

Study of impact of sociocultural and economic factors of mothers on the nutritional status of their malnourished children in a rural area of Delhi, India

Sanjeev Davey¹, Anuradha Davey², S Vivek Adhish³, Rajni Bagga⁴

¹Department of Community Medicine, Muzaffarnagar Medical College, Muzaffarnagar, Uttar Pradesh, India.

²Department of Community Medicine, Subharti Medical College, Meerut, Uttar Pradesh, India.

³Department of Community Health Administration, National Institute of Health and Family Welfare, Munirka, New Delhi, India.

⁴Department of Management Sciences, National Institute of Health and Family Welfare, Munirka, New Delhi, India.

Correspondence to: Sanjeev Davey, E-mail: sanjeevdavey333@gmail.com

Received September 26, 2014. Accepted October 9, 2014

Abstract

Background: Even after following the multi-strategy approach of Integrated Child Development Services (ICDS) in India for the last four decades, reducing malnutrition among children below 6 years has turned out to be a herculean task, because of the poor focus by Anganwadi workers (AWWs) on empowering community to manage malnutrition among the children at home level. Therefore, it becomes necessary to assess the role of the mothers in managing malnutrition in their children.

Objectives: To study the impact of sociocultural and economic factors of mothers on the nutritional status of their malnourished children in a rural area of Delhi, India.

Materials and Methods: The study was conducted for a 6-month duration (July–December 2013) in a rural ICDS block (Narela) of Delhi. The 80 mothers of both the healthy and malnourished children (40 mothers in each group) were interviewed in depth via semi-structured interview schedule; and all these mothers were separately studied further by focus group discussion technique to explore their beliefs, opinions, and practices on malnutrition management in their children. All the collected data were finally triangulated and analyzed after applying χ^2 -test from SPSS, version 22.0.

Results: The main reasons behind inadequate efforts made by mothers in nutritional management of their children were the following: sporadic nutrition and health education given by AWWs at Anganwadi centers (AWCs) and homes to mothers leading to a lack of nutritional knowledge ($p < 0.05$) and inadequate treatment-seeking behavior toward malnourished children (47.5%) and the poverty causing mothers to work outside home ($p < 0.05$).

Conclusion: AWWs need to focus urgently on their proper nutritional and health educational activities for mothers of malnourished children, regarding key messages on proper child-feeding practices and also the concerned government needs to provide more income opportunities to fathers of such children along with a targeted Public Distribution System.

KEY WORDS: Integrated Child Development Services, rural ICDS block, Anganwadi workers, malnutrition, focus group discussion

Introduction

Prevalence of underweight children is the highest in India and it is nearly double that of sub-Saharan Africa with dire

consequences for mobility, mortality, productivity, and economic growth.^[1] Despite India's 50% increase in GDP since 1991, more than one third of the world's malnourished children live in India and among these, 50% of the children under 3 years of age are underweight as per 2010 and 2011 figures from the *Economist*.^[2,3] Undernutrition is more prevalent in rural areas of India because of low socioeconomic status.^[4] In rural areas of India, the children of poor families are not only at a higher risk of undernutrition, but also face suboptimal growth.^[5] In Delhi, the percentages of underweight, stunted, and wasted children as per National Family Health Survey 3 (NFHS-3) data^[4,5] were 27%, 41%, and 15%, respectively, revealing that even metro cities were not spared by this problem.

Access this article online

Website: <http://www.ijmsph.com>

DOI: 10.5455/ijmsph.2015.2609201429

Quick Response Code:



Even after crossing more than half century since independence, approximately 45% of the children below the age of 3 are still having malnutrition.^[4,5] Reduction of malnutrition among children has become a very tough task, though various programs and schemes are running in maternal- and child-health area. Though the extent of malnutrition varies across various states, the pattern is nearly same in many states of India.^[4,5]

In such a scenario, Integrated Child Development Services (ICDS) scheme has a key role of well-placed and well-designed intervention at the community level through Anganwadi centers (AWCs) to address the problem of malnutrition. The time has come that we deal effectively with malnutrition, so we must look not only at inadequate food intake and recurring diseases that lead directly to poor nutrition, but also widen and sharpen our eyes on inadequate food available at home, inadequate maternal- and child-health care and unhealthy living environments, and go beyond the efforts of Anganwadi workers (AWWs) under ICDS program.^[6,7]

