"Dietary practice, health status and hygiene condition of children living in an orphanage in Bangladesh".

[A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Public Health (MPH)]

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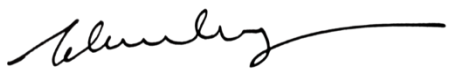
This work was completed under my supervision as part of the requirements for the Master of Public Health degree, Department of Public Health, Daffodil International University, Dhaka, Bangladesh.



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First, I express my heartiest thanks and gratefulness to almighty Allah for His divine blessing makes us possible to complete this project successfully.

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Finally, I thank almighty Allah for giving me every ability for competition of my study.

DECLARATION

I hereby humbly declare that the dissertation work titled **"Dietary Practice, Health Status and hygiene condition of children living in an Orphanage in Bangladesh"** requirement for the degree Master of Public Health (MPH) program under the Faculty of Health and Life Sciences Daffodil International University, Bangladesh was carried out by me under the of supervision of Dr. ABM Alauddin Chowdhury during the study period of January 2024 to April 2024

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Certification

This is to certify that **Syed Md. Rokibul Haris , MPH (Regular), Student ID: 0242220007273001** has carried out the research work as partial requirement of the degree under my supervision and submitted the dissertation entitled **"Dietary Practice, Health Status and hygiene condition of children living in an Orphanage in Bangladesh"** , I have the confidence regarding the originality of her data, and I also express that the dissertation is up to my satisfaction.

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Dedicated To-

This research study and book are dedicated to my loving parents and respectable teachers who inspired me in all steps to achieve the master's in public health (MPH). I am also thankful to **Dr ABM Alauddin Chowdhury** and Head of Daffodil International University for his initiative to set up this international standard of Public Health University for completing master's in public health.

ABSTRACT

Children residing in orphanages often face neglect and potential malnutrition. A descriptive cross-sectional study was carried out to assess the Dietary Practices, Health Status, and Hygiene Conditions among orphaned children in selected orphanages in Gaibandha district, involving a sample size of 150. Data was collected using pre-tested, modified interviewer-administered semi-structured questionnaires. Non-randomized, purposive sampling was utilized for convenience.

The study revealed that 61.5% of respondents were aged between 9 to 11 years, with a mean age of 10.535 years. Most were in classes one to three, and 22.3% had been in the orphanage for 3 to 6 years. Among them, 60.25% had no living parents, with 55% admitted due to parental demise. Orphanage dietary practices included breakfast comprising various items like hotchpotch vegetables, chicken, and mashed potatoes. Handwashing before meals was 55%. Practicing handwashing after using the toilet 90.5%. About 64.0% bathed daily, and 51.5% wore tidy clothes sometimes, while 48.5% did so daily. Approximately 57.6% regularly trimmed their nails. The majority (58.5%) had a normal body mass index, while 41.5% were underweight.

Consequently, there is a clear need for implementing health education programs addressing malnutrition and personal hygiene.

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List of Abbreviations:

BMI-	Body Mass Index
DIU-	Daffodil International University
FHLS	Faculty of Health and Life Sciences
RDA-	Recommended Dietary Allowances
REC	Research Ethics Committee
SD-	Standard Deviation
SPSS-	Statistical Package of Social Science
USA-	The United State of America
WHO-	World Health Organization

CHAPTER-ONE

INTRODUCTION

1.1 Introduction and Background:

Childhood is a crucial period marked by rapid growth and development, where proper nutrition, health care, and hygienic practices are essential for ensuring long-term well-being. In many low-income countries, including Bangladesh, orphaned children often face significant challenges in these areas. Orphanages, which serve as homes for these children, play a pivotal role in their development. However, the conditions within these institutions can vary widely, impacting children's health and overall quality of life.

This thesis aims to explore the dietary practices, health status, and hygiene conditions of children residing in an orphanage in Bangladesh. By examining these key aspects, the study seeks to provide a comprehensive understanding of the current situation and identify areas that require improvement to enhance the well-being of orphaned children.

Orphanages are intended to provide care and protection for children who have lost their parents or whose parents are unable to care for them. Despite the noble intentions, the conditions in these institutions can sometimes fall short of the necessary standards. Several studies have highlighted the issues faced by children in orphanages, such as inadequate nutrition, poor health care, and substandard hygiene practices.

The health-seeking behavior of children and their caregivers is a critical factor in managing child morbidity, especially among minority groups. Dahal and Kushalata 2015, **(1)** emphasize the importance of understanding these behaviors to improve health outcomes in vulnerable populations . Similarly, the living arrangements of children, including those in orphanages, significantly influence their health and development. Landale, Thomas, and Van Hook 2011,(**2**) discuss how the living conditions and arrangements of children, particularly those of immigrants, impact their well-being .

Research on adolescents' motivational beliefs in STEM fields by Hsieh 2021**(3)** underscores the importance of the environment in shaping children's aspirations and outcomes . This principle is equally relevant in understanding how the conditions in orphanages affect children's health and hygiene practices. Furthermore, studies by Subedi et al. 2015,**(4)** have explored various health metrics among children, providing a framework for assessing health status in institutional settings .

The concept of "altruistic exploitation" as discussed by Rotabi, Roby, and McCreery Bunkers 2017,**(5)** in the context of orphan tourism highlights the ethical complexities and potential for exploitation in orphan care . This underscores the need for a critical examination of orphanage conditions to ensure that they meet ethical and health standards.

