A-JMRHS

ASSOCIATION BETWEEN MATERNAL QUALITY OF LIFE AND NUTRITIONAL STATUS OF UNDER-FIVE CHILDREN IN A COASTAL COMMUNITY OF KOLLAM DISTRICT, KERALA: A CROSS-SECTIONAL STUDY

Dr. Vincy Nelson[1], Dr. Swathi Augustine[2*], Dr. Sabu Stephen[3], Mr. Sony Simon[4]

[1]Assistant Professor, Department of Community Medicine, ESIC Medical College & Hospital, Alwar, Rajasthan, India.

[2*]Associate Professor, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.

[3]Professor & HOD (Senior Administrative Grade), Department of General Medicine, ESIC Model Hospital, Ezhukone, Kollam, Kerala, India.

[4]Biostatistician, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.

Corresponding Author: Dr. Swathi Augustine
Associate Professor, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.

ABSTRACT

Background: Malnutrition among under five children continues to be a serious public health problem in the world and is a major contributing factor for childhood morbidity and mortality. Maternal factors such as education, socioeconomic status, nutritional status and quality of life are important determinants of health and nutritional outcomes of the children. There is limited evidence on association of maternal quality of life and nutritional status of under-five children in coastal communities of Kerala.

Aims & Objectives

1. To assess the quality of life of mothers of under-five children in Jonakapuram, a Coastal Community of Kollam District, Kerala.
2. To assess the nutritional status of under-five children.
3. To determine the association between maternal quality of life and nutritional status of under-five children.

Methodology: A community based cross sectional study was conducted among 141 mothers and their under five children residing in Jonakapuram, a Coastal Community of Kollam District, Kerala. Participants were selected using simple random sampling from the current Health Management Information System records. Data was collected using a pretested structured questionnaire including sociodemographic details, WHOQOL-BREF questionnaire and anthropometric assessment of children. Nutritional status was evaluated using WHO Growth Standards. The data were entered into Microsoft Excel and analyzed using appropriate statistical software. Chi-square test was used to find the association between maternal quality of life domains and nutritional status of children.

Results: Among the 141 mothers studied, 78.0% were aged 20–30 years and 51.1% had high-school education. Most mothers were homemakers (90.1%) and belonged to households with a monthly income below ₹5000 (62.4%). Moderate and severe stunting were observed among 21.3% and 12.1% of children, respectively. Moderate and severe underweight were observed among 22.7% and 9.9% of children, respectively. Most mothers had average scores in the physical (73.8%), psychological (63.8%), social relationship (63.1%), and environmental (61.7%) domains of WHOQOL-BREF. A statistically significant association was observed between the social relationship domain of maternal quality of life and children's nutritional status ($\chi^2 = 23.361$, $p = 0.025$). No significant association was found between physical, psychological, or environmental domains and nutritional status.

Conclusions: A considerable proportion of under-five children in the study area were affected by stunting and underweight. Maternal social relationship quality showed a significant association with the nutritional status of children. Strengthening maternal social support systems and improving maternal well-being may contribute to better child nutritional outcomes.

Keywords: Maternal Quality of Life, Child Nutrition, Under-Five Children, WHOQOL-BREF, Stunting, Underweight, Kerala, Community Medicine.

www.ajmrhs.com
eISSN: 2583-7761

Date of Received: 08-04-2026
Date Acceptance: 16-06-2026
Date of Publication: 24-06-2026
https://doi.org/10.65605/a-jmrhs.2026.v04.i02.pp1910-1916

INTRODUCTION

Nutrition is the central determinant of growth, development, health and survival throughout the life course. Proper nutrition in early childhood is essential for optimal physical growth, cognitive development, immune function, and long-term health. On the other hand, malnutrition still remains a major public health challenge and a major cause of morbidity and mortality among under-five children, especially in low- and middle-income countries.[1,2]] Malnutrition includes undernutrition, micronutrient deficiencies, overweight and obesity. Undernutrition in children is usually reflected as stunting (low height-for-age), wasting (low weight-for-height) and underweight (low weight-for-age). These conditions are associated with increased risk of infections, impaired cognitive development, poor educational achievement and lower economic productivity in later life. Current global estimates show that millions of children still suffer from childhood undernutrition, with a disproportionately large share of the burden in South Asia.[2,3]