The parents' education, especially that of mother, and the degree of maternal awareness are now also found to have a beneficial effect on weaning and child nutrition.^[8,9] Behavioral aspects of child health and nutrition are often determined by interrelated, multilevel factors present in the environment of the mothers.^[10] The determinants of maternal caregiving or health-related behaviors that impact child health and nutrition outcomes are multidimensional, with different factors, belonging to different levels of the environment, exerting their influence through specific pathways.^[10] In many countries, for example, Ethiopia, household resources, parental education, food prices, and maternal nutritional knowledge have emerged as key determinants of growth faltering.^[11] The Indian literature also reveals that the level of maternal intelligence is associated with their nutritional status, and the severity of malnutrition is significantly associated with major depression during the postpartum period and low maternal intelligence.^[12]

But in due course, it is observed that AWWs under ICDS program have limited themselves to just distributing supplementary nutrition to the registered beneficiaries and have forgotten rest of the key components of ICDS scheme such as emphasizing on mitigating faulty sociocultural and feeding practices of mothers in the families. Therefore, it becomes necessary to explore involvement of the family-level efforts, especially those of mothers, to manage malnutrition in their children in a rural ICDS block of Delhi, which has been done by authors in this article.

Material and Methods

Here, cross-sectional descriptive-observational study method was used and the study was conducted during July–December 2013 (6-month duration) in the rural ICDS block (Narela) of Delhi.

Sampling Technique Used: Using random selection technique, we selected a rural ICDS block (Narela) out of five

rural ICDS blocks in Delhi. In the selected block, a poorly performing AWC (A) and a satisfactorily performing AWC (B) were selected based on the malnourishment among children aged below 6 years in the past 3 years (June 2002–June 2005), from the data of AWWs of their respective centers.

Study Subjects: Eighty mothers having children (aged 0–6 years) in the AWC (A) and AWC (B).

Study Subjects Selection Technique

A total of 80 mothers (40 from each of the AWCs: AWC (A) and AWC (B)) were selected randomly such that in each AWC, 20 members were mothers of healthy children and another 20 were mothers of malnourished children. Care was taken during the purposive sampling of mothers that their children were matched in age, sex, and nutritional grade between the registered and unregistered categories within the AWC and between the two AWCs. During sampling of mothers, their literacy was not matched to avoid overmatching of the respondents.

Women who did not have any child or had a child above the age of 6 years were excluded from the study.

Data Collection Technique

Two main tools—in-depth interview (semi-structured) schedule and focus group discussion (FGD)—were used to collect data. Primary data were collected at the pre-designed, pretested, semi-structured in-depth interview schedule with all the study subjects. Four FGDs were conducted among these mothers to obtain their opinions, beliefs, and views, two each with mothers of healthy children and malnourished children in both AWC (A) and AWC (B).

Data Analysis Technique

The data were analyzed by SPSS, version 22.0. All the quantitative and qualitative data collected were finally triangulated to have more clarity on the findings at the time of data analysis.

Results

In-depth Interview Responses

Literacy and working status of mothers: Among the selected 80 mothers, by in-depth interviews, 22 (27.5%) were found to be illiterate and all those had children in malnourished category. Of the 15 (18.8%) primary-school passed mothers, 13 (86.6%) had malnourished children. Mothers who had passed high school (25 (31.2%)) had their children in the normal category (100%), and this was statistically significant ($p < 0.05$) [Table 1].

The majority of the mothers of malnourished children were working for some kind of income (33 (80.5%) vs 7 (9.5%)) and mothers' working status among normal vs malnourished category of children was also statistically significant ($p < 0.01$) in both AWCs [Table 1].

