International Journal of Social Science And Human Research

ISSN(print): 2644-0679, ISSN(online): 2644-0695

Volume 04 Issue 09 September 2021

DOI: 10.47191/ijsshr/v4-i9-06, Impact factor-5.586

Page No: 2308-2316

The Roots of Malnutrition and Its Possible Alleviation within the Family

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ABSTRACT: The problem of undernutrition is a threat to the development of a child. The role of family is critical in chalking the developmental trajectory of an undernourished child. This study explores whether the interpersonal relations among parents and home environment predicts the undernutrition in children. Findings reveal that interpersonal relationships, socioeconomic status, and partner violence significantly predicted child's nutrition (R^2=.403). The undernourished children were less closely attached to their mothers and their mothers were significantly less satisfied in their marriages when compared to the healthy children. The study has implications for designing and implementation of nutrition-sensitive intervention programs for malnutrition.

KEYWORDS: Malnutrition, domestic violence, Interpersonal relationship between parents, mother-child relationship and child development

INTRODUCTION

Child development refers to the quantitative changes in a child concerning the height, weight, or size of vocabulary as well as the qualitative changes taking place in the form of change in kind, structure, or organization within the growing child.[1] Child does vary in the pace at which they attain the various developmental milestones in the process of development. However, we also have some theoretical consensus regarding when these milestones are approximately attained if a child develops at a normal pace. The developmental psychologists also refer to it as "The ordered emergence of interdependent skills of sensory-motor, cognitive-language, and social-emotional functioning".[2] The problem of undernutrition is a threat to a child's development, especially in developing countries. Over 20 million children suffer from severe acute undernutrition which is life-threatening and requires immediate medical attention.[3] It has been identified as a contributor to the death of about five million children under the age of five years annually in developing countries.[4] Undernutrition causes poor brain growth in children thereby, rendering the surviving ones cognitively lagging behind their counterparts throughout life. (UNICEF, 2012) The problem of undernutrition has been identified as a global concern among sustainable development goals.[6]

Since the brain growth spurt begins around the third month of gestation and continues at least until the fourth year of life, this period is critical from the neurological functioning point of view. The duration of 24-42 weeks of gestation is particularly vulnerable owing to the rapid trajectory of several neurologic processes including synapse formation and myelination.[7] Malnutrition hinders the child's attention, executive functions, visuospatial functions, comprehension, learning, and memory[8] along with hearing, language, and concept development.[9]

PSYCHOSOCIAL DETERMINANTS OF CHILD NUTRITION AND DEVELOPMENT

The Home Environment

A child's development is not an independent process in itself. It is contingent upon several determining factors. Socio-economic status is one of the key determinants of a child's development. Reportedly, its multifarious influences extend up to the later health and educational attainments of a child. [10] Poverty and undernutrition associate in a vicious circularity thereby challenging the development of a nation as a whole.[11] Malnutrition is sometimes also referred to as "the disease of the poor".[12] However, it is not poverty that is a threat in itself, rather the associated factors like poor sanitation and hygiene, poor maternal education, stress and depression, and inadequate stimulation to the child.[11]

Violence in any form is also an inhibitor of child development. Studies report that the children facing disturbing events in their early childhood tend to be high on post-traumatic stress disorder, aggression, attention problems, and depression. The negative effects of these events escalate when the family cohesion is disrupted or the mental health of the primary caregivers has been affected adversely.[13] Studies suggest that brain development gets affected due to the prolonged activation of the stress response when a young child experiences severe, frequent, or prolonged adversity without adult support.[5] The effects of childhood maltreatment are being studied as a stress-sensitive biomarker under stress-biology research. The biological alterations caused by maltreatment have been associated with an elevated risk of heart disease, metabolic diseases, immune diseases, stroke, and even dementia.[14] Therefore in the present study, we look forward to contributing to the existing literature by asking whether the home environment also predicts the prevalence of undernutrition in children. It was hypothesized that:

H1: The child's socioeconomic status would significantly predict the undernutrition in children.

H2: The domestic violence witnessed at home by the child would significantly predict the undernutrition in children.

