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Original Article

A Cross-Sectional Study on Comparison of Health-Seeking Behaviour Among Well-Nourished and Malnourished Children in Vadodara Rural India

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Abstract

Introduction: Mothers play a crucial role in identifying health changes in their children, influencing health-seeking behaviours in acute illness and during growth faltering. Therefore, this study was conducted to compare health-seeking behaviours among mothers of well-nourished and malnourished children and to explore health-seeking pathways for malnourished children.

Methods: A community-based cross-sectional study was conducted among mothers of children aged 6 to 60 months attending anganwadis in Vadodara Rural Taluka, India. A total of 120 well-nourished and 126 malnourished children (63 with severe and 63 with moderate acute malnutrition) were included. Mothers were interviewed regarding health-seeking behaviours over the past six months, and pathways to Nutritional Rehabilitation Centre (NRC) / Community Malnutrition Treatment Centre for SAM treatment were assessed.

Results: Among well-nourished children, 36% experienced illness, with a median duration of six days; 96% consulted healthcare workers with a median delay of three days. For malnourished children, 53% reported illness, and only 53% sought care, facing a median delay of seven days. Of the 63 SAM children referred to NRC / CMTC, only 22% visited. Major barriers to attendance included the lack of someone to care for other children and no accompanying adult for hospital visits.

Conclusions: Mother of well-nourished children demonstrated prompt health-seeking behaviours, while malnourished children faced significant delays and barriers. Nearly half of the referred SAM children to NRC / CMTC did not visit the place, major reason was longer duration of hospital stay.

Introduction

In 2020, India was identified as the second-largest contributor to under-five mortality, as reported by the World Health Organization (WHO).[1] Globally as well as in India, infectious diseases are the leading causes of death among children under five years old.[2] Malnutrition significantly exacerbates this situation; children suffering from severe acute malnutrition are at a heightened risk of mortality from common childhood illnesses. Malnutrition impairs the immune response, weakening the body's defenses and rendering children more susceptible to infections. This

creates a vicious cycle - during illness, a child's appetite may diminish, leading to reduced food intake and further nutritional deficiencies and infections.

Nearly one third of under five children are malnourished in India.[3] To combat the problem related to the nutrition factor among under five, the Government of India has initiated Nutritional Rehabilitation Centres (NRCs) for the facility-based management of malnutrition.[4] This step provides management of malnutrition at district level with the team of Paediatrician and Nutritionist. To further strengthen the national efforts, the state Government of Gujarat (a state in India), initiated Community Malnutrition Treatment Centres (CMTCs) at Block level (Administrative division under the District) under "Mission Balam Sukham" to provide prompt and facility-based treatment for malnutrition which are diagnosed during routine screening at the community.[5]

Mothers and caregivers are often the first to notice changes in their children's health, making their health-seeking behaviours essential for early identification of illness and nutritional issues. Health seeking behaviour is defined as any activity undertaken by caregivers who perceived their children to have a health problem for the purpose of finding a remedy.[6] This was based on the recognition of symptoms, which were interpreted by individuals who then proceeded to address the problems. It is a complex process influenced by individuals' perceptions of their symptoms, their choices, and the options available to them at the time. Given this context, the present study aims to explore health-seeking behaviour of mother for acute illnesses and malnutrition in their under five children.