Table 1: Distribution of the children by their nutritional status vs literacy and working status of their mothers

Mothers parameters considered	AWC A (n = 40)		AWC B (n = 40)		Total (N = 80)
	Normal (20)	Malnourished (20)	Normal (20)	Malnourished (20)	
Educational qualification					
Illiterate	0	13	0	9	22 (27.5)
Up to primary school	2	7	0	6	15 (18.8)
Up to middle school	8	0	5	5	18 (22.5)
High school and above	10	10	15	0	25 (31.2)
	$\chi^2 = 49.2, p < 0.01$		$\chi^2 = 30, p < 0.001$		80 (100)
Mothers' working status					
Yes	8	16	0	17	41 (51.2)
No	12	4	20	3	39 (49.8)
	$\chi^2 = 5.1, p < 0.05$		$\chi^2 = 26.1, p < 0.01$		80 (100)

Understanding on cause and effect of malnutrition Regarding possible cause of malnourishment, 42.5% (34) mothers had no idea how *kuposhan* (malnourishment) is caused among children; 21.5% mothers stated frequent illness as a possible cause; and 18.5% mentioned bad quality of food available at home as a cause, although these findings were not statistically significant ($p > 0.05$) [Table 2].

Responses on feeding practices by mothers: The level of literacy of mothers was significantly associated with the type of feeding given to their children in all types of ceremonial, colostrums, exclusive breastfeeding, and semisolid feeding ($p < 0.05$) [Table 3].

Regarding treatment-seeking behavior for malnutrition: Majority of mothers in unregistered category of children (52.5%) did not consult anybody in the community for malnourishment in their children as compared to registered

category (47.5%), but this difference was not statistically significant ($p > 0.05$) [Figure 1].

Discussion

The ICDS program has lacked its proper implementation, monitoring, and supervision in its community involvement process of mothers' empowerment in upgrading nutritional status of undernourished children right from the beginning, and there had been an inadequate emphasis on nutrition and health education (NHE) activities for behavior change since its inception.^[13] "NHE to mothers in a proper way" is one of key components of this program, but its poor implementation has caused that in India we still have 44% of malnourished children (under the age of 6), and also leading to a significant

Table 2: Distribution of the mothers on their knowledge on possible causes and effects of untreated malnutrition

Sr. No.	Mothers' opinions	Mothers of registered children (n = 40)	Mothers of unregistered children (n = 40)	Total N = 80 (%)
<i>Possible causes of malnutrition</i>				
1	Bad quality of food given at home	9	6	15 (18.7)
2	Frequent illness	6	11	17 (21.5)
3	No immunization	9	3	12 (15)
4	Child born weak	0	2	2 (2.5)
5	Do not know	16	18	34 (42.5)
		$\chi^2 = 0.05, p > 0.05$		80 (100)
<i>On possible effect of untreated malnutrition</i>				
1	Child become more weak	9	9	18
2	Child gets ill frequently	5	6	11
3	Child dies	10	9	19
4	God care	9	10	19
5	Do not know	7	6	13
		$\chi^2 = 0.01, p > 0.05$		

Table 3: Distribution of the literacy status of mothers and child-feeding practices

Sr. No.	Types of feedings given to children	Illiterate mothers (n = 22)	Literate mothers (n = 58)	p-Value
Ceremonial feeding				
1	Yes	22	44	0.027
2	No	0	14	
$\chi^2 = 4.87, df = 1, p < 0.05$				
Colostrums feeding				
1	Yes	3	45	0.000
2	No	19	13	
$\chi^2 = 24.5, p < 0.05$				
Exclusive breast feeding				
1	Yes	0	16	0.01
2	No	22	42	
$\chi^2 = 5.9, p < 0.01$				
Semisolid feeding				
1	Yes	0	36	0.00
2	No	22	22	
$\chi^2 = 22.3, df = 1, p < 0.05$				

