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ASSESSMENT OF QUALITY OF LIFE OF SEVERE ACUTE MALNOURISHED (SAM) CHILDREN IN MUMBAI, MAHARASHTRA AGED 2 – 4 YEARS

Paediatrics

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ABSTRACT

Background: Malnutrition is a serious health problem affecting children globally. Nutritional status of an individual is a factor determining his / her quality of life. Quality of Life (QOL) means a sense of well-being, satisfaction and happiness experienced by an individual. The aim of the study was to assess the Quality Of Life (QOL) of SAM children aged 2 – 4 years. **Methodology:** It was a cross sectional study for which children were selected from the Nutrition Rehabilitation, Research and Training Centre (NRRTC) located at Sion, Mumbai based on the inclusion and exclusion criteria. A structured interview was conducted to administer the case report form for data collection and consisted of anthropometry and the Pediatric Quality of Life Inventory tool. The ethical approval for the study was received from Inter System Biomedica Ethics Committee (ISBEC), Mumbai, India. **Statistical Analysis:** The data was analyzed using SPSS software version 25 for Windows. **Results:** The mean age of children was 38.56 ± 7.99 months. The mean total scale score for children with SAM aged 2 – 4 years was found to be 74.47 ± 22.57 and was significantly correlated with height, weight and MUAC. Amongst the subscales, social functioning had the highest scores and emotional functioning had the lowest scores. **Conclusion:** SAM children have low scores on the quality of life scale. The quality of life total scale scores have a statistically significant correlation with anthropometry.

INTRODUCTION:

The WHO defines malnutrition as an imbalance between the intake of nutrients and energy, and the body's requirement to ensure homeostasis, specific functions and in the case of children growth2. Malnutrition affects children from the age of 0 – 60 months, mainly in the developing countries. As per Global Nutrition Report (2018)8 eight million i.e. 40% of the world's SAM children (20 million) under 5 years of age are found in India. As per NFHS-4 data (2015-2016)3,6, in India the prevalence of severe wasting in children below 5 years of age is reported to be 7.5% and in Maharashtra it is 9.4%.

Severe Acute Malnutrition (SAM) is one of the most visible form of undernutrition. SAM or wasting is defined as low weight – for – height Z score in children 6 – 60 months of age as per WHO Child Growth Standards. It has long term health consequences and is reported to cause death 9 times more than in well-nourished children1. Malnutrition hinders the path of normal growth and development. Effects on a child's physical, emotional, intellectual and cognitive development have been documented. Malnutrition results in growth failure, impaired motor development, reduced muscle mass and strength and delayed sexual development. Besides this, psychological and behavioural issues such as apathy, depression, anxiety and self-neglect may also be seen. Malnourished children have more absenteeism than their healthy peers in school and this impacts their educational achievements5. Therefore, nutritional status is one of the factor that influences a child's overall quality of life4.

QOL is multifaceted subjective evaluation of an individual's sense of well-being. It is to measure happiness and satisfaction not only in terms of employment and wealth but also mental , physical, emotional , social and environmental well-being. QOL is influenced by various factors – age , socioeconomic status, culture , society . geographical area , education , health and nutritional status. Measurement of QOL reflects current circumstances of an individual's life. SAM children have limited abilities to carry out simple tasks as they lack the strength and energy required for performance.

Understanding the quality of life of SAM children will enable the caretakers to provide the required stimulation for optimal health and happiness. It will also help in determining the impact of health care; the effectiveness of an intervention It will improve thinking capabilities, productivity and economic contribution in future within the family and to the country. Therefore, the aim of the study was to assess the Quality Of Life (QOL) of Severe Acute Malnourished (SAM) children aged 2 – 4 years.

MATERIALS AND METHOD:

A cross sectional study was conducted for which participants were selected from the Nutrition Rehabilitation, Research and Training Centre (NRRTC) located at Sion, Mumbai. The study was conducted for 1 month (February 2020 – March 2020). The sample size was 16 and the convenience sampling technique was used for selection of children. Those identified as SAM were included based on the following inclusion and exclusion criteria:

Inclusion Criteria:
i. Children within the age group of 2 - 4 years.
ii. Weight – for – Height Z score : < - 3 S.D.
iii. MUAC : < 115 mm.
iv. Presence of bilateral oedema.

Exclusion Criteria:
I. Presence of any health related condition such as cerebral palsy, malabsorption, chronic systemic diseases, thalassemia, heart disease and congenital malformations.

ii. Those SAM children already receiving the medical nutrition therapy during the study period.

The ethical approval for the present study was received from Inter System Biomedica Ethics Committee (ISBEC), Mumbai, India.

Methodology-
After an informed consent was duly signed by the parent, a face – to – face structured interview was conducted for parent(s) of the participant. A case report form was administered for data collection

and consisted of the following sections:

a. Anthropometry: Weight, height / length and Mid Upper Arm Circumference (MUAC) was measured by an assigned nurse at NRRTCs using proper tools. The WHO simplified field tables was used to mark measured anthropometry to obtain z-scores.

b. Quality of life Questionnaire: The Pediatric Quality of Life Inventory Tool was used to assess the quality of life of the participants. For the present study the generic core scale was used – PedsQL 4.0 Generic Core Scale to report severity of problems in the past one month faced by the severe acute malnourished child. Since the age group of the study was 2 – 4 years, Parent Proxy Report for Toddlers (2 – 4 years) was used. Studies by the author of the tool has demonstrated feasibilty, reliabilty and validity of the child self report and parent proxy reports inorder to enable the use of PedsQL 4.0 Generic Core Scale in pediatric populations.