Methods

A community based cross-sectional study was conducted in Anganwadi of one of the Taluka of Vadodara, Gujarat, India. The Anganwadis are pre-school setup in India, usually present at every 800 population, where children under five years of age are one of the beneficiaries. The staff at Anganwadis screen the children for malnutrition, usually through anthropometric measure-height and weight. Their weight and height are plotted on the growth chart (developed by WHO). Therefore, any deviation and growth retardation can be detected at community level. All SAM (Severe Acute Malnutrition), MAM (Moderate Acute Malnutrition) and normal children aged 6 months to 60 months and their mothers attending the selected Anganwadi were enrolled in the study using pre tested semi structured questionnaire after taking informed written consent. Parents who did not give consent and children with congenital defects or admitted in NRC / CMTC at the time of visit were excluded. The selected Taluka has 299 registered Anganwadi and 22663 children at the time of data collection. Anganwadi was selected by thirty-cluster sampling technique (a probability sampling technique). In thirty sampling technique, usually thirty cluster are selected based on the cluster interval. In present study Anganwadis were considered as cluster. The "cluster interval" refers to the sampling interval used to select clusters when using a systematic approach within the first stage of sampling. The calculated cluster interval was 755 (22663 / 30). On average, two SAM children were available at one Anganwadi. Therefore, two SAM children, two MAM children and four normal children were selected by simple random sampling method. Therefore, eight children were selected from each Anganwadi. In this way, calculated sample size was 240. During the data collection, authors got three extra SAM and MAM each, making the total sample size 246. Data was collected after ethical clearance from the Institutional Ethical Committee from the affiliated institute and permission from ICDS officer. Data was collected at selected Anganwadi using pre-tested semi-structured questionnaire. Mothers were interviewed about socio-demographic profile, nutritional status, illness history and health seeking behavior. Anthropometric measures such as height, weight and mid-upper arm circumference were recorded on the day of visit. The data obtained was entered in Epi data and analyzed using Epi Info 7. Key output analysis summarized as mean (Standard deviation) or Median (Inter-quartile range) depending on the normalcy of data and in proportions and percentages. For the health seeking pathway, the organogram was drawn. Data safety and confidentiality was also given due consideration.

Operational Definition[7]

Well-nourished children: Children whose weight for height / length z score is in ± 2 SD from median.

Malnourished children: Malnourished children included the both the type of children, i.e., SAM and MAM.

MAM: Weight-for-length / height ≤ − 2 SD and ≥ − 3 SD or mid-upper arm circumference ≥ 115 mm and < 125 mm.

SAM: Weight-for-length / height < − 3 SD or mid-upper arm circumference < 115 mm, or bilateral pitting oedema.

BG Prasad Classification for socio-economic class[8]: The classification is based on the monthly per capita income, consumer price index for the base year. There are mainly five categories Upper class, Upper Middle class, Middle class, Lower Middle class and Lower class as per the scale.

Results

Total 246 (120 well-nourished, 126 malnourished) children and their mothers were included in the study. Socio-demographic details of children and parents are depicted in the Table 1 and Table 2. Children with age group of 13 months to 36 months had more chances of developing the malnutrition as compared to the infants and age more than 37 months (Table 1). The chances of development of malnutrition was more in mother who are working (Table 2).

Table 1: Comparison of socio-demographic details of the children (N = 246)

Variables	Malnourished N (%)	Well-nourished N (%)	Chi-Square	P value	OR (95% CI)
Age (in months)					
6 - 12	14 (11.11)	47 (39.17)	26.80	0.0001	1
13 - 36	54 (42.96)	30 (25.00)			6.04 (2.86 - 12.73)
37 - 60	58 (46.03)	43 (35.83)			4.52 (2.21 - 9.25)
Gender					
Male	60 (47.62)	68 (56.67)	1.67	0.19	0.69 (0.42-1.14)
Female	66 (52.69)	52 (43.33)			
Siblings					
0	30 (23.81)	34 (28.33)	1.94	0.58	1
1	62 (49.21)	57 (47.50)			1.23 (0.67 - 2.26)
2	27 (21.43)	26 (21.67)			1.17 (0.56 - 2.43)
3 or more	07 (05.56)	03 (02.50)			2.64 (0.62 - 11.14)
Birth order					
1	48 (38.10)	55 (45.83)	1.99	0.36	1
2	56 (44.44)	50 (41.67)			1.28 (0.74-2.20)
3 or more	22 (17.46)	15 (12.50)			1.68 (0.78 - 3.60)
Mother education					
Illiterate	13 (10.32)	06 (05.00)	3.65	0.18	2.18 (0.80 - 5.95)
Literate	113 (89.58)	114 (95.00)			

Table 2: Comparison of socio-demographic details of the parents (N = 246)

