Research Article

Severe acute malnutrition: what is lacking in office practice

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ABSTRACT

Background: Severe Acute Malnutrition (SAM) is the most concerned health problem in the developing countries. It is both a medical and social problem as it affects both the physical and psychological development of the child and creates a burden on the society. Various studies have been conducted to identify the prevalence of SAM and a lot of work is being done in the direction of in-patient management of SAM. However, what is more needed is early identification of SAM in office practice as well as its management in the community itself to decrease the in-patient burden and to have a targeted approach towards SAM children. The objective of the study was to assess the cognitive, psychomotor and affective aspect of health care workers doing office practice towards SAM and to sensitize them about anthropometry and early identification of SAM.
Methods: This was a cross-sectional observational study where a pre-set questionnaire of 30 questions was given to the participants. Hands on demonstration to take Mid Upper Arm Circumference (MUAC), Weight and Height were also assessed.
Results: Significant lack in the knowledge of participants was seen in both cognitive and psychomotor-affective category in all three aspects of the basics, assessment and management of SAM. None of the participants was able to take MUAC, Weight and Height correctly.
Conclusions: Health care workers should incorporate the habit of taking anthropometry in office practice for early identification of SAM and also keep them updated with the latest guidelines for identification and management of SAM.

Keywords: Child, Severe acute malnutrition, Anthropometry, Health personnel, Questionnaire, In-patient

INTRODUCTION

Under nutrition is one of the most concerning health and developmental issues in India as in other parts of the world. Childhood under nutrition is a major global health problem. It is contributing to childhood morbidity, mortality, impaired intellectual development, suboptimal adult work capacity, and increased risk of diseases in adulthood. At present, it is the most prevailing health problem that we are facing in our office practice as well as in in-patient setup. Day by day, the number of SAM cases is increasing by leaps and bounds.

In India the burden of SAM in children remain high despite of overall economic growth. It affects an estimated of 8.1 million under-five children in India.[1] It contributes to nearly 0.6 million deaths and 24.6 million DALYs (disability adjusted life years). Approximately half the under-five deaths in India are contributed by diarrhoea and pneumonia, and malnutrition is believed to contribute to 61% of diarrhoeal deaths and 53% pneumonia deaths.[2] Worldwide, the prevalence of severe acute malnutrition (SAM) is estimated to be around 1-2% in developing and in the least developed countries.[3]

According to the National Family Health Survey (NFHS-3) carried out in 2005-06, child malnutrition rates in India are disproportionately high. The NFHS-3 is the third pan-India survey conducted since 1992 covering 200,000 people, and the definitive guide to Indian health statistics.

The results are sobering: 46 percent of children under three are underweight, compared with 28 percent in Sub-Saharan Africa. In addition to the 46 percent children who are underweight, 39 percent are stunted, 20 per cent severely malnourished and 80 percent anaemic. According to NFHS 3 data, 23 percent of the total under-5 children are wasted in which 6.4% are severely wasted.[4] As per the data of National Family Health Survey (NFHS)-4 conducted in 2015-2016, the percentage of children under-5 years of age, who are severely wasted (weight/height) has reduced from 12.6% in NFHS-3 (2005-2006) to 9.6% in Madhya Pradesh.[5] Ministry of Women and Child Development and UNICEF conducted a nationwide Rapid Survey on Children (RSoC) in 2013-2014, which showed a marked improvement in the status of the child malnutrition over the third National Family Health Survey (NFHS-3) conducted in 2005-2006, but the absolute level still remains high.[6]

During the past few years, an increase in the number of cases of severe acute malnutrition (SAM) has alarmed both the health care personnel and the Government of India. A lot of work is being done in this direction to improve the nutrition status of our future generation. What is more important than management is the early identification of these children who are having poor nutrition status and are on the verge of falling into the category of severe acute malnutrition.

Early identification of children with poor nutritional status will ensure that that will be managed before they land into severe acute malnutrition and develop medical complications. This would mean management of many of them before their prognosis worsens and it would also reduce the need for hospitalized care. The burden of identification of SAM children lies on the Paediatricians, Health care workers and Anganwadi workers. Health professionals and health care workers should not let go any opportunity, be it a health visit, immunization visit or counselling session to identify SAM. Although a large number of training programmes are running to keep them updated and to make them aware of the new advances in the identification and management of SAM, what is lacking is how to apply it in our day to day office practice.