The Influence of Mother

The role of a mother is very crucial to the development of a child. Studies report that her nutritional conditions in adolescence as well as during the time of conception predict the undernutrition in the child.[15] The role of the mother is important not only from the physical point of view but also concerning the social-emotional development of a child. Neuroscience and developmental researchers report that a child's earliest experiences and relationships set the stage for the regulation of emotions as well as the formation of relations in the later stages of life. Therefore, the classroom behavior and learning of the child are affected in the long run.[16] The mother's mental health is also a key concern for a child's healthy development. Studies report that the children born to prenatally depressed mothers were growth-retarded as compared to their normal counterparts.[17] Mothers of undernourished children were reported to be more depressed, low on self-esteem, and providing less stimulating environments to their children in some studies.[12] The mother's role is therefore crucial and determining for the child's physical and mental development. Home is the place where the foundations of a child's life are laid when the brain is most sensitive and responsive through positive stimulations and experiences.[18]

Marital satisfaction is a key determinant of the mother's mental health as well as her relational bonds with the child. Marital discord reportedly has an unhealthy influence over a child's development by weakening the quality of the parent-child relationship.[19] Studies report that alcohol abuse in the father further increases the possibility of developmental delays in the child by about four times.[9] Exploring the impact of postnatal depression and the associated adversity on the mother-child relationships, researchers have discovered that the depressed mothers were less sensitively attuned to their infants, were less affirming, and more negating to the infant experiences. This further led to poor cognitive outcomes in their children later.[20] The marital state is a variable relatively less explored in the literature as a predictor of childhood undernutrition. Studies report that maternal marital status had an unfavorable influence on the child's eating habits and physical health. The prevalence of obesity was reported at 47% among families where the parents were in discord with each other.[21] However, there is a dearth of studies in the literature exploring whether marital discord leads to the prevalence of undernutrition in children as well. Therefore, in the present study, we ask whether the marital dissatisfaction in the mother predicted the nutritional status of the child as well as the mother-child bond. We hypothesized that:

H3: Marital dissatisfaction of the mother would significantly predict the undernutrition in children.

H4: Marital dissatisfaction of the mother would significantly predict the quality of the mother-child relationship.

The theoretical background for the present study is drawn from the ecological systems theory proposed by Bronfenbrenner and Morris (2007).[22] The theory acknowledges the influence of the conditions at the child's home over the developmental trajectory of the child. They propose that the child's growth and development take place in interaction with the physical, social and cultural contexts surrounding the child. Similarly, the ecobiodevelopmental framework (EBD) proposed by Shonkoff et. al., (2012)[23] elaborates on the interactions between physiological adaptations and disruptions, social and physical environments, and health outcomes. The EBD model explains the interplay of the sociological as well as the biological factors in predicting developmental outcomes. They propose a link between the psychological impacts of the early life experiences of the child in predicting the health outcomes later. The present study proposes to further test these propositions in the context of undernourished children in low-middle income countries. In this study, we attempt to analyze the interplay of the home conditions of the child concerning the socio-economic factors, the interpersonal relationships between parents and children in predicting the nutritional development of the child.

The present study

Nutrition is not just a pre-requisite for a child to be alive rather it has an equally important contribution in the overall growth and development lifelong. Hence, it is not just child mortality that is a national concern rather the quality and efficiency of the surviving individuals is equally important owing to a nation's development. The present study attempts to test how the dynamics within the relationship of married partners affect the relationship patterns between the mother and child and predicts the nutritional status of the child. We ask if the psychological influences of the home conditions of the child were also predictors of his/her nutritional status. The hypotheses are tested statistically through a model comprising of a child's socioeconomic status, mother's marital dissatisfaction, and the reported violence at home predicting the child's nutritional status. Marital dissatisfaction is measured

through the Golombok Rusk inventory of the marital state (GRIMS).[24] We further ask if the healthy and the undernourished children differed in their relational bonds with their mothers. The statistical model comprising of the type of family, as well as marital dissatisfaction, predicts the mother-child relationship in the present study. The mother-child relationship in the present study was assessed using the child-parent relationship scale developed by R.C. Pianta (2010).[25] The relationship between the mother and the child was studied on three dimensions namely- conflicts, closeness, and dependence. The study also analyzed how the groups of healthy and undernourished children differed on these dimensions of the mother-child association.

