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The health status of children living in orphanages of Peshawar, Pakistan: a cross sectional survey

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ABSTRACT

Introduction: Pakistan is home to more than four million orphans. Being a vulnerable population, orphans are more likely to suffer from malnutrition, food insecurity, and physical/mental abuse compared to children living with their parent(s).

Objective: To assess the nutritional status of children living in orphanages of Peshawar, Pakistan by anthropometry, clinically assessment of general physical health, visual acuity, and oral and dental hygiene.

Materials & Methods: A cross-sectional descriptive study was conducted from November 2018 to March 2019. A convenience sample of 266 orphans aged 5 to 15 years was drawn from three orphanages of Peshawar. Ethical approval was taken from the Institutional Review Committee. Data were collected using modified WHO healthcare Performa & analysed for descriptive statistics using SPSS version 21.0.

Results: The mean age of orphans was 12 ± 2.56 years; 58.6% were malnourished, 30.5% and 0.4% showed signs of anemia and jaundice respectively. Regarding visual issues, 21.4% had decreased visual acuity of which 81% were due to refractive errors. In addition, 28.6% had excessive ear wax with 11.3% giving a history of ear discharge. Skin disorders were present in 23.4% children. Oral and dental health issues were found in 37.6% as dental gross deposits, while 3.1% had bad breath; 7.1% suffered from bleeding gums and 29.3% had dental caries. Frequency of malnutrition was significantly higher among children aged 10 year or less than those in 11-15 year age group ($p<0.001$). Lastly, 54.5% participants did not have the BCG scars on their arms.

Conclusion: Majority of the children residing in orphanages had unsatisfactory health status, suffering from malnourishment, different disorders of skin, eyes, poor oral hygiene, and unvaccinated status.

Keywords: Health Status; Orphans; Orphanages; Vaccination; Dental Caries.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research, data collection, data analysis, and write-up of the article, and agreed to be accountable for all aspects of the work.

INTRODUCTION

Children are the population segment most vulnerable to adverse effects of global crises and conflicts.[1,2] The child population makes up 2.2 billion of the 7.7 billion world population.[3] An orphan is defined by UNICEF as any child under the age of 18 who has lost one or both parents to death.[4] In 2015, there were an estimated 140 million orphans globally. Today, that number has risen to an estimated 153 million.[4] However, this number reflects the registered orphans only. If an estimate is made including the children who never get registered as orphans, the total number worldwide is expected to further rise considerably. There are an estimated 8 to 10 million infants and children living in orphanages around the world. The regions where most orphans reside are Asia, Africa, Latin America, and the Middle East.[4-6] The practice of placing deprived children in orphanages has long prevailed in socio-economically poor Asian countries.[7]

According to studies conducted in developing countries, malnutrition, physical and mental abuse, as well as lack of parental care and protection are predominantly common scenarios among the children living in orphanages.[8,9] Orphans are more likely to be stunted and less likely to be enrolled in schools than children living with parents. Further, poor nutrition and inability to access health services puts orphans at an increased risk of starvation, illness and even death. The malnutrition they commonly suffer from leads to immune-compromised state resulting in recurrent and increasingly rigorous infections, which further compromise nutritional intake and this vicious cycle may ultimately threaten the child's survival.[10-12]

According to UNICEF, Pakistan is home to about 4.2 million orphaned children.[13] The current legal process of adoption in Pakistan is difficult and may discourage the taking in of orphans,[14] which leaves them mostly at the mercy of their relatives or orphanages run by the State or private charities. Despite the knowledge that they are at a higher risk of childhood morbidity and consequent mortality, there is little research evidence on health status of children in orphanages of Pakistan. The need to conduct the current study was felt to determine the health profile of children sheltered in orphanages of Peshawar.

It is expected to identify common health issues among the orphans and help devise effective measures for improving the health of children at orphanages and overall quality of their life and contribute towards prolonging their life.

MATERIALS & METHODS

Participants

It was a cross-sectional descriptive study conducted from 15th November 2018 to 1st March 2019. The minimum sample as per WHO sample predictor was 220. The sample finally included 266 orphans aged 5 to 15 years, from three orphanages of Peshawar. The sampling consisted of two stages. In the first stage, the orphanages were chosen through non-probability purposive sampling and in the second stage, the participants were chosen through non- probability convenience sampling. All participants were boys.

