structural equation

modeling (CB-SEM) enables the analysis of relationships between several latent variables while accounting for measurement errors in data (Kline, 2016; Hair et al., 2010). CB-SEM as it is implemented in SmartPLS is used in this study. It is very helpful for latent connection estimate and confirmatory analysis. The suggested four-factor model's complete psychometric features are presented in the companion measurement study, whereas the current paper concentrates on its substantive relationships. Few research have employed a latent variable approach to evaluate the joint impact of parents' psychological state, parenting style, and family structure on children's welfare, despite the fact that cross-sectional investigations of the relationship between parenting and child mental health in Kerala have already been carried out. Using data from 383 parents in Kerala, the current study attempts to close this gap by applying CB-SEM. In particular, it aims to: (a) describe the sample and primary study variables; (b) provide a brief overview of the measurement model; (c) present latent covariance estimates among the four constructs; (d) interpret these associations within the framework of the family stress model; and (e) discuss implications for Keralan policy and intervention.

2. Literature Review

2.1 Impact of COVID-19 on Child Mental Health

The COVID-19 pandemic's effects on children's mental health have been widely reported on a global scale. Since the start of the pandemic, children and adolescents' symptoms of anxiety, sadness, difficulty sleeping, and post-traumatic stress disorder have significantly increased, according to narrative reviews and meta-analyses (Singh et al., 2020; Jiao et al., 2020; Brooks et al., 2020). Approximately one in four children worldwide showed clinically significant depressive symptoms during the pandemic, and one in five experienced anxiety symptoms, according to a thorough meta-analysis by Racine et al. (2021). Compared to pre-pandemic projections, these rates were noticeably higher.

Due to cramped living quarters, restricted access to mental health treatments, and the abrupt loss of school-based social and academic structure, lockdowns in South Asia produced very difficult circumstances for children. According to Yeasmin et al. (2020), more than 25.7% of children in Bangladesh experienced moderate to severe psychological issues during lockdown, with significantly higher scores for anxiety, depression, and sleep disturbances. Similar results were reported in the South Indian context in the study by Ramachandran et al. (2026), which was carried out in Kerala. It identified parental and family-level factors as key predictors and reported a high co-occurrence of child depression, anxiety, and sleep issues during the second wave. According to this convergence of data, children in Kerala are a vulnerable population that requires assessment and assistance based on evidence.

2.2 Parental Mental Health and the Family Stress Model

The Family Stress Model (FSM), created by Conger et al. (2010) to explain how parental psychological distress and parenting behaviour modify the influence of economic strain on childhood outcomes, serves as the theoretical foundation for this investigation. According to the Family Stress Model, financial strain causes parents to experience more psychological discomfort, which impairs parenting abilities and causes behavioural and emotional issues in kids. The financial strain of job loss and business closures, along with the psychological strain of extended house confinement and health worry, made the FSM all the more relevant during COVID-19. Yeasmin et al. (2020) found a positive correlation between parental boredom, financial stress, and COVID-19 experience and mental health issues in children in Bangladesh. In a similar vein, Ramachandran et al. (2026) found that indicators of parental psychological stress, such as financial stress and boredom, were linked to problems with children's psychological well-being in Kerala.

2.3 Parenting Behaviour as a Mediating Mechanism

The closest family-level factor influencing a child's psychological adjustment is their parenting style. Regardless of the child's economic or cultural background, harsh parenting techniques that include physical punishment, threats, yelling, and other coercive methods are linked to higher levels of anxiety, depression, and sleep disorders in children (Goodman et al., 2011; Conger et al., 2010; Cluver et al., 2020). Additionally, COVID-19 lockdowns have exacerbated parenting practices since anxious parents are faced with more difficult circumstances at home and have fewer options for effectively handling them (Cluver et al., 2020).

According to Yeasmin et al. (2020), children in Bangladesh who received severe punishment during lockdown showed greater levels of anxiety, sadness, and sleep disorders, indicating a correlation between harsh parent behavior and mental health issues in children. Consistent results from the Kerala study (Ramachandran et al., 2026) support the idea that parental practices play a crucial role in the generational transmission of stress associated to pandemics. The FSM offers the theoretical foundation for addressing parenting behavior as a mediator: parenting quality is negatively impacted by psychological and economic pressures, and children's risk of psychological problems is most directly increased by poor parenting, not just by external stressors.