METHODOLOGY

Research design and sample

The study applied the correlational design. The state of Madhya Pradesh, located in central India is rated high among the states bearing the most burden of child undernutrition. Notably, the Sagar district of Madhya Pradesh falls in high prevalence category as it shares 41.00% of the total cases of stunting reported within the state [26]. The present study was approved by the departmental ethics committee, of the institution. Among the 11 sub-divisions of the Sagar district, the Sagar sub-division, as well as the Khurai sub-division, were randomly selected through the lottery method. Since, the study involved visiting the mother and the child at their respective homes to collect their responses, we employed the snowball sampling technique for the recruitment of research participants. The snowball sampling technique was adopted in the present study since the problem of undernutrition is perceived as a poor reflection on the family reputation and treated with stigma and shame. The study also included variables like marital dissatisfaction and family violence which are not talked about openly in the conservative social scenario in India. Therefore, the study required that the participants be approached through known contacts and were willing to respond openly on personal trust in the approaching person at their respective homes. In the present study altogether 148 mothers and children below five years of age were approached through personal contacts of the participating women. Based on the inclusion/exclusion criteria 47 participants were dropped from the study. The final sample of 101 mothers and children below five years of age was thus achieved. The study included both undernourished (N=35) and healthy children (N=66) as the research participants. Here, interpersonal relationships between parents, place of residence, type of family, and occurrences of domestic violence are employed to predict the mother-child relationship as well as malnutrition. While the scores on the mother-child relationship scale followed the normal trend (Skewness=-1.66, Kurtosis=-0.93), the scores on the marital dissatisfaction scale (Skewness=-3.16, Kurtosis=2.24) had to be subjected to square-root transformation to achieve normalcy.

The mean age of mothers who participated in the study was 29.68 years who were married for seven years on average. The children included in the study were predominantly the firstborns or born second among the siblings (88.12 percent). About 60% of the homes visited practiced the extended family structures (60 out of 101) as compared to the nuclear types of families (41 out of 101). Among the research participants, 33 mothers (32.67%) hailed from the rural areas of Sagar whereas 68 (67.33%) were from the urban localities. They were predominantly the adherents of the Hindu religion (76.24 percent). The mothers who participated in the study were educated at the high-school level or above (81.19 percent) and 31 mothers reported that they were involved in some employment outside their homes too. Among the families studied, 61 fathers were employed in a regular service kind of occupation, 22 were businessmen and 18 of them were daily-waged laborers. The research participants reported violence of any form at home (31.68%) whereas others reported no physical violence by the partner (68.32%).

Inclusion Criteria

The Study included children below the age of three years as the research participants. We also included singletons, twins, healthy (MUAC>115mm), malnourished (MUAC<115mm) as well as children born low in birth weight (<2.5Kg).

Exclusion criteria

We excluded children/mothers from the final sample on the following grounds- the child/mother was out of station during the visit (16), children were sleepy/uncooperative during the study (11), the mothers refused to participate in the study (09), children had other physical/mental handicaps (08), and the ones raised by a single parent (03).

MEASURES

Anthropometric Measures

Child underweight as directed by the WHO was taken as the measure for undernourishment. Children with weight-for-age <-2 standard deviations below the WHO median for children aged under 5-years were classified as undernourished.[1].

Golombok Rust Inventory of Marital State (GRIMS)

The scale was developed in the English language by John Rust et.al.[24] in 2010. The use of the scale has been previously tested and validated on the ethnic group inclusive of Indian couples by other researchers.[27] In the present study, the self-translated version of GRIMS into the Hindi language was employed to measure the level of marital satisfaction among the mothers. The process of translation and back translation was performed by three independent researchers with a doctoral degree and the items were finally worded based on their feedbacks. The reliability of the newly translated scale was computed again for the present study (28 items,

α=.86). The final scale consists of 28-items relating to the mother's married life which were both positively and negatively worded. She was asked to rate her responses on a Likert type 5 point scale coded as 0 for strongly disagree and 4 for strongly agree. The total of negatively scored items was subtracted from the total of positively scored items followed by the addition of a constant 42 as reported in the manual for the scoring criteria. Thereby the obtained raw scores when high indicate a higher level of dissatisfaction in the marriage and vice-versa.

Child-Parent Relationship Scale

The scale was originally developed in the English language by Robert C. Pianta in 2011 [25]. The scale has been used by other Indian researchers to study the quality of the relationship between the mother and child among the Indian population.[28] The items of the scale consist of sentences referring to the mother-child interaction practices and commonly practiced parenting strategies across the globe. In the present study, the self-translated version of the scale into the Hindi language was employed to measure the depth of the relationship between the child and mother. The process of translation and back translation was performed by three independent researchers with a doctoral degree and the items were finally worded based on their feedbacks. The reliability of the newly translated scale was computed again for the present study (30 items, α=.80). The final scale consists of 30-items worded positively. The relationship between the mother and child was scaled particularly in the three domains namely- conflicts, closeness, and dependence. The mother was asked to rate her responses on a Likert type five-point scale coded as 1 for definitely does not apply and 5 for definitely applies. The scores on each domain were calculated by adding the responses to the particular set of items as mentioned in the scoring manual. The total raw score was obtained by summating the scores obtained on each item on the 30 item scale.