Measures

Data were collected using modified WHO healthcare Performa. Before collecting the data, investigators underwent a training on how to approach & examine the children and record findings. Weight (in kilograms) was measured with mechanical bathroom scale and height (in meters) was recorded using measuring tape. The Body Mass Index for each child was calculated. Visual acuity was assessed through Snellen chart and a presenting visual acuity of 6/9 or less in the better eye was considered as impaired visual acuity. Pinhole test was performed for those having decreased/impaired visual acuity to exclude refractive error. General physical examination was carried out to identify children with anemia and jaundice. Oral hygiene and skin health was assessed. Examination of ear was done with otoscope. Presence of BCG scar was checked for each child. Absence of scar was used as an indicator for non-vaccination. A referral form was designed for the children needing access to a healthcare facility for management.

Ethical considerations

The study was approved by the Institutional Review Committee. Written permission was taken from administrators of the included orphanages. As the administrators did not allow girls to be included, only boys were surveyed. An informed written consent was taken from the guardians of the children while verbal assent was taken from each child. Care was taken to ensure the privacy of children during examination and data confidentiality was strictly observed. Any child needing referral to healthcare facility was referred to the appropriate facility and facilitated. The administrators of the orphanages were advised on how to improve the health status of the residing orphans.

Operational Definitions

The following modified WHO definitions were used to classify the children:

- ***Underweight*** = BMI of <18.5
- ***Normal*** = BMI of 18.5- 24.9
- ***Overweight*** = BMI of 25.0 – 29.9
- ***Obesity*** = BMI of 30 and above

Data management and analysis

Body Mass Index was calculated by the formula, weight in kg / height in (m^2). SPSS Version 21 was used for entry and analysis of data. Frequencies were calculated and 95% confidence intervals estimated. Health status of younger and older children were compared between groups of 1-10 and 11-15 years. A p value of ≤0.05 was considered statistically significant.

RESULTS

A total of 266 children residing in the three selected orphanages were included. The mean age of participants was 12 ± 2.56 years. The mean BMI was 18.38 ± 2.72, and 156 (58.6%) children were malnourished, out of whom 152 (57.1%) were underweight while only 04 (01.5%) were overweight (Figure 1).

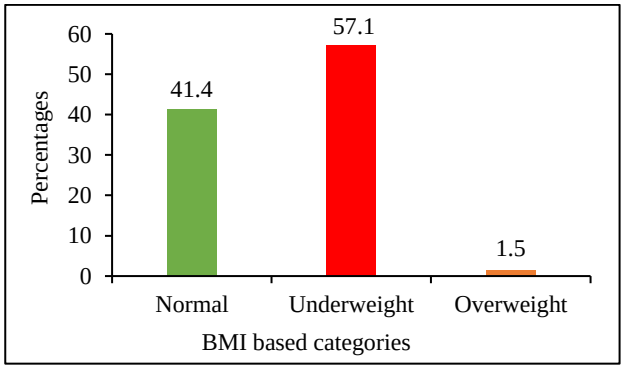

Figure 1: Nutritional status of orphan children (n=266).

By applying Independent Samples T test, the difference of mean BMI (Table 1) for children aged 1- 10 years and those aged 11-15 years was statistically significant (p< 0.001).

Table 1: Comparison of BMI of orphans by age groups (n=266).

Age Groups (Years)	BMI (Mean ± SD)	p value
1-10	16.08 ± 1.53	<0.001
11-15	19.41 ± 2.51	
Mean Difference	3.33 ± 0.98	

Eighty-one (30.5%) participants showed signs of anemia and only one child had signs of jaundice; 209 (78.6%) children had normal visual acuity, and 57 (21.4%) had decreased visual acuity, out of whom 81% had refractive error as indicated by improvement of visual acuity with pinhole; 19% had decreased visual acuity due to other reasons and showed no improvement with pinhole. (Figure 2).

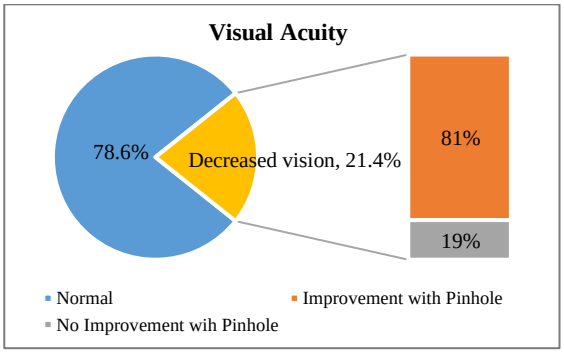

Figure 2: Visual status of orphan children (n=266).