Hence, this study was conducted to study the cognitive, psychomotor and affective aspects of Health care professionals doing an office practice of SAM.

METHODS

This was a cross-sectional observational study conducted in the Department of Paediatrics of a tertiary level Medical College Hospital in Madhya Pradesh. A total of 50 participants, including paediatricians and medical officers, participated in this study. The workshop started with on-spot registration and following that a tool-kit was provided to each participant comprising of one weight for height chart (WHO W: H Chart) and one Mid Upper Arm

Circumference (MUAC) measuring tape (provided by UNICEF) to classify the malnutrition status of the child and one reporting format prepared by Department of Paediatrics, in order to sensitize them how to report a case of SAM if they encounter in their office practice.

Immediately after registration, a brief questionnaire about SAM was provided to all participants to identify gaps and to assess what they already know and how much we have to work in this direction, in order to make them aware of this serious issue. The purpose of this study was explained and any doubts were cleared. The questionnaire was a predesigned set of 30 questions in the English language. Out of 30 questions, 15 questions were subjected to cognitive aspect and 15 questions to the psychomotor and Affective aspect of the participants on severe acute malnutrition. Out of each set of 15 questions of cognitive and psychomotor-affective aspect, there were subsets of 5 questions, contributing to basics, assessment and management of Severe Acute malnutrition respectively. All the participants were asked to write the appropriate answers to all questions, which were then checked with the standard key adopted from the Facility based guidelines of Severe Acute malnutrition 2015. The responses to each subset of questions were recorded on a 5 point Likert scale based on the number of correct questions (score 5= all 5 questions correct, score 1= only one question correct). The time of one hour was allotted to complete the questionnaire and all the responses were checked by a single observer to minimize inter-observer variation. After completion of the questionnaire, all the participants were divided into three groups by random number distribution and were taken to three skill stations, where they have to demonstrate skills by performing the steps of taking weight, height and Mid Upper Arm Circumference (MUAC). Each skill station was observed by a separate single observer having standard key adopted from facility based Guidelines of Severe Acute malnutrition 2015. Responses were observed according to the number of steps performed correctly (5 steps in each skill station), score 5= all 5 steps done correctly, score 1= only 1 step done correctly. After that, there were a series of lectures and audio-visual presentations followed by question-answer and feedback session.

RESULTS

Table 1: Distribution of participants.

Affiliation	Number
Paediatricians	39
Medical Officers	11
Total	50

A total of 50 participants, including 39 Paediatricians and 11 Medical Officers (Table 1) participated in this study. There were 15 questions to assess the cognitive aspect of participants comprising 5 questions to assess their knowledge about basics of SAM, 5 questions about their

assessment of SAM and 5 questions about the management of SAM. To our surprise, it has been found that only 8% of the participants in basics category and only 4% participants in assessment category answered all 5 questions correctly (Table 2 and 3). None of the participants was able to answer correctly all 5 questions in Management Category (Table 4). Not even a single question was answered correctly by all participants in any category. 50% participants answered 1 question correctly in basics category, 64% in assessment category and 22% in the management category of cognitive aspect (Table 2, 3 and 4).

Table 2: Questions based on cognitive aspect - basics.

Questions based on cognitive aspect - basics (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	04	8	41	82	05	10
4	06	12	36	72	08	16
3	10	20	28	56	12	24
2	15	30	30	60	05	10
1	25	50	12	24	13	26

Table 3: Questions based on cognitive aspect – assessment.

Questions based on cognitive aspect - assessment (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	02	4	38	76	10	20
4	06	12	36	72	08	16
3	10	20	33	66	07	14
2	18	36	26	52	06	12
1	32	64	13	26	05	10

Table 4: Questions based on cognitive aspect – management.