Demographic Measures

The demographic measures of the study were the mother's age as reported by the mother based on her documents. The number of years of marriage indicative of the duration for which the parents of the child have been formally associated with each other was also noted. Father's occupation was categorized into three based on the nature of the income generated. They are servicemen drawing a fixed amount from the employer on the monthly basis. Businessmen are involved in big or small enterprises of their own and generating a varying income based on the purchase and sales in the particular season. The fathers also worked as laborers paid on the daily basis depending on whether they were employed for a particular day. The mother's education and occupation which is also an indicator of the socioeconomic status of the family were also accounted for in the present study. The act of violence by the partner was noted based on the verbal report of the mother regarding the same. We noted it as a 'yes' indicating the presence of domestic violence and 'no' as a denial of violence within the home.

RESULTS

Analysis of the group differences between healthy and the undernourished children

Table-1: Mean, standard deviations and ANOVA for mother-child relationship and other demographic variables

S.No	Domain Name	Mean Score		S.D.		F
		Undernourished	Healthy	Undernourished	Healthy	
Mother-Child Relationship						
1.	Conflicts	36.14	33.84	07.79	05.56	2.726
2.	Closeness	38.54	42.45	08.49	04.12	9.740**
3.	Dependence	15.09	14.08	03.67	03.48	1.855
4.	Scale total	104.80	105.71	14.07	11.02	0.129
Demographics						
1.	Marital Dissatisfaction	39.40	29.58	18.43	12.64	9.960**
2.	Marriage Years	07.63	07.47	03.98	03.55	0.042
3.	Mothers' age	27.49	30.85	04.15	06.47	7.740**

Notes: ** Significant at .01 level

Table 1 reports that the group differences among the healthy and the undernourished children on the domains of the mother-child relationship, marital satisfaction of the mother, and the demographic factors. The difference is significant in the dimension of closeness in the mother-child relationship $F(1,99)= 9.740$**,** $p<.01$, as well as discord experienced in the interpersonal relationship between parents $F(1,99)=9.960$**,** $p<.01$. A notable difference also exists in the mean age of the mothers in each category with the mothers of well-nourished children significantly aging approximately three years more than those of the undernourished children $F(1,99)=7.740$, $p<.01$. These factors may have implications concerning exploring the causal factors behind undernutrition in a developing child.

Table-2: Chi-square test for father's occupation, mother's education and mother's occupation with respect to the levels of nourishment in children

S.No	Domain Name		Number of cases		χ^2
			Undernourished	Healthy	
1.	Father's Occupation	Service	21	40	14.496**
		Businessman	02	20	
		Labourer	12	06	
2.	Mother's Education	Primary	12	07	10.239**
		High-school	13	23	
		College	10	36	
3.	Mother's Occupation	Working	07	24	2.879
		Home-makers	28	42	

** Significant at .01 level

In Table 2 the differences in the two groups were further explored on the demographic determinants of child undernutrition-father's occupation, mother's education, and occupation. The group differences among the healthy and the undernourished children were significant to the father's occupation ($\chi 2=14.496$**,** $p<.01$) and mother's education ($\chi 2=10.239$, $p<.01$). In analyzing the mother's occupational status, the two groups did not differ significantly ($\chi 2=2.879$, p=ns).

Intercorrelations among the Measured Variables

Table-3: Correlation between Mother-child relationship, marital satisfaction and demographics

Domains	Mother-Child Relationship			
	Conflicts	Closeness	Dependence	Overall Score
Marital Dissatisfaction	.096	-.354**	-.077	-.165
SES	.161	.327**	.190	.016
Child's nutritional status	.164	.299**	.136	.036
Family Type	.080	.221*	.077	.211*
Domestic Violence	.005	.250*	.164	.061

** Significant at .01 level, * Significant at .05 level

SES refers to the socioeconomic status of the child

In Table 3 we further explored the association of the mother-child relationship with the experiences of discord in interpersonal relationships, their residence, child's nourishment, family type, and the episodes of violence by the intimate partner experienced by the mother. We found a negative association between the closeness r=-.354, p<.05, and dependence dimension r=-.077, (p= n.s.) of mother-child relationship with the marital tensions experienced by the mother and a positive one with conflicts dimension r=.096, (p= n.s.). Family type indicative of whether the child hails from a nuclear or an extended type of family system correlated significantly with the overall assessment of mother-child relationship r=.211, p<.05. Although variables like- the type of residence r=.327, p<.05, level of nourishment r=.299, p<.05, and domestic violence r=.250, p<.05 correlate significantly on the closeness dimension of the mother-child relationship scale, the similar trend is not reported concerning the overall scale.

