

# Effect of Nutritional status on Psychosocial Health: A Comparative Study Between Meitei Orphan and Non-orphan Girls

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**ABSTRACT:** This study investigated the nutritional status of orphan girls staying in the orphanages and non-orphan girls staying with their parents. The paper also tries to determine whether psychosocial factors are associated with nutritional status. A cross-sectional survey was carried out among 343 girls, comprised of 165 orphans and 178 non-orphans aged 5-15 years. The subjects were selected through cluster random sampling. Anthropometric measurements (weight and height) and psychosocial questionnaire were used to assess nutritional status and psychosocial health of the girls respectively. Findings revealed that the nutritional status of most of the orphan and non-orphan girls are normal. Majority of the girls were found to have normal body mass index (BMI) for age (96.97% orphan and 94.94% non-orphan). No cases of stunting and wasting were found among these girls. The findings showed significant differences in total difficulties scores of psychosocial well-being of orphan girls (94.55% normal) and non-orphan girls (100.00% normal). Orphan girls were found to have more exposed on behavioural and pro-social problems as compared to the non-orphan girls. Conduct problem score was found to be significantly associated ( $p < 0.01$ ,  $p < 0.05$ ) with BMI for age, weight for age and height for age in orphan girls, but not in the non-orphan girls. The findings indicate that although the orphan girls were meeting the basic needs of food and shelter but their psychosocial requirements perhaps remained unaddressed. Thus, there is a need for the guardians, government and non-government organizations to focus and to formulate the strategies required to develop the psychosocial health of the orphan girls living in the orphanages.

## INTRODUCTION

Nourishing the body is a basic human right. Optimal nutrition is necessary for physical and mental growth and development of children. Nutrition is the intake of food, considered in relation to the body's dietary needs. A well balanced diet combined with regular physical activity is a cornerstone of good

health (Disabled World, 2019). Nutrition plays a vital role as inadequate nutrition during childhood may lead to malnutrition, growth retardation, reduced work capacity and poor mental as well as social development (Awasthi and Kumar, '99). Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body. It is well known fact that nutritional status is a major determinant of the health and well-being among

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children and there is no debate on the importance of the study of child nutritional status according to spatial and temporal dimension (NFHS-'98-'99). Although nutrition is a basic human need it remains unmet for vast numbers of children, the later who are thus unable to achieve their full genetic development potential, due to malnutrition (Rutengwe *et al.*, 2001). Socioeconomic and environmental factors affect the health and nutrition of many children.

Recent estimates from United Nations Children's Fund (UNICEF) show that there are 140 million children worldwide who have lost one or both parents. Statistics show that India is home for 30 million orphan and vulnerable children (OVC), the largest in the South Asian region (UNICEF, 2015-2016). Orphanhood leads to various problems often to prejudice, reduced access to health and school services, challenges to the basic physiologic needs and other factors that can impact their future (Erangno and Ayka, 2015). Based on reports from the World Health organization (WHO), mental health disorders in children and adolescents have increased each year and their issue will continue to increase by 50% until 2020 (Bayera *et al.*, 2010). Mortality and morbidity is strongly associated with severe growth retardation, while impaired psychosocial, intellectual development and learning disability are associated with developmental delay (Routray *et al.*, 2015). Children in orphanage as compare to those children living with their parents are often observed to eat substantial amounts of food, and their weight is consistently higher than their height. As suggested by some investigators that psychosocial deprivation is a major cause of their inconsistent weight and height. (Johnson and Nelson, 2000). These children suffer from a variety of developmental and behavioural problems especially when they are raised in adverse condition during early ages of life. The lack of emotional and social attachment, adequate stimulation and interaction among the family members is an important cause of developmental impairment. Attempts to study the issues relating to nutritional status and psychosocial well-being of the children and adolescents are not many. Therefore, the present study is an effort to understand the differences in nutritional status and psychosocial well-being of the orphan and non-orphan girls.