Variable	Malnourished N (%)	Well-nourished N (%)	Chi-square / t-test	P value	OR (95% CI)
Mother education					
Illiterate	13 (10.32)	06 (05.00)	3.65	0.18	2.18 (0.80 - 5.95)
Literate	113 (89.58)	114 (95.00)			
Mother occupation					
Non-working	110 (87.30)	115 (95.83)	4.68	0.03	3.34 (1.18 - 9.44)
Working	16 (12.70)	5 (04.17)			
Father education					
Illiterate	16 (12.69)	05 (04.77)	4.68	0.03	3.34 (1.18 - 9.44)
Literate	110 (87.30)	115 (95.23)			
Socio-economic status (BG Prasad classification)					
I	02 (01.59)	06 (05.00)	3.52	0.47	1
II	08 (06.35)	11 (09.17)			2.18 (0.34 - 13.75)
III	24 (19.05)	23 (19.17)			3.14 (0.57 - 17.12)
IV	69 (54.76)	63 (52.50)			3.28 (0.63 - 16.87)
V	23 (18.25)	17 (14.17)			4.05 (0.72 - 22.63)
Total	120	126			

Health-seeking among well-nourished and malnourished children is depicted in Figures 1 and 2. Out of 120, well-nourished children 46 (38.33%) had illness in last six months whereas 68 (53.96%) had illness among malnourished children. The frequency of illness among both the groups is given in Table 3 with their median duration of illness.

Table 3: Comparison of frequency of illnesses among both the group (N=246)

Frequency of Illness during last six months	Mal-nourished (N = 126) N (%)	Well-nourished (N = 120) N (%)	Chi-square	P value	OR (95% CI)
0	58 (46.03)	76 (63.33)	8.25	0.04	1
1	28 (22.22)	15 (12.50)			2.44 (1.19 - 4.99)
2	18 (14.29)	15 (12.50)			1.57 (0.73 - 3.38)
3	22 (17.46)	14 (11.67)			2.05 (0.97 - 4.36)
Median duration of illness (in days)	6 (IQR- 3 to 9)	7 (IQR- 4 to 11.5)	1346.50	0.37	

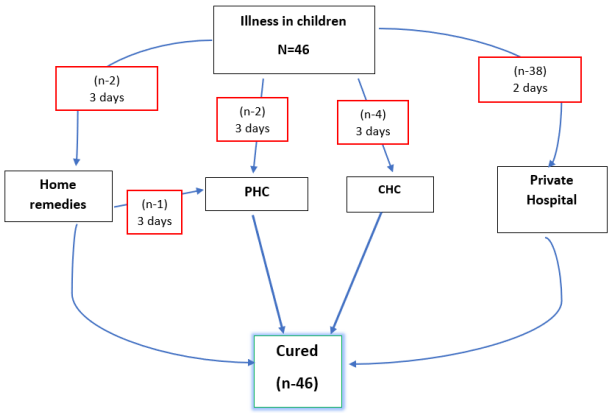

Figure 1: Health-seeking behaviour among well-nourished children (N=46)

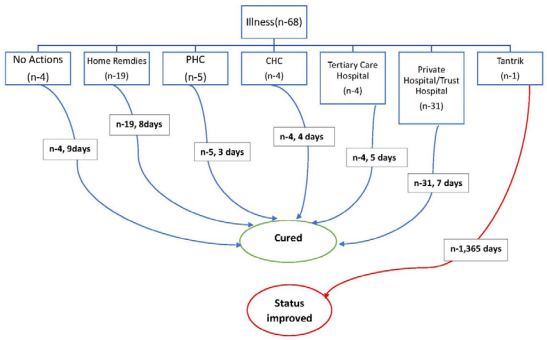

Figure 2: Health-seeking behaviour among malnourished children (N = 68)

Health seeking pathway of total 63 SAM children enrolled is drawn in Figure 3. Out of 63 SAM children, 50 (79.63%) children were identified by Anganwadi workers during their regular screening and remaining 14 (22%) children were identified by parents due to growth stagnation or loss of body weight. There were two (3%) children who were not identified as SAM or malnourished by AWW or parents. The children who were not identified as SAM by the Anganwadi wsorker were still continuing in the SAM condition.