2.4 Family Composition and Child Outcomes

The relationships between parental stress, parenting, and child outcomes are thought to be influenced by family structural features. Research indicates that during COVID-19, family size and composition had small and inconsistent relationships with child outcomes. According to Yeasmin et al. (2020) and Ramachandran et al. (2026), there was a slight but negative correlation between the number of children aged 5 to 15 and the number of children attending school and mental health issues in children. This is likely due to the social

buffering effect of sibling companionship. The present study includes Child Information as a latent construct to formally examine these structural associations within the CB-SEM framework.

3. Methodology

3.1 Study Design and Setting

In order to collect data during the second wave of the COVID-19 pandemic in Kerala, India, this study used a cross-sectional survey method. Kerala was chosen as the study environment due to the severity of its second-wave lockdown in 2021, its high literacy rate, and its advanced health system. During a time of severe mobility constraints, the state was accessible to online data collection due to its high social media connectivity and smartphone usage. Cross-comparisons are conceivable because the research design and methods employed in this study were taken from earlier research conducted in Kerala (Ramachandran et al., 2026) and Bangladesh (Yeasmin et al., 2020).

3.2 Participants and Sampling

The target group was made up of people who fulfilled the following criteria: (i) acknowledged that they were the primary caregivers of at least one child between the ages of five and fifteen; (ii) resided in Kerala during the lockdowns connected to the pandemic's second wave; and (iii) could answer the survey in either Malayalam or English. A Google Form link that was accessible on WhatsApp groups and other social media platforms was used to distribute the poll. Before beginning the questionnaire, participants gave their agreement to the study; they were not required to disclose their identities. After removing duplicates and incomplete data, 383 subjects were evaluated.

3.3 Data Collection Method

A pre-made, self-administrative questionnaire was used to collect data for the study using Google Forms. Four distinct constructs made up this questionnaire: (1) parents' psychological and socioeconomic background; (2) family structure; (3) parent-child behavior during quarantine; and (4) children's signs of mental problems. Two types of items were included in the questionnaire: (1) ordinal-scale items, which included Likert-type scales and ordered categorical questions covering parental education, residence, income, COVID-19 exposure, financial stress, boredom, and parenting behaviors (a total of 12 indicators); and (2) continuous composite scores, which were derived from sets of parent-rated symptom items covering child depression, anxiety, and sleep disorder (three continuous indicators). To make straight coding for CB-SEM analysis easier, all multiple-choice questions employed predetermined response alternatives.

3.4 Measures

3.4.1 Parental Mental Health (Latent Construct)

During the COVID-19 shutdown, parental mental health was conceptualized as a latent term that captured the parent's psychological and contextual circumstances. Educational level (A1_edu, 6 categories), place of residence (A2_residence, 3 categories), average family income (A3_income, 5 categories), COVID-19 exposure among family members or neighbors (B1_covid_exposure, 3 categories), perceived financial stress during the pandemic (C1_financial_stress, 4-point scale), and boredom at home during quarantine (D1_bored, 4-point scale). Responses are classified as ordered integers for each of the six ordinal indicators.

3.4.2 Child Information (Latent Construct)

Two ordinal count indicators were used to operationalize child information: the number of children in the family between the ages of 5 and 15 (B1_num_children_5_15, range 1–5) and the number of children enrolled in school (B2_num_school_children, range 0–5). Despite being expressed as integer counts, both variables are handled as ordinal indicators in the CB-SEM measurement paradigm and have a restricted number of unique values (5 and 6, respectively).

3.4.3 Parents' Attitude Toward Child (Latent Construct)

During the home quarantine period, the latent concept of harsh or unpleasant parenting behaviors was operationalized as the parents' attitude toward the child. A 4-point frequency scale was used to measure four ordinal indicators: children fighting more frequently than usual (C1_children_fight), parents threatening the child (C2_threat_child), parents yelling at the child (C3_scream_child), and parents slapping or hitting the child (C4_slapped_child). More frequent use of unpleasant parenting techniques is indicated by higher scores.