The historical and cultural context of orphan care, as explored by Murdoch 2006,**(6)** provides insights into how societal perceptions and practices regarding orphans have evolved over time . This background is essential for understanding the current challenges and opportunities in improving the conditions in orphanages in Bangladesh.

This thesis will investigate the dietary practices, health status, and hygiene conditions of children in an orphanage in Bangladesh. By drawing on existing research and empirical data, it aims to contribute to the body of knowledge on orphan care and propose actionable recommendations for enhancing the well-being of these vulnerable children.

1.2 Problem Statement:

The health and well-being of children in orphanages are profoundly influenced by their dietary practices, health status, and hygiene conditions. In Bangladesh, where socio-economic challenges and limited resources are pervasive, orphanages face significant hurdles in providing adequate care for children. This issue is compounded by the fact that these children are among the most vulnerable, often lacking consistent access to nutritious food, proper health care, and sanitary living conditions.

A significant body of research has highlighted the dire consequences of poor nutrition and hygiene on children's health. For instance, Black et al. 2008,**(7)** underscore the global and regional impacts of maternal and child undernutrition, identifying it as a critical factor contributing to child mortality and morbidity. This is particularly relevant in orphanages where dietary practices are often inadequate, leading to severe health issues among children.

Moreover, the hygiene conditions within these institutions are frequently substandard, contributing to the spread of infectious diseases. Mara 2003**,(8)** emphasizes the crucial role of water, sanitation, and hygiene (WASH) in safeguarding health, especially in developing nations. Poor hygiene practices and inadequate sanitation facilities in orphanages can lead to outbreaks of diseases, further exacerbating the health vulnerabilities of these children.

The situation is further complicated by cultural and socio-economic factors. As noted by UNICEF 2005,**(9)** harmful traditional practices, such as early marriage, can have long-term detrimental effects on children's health and development. Although this reference focuses on early marriage, it underscores the broader context of how socio-cultural practices in Bangladesh can influence children's health outcomes.

Additionally, the quality of food and its nutritional value is a crucial aspect of children's health. Khan et al. 2014,**(10)** highlight the importance of monitoring trace elements in food to ensure dietary adequacy. In the context of Bangladeshi orphanages, ensuring that children receive a balanced diet rich in essential nutrients is a significant challenge due to financial and logistical constraints.

The crisis in orphanages is not unique to Bangladesh. Hoffman 2021, **(11)** discusses the exportation of neoliberal family ideals and its impact on vulnerable childhoods in Haiti, drawing parallels to the systemic issues faced by orphanages worldwide. These insights are valuable in understanding the broader implications of institutional care and the need for comprehensive strategies to address these challenges.

In light of the above, this thesis aims to investigate the dietary practices, health status, and hygiene conditions of children in an orphanage in Bangladesh. By examining these interrelated factors, the study seeks to identify key areas for improvement and develop recommendations to enhance the well-being of these vulnerable children. The findings will contribute to the broader discourse on child welfare in institutional settings and inform policy interventions aimed at improving the living conditions of orphans in Bangladesh.

1.3 Justification:

The health and well-being of children in orphanages are critical issues that have significant implications for their development and future potential. This thesis aims to assess dietary practices, health status, and hygiene conditions of children in an orphanage in Bangladesh, a topic of substantial importance for several reasons.

Firstly, orphaned children are among the most vulnerable populations, often facing higher risks of malnutrition and poor health outcomes. Studies have shown that children in orphanages frequently suffer from inadequate nutrition. For instance, research conducted by Bukht et al. 2020,**(12)** on orphans in Lahore, Pakistan, highlights significant concerns about their nutritional status and dietary patterns, indicating that similar issues may be prevalent in orphanages across different regions . By exploring the dietary practices in a Bangladeshi orphanage, this thesis can provide valuable insights into the specific nutritional challenges faced by these children.

Secondly, hygiene conditions play a crucial role in the health status of children in institutional settings. Poor hygiene can lead to the spread of infectious diseases, which is particularly concerning in densely populated environments like orphanages. The study by Gabbad and El Hassain 2014,**(13)** on malnutrition among children in the Mygoma Orphanage Centre in Sudan underscores the interconnectedness of nutrition, health, and hygiene, demonstrating that addressing one aspect without the other can be ineffective . This thesis aims to provide a comprehensive assessment by including hygiene conditions alongside dietary practices and health status.

Additionally, the socio-economic and cultural context of Bangladesh presents unique challenges and opportunities for improving the health and well-being of orphaned children. Understanding these contextual factors is essential for developing effective interventions. The existing literature, including international studies, can serve as a comparative foundation to highlight specific needs and gaps in the Bangladeshi context.

Moreover, this research is timely and relevant as it can inform policies and practices aimed at enhancing the care provided in orphanages. Ensuring that orphaned children receive adequate nutrition, live in hygienic conditions, and maintain good health is essential for their overall development and well-being. The findings of this thesis could contribute to the development of targeted programs and policies that address these critical issues.

This thesis is justified by the pressing need to better understand and improve the dietary practices, health status, and hygiene conditions of children in orphanages in Bangladesh. Drawing on relevant studies from different contexts, such as those by Bukht et al. 2020**,(12)** and Gabbad and El Hassain 2014,**(13)** this research aims to provide a holistic assessment that can guide effective interventions and policy decisions.