## MATERIALS AND METHODS

A cross-sectional study was carried out among the Meitei orphan and non-orphan girls aged 5-15 years, residence of Imphal valley, Manipur. Six orphanages, for example, Carmel Jyoti, Mantripukhri; Nawapoireikol, Koirengi; Mother Teresa Home, Mantripukhri; Hessi children Home, Khurai; Destitute children home, Tera and Mahila Kalyan Samiti children Home, Chingmeirong were selected for selecting orphan participants. Those children who were mentally retarded, physically handicapped, suffering from chronic disease were excluded from the study. The non-orphan girls were selected randomly from the areas where the orphanages were located. Information was gathered using cluster random sampling method. The guardians and care takers were informed about the purpose of the study and written consent was obtained. Care was taken about their willingness and participation and complete confidentiality was maintained throughout the study. Structured questionnaire schedule was used for obtaining data on socio-demographic parameters which includes individual records like name of the subject, sex, age, education, etc. Body weight and height were measured following standard techniques of Weiner and Lourie (1981). Nutritional status of the girls was assessed through weight for age (wasting), height for age (stunting) and BMI for age (underweight) following WHO, (2007). Strength and difficulties questionnaires (Goodman, 1997) were used to evaluate the psychosocial factors among the studied girls. Data thus generated was entered and analyzed using IBM SPSS Statistics version 20 software package.

## RESULTS AND DISCUSSION

Assessment of the nutritional status of the children is of immense importance as morbidity and malnutrition constitutes heavy burden to them. Adequate nutrition is important among children because it affects the achievement of growth and development. The result of the present study shows majority of the girls participated has normal weight and height. Nonetheless, occurrences of overweight were also found. 96.97% of orphan and 94.94% of non-orphan girls were found to have normal BMI for age (Figure 1).

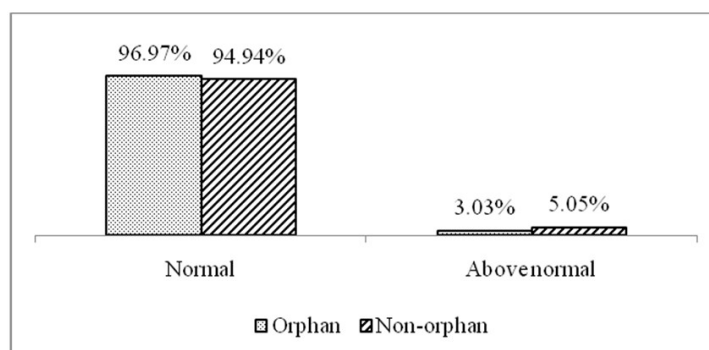


Figure 1. Percentage distribution of BMI for age among Meitei orphan and non-orphan girls

Some of the non-orphan girls in the age group of 13 years are found to have high prevalence of overweight (22.22%) as compared to their orphan counterparts who doesn't have any case of overweight in this age group (Table 1).

Table 1. Age group-wise distribution of BMI for age among Meitei orphan and non-orphan girls.

Age (years)	Orphan*		Non-orphan*	
	Normal ( $\geq -2$ to + 2 Z score)	Above normal ( $\geq + 2$ Z score)	Normal ( $\geq -2$ to + 2 Z score)	Above normal ( $\geq + 2$ Z score)
5	13(100.00)	0	14(100.00)	0
6	16(100.00)	0	16(100.00)	0
7	14(100.00)	0	15(100.00)	0
8	15(100.00)	0	17(100.00)	0
9	13(100.00)	0	17(100.00)	0
10	13(92.85)	1(7.15)	17(100.00)	0
11	16(94.12)	1(5.88)	14(93.33)	1(6.67)
12	15(93.75)	1(6.25)	14(93.33)	1(6.67)
13	17(100.00)	0	17(77.78)	4(22.22)
14	14(93.33)	1(6.67)	15(93.75)	1(6.25)
15	14(93.33)	1(6.67)	16(88.89)	2(11.11)
Total	160(96.67)	5(3.03)	169(94.94)	9(5.05)

\* Percentages are given in the parenthesis

Table 2 Age group-wise distribution of weight for age among Meitei orphan and non-orphan girls

Age (years)	Orphan*		Non-orphan*	
	Normal ( $\geq -2$ to + 2 Z score)	Above normal ( $\geq + 2$ Z score)	Normal ( $\geq -2$ to + 2 Z score)	Above normal ( $\geq + 2$ Z score)
5	13(100.00)	0	14(100.00)	0
6	16(100.00)	0	16(100.00)	0
7	14(100.00)	0	15(100.00)	0
8	15(100.00)	0	17(100.00)	0
9	13(100.00)	0	17(100.00)	0
10	14(100.00)	0	17(100.00)	0
11	16(94.12)	1(5.88)	15(100.00)	0
12	16(100.00)	0	14(93.33)	1(6.67)
13	17(100.00)	0	14(77.78)	4(22.22)
14	13(86.67)	2(13.33)	15(93.75)	1(6.25)
15	11(73.33)	4(26.67)	16(88.89)	2(11.11)
Total	158(95.76)	7(4.24)	170(95.51)	8(4.49)

\* Percentages are given in the parenthesis

Table 3. Age group-wise distribution of height for age among Meitei orphan and non-orphan girls.