Despite significant economic growth and progress in health indicators, India continues to grapple with the dual burden of malnutrition, that is, coexistence of undernutrition and the emergence of overweight and obesity. According to the National Family Health Survey-5 (NFHS-5), 35.5% of children under five years are stunted, 19.3% are wasted and 32.1% are underweight. Despite its better performance compared to many other Indian states, childhood undernutrition continues to be a major public health concern in Kerala which needs sustained interventions.[4]

The nutritional status of children is the result of a complex interaction of biological, socioeconomic, environmental and maternal factors. Maternal education, household income, birth spacing, infant feeding practices, health care utilization and maternal nutritional status have been repeatedly identified as important determinants of child nutrition. There is increasing evidence that maternal well-being and quality of life may also affect child health outcomes by influencing caregiving capacity, feeding practices, healthcare-seeking behaviour, and psychosocial support in the family.[5,6]

Maternal quality of life is a multidimensional concept including physical health, psychological well-being, social relationships and environmental conditions. Poor maternal quality of life has been linked to adverse child health outcomes, including poor nutrition, poor growth, and delayed development. However, data on the relationship between maternal quality of life and nutritional status of under-five children are scant and inconsistent, especially in the Indian context.[6,7]

Few studies have explored this relationship in coastal communities, although these populations face unique socioeconomic and environmental challenges. Exploring the association between maternal quality of life and child nutritional status could provide valuable information for informing holistic maternal and child health interventions. Hence the present study was carried out to assess the quality of life of mothers and to evaluate the nutritional status of under five children and to find out the association between these factors in Jonakapuram, a coastal community of Kollam district, Kerala.

Objectives

Primary Objective

To assess the association between maternal quality of life and nutritional status of under-five children in Jonakapuram, Kollam district.

Secondary Objectives

1. To assess the quality of life of mothers of under-five children.
2. To assess the nutritional status of under-five children.
3. To describe the sociodemographic profile of mothers and children in the study area.

MATERIALS & METHODS

This Community-based cross-sectional study was conducted in Jonakapuram, a coastal area located in Kollam district, Kerala. The study Population includes mothers of under-five children and their respective children residing in the study area.

Inclusion Criteria

1. Mothers residing in the study area with at least one child below five years of age.
2. Mothers willing to participate and provide informed consent.

Exclusion Criteria

1. Mothers who were severely ill or had cognitive/psychiatric conditions that made it difficult for them to provide reliable information in the interview.
2. Children with congenital anomalies, chronic illnesses or physical disabilities known to have a significant impact on growth and nutritional status

Sample Size

The sample size was calculated based on the formula (n = 4pq/d^2) for estimation of a single proportion at 95% confidence level. The prevalence (p) of undernutrition among under-five children was taken

as 32% from the previous study done by Mittal et al. among children aged 1–5 years.[8] Thus q was taken as 68 % (100-p). The minimum sample size was calculated to be 136 with an absolute precision (d) of 8%. Considering 5% non-response rate, the final sample size was estimated as 143. In the study, 141 mother-child pairs were included.

Sampling Technique

Simple random sampling was employed using the existing Health Management Information System records.

Study Tool/Instrument

A pretested structured questionnaire comprising:

1. Sociodemographic characteristics.
2. WHOQOL-BREF questionnaire for assessment of maternal quality of life.
3. Anthropometric assessment and health status of under-five children.

Data Collection Procedure

Eligible mother-child pairs were selected through simple random sampling. Sociodemographic information was collected through direct interviews. Maternal quality of life was assessed using the WHOQOL-BREF instrument, which evaluates four domains: physical health, psychological health, social relationships, and environmental health. Anthropometric measurements including height and weight were obtained from children and interpreted using WHO Growth Standards.

Study Variables

The independent variables included maternal sociodemographic and reproductive characteristics such as age, educational status, occupation, monthly family income, age at marriage, age at first childbirth, and birth spacing. Maternal quality of life was also assessed as an independent variable using the WHOQOL-BREF instrument, encompassing the domains of physical health, psychological well-being, social relationships, and environmental health. The dependent variable was the nutritional status of under-five children, which was assessed using anthropometric indicators based on WHO Growth Standards. Nutritional status was evaluated using height-for-age (to assess stunting) and weight-for-age (to assess underweight) measurements.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed. Descriptive statistics were expressed as frequencies and percentages. Chi-square test was used to determine associations between maternal quality of life domains and nutritional status of children. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 141 mother–child pairs participated in the study, yielding a response rate of 100%.