Questions based on cognitive aspect - management (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	00	00	38	76	12	24
4	02	4	40	80	08	16
3	06	12	39	78	05	10
2	09	18	37	74	04	8
1	11	22	35	70	03	6

Similarly, there were 15 questions, divided into 3 categories- Basics, Assessment and Management, to assess the psychomotor and affective aspects of the participants regarding SAM. Here also only 6% participants in basics category, 4% participants in assessment category and 4% participants in the management category answered all 5 questions correctly. 54% participants in basics category, 36% participants in assessment category and 32% participants in the management category of Psychomotor and Affective assessment answered 1 question correctly (Table 5, 6 and 7). On comparing the correct responses given by participants to the questions in cognitive and psychomotor-affective aspect category, maximum lack was seen in management category (Figure 1 and 2).

In skill demonstration, only 22% participants in Mid Upper Arm Circumference category, 16% participants in Weight category and 30% participants in Height category performed all 5 steps correctly to take Mid Upper Arm Circumference (MUAC), Weight and Height respectively (Table 8, 9 and 10). On comparing the number of correct steps performed by each participant in MUAC, weight and height category, it was seen that maximum number of

correct steps were performed in height category rather than in MUAC and weight category (Figure 3).

DISCUSSION

The results were very disheartening. Not even 50% of the participants were having the basic idea of SAM. As seen from the results, there was a significant lack in the knowledge of the participants about severe acute malnutrition. In each group, out of basics, assessment and management aspects, maximum lack is seen in the assessment and management part which plays the most significant role in SAM.

Table 5: Questions based on psychomotor and affective aspect – basics.

Questions based on psychomotor and affective aspect - basics (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	03	6	41	82	06	12
4	05	10	38	76	07	14
3	12	24	33	66	05	10
2	19	38	27	54	04	08
1	27	54	20	48	03	06

Table 6: Questions based on psychomotor and affective aspect – assessment.

Questions based on psychomotor and affective aspect - basics (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	02	4	41	82	07	14
4	04	08	37	74	09	18
3	11	22	33	66	06	12
2	13	26	30	60	07	14
1	18	36	28	56	04	08

Table 7: Questions based on psychomotor and affective aspect – management.

Questions based on psychomotor and affective aspect – management (n=5)	Responses					
Questions	Correct		Incorrect		Not replied	
	No.	%	No.	%	No.	%
5	02	04	38	76	10	20
4	05	10	38	76	07	14
3	05	10	40	80	05	10
2	08	16	37	74	05	10
1	16	32	30	60	04	08

Most distressing part is that the maximum number of participants not even knows the WHO classification of SAM. Anthropometry plays the most crucial part in the identification and classification of SAM and it can be seen from the skill station results that none of the participants was able to perform all the steps correctly.

So here comes the question, where exactly we are lacking in Severe Acute malnutrition?

We are having answers with us. What we need is just the basic knowledge about SAM and its correct implication. The most important factors that contribute to the malpractice of SAM are its insufficient and lack of recent knowledge. Most of the health care professionals are still

following the old weight for age classification for SAM, which is of no use in the current scenario. Though little data is available about the knowledge of SAM in Paediatricians in office practice in India, several studies have been conducted in various parts of the world on health care workers, doctors and staff nurses about their nutritional knowledge.

Table 8: Hands on demonstration - mid upper arm circumference (MUAC) measurement.

Number of steps MUAC	Participants			
	Correct		Incorrect	
	No.	%	No.	%
5	11	22	39	78
4	14	28	36	72
3	22	44	28	56
2	31	62	19	38
1	49	98	01	02

Table 9: Hands on demonstration - weight measurement.

Number of steps weight	Participants			
	Correct		Incorrect	
	No.	%	No.	%
5	08	16	42	84
4	12	24	38	76
3	17	34	33	66
2	29	58	21	42
1	50	100	00	00

Table 10: Hands on demonstration – height measurement.

| Number of steps height	Participants			
	Correct		Incorrect	
	No.	%	No.	%
5	15	30	35	70
4	21	42	29	58
3	27	54	23	46
2	43	86	07	14
1	50	100	00	00

One such questionnaire based study was performed on 4512 doctors and nurses in Denmark, Sweden and Norway and it was found that the most important cause for insufficient nutritional practice was lack of nutritional knowledge. 39% participants lacked techniques for identifying malnourished patients and 66% lacked national guidelines for clinical nutrition.[7]