3.4.4 Child Mental Health (Latent Construct)

Three continuous composite domain scores—the Depression Score, the Anxiety Score, and the Sleep Disorder Score—ranging from 4 to 16 were used to measure the mental health of children. All other indicators in the model are ordinal, and these are the only three continuous variables in the dataset. Parent-rated symptom questions encompassing emotional and behavioral indications of poor mood, concern and somatic anxiety, and sleep-related issues, respectively, were used to calculate each composite score. The model's sole really continuous measurement results are represented by the three scores.

3.5 Analytic Strategy

Covariance-Based Structural Equation Modeling (CB-SEM), which is implemented in SmartPLS, was used to examine structural relationships among the four latent constructs. CB-SEM was chosen over PLS-SEM because the main objective of the study is confirmatory theory testing, which evaluates whether the pattern of associations among latent constructs is consistent with the family stress model, for which CB-SEM is the methodologically appropriate choice (Hair et al., 2010; Kline, 2016; MacCallum et al., 1996). The reproduced covariance matrix serves as the basis for CB-SEM estimates, and common global fit indices such as chi-square, RMSEA, CFI, TLI, GFI, and SRMR are used to assess model fit.

Reflective measurement models were defined for the four latent constructs. Another well-known restriction

that could result in inflated results for the chi-square value and RMSEA estimate is the application of maximum likelihood estimation, which assumes that the observed items are normally distributed and continuous variables because the majority of the items have an ordinal scale (12 out of 15). The limitations specifically mention this. It is emphasized that the family stress model is consistent with the interpretation of the latent covariance and correlation coefficients obtained by CB-SEM modeling in terms of construct relationships. The SmartPLS CB-SEM result was the source of all parameter estimations, standard errors, and p-values.

4. Results

4.1 Sample Characteristics

The sample comprised 340 participants, with a slight majority residing in urban areas (51.8%), followed by rural (37.6%) and semi-urban settings (10.6%). In terms of parental education, most respondents had attained at least secondary education, with the largest group being graduates (30.0%), followed by secondary (25.9%) and higher secondary (24.7%). A smaller proportion reported primary education (12.9%), postgraduate qualifications (4.7%), or other forms of education (1.8%). Regarding COVID-19 exposure, the majority of families reported no exposure among relatives or neighbours (78.8%), while 13.5% experienced some exposure and 7.7% reported extensive exposure. On average, households had about 1.84 children aged 5–15 years (SD = 1.02), with approximately 1.39 school-going children (SD = 1.15). The mean scores for children's mental health indicators were relatively similar across domains: depression (M = 9.76, SD = 4.08), anxiety (M = 9.89, SD = 4.15), and sleep disorders (M = 9.68, SD = 4.12). In addition, families reported moderate levels of financial stress (M = 2.08, SD = 0.98) and slightly higher levels of boredom at home (M = 2.63, SD = 1.05). Overall, the data suggest a predominantly urban and moderately educated sample, with limited COVID-19 exposure and moderate levels of psychosocial stress and child mental health concerns.

Table 1: Sample Characteristics and Key Variable Descriptives (N = 340)

Characteristic / Variable	Category / Measure	n (%) / M (SD)	Range
Place of Residence	Urban	176 (51.8%)	—
	Rural	128 (37.6%)	—
	Semi-Urban	36 (10.6%)	—
Parental Education Level	Primary	44 (12.9%)	—
	Secondary	88 (25.9%)	—
	Higher Secondary	84 (24.7%)	—
	Graduate	102 (30.0%)	—
	Postgraduate	16 (4.7%)	—
	Other	6 (1.8%)	—
COVID-19 Exposure (relatives/neighbours)	No exposure	268 (78.8%)	—
	Some exposure	46 (13.5%)	—
	Extensive exposure	26 (7.7%)	—
No. of children aged 5–15	Ordinal count	1.84 (1.02)	1–5
No. of school-going children	Ordinal count	1.39 (1.15)	0–5
Child Depression Score	Continuous	9.76 (4.08)	4–16
Child Anxiety Score	Continuous	9.89 (4.15)	4–16
Child Sleep Disorder Score	Continuous	9.68 (4.12)	4–16
Financial Stress	Ordinal (4-point)	2.08 (0.98)	1–4
Boredom at Home	Ordinal (4-point)	2.63 (1.05)	1–4