1.4 Operational Definition:

Orphanages:

An orphanage is a residential institution dedicated to the care and upbringing of children who have lost their parents or have been abandoned.

Malnutrition:

Malnutrition is a condition where a person's diet lacks the necessary nutrients for proper health, leading to various health issues.

Hygiene:

Hygiene refers to practices that promote health and cleanliness, including personal habits and environmental cleanliness.

Dietary practices:

Dietary practices are the habitual patterns of food consumption adopted by individuals or communities, encompassing their choices, preferences, and behaviors related to eating.

1.5 Research Questions:

What is the dietary practice, health status and hygiene condition among the Orphanage child at selected orphanage in Gaibandha city?

1.6 Objective of the Study:

1.6.1 General Objective:

To find out the Dietary Practices, Health Status and Hygiene Condition among the Orphanage child at select orphanage in Gaibandha city.

1.6.2 Specific Objectives:

To find out the socio-demographic Characteristics of the respondents.

To identify the dietary practice among the orphan children.

To assess the nutritional status of children living in the orphanages.

To determine the personal hygiene practices among the orphan children.

1.7 List of Variable:

Dependent Variable

Dietary Practices, Health Status and Hygiene Condition among the Orphanage child.

Independent variable

Socio-demographic variable

Age

Sex

Religion

Time Period of Living

Education

Duration of stay in orphanage

Orphan status

Reasons for admission to orphanages

Dietary Practices

Cereal

Fruits and Vegetables

Milk and milk products

Nutritional Status

BMI

Malnutrition

Hygiene Condition

Practices washing one's hands before eating

Clean your hands after using the toilet

Hand wash

Daily brushing of teeth

Bathing

Wearing tidy clothes

Regular Trimming of nails

CHAPTER-TWO

LITERATURE REVIEW

Orphaned children constitute a vulnerable segment of the population that faces unique health and nutritional challenges due to the lack of parental care and support. This demographic is often subjected to insufficient dietary intake, poor hygiene conditions, and a general lack of resources, all of which contribute to compromised health status. Various studies have been conducted globally to assess the nutritional status, dietary practices, and hygiene conditions of children living in orphanages. This literature review synthesizes findings from multiple regions, highlighting common issues and suggesting potential interventions for improving the well-being of these children.

In a comprehensive study by Reddy et al. 2021, **(14)** Children at Bhubaneswar, Odisha, orphanages had their nutritional status and personal hygiene assessed. The findings revealed a high prevalence of malnutrition among these children, ranging from mild to severe forms. Factors contributing to this malnutrition included inadequate dietary intake, poor quality of food provided, and irregular meal schedules. The study emphasized the urgent need for nutritional interventions tailored to the specific needs of these children, including the provision of nutrient-rich foods and regular health check-ups.

Ali et al. 2018 **(15)** conducted a comparative study in the Brong Ahafo region of Ghana to assess the nutritional status and dietary diversity of orphaned and non-orphaned children under five years. The research highlighted significant disparities between the two groups, with orphaned children exhibiting lower dietary diversity and poorer nutritional outcomes. The limited access to a variety of foods and the absence of parental guidance were identified as major factors contributing to the poor nutritional status of orphaned children. The study suggested the implementation of programs to increase food diversity and enhance the nutritional knowledge of caregivers in orphanages.

Mwaniki and Makokha 2013,**(16)** centered on children's nutritional status in public primary schools in Dagoretti, Nairobi. Although the study did not exclusively target orphaned children, it provided valuable insights into the broader nutritional challenges faced by children in low-resource settings. Key determinants of nutritional status identified included household income, parental education levels, and food availability. The study's findings underscore the importance of socio-economic factors in influencing child nutrition and highlight the need for integrated approaches that address these underlying issues.

A study by Bukht et al. 2020,**(12)** assessed the nutritional status and dietary patterns of orphans in Lahore, Pakistan. The research revealed alarming rates of malnutrition, with many children being underweight or experiencing stunting. The dietary patterns observed were monotonous and

lacked essential nutrients, primarily due to the limited variety of food available in the orphanages. This study called for the diversification of meal plans and the introduction of nutritional supplementation programs to address the deficiencies and improve the overall nutritional status of orphaned children.

Chowdhury et al. 2017, **(17)** investigated the nutritional status of children in an orphanage in Dhaka, Bangladesh. The study reported significant levels of undernutrition and micronutrient deficiencies among the children. Poor dietary practices, such as the consumption of unbalanced meals and insufficient intake of fruits and vegetables, were identified as primary contributors to the observed nutritional deficiencies. The study recommended targeted nutritional interventions and regular monitoring to improve the health and development of orphaned children in Dhaka.

The relationship between hygiene practices and health status is well-documented, with poor hygiene conditions often exacerbating the nutritional deficiencies among orphaned children. Several studies have explored this connection in various regions.

In addition to assessing nutritional status, Reddy et al. 2021,**(14)** also examined Personal cleanliness habits of children in Odisha orphanages. The study found that many children lacked proper hygiene practices, primarily due to limited access to hygiene resources and insufficient education on hygiene. Common issues included infrequent bathing, lack of handwashing before meals, and inadequate dental care. These poor hygiene practices led to frequent illnesses, which further compromised the children's nutritional status. The study called for comprehensive hygiene education programs and improved access to hygiene facilities.