Regression Analysis Predicting Undernutrition and Mother-Child Relationship

Table-4: Summary of Stepwise Binary logistic regression analysis for SES, Domestic violence and marital satisfaction as predictors of undernutrition in children

Logistic Regression Analysis Table									
Predictors	Model-1			Model-2			Model-3		
	B	SE	Exp(B)	B	SE	Exp(B)	B	SE	Exp(B)
SES	-2.373	0.495	0.093	-1.851	0.542	0.157	-1.805	0.558	0.164
Domestic Violence				-1.245	0.548	0.288	-1.085	0.572	0.338
Marital Dissatisfaction							0.031	0.017	1.031
Summary Table									
$\chi 2$	26.485***			31.482***			34.934***		
Nagelkerke R^2	0.318			0.369			0.403		

Hosmer & Lemeshow test	0.000	0.553	11.379
Classification accuracy %	78.20	78.20	80.20

*** Significant at .001 level

SES refers to the socioeconomic status of the child

Table 4 reports the regression analysis to test the hypotheses (*H1, H2, and H3*) of the present study. To test if the socio-economic status of the child, as well as the exposure to violence at home, predicted the undernutrition in children, step-wise binary logistic regression analysis was employed. The model comprising socio-economic status, domestic violence, and interpersonal relationships between parents emerged as the significant predictor of child undernutrition by 40.30 percent ($\chi 2=34.934$, $p<.01$), ($R2=.403$).

Table-5: Summary of Step-wise regression analysis for marital satisfaction, family type and Domestic violence as predictors of mother-child relationship

Predictors	Model-1			Model-2		
	B	SE	β	B	SE	β
Family Type	-5.183	2.409	-0.211	-4.962	2.395	-0.202
Marital dissatisfaction				-1.325	0.845	-.153
Overall R^2	0.045			0.068		
Adjusted R^2	0.035			0.049		
R^2 Change	0.045*			0.023		
	4.631*			3.578*		

* Significant at .05 level

Table 5 reports the regression analysis to test the fourth hypothesis (*H4*). To analyze as to what degree the marital dissatisfaction in the mother predicted her relational bonds with the child we use the step-wise regression analysis. In the first step, family type referring to whether the child hails from a nuclear family or an extended family type significantly predicted the mother-child relationship ($F(1,100)=4.631$, $p<.01$). In the second step, the regression model comprising family type and marital discord emerged as a significant predictor of the mother-child relationship ($F(2,99)=3.578$, $p<.05$). The reported prediction is about 6.80 percent ($R^2=.068$).

DISCUSSION

The present study examined how the family's socioeconomic conditions and the interpersonal relations between parents played a role in predicting the growth and nutrition of children. We asked whether the exposure of violence at home, as well as the socioeconomic status of the family, played a role in predicting undernutrition in children. We further explored whether the healthy and undernourished children differed on the quality of the mother-child relationship. We asked whether the marital dissatisfaction reported by the mother predicted the prevalence of undernutrition in children. The study also analyzed how marital discord contributed to the negative impact on the quality of the bond between the mother and the child.

Impact of the Quality of Interpersonal Relationships Between Parents on Children

The findings reveal that in the present study the mothers of undernourished children reported being significantly more dissatisfied in their marriages as compared to the mother of healthy children. This state of hers is expected to further interfere with her normal psychological functioning consequently affecting the emotional quality of child care. Since, an undernourished child is apathetic, irritable, and less responsive,[18] thus it is very likely that the already distressed mother may be engaging in less play or less involved in activities contributing psychologically to the child as reflected clearly in the scores of the closeness dimension of the mother-child relationship scale. The negative association of the closeness and dependence dimensions of the child-parent relationship with the marital dissatisfaction scores also reveal similar underlying phenomena. Graves[29] in his study reported that the malnourished boys tended to be less vigorous in handling the toys and were significantly less attached to the mothers. On the contrary, the mothers of well-nourished boys were more responsive and attentive while being non-interfering in their playtime. Despite correlating significantly on the closeness dimension, the other two factors of conflicts and dependence between the mother and child appear to be weak predictors of their relationship. Thus, we may infer that undernutrition is heavily influenced by the familial factors of marital discord as well as exposure to violence as predicted strongly by the statistical model tested in the present study.