4.2 Measurement Model Summary

The table 2 presents the reliability and convergent validity of the four constructs measured in the study based on a sample of 340 participants. Overall, the results indicate that most constructs demonstrate strong internal consistency and acceptable validity. Child Mental Health show's excellent reliability, with a very high Cronbach's α (0.972) and composite reliability (CR = 0.974). The factor loadings are consistently strong, and the average variance extracted (AVE = 0.905) indicates a high level of convergent validity. Similarly, Child Information exhibits high reliability (α = 0.943; CR = 0.951), with a good range of factor loadings and a strong AVE (0.908), suggesting that the items effectively capture the underlying construct. Parents' Attitude Toward Child demonstrates acceptable to good reliability (α = 0.876; CR = 0.882). Although slightly lower than the previous constructs, the values remain within recommended thresholds, and the AVE (0.661) confirms adequate convergent validity. In contrast, Parental Mental Health shows comparatively weaker psychometric properties. While its composite reliability (CR = 0.739) is acceptable, the Cronbach's α (0.621) is relatively low, and the AVE (0.418) falls below the commonly recommended threshold of 0.50. This suggests that the construct may have limited internal consistency and weaker convergent validity, indicating a need for cautious interpretation or potential refinement of measurement items.

Table 2: Reliability and Validity Measures of Constructs (N = 340)

Construct	Key Loadings Range	Cronbach's α	CR (ρc)	AVE
Child Mental Health	0.912(uniform)	0.972	0.974	0.905
Child Information	0.801–1.062	0.943	0.951	0.908
Parents' Attitude Toward Child	0.784–0.851	0.876	0.882	0.661
Parental Mental Health	−0.105–0.942	0.621	0.739	0.418

Note. CR = composite reliability (ρc); AVE = average variance extracted. Full factor loading tables and discriminant validity matrices are reported in the companion measurement paper. All indicators are ordinal-scale except Depression_Score, Anxiety_Score, and Sleep_Disorder_Score (continuous).

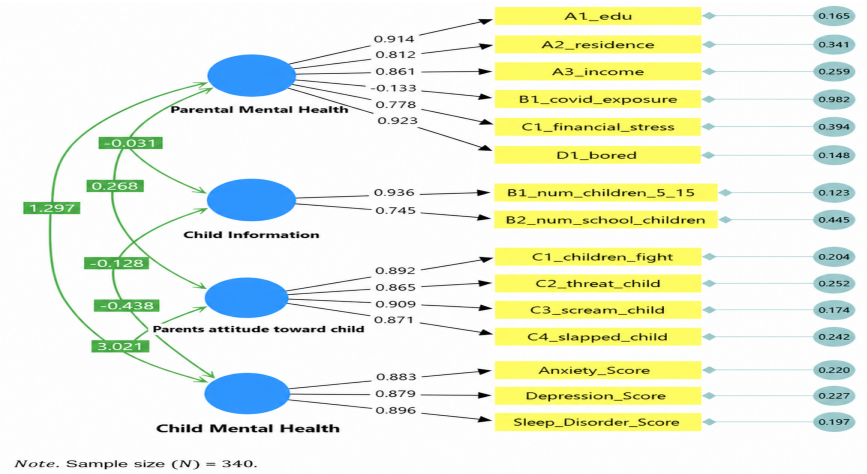
4.3 Structural Associations Among Constructs

The results indicate several significant relationships between parental factors and child outcomes. Parental mental health shows a strong positive association with child mental health (β = 1.297, p < .001), suggesting that better parental mental well-being is linked to improved mental health in children. Even more prominently, parents' attitude has a very strong positive influence on child mental health (β = 3.021, p < .001), making it the most impactful predictor in the model. Additionally, parents' attitude is positively associated with parental mental health (β = 0.268, p < .001), indicating interconnected family dynamics. In contrast, child mental health is negatively associated with child information (β = −0.438, p = .037), and parents' attitude also shows a modest negative relationship with child information (β = −0.128, p = .026). These findings suggest that as certain informational factors increase, there may be a slight decline in child mental health or related outcomes. Finally, parental mental health does not show a significant relationship with child information (β = −0.031, p = .171), indicating no meaningful association in this case.

