

ORIGINAL ARTICLE

Physical health status of Institutionalised orphans in Lucknow district: A cross-sectional study

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ABSTRACT

Background: Children living in orphanage homes are a socially vulnerable group at increased risk of health and educational problems. Evidence on their physical health status in India remains limited. This study assessed the physical health status of children residing in orphanage homes in Lucknow district. **Aims and Objectives:** To assess the physical health status of children living in orphanage homes in Lucknow district. **Methodology:** A community-based cross-sectional study was conducted from April 2024 to April 2025 in six randomly selected government and private orphanage homes in Lucknow. A total of 114 children aged 11–18 years were included. Data were collected using a pretested questionnaire. Anthropometric measurements were taken, and nutritional status was assessed using WHO BMI-for-age standards. General physical examination was performed. Data were analyzed using SPSS version 24.0. **Results:** Of the participants, 56.1% were female and 43.9% were aged 14–16 years. School dropout was reported by 58.8% of children. Most participants (82.5%) had normal nutritional status, while 5.3% were thin and 12.3% were overweight or obese. Pallor was observed in 13.2%, and 16.7% had unsatisfactory oral hygiene. Government health facilities were used by 78.3% of those seeking care. **Conclusion:** Although most children had normal nutritional status, gaps in education, micronutrient status, and health care access highlight the need for regular health screening, nutrition education, and educational support.

KEYWORDS

Orphans, Nutritional status, Child Health, Institutionalised Children

INTRODUCTION

An orphanage is an institution that provides care and education to orphaned and vulnerable children. Children residing in orphanages constitute a socially vulnerable

group and are at increased risk of malnutrition and adverse health outcomes.¹ Institutional care for underprivileged children remains common in many socio-economically disadvantaged settings. Childhood is a critical

period for physical growth, health, and overall development.

Globally, an estimated 24 million children live without parental care, and nearly 8–10 million reside in orphanages.² In India, approximately 30 million children are orphans, although only about 370,000 are accommodated in formal childcare institutions.³ Under Mission Vatsalya, Child Care Institutions (CCIs) provide care and support to children in need of protection.³

Despite these initiatives, malnutrition remains a major public health challenge. According to the Global Nutrition Report 2021, 35.5% of Indian children are stunted, 19.3% are wasted, and more than two-thirds are anaemic.⁶ However, evidence regarding the physical health of children living in orphanages is limited. Recent studies from India have reported nutritional deficiencies and common morbidities among institutionalized children, highlighting the need for regular health assessment and targeted interventions.^{4 5}

Aim

- To assess the physical health status of children living in orphanage homes in Lucknow district.

Objectives

- To evaluate the nutritional status of children residing in orphanage homes.
- To assess common physical health problems among these children.

MATERIAL & METHODS

Study Type and Study Design: A community-based cross-sectional study was conducted to assess the physical health status of children residing in orphanage homes.

Study Setting: The study was carried out in selected government and private orphanage homes in Lucknow.

Study Population: Children aged 11–18 years residing in orphanage homes for at least six months were included.

Study Duration: The study was conducted over one year, from April 2024 to April 2025.

Sample Size Calculation: The sample size was calculated using prevalence estimates from previous studies with a 95% confidence level and allowable error. After adjustment for finite population and non-response rate of 10%, final sample comprised 114 children.

Sampling Technique: A multistage random sampling technique was used. Six orphanage homes were selected, and all eligible children were included.

Inclusion Criteria

- Children aged 11–18 years.
- Residents of the orphanage for at least six months.
- Children who assented and whose institutional guardians provided consent.

Exclusion Criteria

- Children who were severely ill at the time of data collection.
- Children absent during the visit despite repeated attempts.

Strategy for Data Collection: Data were collected using a pretested, predesigned structured questionnaire. Information included sociodemographic characteristics, educational status, health-seeking behavior, and hygiene practices. Anthropometric assessment and general physical examination were performed.

Height was measured using a Seca stadiometer, and weight was recorded using a calibrated Omron electronic weighing scale with participants in light clothing and barefoot.

Working Definition

Nutritional status: Assessed using body mass index (BMI)-for-age according to World Health Organization growth reference standards for children and adolescents aged 5–19 years.