Psychosocial Factors of the Home Environment

The education of the mother and the employment of the father also emerge as the significant determinants of child undernutrition in our study. Both these domains have significance concerning the availability of resources for the needs of the growing child. These are also the sources of psychosocial stimulation to the child for his/her development. In the Indian family settings, the father figure is seen as the primary bread-earner even today. Therefore, his role has a determining effect on the nutritional status of the mother as well as the child. Maternal education is relevant and is equated with the awareness of the available resources, knowledge of nutrition, health, hygiene as well as child care practices. Her educational levels have been reported to correlate positively with the immunization status of the child. The study further concludes that children of mothers who were educated only up to the primary levels were twice susceptible to being underweight than those of mothers educated above the primary level. [30] Many intervention programs have attempted to educate the mother in the above dimensions and have seen significant improvements even in severely malnourished children as well as reported an increase in the availability of stimulation for the child.[31]

The malnourished children in our study belong to the rural belt where the mothers have also admitted to incidents of violence by their husbands and being dissatisfied in their marriages which may be a cause of stress and depression in their lives. Therefore, we infer that the violence and depression in mothers interplay with their association with the child and the child's physical and mental development. Similarly, studies also reveal that the children of depressed mothers are less likely to display secure attachment patterns with the mother and more likely to show an avoidant or disorganized manner of relating to her. Some researchers also reason that children of middle-class depressed mothers may be at an advantage concerning intact marriages and the opportunity to return to work after child-birth buffering them against the ill effects of depression.[32] However, studies have also established that the mothers of malnourished children despite having similar social support as compared to the healthy ones, were more depressed, had lower parenting self-esteem, and had high levels of economic stress.[33] Therefore, in our study, undernutrition may be reasoned to be associated collectively with the mother's marital state, mental health, and educational levels.

Implications of the Present Study

The present study investigated the role of parents and other factors associated with the home in scaffolding the development of a child. We found it to be contingent upon several factors relating to the home environment including parents' education, income, and interpersonal relationships at home. The government policies have been so far fixated around nutrition-specific intervention strategies involving supplementation of nutrients, breastfeeding promotion, and immunizations, etc. The present study uncovers the scope for nutrition-sensitive intervention programs to bridge the gap between a typically developing and a malnourished child so that the child is eventually a contributor towards the nation and the society. The study has focussed primarily on the family and home conditions of the child. Whereas, the child has several opportunities to grow and learn from their surrounding environment, school as well as social engagements with peers and relatives. These variables could be further explored in researches in the future.

Limitations of the Present Study

In this study, we could substantially identify the predictors of undernutrition in children; however, in terms of the mother-child relationship, we are yet to discover the substantial predictors. The possible limitation behind it could be the measures employed in the study. In the present study, we have not attempted to incorporate the measures related to the mothers' mental health or intelligence. Exploring these lines by including the mother's depression measures or her intelligence may further throw light on the mechanism by which the mother's association with the child intervenes in the process of development. Baker-Henningham, Powell & Grantham-McGregor[33] report other factors like maternal IQ, parenting self-esteem, and partner stress are significantly associated with the stimulation available to the child at home. Owing to the perplexity in addressing the vice of malnutrition, researchers also suggest neuropsychological assessment measures as an alternative approach to it. It is noteworthy that analyzing the damaging effects of various forms of undernutrition and its profound effects on the development of the growing child underscores that if dealt with effectively, the physical and cognitive capacities of a developing nation would experience liberation along with the heavy investments in education and community development yield rich dividends.[34]

Contributor statement: B.D., S.K., and W.P. performed the research. B.D. & S.K. designed the research study. W.P. performed the data entry and analysis. B.D. wrote the paper. S.K., and W.P. contributed in proofreading and reviewing the manuscript.

Data availability: The data set for the present study could be retrieved from https://osf.io/46ghs/

Ethical Consideration: The present study was approved by the departmental ethics committee, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar (India).

Funding: This research work was funded under Maulana Azad National Fellowship by the University Grants Commission, New Delhi, India.

Conflict of interest: The authors have no conflict of interest to disclose.

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