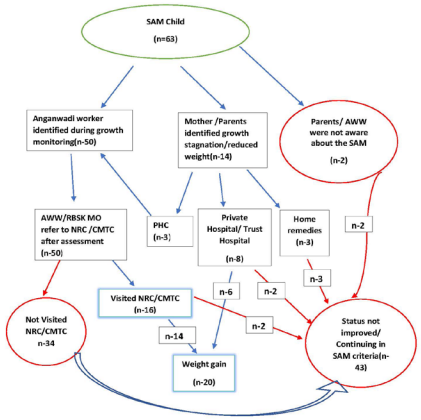

Figure 3: Health-seeking behaviour among malnourished children (N = 63)

All the 50 children screened by Anganwadi workers were referred to the authorised centres however only 16 children reached the centre. The reasons for not visiting the referral centres were non-availability of other family member for taking care of other child (82%), no one for staying hospital with the child (67%), transportation problem (26%), and other reasons (10%) like financial problem, doesn't believe in Government setup etc. The median duration of stay in referral centre was 14 days. The median delay in reaching was 35 days for the children who had visited the referral centres. Out of 16 children who had been in the referral centre, 14 (87.5%) had weight gain at the end of stay and two had weight gain after 14 days but still they were continuing in SAM at the time of visit.

Out of 14 SAM children identified by parents, eight (57.14%) were taken to private hospitals. Of these, six children had weight gain but two were still remaining in the SAM category. Only three out of 14 were given home remedies like energy dense food, increased food frequency and increased food diversity. Overall, only 20 (29.41%) children had weight gain; 14 children by referral centre and six by private practitioners.

Discussion

Timely and appropriate healthcare seeking behavior, if practiced by caregivers, can have a significant impact on

survival.[6] In a study done by Edem MA Tette et al, it revealed that malnourished children (67%) had more episodes of diarrhoea as compared to well-nourished children (40%) and study also revealed that there were more episode of illness in malnourished children (60%) as compared to well-nourished children (55%).[9] A study by Murarkar S et al revealed that acute episodes of diarrhoea were associated with malnutrition.[10] In the present study, frequency of illness was significantly associated with the nutritional status of child. Therefore, it can be concluded that malnutrition was significantly associated with the nutritional status of child. But as malnutrition and infections are vicious cycle, it could not be commented that illness was the reason for malnutrition or malnutrition was the reason for the illness.[11] In a study conducted by Mishra K et al in urban slums of Bhubaneshwar, India, around 21.92% gave primary care at home, 33.46% had visited the chemist shop and 33.08% had visited nearby health facility and 22.71% ignored.[6]

In this study, malnourished children had been given home remedies and other treatments as compared to the well-nourished children, which indirectly leads to malnutrition. The proportion of children were less who were taken to the healthcare set-up in malnourished group in comparison with well-nourished children. These actions have indirectly increased the more delay in seeking the healthcare. It was observed that 42 (95%) of children in well-nourished group had taken to healthcare setting followed by illness and only 45 (66%) children had been taken to healthcare facility. Therefore, it can be concluded that well-noursidhed children had appropriate health seeking behaviour. The reasons for not visiting the healthcare set-up could be lack of knowledge, wage loss, lower socio-economic class, multiple children, transportation problem. These reasons are also known factors for the causation of malnutrition as well. So, they are interconnected in development of malnutrition and infection.

In a community based cross sectional study aimed to identify care seeking for childhood pneumonia, Minz A et al found that the meantime taken from onset of illness to seeking care from health care was 2.5 days (SD-0.75).[12] In our study median delay in well-nourished children was three days and in malnourished children it was seven days. The reason for the delay in reaching the healthcare setup may be due to lack of knowledge and delay in perceiving the symptoms.[13] The level of education among parents was low in malnourished children as compared to well-nourished children in this study as well.

Referral centres are setup by Government with an aim to improve nutritional status of SAM. For this purpose, it is essential to understand the health seekers' or parents' perspectives. In this context, a new research initiated to understand the health-seeking to referral centres. In this study, the treatment seeking behaviour from parents' was identified, and multiple approaches taken by parents after identifying the malnutrition in children. Out of total 63 children, was observed that 50 children had been referred, but only 16 (32%) had visited the referral centre. The major reason being unavailability of caretakers at home or referral centres and financial issues, along with transportation issue, lack in Government system etc.[14] A study by Lyimo EJ at el al had also reported reasons for late healthcare seeking for their malnourished children were due to lack of knowledge regarding the signs and symptoms of malnutrition, nature of the economic activities, poverty, negligence among parents.[13]

Conclusions

Nearly one-third well-children were ill in last six months with average delay of three days in reaching health care facility whereas almost half of the malnourished children were ill during last six months with average delay of seven days. The delay in reaching health facility was more in malnourished as compared to well nourished. Major reasons for non compliance to referral were non-availability of caretakers at home or hospital and financial issues.