The research by Bukht et al. 2020,**(12)** similarly highlighted poor hygiene conditions in orphanages in Lahore. The study reported that children often suffered from infectious diseases due to the lack of clean water, inadequate sanitation facilities, and poor personal hygiene practices. These health issues compounded the nutritional problems, creating a cycle of illness and malnutrition. The study emphasized the need for better hygiene infrastructure and education in orphanages to break this cycle and improve the overall health of the children.

The findings from these studies underscore the critical need for comprehensive interventions to address both the nutritional and hygiene needs of orphaned children.

The reviewed studies highlight the pressing nutritional and hygiene challenges faced by orphaned children in various regions. Addressing these issues requires a multi-faceted approach that includes improving dietary diversity, enhancing hygiene practices, and providing adequate resources and support. By implementing comprehensive interventions and fostering supportive environments, it is possible to significantly improve the health and well-being of orphaned children, ensuring they have the opportunity to grow and thrive.

CHAPTER-THREE

METHODOLOGY

3.1 Study design

This study to assess the Dietary Practices, Health Status and Hygiene Condition among the Orphanage child at select orphanage in Gaibandha city.

3.2 Study place

The study was conducted at Sadullapur Koime Madrasha & Orphanage,Gaibandha, Bangladesh.

3.3 Time for Studying

The study was conducted between January to April of 2024, a period of four months.

3.4 Research the populace

Children in the age range of six to fourteen who reside in the chosen orphanages.

3.5 Sample size

Sample was calculated by following formula

$n=Z^2pq/d^2$

Where,

n= desired sample size

z = 1.96 (95% confidence interval)

P= prevalence= (57.7%) =0.577

(Reddy SB, Jyothula N, Kandula I, Chintada GS. Nutritional status and personal hygiene of children living in the orphanages of Bhubaneswar: capital city of Odisha)

q=1-p =1-0.577=0.423

d=error limit (5%) = 0.05

$n= (1.96)^2\times0.577\times0.423/(0.05)^2$

n=0.938/0.0025

n=375.04

So, the calculated sample size is 375. But due to limitation of time only 150 samples were selected.

3.6 Sampling techniques:

The simple non-probability sampling technique were used to select respondents from target group.

3.7 Selection criteria:

3.7.1 Qualifications for Inclusion

Children aged 6 to 14 years old, regardless of gender;

Children should spend longer than six months at the orphanage

Children must be open to taking part in the study.

3.7.2 Exclusion Criteria

Children who are really ill when the study is being conducted

Children with mental retardation.

3.8 Tools for Studying:

A pretested, semi-structured schedule was used to collect data on a range of variables, including age, gender, food habits, and personal hygiene routines. Orphanage records provided details such as orphan status, reasons for residing in the orphanage, duration of stay, and age at admission. Anthropometric measurements and personal hygiene assessments were conducted on each child in good daylight following interviews. Height was measured in centimeters using a stadiometer to the nearest 1cm, while weighing machines were regularly calibrated utilizing established standard weights, with measures recorded to the closest 100 grams. Personal hygiene evaluation utilized a scoring system, covering key components such as skin, hair, and dental hygiene, and nails, with different grades assigned based on scores: good (>8), fair (6-8), and poor (<5). Details regarding hygiene practices such as handwashing both prior to and following eating, with soap using There was documentation of showering, using the restroom, brushing teeth, and changing into clean clothes.

3.9 Method of Data Collection:

The survey's objective was elucidated, along with a concise procedure for conducting it.

The survey team visited the orphanage on the scheduled date and time after obtaining the necessary authorization and scheduling from the relevant authorities.

Participation in the study was extended to the chosen subjects, and the survey was conducted in a room on the orphanage grounds.

They were given an explanation of the study's objectives and given assurances regarding the privacy and confidentiality of the data they shared. Children were questioned and then anthropometrically assessed after giving their consent.

3.10 Analysis of data:

The information for this study were initially organized and verified using Microsoft Excel before conducting final analysis with SPSS version 25. Measurements of an anthropometric body (weight for age, height for age, and BMI for age) were assessed to evaluate the nutritional and health status of children.

Descriptive statistics provided a general overview, while anthropometric indices were categorized using WHO standards to identify underweight, stunted, or overweight children. Relationships between dietary practices, health status, and hygiene conditions were examined through cross-tabulations and correlation analysis, with statistical tests applied to determine significance.

This comprehensive approach aimed to understand and improve the well-being of children in the orphanage.

3.11 Considering ethics:

Submission of the study protocol to the Research Ethics Committee (REC) of Daffodil International University for ethical clearance.

Consent was taken after explained possible benefits and purpose of the study to participants.

Participants were also guaranteed of anonymity and privacy of the information.

The names and addresses of orphanages were mention on the questionnaire after the permission.

In addition, were data as a group in orphanages homes were reported jointly but all the information was kept confidential.

Result:

Table-1: Distribution of the respondents by age(n=150)

This table finds that, 61.5%, 26.1% and 12.4% of the respondents were age group between 9 to 11 years, 12 to 14 years and rest 6 to 8 years respectively with the mean age 10.535 years and the standard deviation is approximately 1.598

Age(years)	Number	Percent
6 to 8	19	12.4
9 to 11	92	61.5
12 to 14	39	26.1
Total	150	100
Age Mean= 10.535 & Standard deviation=1.598		

Table-2: Distribution of the respondents by educational qualification (n=150)

This table finds that, 50.7%, 25.9% and rest 22.7% of the respondents were studying at class one to class three, class four to six and rest class seven to ten respectively.