Ethical Issues and Informed Consent: Ethical approval was obtained from the Institutional Ethics Committee. Permission was taken from the administrators of participating orphanage homes. Written informed consent was obtained from institutional guardians, and assent was obtained from participating children.

Data Analysis: Data were entered and analyzed using IBM SPSS Statistics. Descriptive statistics were expressed as frequencies and percentages. Associations were tested using the chi-square test, and a p-value <0.05 was considered statistically significant.

Flow Diagram

1. Preparation of study protocol and ethical approval.
2. Selection of six orphanage homes by multistage random sampling.

3. Screening of children for eligibility.
4. Consent/assent from guardians and participants.
5. Administration of questionnaire.
6. Anthropometric measurements and physical examination.
7. Data entry and statistical analysis.

Statistical analysis Descriptive statistics were presented in frequency with percentages (for categorical data). Findings were also presented through graphs. Association between categorical variables was tested using Chi-Square test, in case, the expected frequency was found to be less than five in any cell, Fischer Exact test was used.

A minimum 95% confidence interval or p-value < 0.05 was considered as statistically significant. Statistical package for social sciences, version 24(SPSS24, IBM, Chicago, USA) was used for data analysis.

Ethical Approval-Ethical clearance was obtained from the Institutional Ethical Committee with Ref: 2413/Ethics/2024 dated 16/12/24. Before collecting the data, informed consent and assent was taken from the participant and the legal guardian.

RESULTS

Table 1-General characteristics of participants(N=114)

General characteristics	Category	Number (n)	Percentage (%)
Gender	Male	50	43.9
	Female	64	56.1
Age Group(years)	11-13	42	36.8
	14-16	50	43.9
	17-18	22	19.3
Education al status of children	Primary school	50	43.9
	Middle school	17	14.9
	High school	27	23.7
	Intermediate	10	8.8
Ever Dropped out of school	Yes	67	58.8
	No	47	41.2
	<1 year	24	21.1

Years of stay in orphanage home	1-3 year	18	15.8
	>3 year	72	63.2

Majority of the study participants were female (56.1%) while males constituted 43.9%. Most of the participants belong to age group 14–16 years (43.9%) followed by 11–13 years (36.8%) In terms of educational status, a significant portion of participants were in primary school (43.9%), followed by high school (23.7%), When asked about school dropout history, 58.8% reported having dropped out of school at some point of time. Regarding the duration of stay in the orphanage, most participants (63.2%) had lived in the orphanage for more than three years. (Table 1)

The distribution of children living in orphanage homes based on general physical examination findings is presented in Table 2. Overall appearance was assessed as good in 86% of the children, while 14% were classified as having fair appearance. Pallor was observed in 13.2% of participants. Oral hygiene was found to be satisfactory in 83.3% of the children. Lymphadenopathy was detected in 4.4% of the children, and oedema was observed in 5.3%, both of which may indicate underlying nutritional or systemic conditions.

With scores ranging from -2 to +1 SD, the majority of the 114 children assessed (82.5%) had normal nutritional status. Just 5.3% of the children were thin (< -2 SD). Notably, no participant was found to be severely thin (< -3 SD). Moreover, 10.5% of the children were categorized as overweight (>+1 SD), and 1.8% were obese (>+2 SD), depicting overnutrition. (Table 3)

Table 2 Distribution of children at Orphanage homes according to General Physical Examination(N=114)

General Physical Examination Parameters	Frequency (N)	Percentage (%)
General Appearance	Good	98
	Fair	16
	Normal	104
	Abnormal	10
Pallor	Yes	15
	No	99