Conflict of Interest: None

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References

1. Wold Health Organisation. Child mortality (under 5 years) n.d.; https://www.who.int/news-room/fact-sheets/detail/levels-and-trends-in-child-under-5-mortality-in-2020 (accessed October 28, 2024)

2. Liu L, Chu Y, Oza S, Hogan D, Perin J, Bassani DG, et al. National, regional, and state-level all-cause and cause-specific under-5 mortality in India in 2000-15: a systematic analysis with implications for the Sustainable Development Goals. Lancet Glob Health. 2019;7(6):e721-34 DOI: 10.1016/S2214-109X(19)30080-4 PMID: 31097276

3. Ministry of Health and Family Welfare. National Family Health Survey-5 n.d.

4. National Health Mission. Nutrition Rehabilitation Centern.d.;https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1449&lid=798(accessed October 28, 2024)

5. National Health Mission-Gujarat. Mission Balam Sukham n.d.; https://nhm.gujarat.gov.in/mission-balam-sukham.htm (accessed October 28, 2024)

6. Mishra K, Mohapatra I, Kumar A. A study on the health seeking behavior among caregivers of under-five children in an urban slum of Bhubaneswar, Odisha. J Family Med Prim Care. 2019;8(2):498
DOI: 10.4103/jfmpc.jfmpc_437_18
PMID: 30984662 PMID: PMC6436246

7. World Health Organization (WHO). Classification of nutritional status of infants and children 2017

8. Mahantshetti S, Singh J, Dhandapani S. Updated Modified BG Prasad Classification for October 2023. Nat J Community Med. 2024;15(1):89-90
DOI: 10.55489/njcm.150120243515

9. Tette EMA, Sifah EK, Nartey ET. Factors affecting malnutrition in children and the uptake of interventions to prevent the condition. BMC Pediatrics 2015 15:1 2015;15(1):1-11
DOI: 10.1186/s12887-015-0496-3
PMID: 26586172 PMID: PMC4653928

10. Gebre A, Surender Reddy P, Mulugeta A, Sedik Y, Kahssay M. Prevalence of Malnutrition and Associated Factors among Under-Five Children in Pastoral Communities of Afar Regional State, Northeast Ethiopia: A Community-Based Cross-Sectional Study. J Nutr Metab. 2019;2019
DOI: 10.1155/2019/9187609
PMID: 31275645 PMID: PMC6589243

11. Jones KD, Thitiri J, Ngari M, Berkley JA. Childhood Malnutrition: Toward an Understanding of Infections, Inflammation, and Antimicrobials. Food Nutr Bull. 2014;35(2_suppl1):S64-70
DOI: 10.1177/15648265140352S110
PMID: 25069296 PMID: PMC4257992

12. Minz A, Agarwal M, Singh J, Singh V. Care seeking for childhood pneumonia by rural and poor urban communities in Lucknow: A community-based cross-sectional study. J Family Med Prim Care 2017;6(2):211
DOI: 10.4103/2249-4863.219987
PMID: 29302520 PMID: PMC5749059

13. Lyimo EJ, Msangi M, Zangira AJ, Msaki R V, Lekey A, Rwenyagira M, et al. Healthcare-seeking behaviours among mother's having under-five children with severe wasting in Dodoma and Mbeya regions of Tanzania-A qualitative study. PLOS Glob Public Health. 2024;4(1)
DOI: 10.1371/journal.pgph.0001943
PMID: 38190374 PMID: PMC10773934

14. Shrinivas A, Jalota S, Mahajan A, Miller G. The importance of wage loss in the financial burden of illness: Longitudinal evidence from India. Soc Sci Med. 2023;317
DOI: 10.1016/j.socscimed.2022.115583
PMID: 36565513