Educational Qualification	Number	Percent
Class one to three	33	22.3%
Class four to six	45	30%
Class seven to ten	72	47.7%
Total	150	100.0

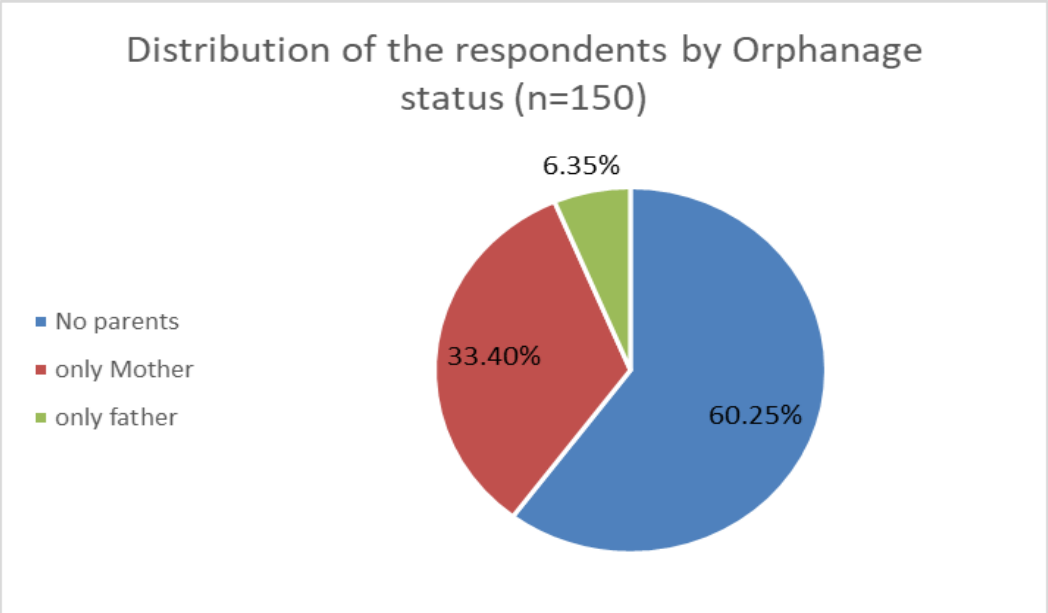

Figure-1: Distribution of the respondents by duration of stay in Orphanage(n=150)

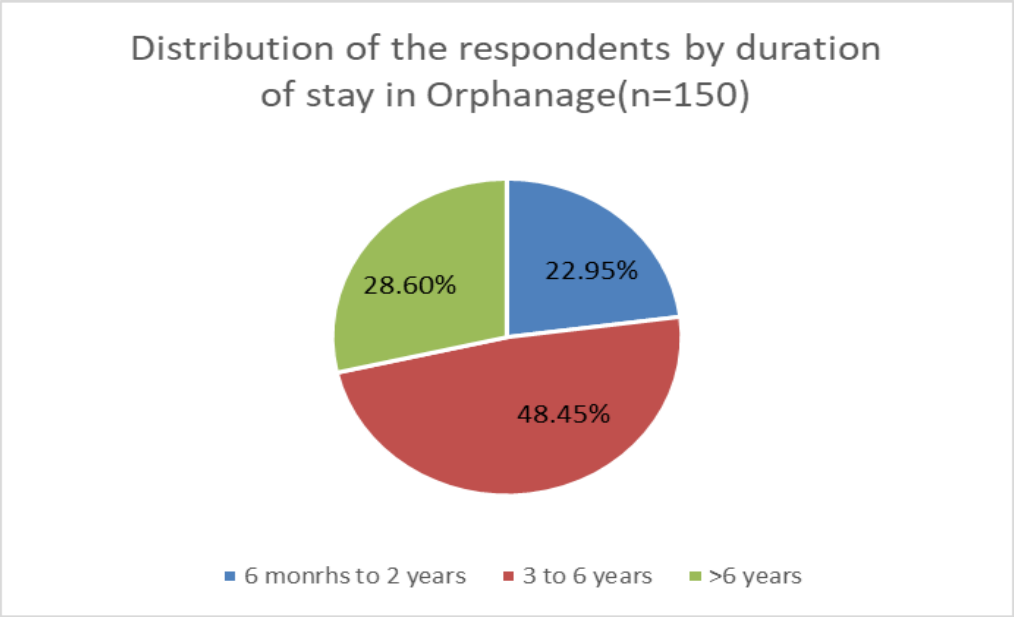

Figure-2: Distribution of the respondents by Orphanage status(n=150)

Table-3: Distribution of the respondents by reason for admission to orphanages. (n=150)

Reason for Admission to Orphanages	Number	Percent
Parents are not aliive	83	55%
Poverty and education	45	30%
Only poverty reason	15	10%
Abandoned	7	5%
Total	150	100.0

Table-4: Distribution of the respondents by dietary practices (n=150)