Age (years)	Orphan*		Non-orphan*	
	Normal ( $\geq -2$ to $+2$ Z score)	Above normal ( $\geq +2$ Z score)	Normal ( $\geq -2$ to $+2$ Z score)	Above normal ( $\geq +2$ Z score)
5	12(100.00)	0	14(100.00)	0
6	16(100.00)	0	16(100.00)	0
7	14(100.00)	0	15(100.00)	0
8	15(100.00)	0	17(100.00)	0
9	13(100.00)	0	17(100.00)	0
10	14(100.00)	0	17(100.00)	0
11	17(100.00)	0	15(100.00)	0
12	16(100.00)	0	15(100.00)	0
13	17(100.00)	0	18(100.00)	0
14	14(93.33)	1(6.67)	16(100.00)	0
15	11(73.33)	4(26.67)	18(100.00)	0
Total	159(96.36)	5(3.04)	178(100.00)	0

\* Percentages are given in the parenthesis

Based on weight for age and height for age, there was no case of wasting and stunting respectively among the girls (Tables 2 and 3). Overall majority of

orphan girls (95.76%) and non-orphan girls (95.51%) were found to have normal weight for age (Figure 2).

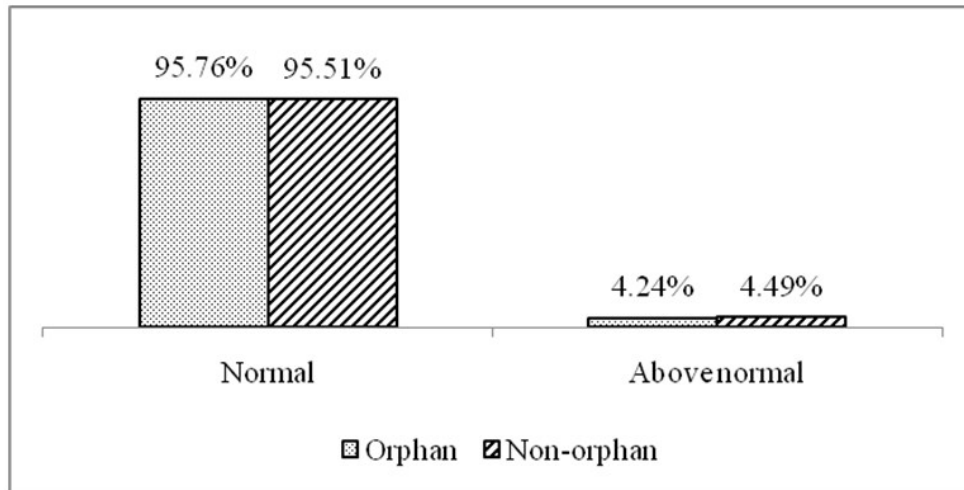


Figure 2. Percentage distribution of weight for age among Meitei orphan and non-orphan girls.

Previous studies have reported mixed findings about nutritional status of orphans and non-orphans. Study done in Malawi showed 64% of young orphanage children were stunted compared to 46.4% of non-orphans. The mean (SD) Z-score of height/age was significantly lower in the orphanage group, -2.75 (1.29) compared with -1.61 (1.57) the non-orphan groups (Panpanich *et al.*, 1999). In the study conducted among the children (5 to 14 years) in orphanages at Chennai also found that 57.7% children were under weight (Shukla and Shukla, 2011). In

contradiction to our study, few other studies have also found that more than half of the orphans show prevalence of underweight (Senoleo, 2012; Huq *et al.*, 2013; Reddy *et al.*, 2019). On the other hand, a study conducted in Budgam district of Jammu and Kashmir reported that out of 100 orphans under study, 84 were normal, 13 had grade-1-malnutrition and 3 had grade-2-malnutrition which reflects that situation is not that bad in these orphanages (Vaida, 2013). In the present study, most of the orphan girls (96.36%) and all the non-orphan girls under study were observed to have normal height for age (Figure 3).