General Physical Examination Parameters		Frequency (N)	Percentage (%)
Jaundice	Yes	1	0.9
	No	113	99.1
Oral Hygiene	Satisfactory	95	83.3
	Unsatisfactory	19	16.7
Lymphadenopathy	Yes	5	4.4
	No	109	95.6
Oedema	Yes	6	5.3
	No	108	94.7
Hairs	Sparse and thin	3	2.6
	Dyspigmentation	3	2.6
	Easy pluckability	13	11.4
	Lack of Luster	2	1.8
	Normal	93	81.6
Eyes	Normal	103	90.4
	Abnormal	11	9.7
Ear	Normal	102	89.5
	Abnormal	12	10.5
Throat	Normal	109	95.6
	Abnormal	5	4.4
Lips	Angular stomatitis	3	2.6
	Cheilosis	1	0.9
	Normal	110	96.5
Tongue	Normal	104	91.2
	Red and Raw	10	8.8
Teeth and Gums	Normal	103	90.4
	Caries	8	7
Significant findings	Bleeding Gums	3	2.6
	Yes	3	2.6
Specific findings n=3	No	111	97.4
	Hematemesis	1	0.9
	K/C/O Epilepsy	1	0.9
	Deformity in hand and toes	1	0.9

Table 3 Nutritional status of the orphan children

Nutritional Status	Number of Participants (n)	(%)
Normal (-2 SD to +1 SD)	94	82.5
Thinness (<-2 SD)	6	5.3
Severe Thinness (<-3 SD)	0	0.0
Overweight (>+1 SD)	12	10.5
Obese (>+2 SD)	2	1.8

DISCUSSION

The present study assessed the physical health status of children residing in orphanage homes in Lucknow. Most participants were aged 14–

16 years, and more than half were female. A high proportion (58.8%) had a history of school dropout, indicating substantial educational disruption among institutionalized children. Similar findings have been reported in recent studies from India, which documented educational discontinuity and social vulnerability among children living in institutional care.^{1 3}

Nutritional assessment showed that 82.5% of participants had normal BMI-for-age, while 5.3% were thin and 12.3% were overweight or obese. These findings suggest a dual burden of malnutrition, with both undernutrition and overnutrition present in the same population. Recent Indian studies among children in orphanages have reported comparable patterns, with most children having normal nutritional status but a subset affected by thinness and excess weight.⁵ This highlights the need for regular growth monitoring and balanced dietary planning in child care institutions.

Pallor was observed in 13.2% of participants, suggesting possible iron deficiency anaemia, while 16.7% had unsatisfactory oral hygiene. Similar morbidities have been documented among institutionalized children in other Indian settings, emphasizing the need for routine health screening and preventive services.⁵

Government health facilities were the most commonly utilized source of care (78.3%), reflecting reliance on public health services for this vulnerable population.

The study findings meet the stated objective of assessing the physical health status of orphanage children in Lucknow and provide local evidence on nutritional status and common health problems. This adds to the limited literature from North India on institutionalized children.

CONCLUSION

Children in orphanage homes have a heterogeneous health profile, as this study shows. School dropout rates and micronutrient deficiencies were evident, even though the majority had acceptable nutritional status, minor injuries and poor oral hygiene were noted. Government institutions were

preferred by those seeking health care. Remedial education and tutoring should be made available to reduce dropout rates and improve academic continuity. The wellbeing of this susceptible group must be improved by targeted nutrition, education, and routine health screening initiatives.

Strength-The study is community-based which used multistage random sampling and standardized WHO-based anthropometric assessment with clinical examination, ensuring objective and reliable evaluation of an under-researched population. Inclusion of adolescents and year-long data collection provided a comprehensive and seasonally balanced understanding of health and educational challenges, while the simple, replicable methodology makes the findings relevant for local program planning and similar institutional settings.

RECOMMENDATION

Periodic medical check-ups should be conducted in orphanages to detect and address nutritional deficiencies, infections, and other health issues early. Anthropometric measurements and clinical screenings should be institutionalized as part of routine child health monitoring. Partnerships with government health services, NGOs, and child welfare organizations should be strengthened to provide holistic care and resources. Such coordinated interventions can contribute substantially to improving the overall health and well-being of institutionalized children and support the objectives of national child protection initiatives such as Mission Vatsalya.

LIMITATION OF THE STUDY

The study's findings are limited by a small, homogeneous sample from urban orphanages, affecting generalizability to diverse or rural population. Data was self-reported so it may be biased on sensitive issues like substance use

and clinical verification of health conditions was limited by ethical and logistical barriers.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT by OpenAI to assist in improving the language, grammar, formatting, and overall presentation of the manuscript. After using this tool, the authors carefully reviewed and edited the content as needed and take full responsibility for the accuracy and integrity of the publication.

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