Meal	**Food Items**	**Frequency**
Breakfast	Hotchpotch with vegetables	Onece a week.
	Chicken	Twice a week.
	Bread	Twice a week.
	Rice with mixed vegetables	Three times a week.
	Mash potato,	Once a week.
Lunch	Rice	Daily
	Dhal	Daily
	Fish	Four times a week
	Biriani	Once a week
Dinner	Rice	Daily
	Dhal	Daily
	Fish	Three times a week
	Vegetables	Three times a week.
	Mash potato	Twice a week

Table-5: Distribution of the respondents by personal hygiene (n=150)

This table reveals that, 55% of the respondents practiced of washing hands before eating but 45% of the respondents didn't practice of Hand cleaning before consuming food. In case of hand cleaning after using the toilet 90.5% of the respondents practiced but 9.5% of the respondents didn't practice. 30.0% of the respondents wash had with water and soap but 70.0% of the respondents washed hand only water . It was mentioned that, all of the respondents performed daily brushing of teeth that is positive signs. On the other hand, 64% of the respondents completed their daily bath, 19.5% of the respondent's bath 4 to 6 times a week and rest 16.5% of the respondents completed their bath less than 4 times in a week respectively. This study also finds that, majority 51.5% of the respondents sometimes wearing tidy cloths but 48.5% of the respondents wearing tidy cloth daily. Very closed to six-tenths 57.6% of the respondents regular trimming of nails but little above forty 42.4%of the respondents didn't regular trimming of nails.

Hygiene Practice	**Response**	**Percentage**	**Frequency**	**Prevalence**
Practice of washing	Yes	60%	90	0.60
	No	40%	60	0.40
Washing hands before eating	Yes	55%	83	0.55
	No	45%	67	0.45
Washing hands after using the toilet	Yes	90.5%	136	0.905
	No	9.5%	14	0.095
Daily brushing of teeth	Yes	95%	143	0.95
	No	5%	7	0.05
Bathing	daily bath	64%	96	0.64
	4 to 6 times a week	19.5%	29	0.195
	Less than a week	16.5%	25	0.165

Wearing tidy clothes	Yes (Sometimes)	51.5%	77	0.515
	No (regular)	48.5%	73	0.485
Regular trimming of nails	Yes(regularly)	57.6%	86	0.576
	No	42.4%	64	0.424

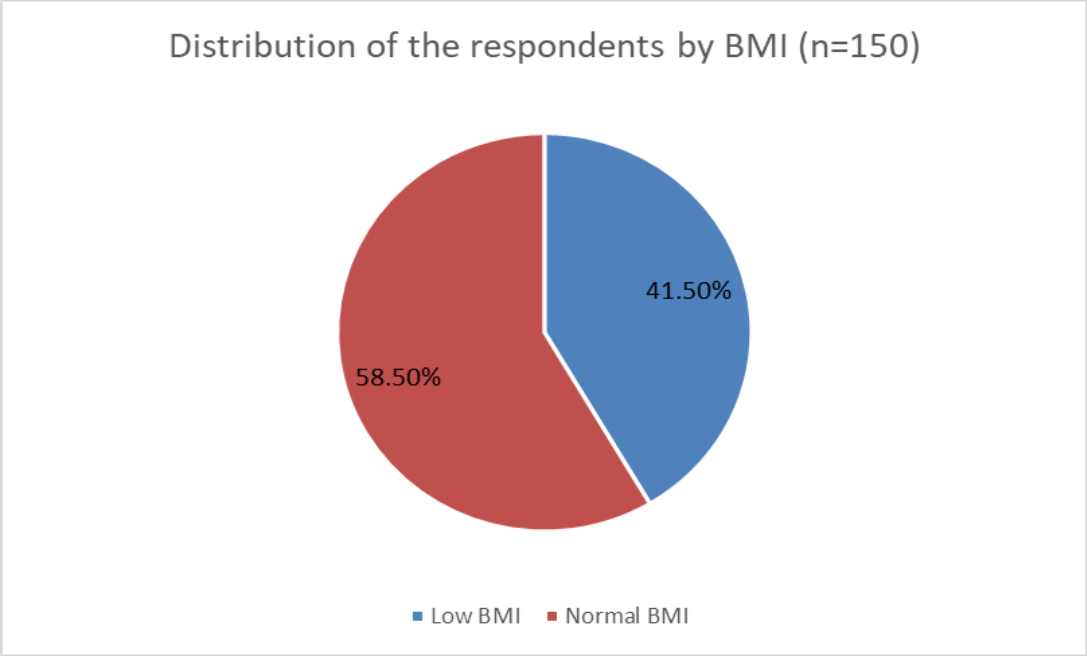

Figure-3: Distribution of the respondents by BMI (n=150)

Table-6: Association Between Nutrition Status and socio-demography among the study population.

This table finds that, All the p-values are greater than 0.05, indicating that there is no significant association between nutritional status (underweight vs. normal) and the socio-demographic characteristics (reason for admission to orphanage, education qualification, and age) among the study population.

socio-demography characteristics	**Nutritional Status**		**Total**	**P-Value**
	Underweight or Malnutrition (41.5%)	**Normal (58.5%)**		
Cause of Orphanage Admission				
1. Parents have passed away.(55.33%)	34	49	83	
2. Poverty and education (30%)	19	26	45	
3.Only poverty(10%)	6	9	15	
4.Abanoned(4.67%)	3	4	7	
Total	**62**	**88**	**150**	**0.998**
Education Qualification				
1.Class one to three **(**22%)	14	19	33	
2.Class four to six (30%)	19	26	45	
3. Class seven to	29	43	72	

ten(48%)				
Total	62	88	150	**0.969**
Age(years)				
6 to 8 years (12.67%)	8	11	19	
9 to 11 years(61.33%)	38	54	92	
12 to 14 years (26%)	16	23	39	
Total	**62**	**88**	**150**	**0.997**

Table-7: Association between personal hygiene and nutritional status in the studied population.