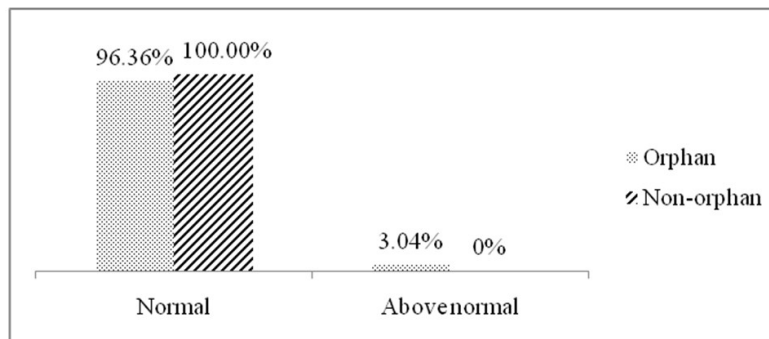


Figure 3. Percentage distribution of height for age among Meitei orphan and non-orphan girls.

The lack of significant differences in the nutritional status of orphans and non-orphans children of the present study is consistent with earlier findings (Hz and Ji, 2007; Zidron *et al.*, 2009; Kimani *et al.*, 2011). The present study is supported by the findings of Linblade (2003), Mishra and Bignani (2008) and Malabika *et al.* (2005) which show no clear relationship between orphan-hood and the nutritional status of the children. The study of Ali *et al.* (2018) also found that orphanages had better daily meal menus which in most cases were well followed. The results of the present study could be explained by the fact that the girls staying in the orphanages were given proper daily meal following food and nutritional requirements for their growth and development as the non-orphan girls staying with their parents. They even followed a daily routine of meals, physical activity and studies. This might be attributed to a greater extent of better health and care system. Though the girls are properly nourished, we are still lagging

behind in the fight against malnutrition as a whole.

Children’s psychosocial well-being affects every aspect of their lives. When children lose one or both parent(s), they experience multiple psychosocial problems like grief, hopelessness, anxiety, stigmatization, physical and mental violence, labour abuse, lack of community support, lack of parental love, withdrawal from society as a whole, feelings of guilt, depression, aggression, as well as eating, sleeping and learning disorder (Gilborn *et al.*, 2001; Chipungu and Bent-Goodley, 2004). Studies identified that orphan status is the most significant predictor of psychosocial distress (Nyamukapa *et al.*, 2008; Cluveret *et al.*, 2009; Onuoha and Munakata, 2010). The present study assessed the psychosocial well-being of the girls (as reflected in the SDQ total difficulties score). In general, older orphan girls are reported to have less psychosocial distress than younger girls (Table 4).

Table 4. Age group-wise classification of total difficulties score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	13(100.00)	-	-	14(100.00)	-	-
6	14(87.50)	-	2(12.50)	16(100.00)	-	-
7	13(92.86)	1(7.14)	-	15(100.000)	-	-
8	12(80.00)	1(6.67)	2(13.33)	17(100.00)	-	-
9	12(92.31)	-	1(7.69)	17(100.00)	-	-
10	13(92.86)	-	1(7.14)	17(100.000)	-	-
11	16(94.12)	-	1(5.88)	15(100.000)	-	-
12	16(100.00)	-	-	15(100.00)	-	-
13	17(100.00)	-	-	18(100.00)	-	-
14	15(100.00)	-	-	16(100.00)	-	-
15	15(100.00)	-	-	18(100.00)	-	-
Total	156(94.55)	2(1.21)	7(4.24)	178(100.00)	-	-

\* Percentages are given in the parenthesis

Significant differences were observed in the total difficulties score between the orphan and non-orphan girls. Few orphan girls (4.24%) are found to be at risk of having clinical problems whereas, all the non-orphan girls are found to be normal in those parameters (Table

4). The present study revealed that 13.94% (Table 5), 12.73% (Table 6) and 6.67% (Table 7) of the orphan girls had pro-social behaviour, peer problem and conduct problem respectively, which is significantly higher as compared with their non-orphan counterparts.

Table 5. Age group-wise classification of pro-social score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	10(76.93)	1(7.69)	2(15.38)	8(57.14)	2(14.29)	4(28.57)
6	15(93.75)	1(6.25)	-	13(81.25)	-	3(18.75)
7	8(57.14)	3(21.43)	3(21.43)	12(80.00)	2(13.33)	1(6.67)
8	10(66.67)	1(6.67)	4(26.66)	17(100.00)	-	-
9	6(46.15)	-	7(53.85)	17(100.00)	-	-
10	9(64.29)	3(21.43)	2(14.28)	16(94.12)	1(5.88)	-
11	14(82.35)	1(5.88)	2(11.77)	15(100.00)	-	-
12	15(93.75)	1(6.25)	-	14(93.33)	-	1(6.67)
13	13(76.48)	2(11.76)	2(11.76)	17(94.44)	1(5.56)	-
14	13(86.67)	2(13.33)	-	16(100.00)	-	-
15	10(66.67)	4(26.67)	1(6.66)	17(94.44)	1(5.56)	-
Total	123(74.54)	19(11.52)	23(13.94)	162(91.01)	7(3.93)	9(4.24)