Statistical Analysis:
The data was analysed using SPSS software version 25 for Windows. Data was reported as Mean ± S.D and Pearson's correlation coefficient test was run to determine significant relationship between variables. The significance value for the study was $p < 0.05$.

RESULT:
In the present study, mean age of the children was found to be 38.56 months (SD = 7.99). Children had non-oedematous type of SAM.

Anthropometry-
The mean anthropometric measurements were as follows: weight of children was 8.74 ± 1.00 kilograms; height was 85.23 ± 5.32 centimeters and MUAC was 12.13 ± 0.66 centimeters.

Quality of life score-
TABLE-1 MEAN SCALE SCORES OF CHILDREN

Scale Descriptive	N	Mean ± S.D.
Physical Health	16	72.91 ± 30.99
Emotional Functioning	16	68.64 ± 20.88
Social Functioning	16	87.65 ± 22.61
School Functioning	11	69.69 ± 37.68
Psychosocial Health	16	75.27 ± 20.26
Total Score	16	74.47 ± 22.57

Note: N= number of children.

The above table shows the mean score of children for all the dimensions in the scale and the total scale score (M= 74.47, SD= 22.57). Amongst all the sub scales, it was seen that social functioning had the highest score (M= 87.65, SD = 22.61) indicating that most of the children had minimal or no problems while interacting with their peers. Most of the children were physically active (M= 72.91, SD= 30.99) and many did not perceive the feeling of pain and tiredness after the activity was done. However, the bathing scale had missing responses (n=11) because parent's did not allow children to bathe themselves. Only five children did not attend school and those who did missed school for some days due to their associated illness. Parent's reported their child's emotional behavior (M= 68.64, SD= 20.88) and it was seen that most of them felt angry sometimes accompanied with other behavioral issues. The total score for psychosocial health was 75.27 ± 20.26.

TABLE-2 CORRELATION BETWEEN QOL AND ANTHROPOMETRY OF SAM CHILDREN

	N	Height (centimeter)		Weight (kilogram)		MUAC (centimeter)	
		r	p value	r	p value	r	p value
Physical Health	16	.428	.098	.485	.057	.395	.130
Emotional Functioning	16	.413	.112	.417	.108	.448	.081
Social Functioning	16	.453	.078	.504	.047*	.661	.005*
School Functioning	11	.257	.446	.376	.254	.046	.893
Psychosocial Health	16	.495	.051	.548	.028*	.576	.020*
Total Score	16	.499	.049*	.562	.024*	.543	.030*

Note: Data is presented as Pearson's correlation coefficient (r); N = number of children; *p value < 0.05

The mean scores of physical health, emotional functioning and school functioning dimension of the scale showed no significant correlation with any anthropometric measures. A statistically significant and strong correlation was seen between mean score of social functioning and weight (r= .504, n= 16, p= .047) as well as between mean score of social functioning and MUAC (r= .661, n= 16, p= .005). Overall, mean psychosocial health summary score showed strong significant correlation with two anthropometric measurements – weight (r= .548, n= 16, p= .028) and MUAC (r= .576, n= 16, p= .020). The mean total scale score showed a moderately significant correlation with height (r= .499, n= 16, p=.049) but strong and significant correlation with weight (r= .562, n=16, p= .024) and MUAC (r= .543, n= 16, p= .030). Thus, it was found that there exists a significant, positive and moderate to strong relationship between the mean total scale score and some of the dimensions of the quality of scale and anthropometry.

DISCUSSION:
In the study by Raj et al.7, the HRQOL scores for healthy population have been given. It can be seen that 2 – 4 year old children with SAM in the present study have lower total HRQOL scores than their healthy counterparts (M= 74.47 vs M= 91.69) in the study by Raj et al 7. A similar pattern was seen in the study conducted by Varni et al.9, on children aged 2 – 16 years in California. The total HRQOL scores for healthy children aged 2 – 4 years in the reference study was higher (M= 87.42, SD= 12.49) than for acutely ill children in the present study (M = 74.47, SD= 22.57). In the present study, children had highest scores for social functioning and lowest score for emotional functioning and this pattern is similar to the study conducted by Raj et al7. In a study by Kusmiyati et al.4, it was found that malnutrition impacts mainly physical, emotional and social functions in the quality of scale. The current study reports similar findings. In our study, the only limitation was its sample size.

CONCLUSION:
The mean total scale score for SAM children on the quality of life scale is 74.47 ± 22.57. Of all the dimensions measured, it is observed that social functioning had the highest mean score and emotional and school functioning had the lowest mean score. The mean total scale score of PedsQL 4.0 Generic Core Scale is significantly correlated with anthropometry ($p < 0.05$).

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