Sociodemographic Characteristics of Mothers

Majority of the mothers (78.0%) were in the age group of 20–30 years and 22.0% above 30 years of age. Most of the mothers had completed high school education (51.1%) followed by degree level education (21.3%) and higher secondary education (20.6%). 2.1% of mothers were illiterate. Majority of them were homemakers (90.1%) and 62.4% belonged to the household with monthly income less than ₹5000. The majority of the mothers were married between 18 and 24 years old (87.9%) and 79.4% of them had their first delivery between 18 and 24 years old. More than half of the respondents had two children (54.6%) and 35.5% had one child. Birth spacing of less than one year was reported by 36.9% of mothers

Characteristics of Children

Among the children, 84.4% belonged to the 1–5-year age group and 15.6% were infants below one year. Male children constituted 56.0% of the study population.

Nutritional Status of Children

Based on WHO Growth Standards, the prevalence of moderate stunting (height-for-age Z-score between −3 and −2 SD) was 21.3% and the prevalence of severe stunting (height-for-age Z-score <−3 SD) was 12.1%. Likewise, weight-for-age measurements showed that 22.7% of children were moderately underweight and 9.9% were severely underweight. In terms of morbidity status, 21.3% of children had pneumonia and 12.1% of children had diarrheal illness during the reference period.

Maternal Quality of Life

According to the WHOQOL-BREF questionnaire, most of the mothers scored average quality of life scores in all domains. In the physical health domain, 73.8% were in the average range and 16.3% were in the poor range. Psychologically, 63.8% were average and 15.6% poor. Similarly, the mothers' average scores were 63.1% and 61.7% in the social relationship and environmental domains respectively.

Association between Maternal Quality of Life and Nutritional Status of Children

Chi-square analysis was done to assess the association between maternal quality-of-life domains and nutritional status of children. The social relationship domain of maternal quality of life was statistically significantly associated with children's height-for-age status (χ^2 23.361, df 12, p 0.025). Children whose mothers reported higher social relationship scores had better nutritional outcomes than children whose mothers reported lower social relationship scores. There were no statistically significant association between the physical, psychological or environmental domains of maternal quality of life and the nutritional status of children.

Table 1: Sociodemographic Characteristics of Mothers (N = 141)

Variable	Frequency (n)	Percentage (%)
Age 20–30 years	110	78
Age >30 years	31	22
High school education	72	51.1
Homemakers	127	90.1
Monthly income < ₹5000	88	62.4

Table 2: Nutritional Status of Children (N = 141)

Indicator	Frequency (n)	Percentage (%)
Severe stunting	17	12.1
Moderate stunting	30	21.3
Severe underweight	14	9.9
Moderate underweight	32	22.7

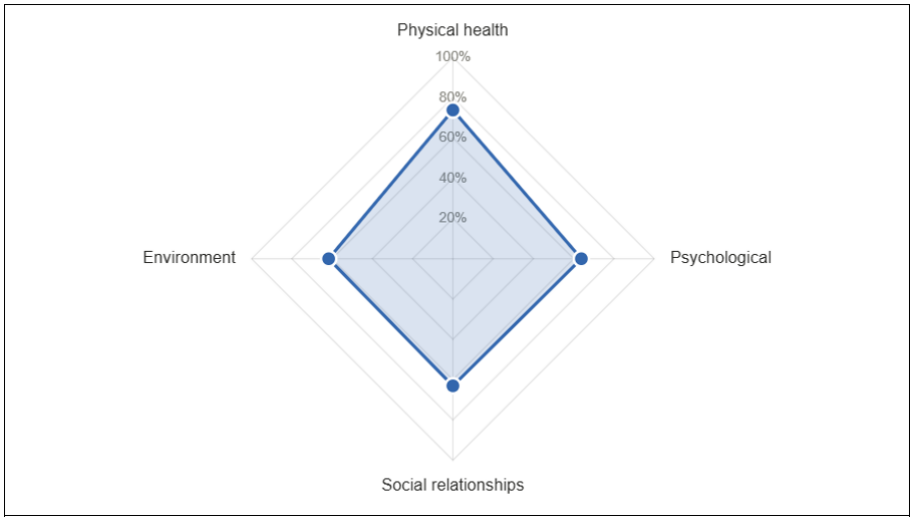

Figure 1: Radar Chart Showing WHOQOL-BREF Quality of Life Domain Scores for Mothers