Staff nurses play an important role in the patient care of Severe Acute malnutrition. Insufficient nutritional knowledge among nurses also contributes towards malpractice of SAM. One such study was conducted to assess the knowledge and attitudes of registered nurses

and nurse aides towards malnutrition care in nursing homes. The study was performed in 66 Austrian nursing homes with 1152 participants. It was found that 60.6% of the respondents answered the questions correctly and registered nurses knew significantly more (65.6%) than nurse aides (57.3%).[8]
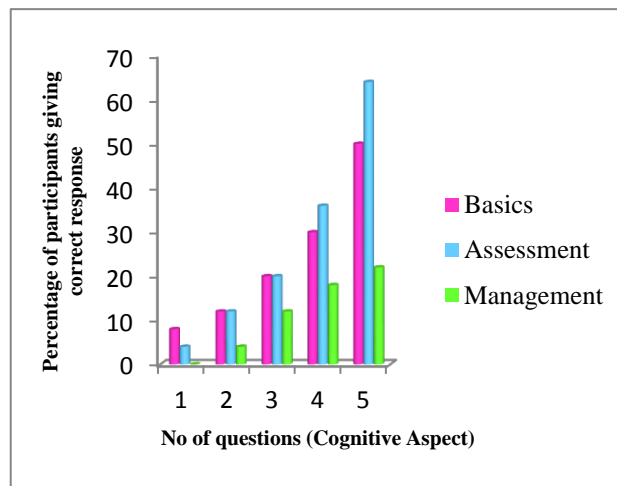
Figure 1: Comparison of correct responses of cognitive aspect parameters.
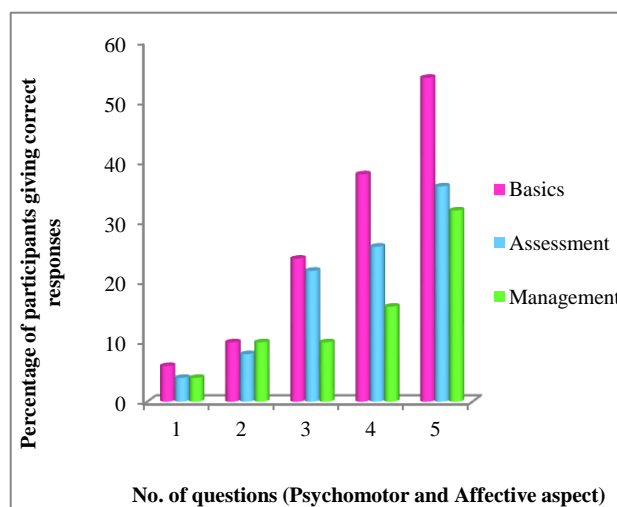

Figure 2: Comparison of correct responses of psychomotor-affective aspect parameters.

One more study was conducted to assess the nutritional knowledge of nurses in long-term care facilities. A sample of 44 nurses from five eastern Washington nursing homes completed a 50-item questionnaire and they scored an average 65% +/- 11% on the nutrition examination.[9]

Nutritional care plays a key role in improvement, prevention and control of malnutrition in hospitals. A study was aimed to determine the nutrition knowledge level of doctors, nurses and nutritionists in some teaching hospitals in Tehran in 2008. In this cross-sectional study, a total of 198 samples, including 28 nutritionists, 81

nurses and 89 physicians were selected. Nutrition knowledge levels of each individual were determined by calculating correct knowledge, perceived knowledge and accuracy of knowledge scores. The median knowledge score of the nutritionists, physicians, and nurses was 85%, 77%, and 75%, respectively. The results indicated that all groups have a poor knowledge, especially in clinical nutrition topics.[10]
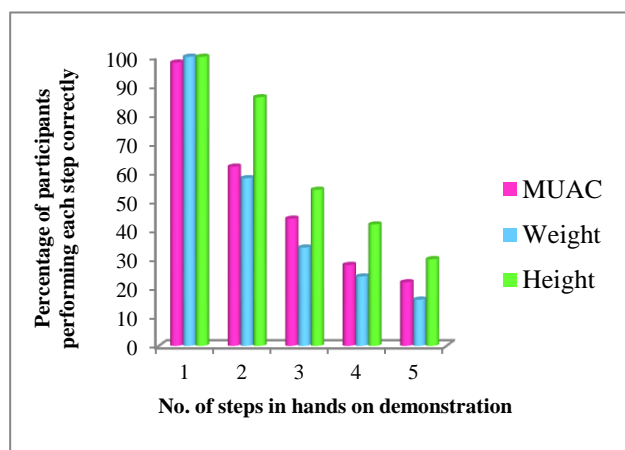
Figure 3: Comparison of correct steps performed by participants in hands on demonstration.