\* Percentages are given in the parenthesis

Table 6. Age group-wise distribution of peer problem score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	9(69.23)	3(23.08)	1(7.69)	11(78.57)	2(14.29)	1(7.14)
6	13(81.25)	1(6.25)	2(12.50)	12(75.00)	2(12.50)	2(12.50)
7	10(71.43)	3(21.43)	1(7.14)	13(86.67)	2(13.33)	-
8	7(46.67)	3(20.00)	5(33.33)	15(88.24)	2(11.76)	-
9	12(92.31)	-	1(7.69)	16(94.12)	1(5.88)	-
10	8(57.14)	4(28.57)	2(14.29)	15(88.24)	2(11.76)	-
11	8(47.06)	3(17.65)	6(35.29)	15(100.00)	-	-
12	12(75.00)	3(18.75)	1(6.25)	12(80.00)	3(20.00)	-
13	12(70.59)	4(23.53)	1(5.88)	18(100.00)	-	-
14	6(40.00)	8(53.33)	1(6.67)	11(68.75)	5(31.25)	-
15	11(73.33)	4(26.67)	-	16(88.88)	1(5.56)	1(5.56)
Total	108(65.45)	36(21.82)	21(12.73)	154(86.52)	20(11.23)	4(2.25)

\* Percentages are given in the parenthesis

Table 7. Age group-wise classification of conduct problem score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	13(100.00)	-	-	12(85.72)	1(7.14)	1(7.14)
6	14(87.50)	-	2(12.50)	15(93.75)	1(6.25)	-
7	11(78.57)	1(7.14)	2(14.29)	14(93.33)	1(6.67)	-
8	11(73.34)	2(13.33)	2(13.33)	17(100.00)	-	-
9	9(69.22)	2(15.39)	2(15.39)	16(94.12)	1(5.88)	-
10	12(85.71)	-	2(14.29)	17(100.00)	-	-
11	16(94.12)	-	1(5.88)	13(86.66)	1(6.67)	1(6.67)
12	15(93.75)	1(6.25)	-	12(80.00)	2(13.33)	1(6.67)
13	15(88.24)	2(11.76)	-	17(94.44)	1(5.56)	-
14	12(80.00)	3(20.00)	-	16(100.00)	-	-
15	14(93.33)	1(6.67)	-	18(100.00)	-	-
Total	142(86.06)	12(7.27)	11(6.67)	167(93.82)	8(4.49)	2(1.69)

\* Percentages are given in the parenthesis

This may be due to the reason that institutionalized children are ordained to fail psychosocially because of parental deprivation, so it effects on their relationship with another peer. These findings were congruent with the study conducted in Visakhapatnam among the orphans and OVC by Kaur *et al.* (2018) where they found that peer problems and conduct problems are common psychosocial problems. But in their findings, emotional problems (14.70%) were also observed, which is not consistent with the present study. Similar results of orphan girls having more psychosocial problems than non-orphan girls were also observed in the study conducted by Arumaihurai (2014) in Jaffna district of Sri Lanka. The percentage of orphan girls having

conduct problems was 36.5%, peer problems was 22%, emotional problems was 33.7%, hyperactivity was 12.5%, and 7.7% had pro-social behavioural problems. The findings of the present study indicate that non-orphan girls (100%) are in stable emotional state than the orphan girls (94.55%) (Table 8), which is similar with study findings of Sahad *et al.* (2018). As far as hyperactivity is concerned, all non-orphans (100%) and most orphans (95.76%) are unlikely to have any clinical problems (Table 9). From the total difficulties score, it was observed that 4.24% of the orphan girls are susceptible to psychosocial problems while all the non-orphan girls are found to be psychosocially stable (Table 4).