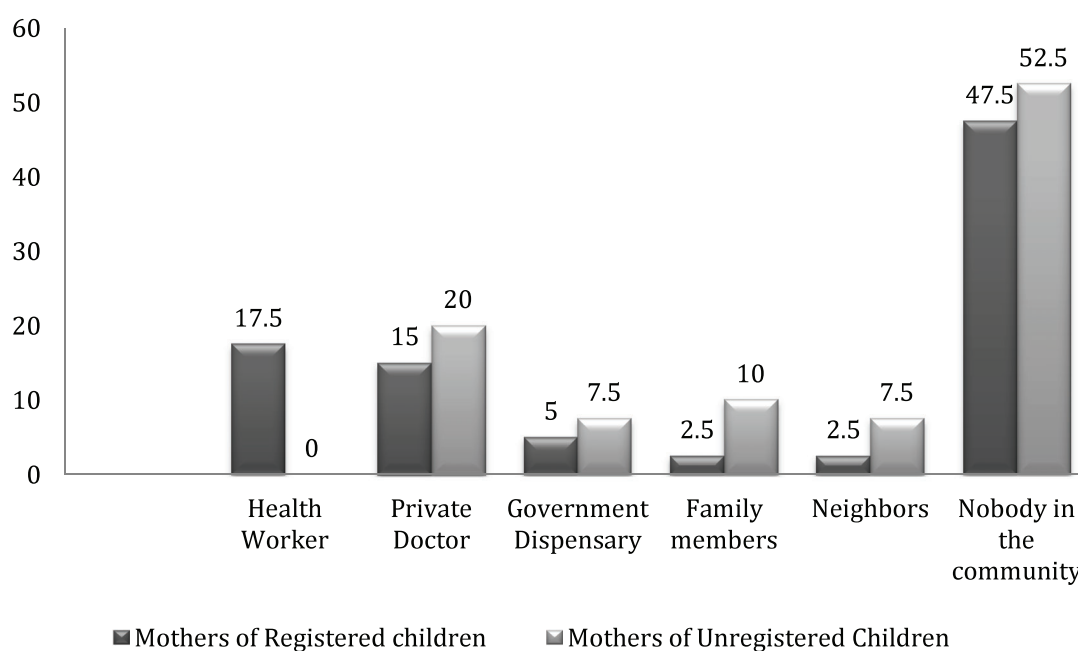


Figure 1: Responses of mothers of unregistered and registered children on treatment-seeking behavior for their children

underweight category of these children coupled with infrequent home visits by AWWs has also led to rise in malnourished children who cannot come to Anganwadis due to many reasons largely uncovered.^[4,5,13] Community mobilization and empowerment is now considered one of the strong points in the ICDS scheme to manage the malnutrition. But poor programmatic emphasis of ICDS on community participation has also led to the present static situation of malnutrition in India.^[13]

We found in our study that as the education of the mothers increased, malnourishment among the children declined significantly ($p < 0.05$). Another interesting point observed in our study was that most of the mothers of malnourished children were working outside home (80.5%), and this was also a significant finding in our study ($p < 0.05$). It signifies that working status of the mothers takes them away for a significant amount of time which is needed for the nutritional care of their children. The literacy of mothers in our study was

also significantly associated with the type of feeding given to their children in all types of feeding to infants ($p < 0.05$). Radhakrishna and Ravi^[14] had also found that mothers' education has a significant impact on malnutrition.

In our study, we found that even registration of the children with AWC did not have any significant difference in the understanding of the mothers on the reasons of malnutrition ($p > 0.05$). Regarding possible cause of malnourishment, 42.5% (34) mothers had no idea how *kuposhan* is caused among children. It indicates the gray area where the capacity of the AWWs can be raised to transfer correct knowledge in the community. Our findings are in consonance with those of the study by Tripathy *et al.*^[15] in which NHE, although being the primary duty, was given less emphasis in their (AWWs') duties in south India.

In this study, we found that mothers who understood the importance of growth monitoring demanded regular sessions of NHE. Studies in the past have also revealed that mothers' role in improving their children's nutritional status is not solicited during growth-monitoring activities.^[16] Reason could be irregular growth-monitoring sessions due to nonavailability of the growth charts or nonworking weighing scales.^[17] Benjamin *et al.*^[18] had also mentioned that growth-monitoring activity was a rare phenomenon in Ludhiana district as none of the AWWs had growth charts. Also AWWs were not adequately capable of filling the growth chart due to lack of knowledge or skill.^[19] It reflects that AWWs lose an important opportunity for nutritional counseling with mothers. Poor communication skills of the AWWs and the project functionaries are also considered detrimental in establishing community involvement in the services.^[20] Imparting NHE to illiterate community is difficult but change can be noted in the attitude of people toward malnutrition. These changes can come due to the efforts of few AWWs to motivate people, but majority of AWWs were not giving NHE with enthusiasm and dedication.^[21]

Discussion with mothers of the malnourished children revealed that lack of economic accessibility for the optimum food for their family was the main reason for their children's malnutrition ($p < 0.05$). Because of poverty, mothers are pushed to work as unskilled workers outside home, giving less time for feeding their children. Radhakrishna and Ravi^[14] also found that the mothers' employment status had significant impact on children's malnutrition.