In order to determine the effectiveness of in-service nutrition training on health workers' nutrition knowledge, counselling skills, and child under nutrition management practices, a systemic review was conducted to determine whether nutrition training improves health workers' nutrition knowledge and competence to manage child under nutrition. It was found that out of 3910 retrieved articles, 25 were selected as eligible for the final analysis. A total of 18 studies evaluated health workers' nutrition knowledge and showed improvement after training.12 studies with nutrition counselling as the outcome variable also showed improvement among the trained health workers and sixteen studies evaluated health worker's child under nutrition management practices. It has been concluded that child under nutrition management practices and competence of health workers improved after the nutrition training intervention and in-service nutrition training improved the quality of health workers.[11]

CONCLUSION

Thus, what is lacking in office practice is anthropometry and basic knowledge of diagnosis and management of severe acute malnutrition. As we know that a lot of training programmes are being conducted all across the country to teach SAM, but what is required that it should be adopted and incorporated into our day to day routine practice. Anthropometry in children below 5 years of age is a must for each and every health care professional. Sufficient time should be given to each and every child for early identification of SAM because it can be treated

only when it can be diagnosed. MUAC tape, WHO weight for height charts, weighing machine, infantometer and stadiometer should be the part and parcel of each pediatrician's office and trained staff should be there to record these parameters and what is finally required is regular refreshment of knowledge about early identification and management protocols of SAM, so that maximum number of children could be identified before they land into SAM and even if they land could be timely managed.

REFERENCES

1. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, Onis MD, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet. 2013;382:427-51.
2. Dalwani S, Choudhury P, Bavdekar SB, Dalal R, Kapil U, Dubey AP, et al. Consensus Statement of the Indian Academy of Pediatrics on Integrated Management of Severe Acute Malnutrition. Indian Pediatr. 2013;50:399-404.
3. UNICEF Global Database on Child Malnutrition. 2005. Available at: http://www.childinfo.org/areas/ malnutrition/wasting.php. Accessed on 4/6/16.
4. National Family Health Survey, India 3 (2006) data. Available at: http://www.rchiips.org/nfhs/ nfhs3.shtml. Accessed on 20/05/16.
5. National Family Health Survey 4 (2015-2016) data. Available at: http://www.rchiips.org/nfhs/ pdf/NFHS4/MP_FactSheet.pdf. Accessed on 4/6/16.
6. Das Gupta R, Sinha D, Yumnam V. Rapid survey of wasting and stunting in children: What's new, what's old and what's the buzz. Indian pediatr. 2016;53:47-9.
7. Mowe M1, Bosaeus I, Rasmussen HH, Kondrup J, Unosson M, Rothenberg E, et al. Insufficient nutritional knowledge among health care workers? Clin Nutr. 2008;27(2):196-202.
8. Bauer S, Halfens RJG, Lohrmann C. Knowledge and attitudes of nursing staff towards malnutrition care in nursing homes: A multicentre cross-sectional study. J Nutr Health Aging. 2015;19(7):734-40.
9. Crogan NL, Shultz JA, Massey LK. Nutrition knowledge of nurses in long-term care facilities. J Contin Educ Nurs. 2001;32(4):171-6.
10. Abdollahi M, Houshiarrad A, Abtahi M, Esmaeli M, Pouraram H, Khoshfetrat MR, et al. The nutrition

knowledge level of physicians, nurses and nutritionists in some educational hospitals. Journal of Paramedical Sciences. 2013:4.

11. Sunguya BF, Poudel KC, Mlunde LB, Urassa DP, Yasuoka J, Jimba M. Nutrition training improves health workers' nutrition knowledge and competence to manage child undernutrition: a systematic review. Front. Public Health. 2013;1:37.

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