Table 8. Age group-wise classification of emotional symptoms score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	13(100.00)	-	-	14(100.00)	-	-
6	15(93.75)	1(6.25)	-	16(100.00)	-	-
7	14(100.00)	-	-	15(100.00)	-	-
8	14(93.33)	1(6.67)	-	17(100.00)	-	-
9	11(84.62)	2(15.38)	-	17(100.00)	-	-
10	13(92.86)	-	1(7.14)	17(100.00)	-	-
11	14(82.35)	3(17.65)	-	15(100.00)	-	-
12	16(100.00)	-	-	15(100.00)	-	-
13	17(100.00)	-	-	18(100.00)	-	-
14	14(93.33)	1(6.67)	-	16(100.00)	-	-
15	15(100.00)	-	-	18(100.00)	-	-
Total	156(94.55)	8(4.85)	1(0.60)	178(100.00)	-	-

\* Percentages are given in the parenthesis

Table 9. Age group-wise classification of hyperactivity score of Meitei orphan and non-orphan girls.

Age (years)	Orphan*			Non-orphan*		
	Low	Moderate	High	Low	Moderate	High
5	13(100.00)	-	-	14(100.00)	-	-
6	15(93.75)	-	1(6.25)	16(100.000)	-	-
7	13(92.86)	1(7.14)	-	15(100.00)	-	-
8	13(86.66)	1(6.67)	1(6.67)	17(100.00)	-	-
9	12(92.31)	-	1(7.69)	17(100.00)	-	-
10	13(92.86)	1(7.14)	-	17(100.00)	-	-
11	17(100.00)	-	-	15(100.00)	-	-
12	16(100.00)	-	-	15(100.00)	-	-
13	17(100.00)	-	-	18(100.00)	-	-
14	15(100.00)	-	-	16(100.00)	-	-
15	14(93.33)	1(6.67)	-	18(100.00)	-	-
Total	158(95.76)	4(2.42)	3(1.82)	178(100.00)	-	-

\* Percentages are given in the parenthesis

These findings were in same line with Alabd *et al.* (2019), who observed prevalence of emotional behavioural disorder among orphan children and adolescents with residential care. Asif (2017), also stated that the orphan children of Rawalpindi reported

lower self-esteem and higher in depression than the children living with their parents. These results may be due to the exposure of the orphans to exploitation, neglect and lack of love and care of parents. According to ChildlineFoundation of India, they are

more likely to be emotionally needy, insecure, and poor. In addition to these factors, most of them are emotionally impair these children (Childlineindia.org, 2017).

brought up in institutional homes where individual care is inadequate. All these factors can socially and

Table 10. Association of BMI for age, weight for age and height for age with psychosocial scores in Meitei orphan girls.

Indices	Total difficulties score	Emotional symptom score	Conduct problem score	Hyperactivity score	Peer problem score	Pro-social behaviour score
BMI for age	-0.001	0.026	-0.186*	-0.033	0.188*	0.097
Weight for age	-0.006	0.088	-0.200**	-0.029	0.127	0.083
Height for age	0.001	0.106	-0.156*	-0.014	0.067	0.041

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

Table 11. Association of BMI for age, weight for age and height for age with psychosocial scores in Meitei non-orphan girls.

Indices	Total difficulties score	Emotional symptom score	Conduct problem score	Hyperactivity score	Peer problem score	Pro-social behaviour score
BMI for age	0.071	-0.049	0.070	-0.015	0.156*	0.038
Weight for age	0.010	-0.124	0.066	-0.039	0.135	0.200**
Height for age	-0.053	-0.170*	0.063	-0.057	0.068	0.334**

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

Table 10 illustrates that there was statistically significant association of conduct problem scores of orphans with BMI for age, weight for age and height for age ( $p < 0.01$ ,  $p < 0.05$ ) whereas no such association was observed in the non-orphans. It also depicts that the pro-social behaviour scores of non-orphans show positive association with weight for age and height for age (Table 11).

### CONCLUSION

The impact of orphan-hood on nutritional status seems obvious. Children rely on their parents to provide food, shelter and stable living circumstances. Orphans are also at greater risk of being infected by a variety of illness and diseases without parent's care, which threaten normal growth and nutritional status. However, in this study there exist little differences between orphans and non-orphans regarding nutritional indicators. Same economic status might be a reasonable explanation for the unnoticeable differences. On the other hand, the conditions of the orphanages are in good and stable financial state to provide proper food and other requirements. Significant differences are observed in psychosocial well-being of the orphans and non-orphans. The present study indicated that although the orphan girls are meeting their nutritional needs but their psychosocial requirements remained more or less

unaddressed. Therefore, it can be concluded that there is an urgent need to understand the circumstances of these orphan girls to document not only on the materialistic requirements but also the psychosocial needs.

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