Relationship	Parameter Estimate	Standard Error	p-value	Strength
Parental Mental Health ↔ Child Mental Health	1.297	0.236	< .001	Strong +
Parents' Attitude ↔ Child Mental Health	3.021	0.273	< .001	Very strong +
Parents' Attitude ↔ Parental Mental Health	0.268	0.050	< .001	Significant +
Child Mental Health ↔ Child Information	−0.438	0.219	.037	Modest −
Parents' Attitude ↔ Child Information	−0.128	0.057	.026	Modest −
Parental Mental Health ↔ Child Information	−0.031	0.022	.171	Non-sig.

Note. Sample size (*N*) = 340.

Note. All estimates are unstandardised covariance parameters from the CB-SEM output. SE = standard error. Parents' Attitude = Parents' Attitude Toward Child.



Note. Sample size (*N*) = 340.

Figure 1: CB-SEM Path Diagram Showing Parameter Estimates and Latent Construct Relationships (SmartPLS Output)

The structural equation model (N = 340) highlights the important roles of parental factors in shaping child mental health. The findings show that parents' attitude toward the child has the strongest positive influence on child mental health (β = 3.021), making it the most critical predictor in the model. Parental mental health also has a strong positive effect on child mental health (β = 1.297), indicating that better psychological well-being of parents contributes significantly to better outcomes in children. Additionally, parents' attitude is positively associated with parental mental health (β = 0.268), suggesting an interconnected family dynamic. In contrast, child information has negative effects, showing a moderate negative relationship with parents' attitude (β = −0.438) and a modest negative impact on child mental health (β = −0.128). The relationship between parental mental health and child information is negligible (β = −0.031), indicating no meaningful influence. Overall, the model emphasizes that while parental attitude and mental health strongly enhance child mental well-being, certain child-related informational factors may act as stressors, slightly reducing positive outcomes.

5. Discussion

5.1 Centrality of Parental Distress and Harsh Parenting

The key finding of this study is the strong and consistent positive relationship between parental psychological distress and harsh parenting behaviours, and children's mental health difficulties. Among all the structural associations examined, the covariance between Parents' Attitude Toward Child (measured using four ordinal indicators) and Child Mental Health (measured through three continuous composite scores) was the largest (estimate = 3.146). This highlights that the quality of parent child interactions particularly the prevalence of behaviours such as threats, shouting, and physical punishment during the lockdown emerges as the most influential family-level factor associated with children's psychological outcomes. This result aligns with extensive developmental psychology literature demonstrating that harsh parenting is strongly linked to both internalising and externalising problems in children (Goodman et al., 2011; Conger et al., 2010).

The results also reveal a strong positive association between Parental Mental Health and Child Mental Health (estimate = 1.349), indicating that parents' psychological experiences during the lockdown captured through ordinal indicators such as financial stress, boredom, education, residence, income, and COVID-19 exposure were significantly linked to the continuous mental health outcomes of their children. This finding is consistent with meta-analytic evidence identifying parental psychopathology as a key and persistent risk factor for child psychological difficulties across diverse contexts (Goodman et al., 2011; Racine et al., 2021).

5.2 Parenting as a Mediating Mechanism

The observed pattern of relationships is theoretically consistent with the Family Stress Model (FSM; Conger et al., 2010), which proposes a cascading process whereby economic hardship and psychological distress influence child maladjustment through disruptions in parenting. In the present analysis, Parental Mental Health is significantly associated with Parents' Attitude Toward Child (estimate = 0.242), and both constructs, in turn, show strong links with Child Mental Health. Although mediation was not formally tested, the findings are compatible with a pathway in which parental distress partly affects child outcomes through its influence on parenting behaviour. This interpretation is in line with prior evidence from Yeasmin et al. (2020) in Bangladesh and Ramachandran et al. (2026) in Kerala, while extending this work by offering a covariance-based structural equation modelling (CB-SEM) perspective on these relationships. Future studies should apply path models with bootstrapped indirect effects to more rigorously examine the proposed mediation.