Following the chi-square test. It's find that P-value of 0.025. This P-value suggests that there is a statistically significant association between personal hygiene and nutritional status.

Personal hygine Score	Nutritional Status		Total	P-value
	Underweight	Normal		
Good	9	28	37	P=0.025
Moderate	30	43	73	
Poor	22	18	40	
Total	61	89	150	

CHAPTER-FIVE

DISCUSSION

The study conducted in an orphanage in Bangladesh provides critical insights into the dietary practices, health status, and hygiene conditions of the children residing there. These findings not only reflect the current status but also highlight areas needing intervention and improvement. By comparing the results with similar studies from different regions, we can understand the broader implications and specific needs of these children.

The age distribution of the children in the orphanage, with 61.5% between 9 to 11 years, 26.1% between 12 to 14 years, and 12.4% between 6 to 8 years, suggests a concentration of children in the middle childhood stage. The mean age of 10.535 years with a standard deviation of 1.598 indicates a relatively narrow age range, which can simplify the implementation of age-appropriate interventions. Reddy et al. 2020,**(14)** similarly found a concentration of middle-aged children in their study of orphanages in Bhubaneswar, which might indicate common admission trends in orphanages. The length of stay varied, with 48.45% of the children staying for 3 to 6 years, 28.60% for more than 6 years, and 22.95% for 6 months to 2 years. This suggests that a significant number of children spend a substantial part of their formative years in the orphanage. Longer stays offer opportunities for sustained interventions that could positively impact their development. Similar patterns were observed in studies from other regions, emphasizing the importance of long-term care strategies in orphanages.

The reasons for admission to the orphanage included parental death (55%), poverty (30%), education (10%), and abandonment (5%). These reasons are consistent with those reported by Ali et al. 2018,**(15)** in Ghana, where economic hardship and parental loss were primary factors leading to orphanhood. This highlights the socio-economic vulnerabilities that these children face, necessitating comprehensive support that extends beyond just accommodation and includes psychological and social support. The dietary practices observed in the orphanage reflect a staple-based diet common in the region. Breakfast often included hotchpotch with vegetables, rice, mashed potato, chicken, and bread with chicken. Lunch typically consisted of rice, pulses, fish, and biryani once a week, while snacks like singara and puri were provided in the evening. Dinner mirrored lunch with rice, pulses, fish, and sometimes vegetables. A critical concern is the lack of fruits and dairy items in their diet. This deficiency can lead to micronutrient deficiencies, impacting their overall health and development. Similar concerns were raised by Bukht et al. 2020,**(12)** in Pakistan, where the diet of orphans also lacked essential food groups. Ali et al. 2018,**(15)** emphasized the importance of dietary diversity, noting that a varied diet is crucial for optimal growth and development. The current study's findings underscore the need for incorporating a wider variety of food groups, including fruits and dairy, to meet nutritional needs and promote better health outcomes.

The study found commendable hygiene practices among the children, with 90.5% washing hands after using the toilet and all children brushing their teeth daily. These positive behaviors are crucial for preventing illnesses and maintaining overall health. Chowdhury et al. 2017,**(17)** also reported high levels of personal hygiene among children in a Dhaka orphanage, suggesting that hygiene education might be effectively implemented in some orphanages.

However, only 57.6% of the children regularly trimmed their nails, and 64% bathed daily, indicating room for improvement. In comparison, Mwaniki and Makokha 2013,**(16)** reported better overall hygiene practices among school children in Nairobi, possibly due to more comprehensive hygiene programs. The occasional tidiness of clothing (51.5%) raises concerns about the adequacy of laundry facilities and personal clothing supplies. Regular monitoring and support in these areas could significantly improve the children's quality of life.

Comparing the findings with studies from different regions reveals both similarities and differences. For instance, the dietary limitations observed in this study are similar to those reported by Bukht et al. 2020,**(12)** and Reddy et al. 2020,**(14)** who also noted a lack of dietary diversity in orphanages. Conversely, hygiene practices in this study were more positive than those observed by Mwaniki and Makokha 2013,**(16)** in Nairobi, suggesting regional differences in hygiene education and resource availability.

This study provides a comprehensive overview of the dietary and hygiene practices of children in an orphanage in Bangladesh. While certain practices, such as daily tooth brushing and handwashing, are commendable, there are significant areas needing improvement, particularly in dietary diversity and consistent personal hygiene practices. Future interventions should focus on improving access to a variety of foods and enhancing hygiene education to ensure holistic development and well-being of these vulnerable children. This study contributes to the broader understanding of orphanage living conditions in South Asia and underscores the need for targeted policies to address these critical areas.

By addressing these gaps through targeted interventions, it is possible to improve the health and well-being of children in orphanages, ensuring they have the necessary support for their growth and development.