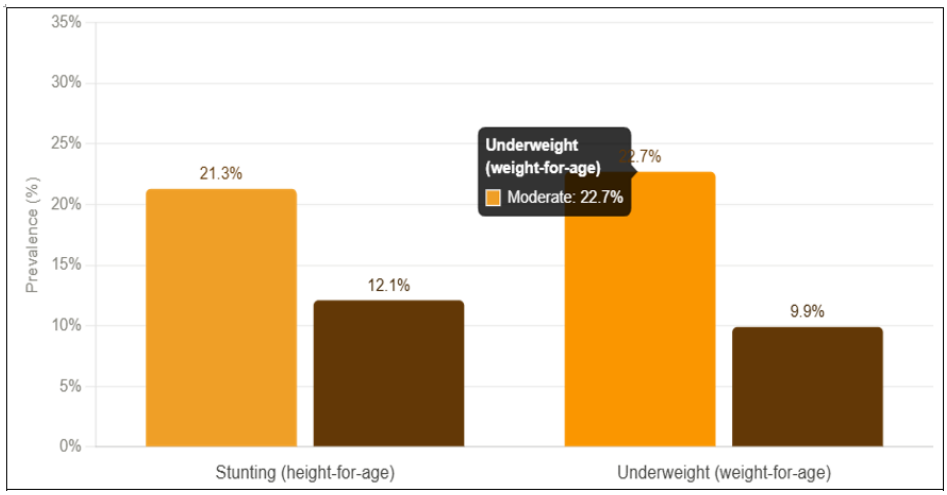

Figure 2: Nutritional Status of Children Based On WHO Growth Standards

DISCUSSION

The objective of the present study was to assess the association between maternal quality of life and nutritional status of under-five children in Jonakapuram, Kollam district using WHOQOL-BREF tool and WHO Growth Standards.

The overall stunting prevalence of 33.4% found in this study indicates a persistent public health burden

in the study area. This estimate is similar to national estimates from India, where the National Family Health Survey (NFHS-5) reported a stunting prevalence of 36% among under-five children in 2019-21, with children from the poorest households showing up to 46%[4]. Mummadi et al reported similar figures in a community-based study from South India with stunting prevalence of 35.95%, wasting of 17.69% and underweight of 31.7% among under-five children and significant associations between these outcomes and socioeconomic factors including household income, sanitation and maternal education.[9] The slightly lower prevalence of stunting in this study than some regional reports may be attributed to differences in study setting, local health care accessibility and socioeconomic conditions of study population.

The level of underweight children observed in this study is similar to that observed in other developing countries. In Bangladesh, maternal education, maternal BMI, father's occupation and birth interval were significantly associated with stunting and underweight in both urban and rural areas, and children of more educated mothers were consistently less likely to be malnourished.[10] Similar sociodemographic patterns were found in the present study, where mothers of undernourished children had lower maternal education attainment and unfavorable household characteristics. These results are consistent with the widely accepted framework linking maternal human capital to child nutritional outcomes. A national representative study in Bangladesh also found that maternal nutritional status is an important determinant of child malnutrition, with stunting and wasting being prevented to some extent by ensuring that mothers are not underweight, and adequate birth intervals allowing more time for child care and breastfeeding, which in turn improves child nutritional outcomes.[11]

The present study found a significant association between maternal social relationship quality and child nutritional status, supporting a growing body of evidence that maternal social support has a meaningful role in shaping childcare practices and health-seeking behavior. Findings from a study among children aged 0-24 months in Uganda showed maternal social support was positively and significantly associated with infant and young child feeding practices which supports the view that women with stronger social networks are more likely to adopt healthier feeding behaviours for their children.[12] Similarly, a cohort study across Malawi and South Africa found that maternal social support was among the capabilities most consistently associated with child feeding practices, complete immunisation status and psychosocial stimulation, underscoring its role as a critical enabler of optimal child health and growth.[13] Furthermore, a multi-country analysis using Young Lives cohort data from Vietnam, Ethiopia, India, and Peru found positive associations between maternal social support and child height-for-age z-scores, suggesting that interventions to strengthen maternal social networks may result in measurable improvements in child growth outcomes in low- and middle-income settings.[14] Mothers with stronger social support networks may have better access to nutritional information, emotional encouragement, and community resources that can positively influence the child's feeding and care practices.