5.3 The Modest Role of Family Composition

Child Information, measured through two ordinal indicators of family composition, exhibited weak and generally negative associations with both child mental health difficulties and harsh parenting, along with a non-significant relationship with parental distress. The slight tendency for households with more school-age children to report lower levels of child mental health difficulties may suggest a potential social buffering effect, where sibling interaction and shared activities during prolonged home confinement provide emotional support. However, these effects are modest in comparison to the stronger influences of parental distress and parenting behaviour, indicating that family structure functions as a more distal contextual factor within this model.

5.4 Theoretical Implications

The results offer additional empirical support for the relevance of the Family Stress Model (FSM) in a South Indian LMIC context during a public health crisis. The model's central proposition that economic and psychological stress influences child outcomes largely through its effect on parenting quality is supported by the Kerala CB-SEM findings. At the same time, the strong correlation between Parental Mental Health and Child Mental Health (0.863) raises important questions about the extent to which parents' and children's psychological states can be distinctly measured when relying on single-informant, cross-sectional reports. As noted in the companion measurement study, this high association may reflect genuine shared environmental influences, shared method variance, or a combination of both.

The use of covariance-based structural equation modelling (CB-SEM), rather than an exploratory PLS-SEM approach, is appropriate in this study because the

conceptual framework was specified a priori and the objective is to test whether the proposed four-factor structure and its relationships align with existing theory and empirical evidence. The model demonstrates mixed global fit: incremental fit indices are satisfactory (CFI = 0.949, TLI = 0.937), whereas the RMSEA is relatively high (0.093). This discrepancy likely reflects the use of maximum likelihood estimation with predominantly ordinal indicators, a condition known to inflate chi-square–based fit statistics and, consequently, RMSEA values (Kline, 2016; MacCallum et al., 1996).

5.5 Policy and Practice Implications for Kerala

The findings of this study carry important implications for mental health policy and child-focused interventions in Kerala. The strong links between parental distress, harsh parenting practices, and child psychological difficulties indicate that addressing parental well-being could produce broader, downstream benefits for children. In this context, strengthening social protection measures such as financial assistance, employment support, and food security initiatives during future lockdowns may help alleviate the economic pressures that contribute to parental distress, thereby reducing the likelihood of harsh parenting and subsequent child mental health problems.

5.6 Limitations

Several limitations should be acknowledged. First, the cross-sectional design limits the ability to draw causal inferences about the relationships among the variables. Second, all data were obtained through parent self-reports, raising concerns about shared method variance, which may inflate correlations between constructs, as well as social desirability bias that could lead to underreporting of harsh parenting behaviours. Third, maximum likelihood (ML) estimation was applied to a dataset in which most indicators (12 out of 15) were ordinal. Because ML assumes continuous and normally distributed data, its use in this context may inflate chi-square and RMSEA values. Alternative estimation methods, such as Weighted Least Squares Mean and Variance Adjusted (WLSMV) or Diagonally Weighted Least Squares (DWLS), would be more appropriate in future research. Fourth, the use of online convenience sampling introduces potential bias, particularly toward more educated, urban parents with access to digital technology. Fifth, formal mediation was not statistically tested, meaning that indirect effects are inferred from the conceptual framework rather than empirically confirmed. Finally, the analysis did not control for key child-level covariates, such as age and gender.

6. Conclusion

This study employed covariance-based structural equation modelling (CB-SEM) using Smart PLS to examine the structural relationships among parental mental health, family composition, parenting attitudes, and child psychological difficulties during the second wave of the COVID-19 pandemic in Kerala, India. The analysis was based on cross-sectional survey data from 340 parents and included 12 ordinal indicators along with three composite measures of child mental health. The findings revealed significant positive associations between parental psychological distress and child mental health difficulties, as well as between harsh parenting behaviours and children's outcomes. In contrast, family composition showed a relatively weak and largely negative influence. Overall, the pattern of relationships aligns with the family stress model, indicating a potential pathway from parental distress to compromised parenting and, subsequently, increased child mental health risks. These results underscore the importance of family-centred, two-generation interventions in safeguarding children's mental health during public health crises. Future research should adopt longitudinal designs, incorporate multiple informants, apply estimation methods suited for ordinal data, and formally test mediation effects to better establish causal mechanisms.

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