# **Brief Report**

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# Study of maternal profile in children admitted to nutritional rehabilitation centre at a tertiary hospital

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# **ABSTRACT**

**Background:** Study of maternal profile in children affected with severe acute malnutrition is very essential. Maternal nutritional status, social and educational status and her medical conditions have direct impact on malnutrition of children. Small efforts to study the maternal profile for one year in our nutritional rehabilitation centre.

**Methods:** A one-year prospective study was carried out in a nutritional rehabilitation centre, Department of paediatrics, Bangalore Medical College and Research Institute, Bangalore, Karnataka, India, from September 2015 to August 2016. All maternal details were recorded. All mothers were examined for height weight BMI, checked for vitals and underlying medical conditions. Anaemia is confirmed by laboratory test.

**Results:** Out of 302 mothers enrolled for study, majority were 23 plus or minus 5 years aged mothers. More than 33.7% mothers were under weight. Around 8% mothers were pre-obese and obese. Nearly 88% mothers were found to have anemia, 39% mothers had mild anemia, 30% had moderate anemia, 30% had severe anemia. Hypertension, hypothyroidism, tuberculosis and gynecological problems were other major medical illness seen in these mothers. Majority of the mothers were primigravida (42.38%), around 22% mothers were having birth order more than 3 children. Nearly 78% mothers were not practicing any family planning, only 21% mothers were aware and practicing family planning. Nearly 45% mothers were educated less than high school education. Only few mothers (18%) have studied till post-graduation.

**Conclusions:** In the study majority of the mothers were found to be under weight, nearly 88% mother had anaemia, several underlying medical conditions were detected in mothers, most of the mothers were not practicing family planning, majority of the mothers were studied below high school education.

Keywords: Maternal anaemia, NRC, Severe acute malnutrition children

### INTRODUCTION

Indian population estimated roughly around 1.2 billion, in which 12% population constitutes under five population, of which 8 million (6.4%) are assumed to have severe acute malnutrition. Globally malnutrition is the major public health problem especially in developing countries. Malnutrition is found to be underlying factor in over 50% of children deaths less than 5 years who die every year of

preventable causes.<sup>2-5</sup> Over 50% of Under 5 childhood deaths due to preventable causes are associated with malnutrition. In the state of Karnataka NFHS-4 indicates that 10.5% of children under five are severely malnourished.<sup>6</sup>

Maternal under nutrition has a long-lasting impact on the nutritional status of her child. We analyzed nutritional status of the mothers of children with severe acute malnutrition. The objective of this study is to critically assess the maternal profile of those SAM children admitted in our NRC.

#### **METHODS**

A prospective observational study was done for one year from September 2015 to August 2016 in Nutritional Rehabilitation Centre, Vani Vilas children hospital, BMC and RI, Bangalore. Total 302 mothers were enrolled whose children were admitted in our NRC with severe acute malnutrition. Demographic details were recorded using pre-structured questionnaire and mothers were examined for height, weight and hemoglobin levels. The body mass index was calculated according to WHO classification as underweight (<18.5kg/m²) normal (18.5-24.995kg/m²), pre-obese (25-29.995kg/m²) and obese >305kg/m²). Anemia assessment was done and classified according to WHO guidelines. Hemoglobin <12 g/dl is considered anemia. Mild anemia (10-11.9 g/dl), moderate anemia (7-9.9g/dl), severe anemia (<7g/dl).

# **RESULTS**

Out of 302 mothers enrolled for study, majority were 23 plus or minus 5 years aged mothers.

Table 1: Distribution of study subjects according to age.

Age	Frequency(n=302)	%
16- 20	61	20.19868
21 - 25	150	49.66887
26 - 30	71	23.50993
31- 35	13	4.304636
36- 40	5	1.655629
41-45	1	0.331126
46 - 50	1	0.331126
Total	302	

As data is not normally distributed median and IQR has been calculated for the age group with median  $\pm$  IQR =  $23 \pm 5$ .

Table 2: Distribution of study subjects according to BMI (Asian pacific classification).

	Cut off values	Frequency	%
Underweight	>18.5	102	33.77483
Normal	18.5 - 22.9	147	48.6755
Overweight	23 - 24.9	25	8.278146
Pre - obese	25 - 29.9	17	5.629139
Obese	>=30	11	3.642384
		302	

More than 33.7% mothers were under weight. Around 8% mothers were pre-obese and obese.

Table 3: Distribution of study subjects according to diagnosis.

Disease	Frequency	% (n=143)
Anaemia	126	88.11
Mild (9.5 - 11)	50	39.68
Moderate (8 - 9.5)	38	30.15
Severe (6.5 - 7.9)	38	30.17
Hypertension	8	5.59
Gynec prob	5	3.49
Hypothyroidism	5	3.49
TB	5	3.49
Others	10	6.99

\*Others: RHD, CHD, Hyperthyroidism, HIV, Psychiatry disorder, Seizure disorder, Rheumatoid arthritis, SLE.

Nearly 88% mothers were found to have anemia, 39% mothers had mild anemia, 30% had moderate anemia, 30% had severe anemia.

Hypertension, hypothyroidism, tuberculosis and gynecological problems were other major medical illness seen in these mothers.

Table 4: Distribution of study subjects according to parity.

	Frequency	%
1	128	42.38411
2	102	33.77483
3	54	17.88079
4	16	5.298013
5	2	0.662252
Grand total	302	

Majority of the mothers were primigravida (42.38%), around 22% mothers were having birth order more than 3 children.

Table 5: Distribution of study subjects according to practice of family planning.

	Frequency	%
No	237	78.47
Yes	65	21.52
Grand total	302	

Table 6: Distribution of study subjects according to education.

	Frequency	%
Post/graduate	55	18.21192
Puc/diploma	67	22.18543
High school	37	12.25166
Middle school	23	7.615894
Primary school	119	39.40397
Illiterate	1	0.331126
	302	

Nearly 78% mothers were not practicing any family planning, only 21% mothers were aware and practicing family planning.

Nearly 45% mothers were educated less than high school education. Only few mothers (18%) have studied till post-graduation.

# **DISCUSSION**

In the state of Karnataka NFHS-4 indicates 20.7% of women are under weight, in our study we found >33 % mothers were under weight. NFHS-4 showed 44.8% women are anemic in our state, present study showed 88% mothers having anemia. Majority of the anemia constitutes for undernourishment and multiparity with less birth spacing.

NFHS-4 shows 51.8% family planning in Karnataka state, whereas in present study shows only high 78%. NFHS-4 shows 71.8% women literacy rate which is comparable with our study. Thus, pre-morbid medical conditions like anemia, under-weight and other illness reflects severe acute malnourishment in children born to them. Association between malnutrition and multiple factors such as parents' education, number of under-five children, birth order, mother's BMI and height have been reported earlier studies in Moestue H et al and Rahman A et al.<sup>8,9</sup>

To eliminate this resource should be supplemented by improvements in the underlying determinants of undernutrition, such as poverty, poor education, disease burden, and lack of women's empowerment as described in studies Bhutta AZ et al. <sup>10</sup>

# CONCLUSION

The study of maternal profile of severe acute malnutrition children concludes that to improve nutrition, education in female population. Medical illness in mother have to be diagnosed at the earliest and has to be corrected, effective treatment of anemia in mothers and women empowerment are key to tackle women and child under nutrition.

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