Limitation of the Study:

The study took place exclusively at Sadullapur Koime Madrasha & Orphanage in Gaibandha, Bangladesh. Hence, its conclusions cannot be applied universally.

Limitations encompassed conducting the study in a single tertiary hospital and limited respondent knowledge, resulting in insufficient data.

Sample size was restricted to 150 participants at present.The study employed a purposive sampling technique, potentially introducing bias.

CHAPTER-SIX

CONCLUSION AND RECOMMENDATIONS:

6.1 Conclusion:

This study provides valuable insights into the dietary practices, health status, and hygiene conditions of children residing in an orphanage in Bangladesh. The findings reveal that the majority of the children are in their middle childhood stage, with a substantial number having spent several years in the orphanage. The primary reasons for admission, including parental death and poverty, underscore the socio-economic vulnerabilities these children face.

The dietary practices, characterized by staple-based meals with limited variety, particularly lack of fruits and dairy, suggest a risk of micronutrient deficiencies that could impact the children's overall health and development. While there are commendable hygiene practices, such as regular handwashing and daily tooth brushing, other areas, including personal grooming and clothing tidiness, require improvement.

Comparative analysis with similar studies from different regions highlights common challenges and areas for intervention. These findings emphasize the need for comprehensive support systems that address not only basic needs but also nutritional and psychosocial well-being, ensuring the holistic development of these children.

In conclusion, while the orphanage provides essential care and support, there are significant areas needing enhancement, particularly in dietary diversity and consistent personal hygiene practices. Addressing these gaps through targeted interventions will improve the health and well-being of children in the orphanage, providing a model for similar institutions in the region.

6.2 Recommendations:

To enhance the dietary practices, health status, and hygiene conditions of children in the orphanage, several key recommendations emerge from the study findings. First, it is essential to diversify the children's diet by incorporating more fruits and dairy products. This will ensure balanced nutrition and help prevent micronutrient deficiencies. Educational programs should be introduced to teach both children and caregivers about the importance of a varied diet and how to integrate different food groups into their meals.

Improving hygiene practices is another critical area. Regular workshops focusing on personal grooming, such as nail trimming and consistent bathing, should be conducted. Providing adequate hygiene supplies will support these practices. Additionally, improving access to clean clothing and enhancing laundry facilities will help maintain the children's personal tidiness and overall hygiene.

Addressing the psychosocial needs of the children is also important. Providing psychological counseling and support services can help address the emotional and social challenges faced by children, particularly those who have experienced parental loss or abandonment. Organizing recreational and extracurricular activities can further promote mental well-being and social development.

Long-term strategies should include continuous monitoring and evaluation of the orphanage's dietary and hygiene practices to ensure ongoing improvement and to promptly address any emerging issues. Advocating for the development of targeted policies at regional and national levels will help create a supportive environment that addresses the specific needs of children in orphanages, focusing on nutrition, hygiene, and overall well-being.

By implementing these recommendations, the quality of life for children in the orphanage can be significantly improved, ensuring they receive the necessary support for their growth and development. These measures will also provide a model for enhancing conditions in similar institutions across the region.

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6.4 Questionnaires:

Part-A: Demographic characteristics:

SN	Variable	Coding Category	Code
1	Age(years)	1. 6 to 8 2. 9 to 11 3. 12 to 14	
2.	Gender	1. Male 2. Female	
3	Religion	1. Muslim 2. Hindu 3. Buddhist 4. Christian	
4	Educational Status	1. Pre primary 2. Primary 3. Lower Secondary 4. Secondary 5. Higher Secondary	
5	Duration of stay in Orphanage	1. 6 months to 2 years 2. 3 to 6 years 3. > 6 years	
6	Orphan Status	1. Only father 2. Only mother 3. None	

		4. Both present	
7	Reasons for admission to orphanages	1. Parents are not alive 2. Education 3. Poverty 4. Abandoned 5. Others	

Part-B: Dietary practices related variables:

SN	Variable	Coding Category	Code
8	Starchy roots/tubers, and cereals (eg. rice, sweet potato, maize, plantain etc)	1. Yes 2. No	
9	Vegetable group (eg bitter leaf, green leafy vegetables, tomatoes, carrots, green beans, parsley, leaks etc)	1. Yes 2. No	
10	Fruits group (eg Citrus fruits, Seasonal fruits etc)	1. Yes 2. No	
11	Milk group (milk and milk product)	1. Yes 2. No	
12	Meat and Protein Rich foods (meat, fish, legumes, egg, nuts, seeds, etc)	1. Yes 2. No	

Part-C: Nutritional status related variables:

SN	Variable	Coding Category	Code
13	BMI category	1. Underweight 2.Healthy weight 3.Overweight 4. Obesity	

Part- D: Personal hygiene related variables:

SN	Variable	Coding category	Code
14	Do you practice of washing hands before eating?	1. Yes 2. No	
15	Do you wash hands after using the toilet?	1. Yes 2. No	
16	How do you wash hand?	1. Water and soap 2. Only water	
17	Do you daily brushing of your teeth?	1. Yes 2. No	
18	Bathing-	1. Daily 2. After one day 3. 2 times a day	
19	Do you wear tidy clothes?	1. Daily 2. Some times	
20	Do you regular trimming of nails?	1. Yes 2. No	
21	What is the status of personal hygiene?	1. Good 2. Moderate 3. Poor	