In our study, majority of mothers in unregistered category of children (52.5%) did not consult anybody in community for malnourishment in their children. The main reasons could be poor quality of the services provided and no home visits by AWWs in ICDS scheme as it can significantly influence the use and acceptance of services given by them to mothers within the community, as seen in another study in the past in Delhi.^[22] Studies by Davey *et al.*^[22] and Davey and Davey^[23] in urban and rural ICDS blocks of Delhi had also found that women living in chronic hunger in rural and urban slum areas of Delhi are forced to take up unskilled jobs for income generation for the family, thereby influencing the feeding practices of their children, for which AWWs and AWCs need to

be very active for these category of children. This fact is similar to that reported in our study.

A study in south India had found that based on the mothers' traditional beliefs, medical care was not an appropriate intervention for childhood illnesses such as malnutrition or measles, and further the study had found that gender of the child and socioeconomic factors of family were the strongest risk factors for malnutrition.^[24]

In our FGDs, response of mothers of normal children also showed that most of the mothers understand that lack of quality food in terms of *ghee and dhoodh* (fat and milk) is the main reason of *kuposhan* of children whereas mothers of the malnourished children showed their belief that *kuposhan* is the result of God's curse and child grows only with God's grace. A study by Lian *et al.*^[25] in Tumpat, Kelantan (Malaysia) had also revealed that not only most nutrition-related problems are diverse as their roots are lying in biological, social, cultural, and economic factors, but also child-feeding practices are based on the needs of the whole family rather than to their target needs. Another study by Eknayake *et al.*^[26] in Sri Lanka had also found the similar issue that nutritional awareness of mothers and household income can significantly affect children's nutritional status, which is similar to the findings of our study.

Conclusions

Involving community and empowering the mothers to bear the responsibility to prevent and manage malnutrition in their children is emerging to be a key way to handle the giant problem of the malnutrition in India. Repeated malnutrition management enforcement tips can be generated through periodic NHE sessions by the AWWs along with regular growth-monitoring activities directed toward mothers. AWWs can create curiosity among the mothers while imparting the NHE for nutritionally deficient children by informing on causes and proper treatment of malnutrition. But policy interventions from Government of India also need to analyze the lost role of public distribution system to provide adequate raw food material for all those who are caught in the vicious cycle of poverty and ill-health, along with employment opportunities for fathers of malnourished children.

References

1. The World Bank. World Bank Report on Malnutrition in India. The World Bank. 2009 (Internet@2013). Available at: <http://web.worldbank.org/wbsite/external/countries/southasiaext/0,contentMDK:20916955~pagePK:146736~piPK:146830~theSitePK:223547,00.html> (last accessed in March 2013).
2. The Economist. The Indian Exception. Available at: <http://www.economist.com/node/18485871> (last accessed on Feb 13, 2012).
3. The Economist. Putting the Smallest First. Available at: <http://www.economist.com/node/17090948> (last accessed on September 23, 2010).