The nutritional status of the mother is a well-documented determinant of child nutritional outcomes. Rahman et al. observed that maternal characteristics such as BMI and birth interval significantly modified the association between birth weight and malnutrition outcomes (stunting, wasting and underweight) in children under five years in Bangladesh, after controlling for socioeconomic confounders.[15] A similar pattern was observed in the present study where maternal undernutrition was a significant correlate of child growth faltering stressing the intergenerational nature of malnutrition in this community.

The results of this study with respect to the effect of maternal sociodemographic factors on nutritional outcomes of children are consistent with the literature with respect to maternal education, age at marriage and social status. In a study of data from the Pune Maternal Nutrition Study, the strongest predictors of child anthropometry were maternal education, socioeconomic status and maternal weight. Children born to adolescent mothers were at elevated risk of undernutrition due to poor maternal nutritional status, lower educational attainment and limited access to health services.[16] Similarly, a study in India reported maternal education, maternal BMI, place of residence and household wealth quintile as strong predictors of child stunting and underweight and recommended targeted policies to improve female educational attainment and tackling socioeconomic inequalities as key strategies for reducing childhood malnutrition.[17] These results underscore the importance of tackling upstream social determinants, especially maternal education and economic empowerment, together with direct nutrition interventions, to bring about sustainable improvements in child nutritional status.

The findings of the present study together add to the evidence base on the association between maternal quality of life, especially in the social relationship domain, and child nutritional outcomes in a community setting in southern Kerala. The findings highlight the need for integrated maternal and child health programmes that address not only the biological and dietary dimensions of malnutrition,

but also the psychosocial and socioeconomic determinants that shape maternal caregiving capacity.

Strengths and Limitations

The present study has several strengths. The community-based approach of the study, which included mother–child pairs, provided findings that are more reflective of the real-world setting of childcare and nutrition, as opposed to a clinical or hospital based population. The use of the standardized WHOQOL-BREF instrument to assess maternal quality of life across all four domains improves the reliability and comparability of the findings with other studies, as it is a validated and internationally recognized measure. Nutritional assessment based on WHO Growth Standards provided an objective and globally accepted reference framework for classifying stunting and underweight among under-five children. Moreover, the use of random sampling methodology reduced the selection bias and enhanced the representativeness of the study sample in the target population of Jonakapuram, Kollam district.

Despite these strengths, a number of limitations need to be acknowledged when interpreting the findings. The cross-sectional study design is appropriate for estimating prevalence and detecting associations but not for establishing causal relationships between maternal quality of life and child nutritional status. There was a concern of social desirability bias as some mothers were reluctant to disclose certain social problems faced by their families which may have led to underreporting in the social relationship domain of the WHOQOL-BREF. Standardization attempts notwithstanding, interviewer bias in administering the questionnaire may also have been present. Moreover, the inter-observer variability of anthropometric measurements could not be completely excluded, which could have resulted in a certain degree of measurement error in the nutritional assessment of children. Finally, maternal nutrional status was not evaluated in the present study, which is an important limitation considering the evidence on the association of maternal undernutrition and the adverse nutritional outcomes in the children and future studies should take this variable into account for a more complete evaluation.

CONCLUSION

The study found a high burden of undernutrition among under-five children of the coastal community of Jonakapuram. Most of the mothers scored average scores on all the domains of WHOQOL-BREF. The social relationship domain of maternal quality of life was statistically significantly associated with child nutritional status, but the physical, psychological or environmental domains were not significantly associated. The findings provide evidence that maternal social support and interpersonal relationships may affect child nutrition outcomes. Addressing social determinants of child nutrition, such as the social well-being of the mother, educational opportunities for women and community-based support systems, should be an integral part of comprehensive child nutrition interventions.

Conflict of Interest

The authors declare no conflict of interest.

Funding

No external funding was received for this study.

Acknowledgement

The authors express their sincere gratitude to the mothers and children who participated in the study. The authors also acknowledge the support provided by the Department of Community Medicine and local health authorities of Jonakapuram for facilitating data collection.

Authors' Contributions

All authors contributed to the conception and design of the study, data collection, analysis, interpretation of results, manuscript drafting, and final approval of the manuscript. All authors reviewed and approved the final version of the manuscript.