Seventy (28.6%) children had excessive ear wax and 30 (11.3%) gave a history of ear discharge. Sixty-two (23.4%) were found to have different skin conditions including purpura, infection, itching and rashes. Regarding oral hygiene, 100 (37.6%) children showed gross dental deposits, 08 (3.1%) had bad breath, 19 (7.1%) suffered from bleeding gums, and 78 (29.3%) had dental carries (Table 2). There was no significant association found between dental caries and age group (p= 0.78).

Table 2: Oral & Otic health indicators of orphan children (n=266).

Characteristics		Frequency (%)
Otic health	Excessive wax	70 (28.6)
	History of discharge	30 (11.3)
Oral health	Bad breadth	08 (3.1)
	Gross deposits	100 (37.6)
	Bleeding gums	19 (7.1)
	Dental carries	78 (29.3)

Lastly, 54.5% participants did not have the BCG scar on either of their upper arms and as per the already set criteria for the purpose of this study they were considered as non-vaccinated.

DISCUSSION

The majority i.e., about 59% of the orphans were undernourished. In developing countries, malnutrition and its consequences in general among children are prevalent problems of concern.[15-16] A systematic review from Pakistan also confirms that childhood malnutrition is a major problem and most of the studies identified about 50% of children to be malnourished.[17] Further, if a child belonging to such a country is residing in an orphanage, the risk of malnutrition is likely to increase. While comparing the results of this study it was found that different studies on childhood malnutrition have included different ages, both genders, and applied different criteria to classify malnutrition; hence a direct comparison may not be possible. However, one can make an overall opinion with caution. Few studies from Pakistan are available for comparison. A survey conducted at orphanages in Lahore reported 22% orphans to be malnourished.[18] The study however used different measurements and criteria to classify the children. A study from Bangladesh showed results similar to this study and reported 60% malnourished children at orphanages.[19] Another study from Bangladesh reported about 40% orphans as malnourished; however the sample size of the study was very small.[20] The frequency of obesity was found very low in the present study as well in most similar studies.[17-19]

Other findings of this study are confirmed by similar research conducted in different developing countries i.e., many of the orphans suffer from different health disorders including anemia, skin diseases, ear problems, dental carries, and poor oral hygiene. More than half of them are not vaccinated against Tuberculosis. This is an indirect evidence of lack of ideal healthcare that they should have access to. Kumar et al[21] also reported that poor oral and dental hygiene is prevalent among resident children of orphanages. A research conducted in Indian held Jammu and Kashmir showed that one-third children at orphanages were malnourished and 53% had skin disorders.[22]Another study from Tanzania also reported high frequency (57.4%) of skin disorders among children at orphanages,[23] while this research shows 23.4% orphans with dermatological manifestations which is comparatively less than the two studies mentioned above. This could be attributed to the fact that both those studies were conducted in places where the population in general lives in conflict, political unrest and unsatisfactory socioeconomic conditions. The orphans in such settings are more likely to suffer from health issues than those who are living in peace.

Our study also indicated that 21.4% orphans had decreased visual acuity and most of this was due to uncorrected refractive errors. There are hardly any reported screening done for decreased vision among residents of orphanages for comparison. However, visual screening at schools is a very common practice worldwide and a number of studies are available for comparison. A study at a school in Kohat, Pakistan,[24] screened children of 5-15 years and reported about 21% children to have decreased vision and refractive error to be the main cause which is almost the same as the current study. Another school survey at Muzaffarabad, Azad Kashmir, Pakistan,[25] showed similar frequency (19.6%) of decreased vision among children and identified refractive error to be the reason in 89% of them. A systematic review on visual impairment among school children also confirms our findings.[26]

The estimated national coverage of BCG vaccination for Tuberculosis in Pakistan is reportedly 80%,[27] while in the present study more than half of the orphans were non-vaccinated against Tuberculosis. This is alarming but at the same time understandable as orphans in developing countries are expected to be marginalized[28-30] and fail to receive the mainstream healthcare services.

CONCLUSION

The health status of majority of children residing in orphanages was not satisfactory, with most of them being undernourished, having different preventable disorders of eyes, skin, ears, teeth, and not being vaccinated against Tuberculosis. The findings point towards insufficient health care at the orphanages.

RECOMMENDATIONS

Strict legislation needs to be enforced to ensure that all existing and new orphanages establish a healthcare system that includes screening, monitoring, periodic evaluation, and computerized record keeping of each residing orphan. As almost all the health problems identified were preventable, a national survey assessing the health status of children at orphanages in Pakistan is also recommended first to estimate the burden of these problems more accurately and then to devise and implement effective preventive and control measures in future.

LIMITATIONS

The study was a small-scale survey and convenient sampling may pose limitation to its generalizability.

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