4. International Institute for Population Sciences. NFHS-3 Nutritional Status of Children and Adults. Available at: http://www.rchiips.org/nfhs/nutrition_report_for_website_18sep09.pdf (last accessed on Nov 26, 2009).
5. Kanjilal B, Majumdar PG, Mukherjee M, Rahman MH. Nutritional status of children in India: household socio-economic condition as the contextual determinant. *Int J Equity Health* 2010;9:19.
6. Nayar D, Kapil U, Nandan D. Assessment of community contribution to the ICDS scheme in district Agra: a case study. *Indian J Matern Child Health* 1999;10(1):4–5.
7. Strasser S. Improving the Management of Severe Malnutrition. Available at: web.uct.ac.za/depts/chu/mch10j.rtf (last accessed on July 24, 2014).
8. Bhat IA, Shah GN, Dhar GM, Mehnaz S. A study on the impact of maternal knowledge and practice on the nutritional status of infants. *Indian J Matern Child Health* 1992;3(1):12–15.
9. Hasan J, Khan Z, Sinha SN. Sociocultural factors influencing nutritional status of Infants—a longitudinal study. *Indian J Matern Child Health* 1991;2(3):84–6.
10. Kalita A. Maternal Behaviour Change for Child Health and Nutrition (Social Initiatives Group ICICI Bank, Mumbai). 2006 March. (Internet@2014). Available at: http://www.icicifoundation.org/media/publication/Maternal_Behaviour_Change_for_Child_Health_and_nutrition_ak_final.pdf (last accessed on July 24, 2014).
11. Christiaen L, Alderman SH. Child malnutrition in Ethiopia: can maternal knowledge augment the role of income? *Africa Region Working Paper Series* 2001;22:1–36.
12. Anoop S, Saravanan B, Joseph A, Cherian A, Jacob KS. Maternal depression and low maternal intelligence as risk factors for malnutrition in children: a community based case–control study from south India. *Arch Dis Child* 2004;89:325–9.
13. National Consultation to Review the Existing Guidelines in ICDS Scheme in the Field of Health and Nutrition. *Indian Pediatr* 2001;38:721–31.
14. Radhakrishna R, Ravi C. Malnutrition in India—Trends and Determinants. *Economics and Political Weekly* 2004 671–6.
15. Tripathy M, Kamath SP, Baliga BS, Jain A. Perceived responsibilities and operational difficulties of Anganwadi workers at a coastal south Indian city. *Med J DY Patil Univ* 2014;7:468–72.
16. Kapil U, Joshi A, Nayar D. Utility of growth monitoring: its relevance in the promotion of child health. *Indian Pediatr* 1994;31(2): 239–44.
17. Tulloch J. Integrated approach to child health in developing countries. *Lancet* 1999;354(Suppl 2):16–20.
18. Benjamin AI, Panda P, Zachariah P. Maternal and child health services in Dehlon block of Ludhiana district: results of the ICDS evaluation survey. *Health Popul Perspect Issues* 1994;17(1–2): 67–85.
19. Davey A, Davey S, Datta U. Role of re orientation training in the enhancement of the knowledge regarding the growth monitoring activities by the Anganwadi workers in the urban slums of the Delhi. *Indian J Commun Med* 2008;33(1):47–9.
20. Lalitha NV, Standley J. Training workers and supervisors in growth monitoring: looking at ICDS. *Indian J Pediatr* 1988;55(Suppl 1): S44–54.
21. Lal S. NHE inputs of personnel, material, techniques and methods at ICDS block Kathura. *Haryana Health J* 1979;10(38): 27–32.
22. Davey A, Davey S, Datta U. Perception regarding quality of services in the urban ICDS blocks of Delhi. *Indian J Public Health* 2008;52(3):156–8.
23. Davey S, Davey A. Women literacy and infant feeding practices in rural ICDS block of Delhi. *Natl J Community Med* 2012;3(3): 385–90.
24. Saito K, Korzenika JR, Jekel JF, Bhattacharji S. A case–control study of maternal knowledge of malnutrition and health-care-seeking attitudes in rural south India. *Yale J Biol Med* 1997;70:149–60.
25. Cheah WL Jr, Wan Manan WM, Zabidi-Hussin ZM, Chang KH. A qualitative study on malnutrition in children from the perspectives of health workers in Tumpat, Kelantan. *Mal J Nutr* 2007;13(1): 19–28.
26. Eknayake S, Weerahewa J, Ariyawardana A. Role of Mothers in Alleviating Child Malnutrition: Evidence from Srilanka. (Internet@2014) Available at: http://www.pepnet.org/fileadmin/medias/pdf/files_events/3rd_dakar/Ishara_Ratnayake.pdf (last accessed on 10 oct 2014).

How to cite this article: Davey S, Davey A, Adhish S Vivek, Bagga R. Study of impact of sociocultural and economic factors of mothers on the nutritional status of their malnourished children in a rural area of Delhi, India. *Int J Med Sci Public Health* 2015;4: 162-167

Source of Support: Nil, **Conflict of Interest:** None declared.