REFERENCES

1. United Nations Children's Fund, World Health Organization, World Bank Group. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates: key findings of the 2023 edition [Internet]. Geneva: World Health Organization; 2023 [cited 2026 Jun 13]. Available from: https://www.who.int/publications/i/item/9789240073791
2. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R, Uauy R; Maternal and Child Nutrition Study Group. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet. 2013 Aug 3;382(9890):427-451. doi:10.1016/S0140-6736(13)60937-X.
3. United Nations. 2024 Child Nutrition Report [Internet]. New York: United Nations; 2024 [cited 2026 Jun 13]. Available from: https://www.un-ilibrary.org/content/books/9789211065275
4. International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), 2019–21 [Internet]. Mumbai: IIPS; 2021 [cited 2026 Jun 13]. Available from: https://www.nfhsiips.in/nfhsuser/nfhs5.php

5. Katoch OR. Determinants of malnutrition among children: a systematic review. Nutrition. 2022 Apr;96:111565. doi:10.1016/j.nut.2021.111565.
6. Mudiyanselage SB, Wanni Arachchige Dona S, Angeles MR, et al. The impact of maternal health on child's health outcomes during the first five years of child's life in countries with health systems similar to Australia: a systematic review. PLoS One. 2024;19(3):e0295295. doi:10.1371/journal.pone.0295295.
7. Verma A, Nguyen T, Purty A, et al. Changing maternal and child nutrition practices through integrating social and behavior change interventions in community-based self-help and support groups: literature review from Bangladesh, India, and Vietnam. Front Nutr. 2024;11:1464822. doi:10.3389/fnut.2024.1464822.
8. Mittal A, Singh J, Ahluwalia SK. Effect of maternal factors on nutritional status of 1-5-year-old children in urban slum population. Indian J Community Med. 2007 Oct;32(4):264-267. doi:10.4103/0970-0218.37691.
9. Mummadi MK, Geddam JJB, Ramanujam K, et al. Role of maternal body composition and associated factors in the nutritional status of under-five children of South India: findings from the Comprehensive National Nutritional and Health Survey. Cureus. 2025 Oct;17(10):e95396. doi:10.7759/cureus.95396.
10. Nahar MZ, Zahangir MS. The role of parental education and occupation on undernutrition among children under five in Bangladesh: a rural-urban comparison. PLoS One. 2024;19(8):e0307257. doi:10.1371/journal.pone.0307257.
11. Rafi RR, Pal B. Child nutritional status in Bangladesh: prevalence, determinants, and policy implications. Reprod Female Child Health. 2025;4(4):e70045. doi:10.1002/rfc2.70045.
12. Ickes SB, Wu M, Mandel MP, et al. Associations between social support, psychological well-being, decision making, empowerment, infant and young child feeding, and nutritional status in Ugandan children ages 0 to 24 months. Matern Child Nutr. 2018 Jan;14(1):e12483. doi:10.1111/mcn.12483.
13. Smith TJ, Mbale E, Zieff MR, et al. Associations between maternal capabilities for care and nurturing care behaviours among mother-child dyads in Malawi and South Africa. PLoS Glob Public Health. 2025;5(9):e0005017. doi:10.1371/journal.pgph.0005017.
14. Lee HY, Song IH, Kawachi I. Maternal and child social support and food availability in relation to child growth in four low- and middle-income countries. Sci Rep. 2022;12:5910. doi:10.1038/s41598-022-09924-z.
15. Rahman MS, Howlader T, Masud MS, Rahman ML. Association of low birth weight with malnutrition in children under five years in Bangladesh: do mother's education, socio-economic status, and birth interval matter? PLoS One. 2016 Jun 13;11(6):e0157814. doi:10.1371/journal.pone.0157814.
16. Chari AV, Heath R, Maertens A, Fatima F. The causal effect of maternal age at marriage on child wellbeing: evidence from India. J Dev Econ. 2017 Jul;127:42-55. doi:10.1016/j.jdeveco.2017.02.002.
17. Paul P, Chouhan P, Zaveri A. Impact of child marriage on nutritional status and anaemia of children under 5 years of age: empirical evidence from India. Public Health. 2019 Dec;177:95-101. doi:10.1016/j.puhe.2019.07.019.

How to cite this article: Dr. Vincy Nelson, Dr. Swathi Augustine, Dr. Sabu Stephen, Mr. Sony Simon, ASSOCIATION BETWEEN MATERNAL QUALITY OF LIFE AND NUTRITIONAL STATUS OF UNDER-FIVE CHILDREN IN A COASTAL COMMUNITY OF KOLLAM DISTRICT, KERALA: A CROSS-SECTIONAL STUDY, Asian J. Med. Res. Health Sci., 2026; 4 (2):1910-1916
Source of Support: Nil, Conflicts of Interest: None declared.