



Daffodil
International
University

**KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) TOWARDS
DIARRHEA AMONG HIGH SCHOOL STUDENTS IN SAVAR
UPAZILA: A CROSS-SECTIONAL STUDY**

**A PROJECT REPORT
BY**

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Submitted to the Department of Nutrition and Food Engineering in the partial fulfillment
of B.Sc. in Nutrition and Food Engineering

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APPROVAL

This Project titled “**Knowledge, Attitude and Practice (KAP) Towards Diarrhea Among High School Students in Savar Upazila: A Cross-Sectional Study.**” submitted by **Salima Jannath Urmi** to the Department of Nutrition and Food Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Nutrition and Food Engineering and approved as to its style and contents.

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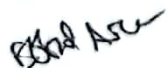
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DECLARATION

We hereby declare that this project has been done by us under the supervision of Effat Ara Jahan, Assistant Professor Department of Nutrition and Food Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

Nowadays, Diarrhea is an important public health problem, especially in developing countries like Bangladesh, where it is affecting more children. Lack of knowledge, poor hygiene practices, and lack of awareness are the primary factors contributing to its high prevalence. It is essential to understand the knowledge, attitude, and practice (KAP) of school going students to create an effective program related to diarrhea. This study evaluates the KAP associated with diarrhea among high school students from four schools in Mograkanda, Bhakurta Union, Savar and analyzes the correlation between socio-demographic factors and their awareness, perspective, and practice. A validated questionnaire was employed to capture data from 288 high school students in a cross-sectional study. The relationships between socio-demographic characteristics and KAP were analyzed using descriptive statistics and Chi-square tests. The findings indicated that the majority of students were from (15000-30000) Tk monthly household income group, and from nuclear families. The majority of mothers were homemakers (93.4%), while the majority of fathers were businessmen (47.6%). There were statistically significant relationships between knowledge and class ($p=0.025$), mother's education and knowledge ($p=0.001$), and father's occupation and knowledge ($p=0.016$). Class ($p=0.020$), family type ($p=0.041$), and monthly household income ($p=0.032$) were all significantly correlated with attitudes. Class was significantly associated with practices ($p=0.000$). The research highlights notable connections between high school students' socio-demographic attributes and their knowledge, attitude, and practice (KAP) about diarrhea. Class, mother's education, father profession, family type, and monthly household income significantly influence students' knowledge, attitudes, and practices (KAP). The results indicate the need for focused health education and socio-economic assistance to enhance personal hygiene and decrease diarrhea prevalence, stressing the influence of familial education and economic circumstances on students' health behaviors.

Keywords: Knowledge, Attitude, Practice, Diarrhea, Bangladesh.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Diarrhea is a major cause of illness and death worldwide, especially in low- and middle-income countries. It is frequently identified by the loss of three or more loose or watery stools per day or an increase in the frequency of bowel movements beyond the individual's typical level (WHO, 2024). Diarrhea often indicates diseases from bacteria, viruses, or parasites, which are spread by contaminated food or water, or via person-to-person contact resulting from inadequate sanitation and hygiene (Walker et al., 2012).

Diarrheal illnesses account for over 1.6 million fatalities per year, mostly affecting children under five years of age. After lung diseases, diarrhea is the second most common cause of death in children around the world (Troeger et al., 2018). A lot of people in low-income places, like Sub-Saharan Africa and South Asia, have diarrhea. This is a big problem for public health (Liu et al., 2015). Along with death, diarrhea makes children less healthy, slows their growth, and gives them long-term behavioral problems (epidemiology et al., 2008). People who have diarrhea often find their immunity weaker, which makes them more likely to get infections and keeps them in a circle of poverty and illness (Guerrant et al., 2012). Researchers have found that babies who have diarrhea often during their first few months of life are more likely to have problems with their physical and mental growth (Ngure et al., 2014).

The principal etiology of diarrhea is infection by pathogens including *Escherichia coli*, *Shigella*, *Salmonella*, rotavirus, norovirus, and parasites such as *Giardia* and *Cryptosporidium* (Kotloff et al., 2013a). Lack of clean water, cleanliness, and good hygiene practices makes it much easier for these infections to spread, especially in rural and urban poor areas (Bartram & Cairncross, 2010). Infections often spread from feces to the mouth through dirty water, food, or surfaces, and not washing hands properly makes the problem worse (Prüss-Ustün et al., 2014).

Specific demographic groups have heightened susceptibility to diarrheal illnesses. Persons under five years of age, the elderly, and those with impaired immune systems, including persons with HIV/AIDS or malnutrition, have an elevated risk of severe consequences from diarrhea (Patel et al., 2011). In children, insufficient nursing, malnutrition, and compromised immunity heighten vulnerability (Fischer Walker et al., 2012). Diarrhea may be classified as acute watery diarrhea, acute bloody diarrhea (dysentery), and chronic diarrhea. Acute watery diarrhea, often induced by viral illnesses such as rotavirus, persists for many days and may result in severe dehydration. Cholera is caused by *Vibrio cholerae*, is a serious form of acute watery diarrhea that is common in places that don't have enough hygiene or water supply. Dysentery, which is diarrhea with blood, is usually caused by bacteria like *Shigella* and is connected to damage to the intestines and more serious health problems (Kotloff et al., 2013b). Children who are poor often have diarrhea that lasts for 14 days or more. This type of diarrhea is very hard to treat and requires long-term medical and nutritional support (Checkley et al., 2008).

1.2 Background

1.2.1 Diarrhea and Its Impact in Life

Diarrhea profoundly affects public health, leading to infant mortality, malnutrition, and strained healthcare systems, especially in resource-limited environments. Recurrent bouts of diarrhea result in elevated hospital admission rates and impose significant economic burdens on families and healthcare systems. This is particularly applicable in poor nations, where access to healthcare is restricted and families often incur the expenses of medical treatment (Myron M Levine & Roy Robins-Browne, 2009). The long-term consequences of diarrhea on the growth and development of children are widely known. Malnutrition, which results in stunting, is a condition that causes poor cognitive development and diminished growth, is more common in children who suffer recurrent diarrhea (Black et al., 2010). It has an extended effect on future livelihoods and academic performance of the children (Ngure et al., 2014).

1.2.2 Diarrhea and Its Prevention

It is important to improve water, sanitation, and hygiene to prevent diarrhea. WHO and UNICEF say that people should have access to clean water, good washing facilities, and the habit of washing their hands with soap to stop the spread of diarrhea (WHO, 2021). Researchers have found that these programs make diarrhea significantly less prevalent, especially in schools and mass populated area (Freeman et al., 2012). Many people believe that taking zinc supplements and oral rehydration salts (ORS) are the best ways to stop diarrhea and keep children from becoming dehydrated. People agree that the use of ORS in the 1970s greatly reduced the number of deaths around the world caused by diarrhea (Munos et al., 2010). Zinc supplementation has been shown to reduce both the length and severity of diarrhea in children (Lazzerini & Wanzira, 2016). Alongside WASH efforts and ORS therapy, immunization has shown efficacy, especially against rotavirus. Rotavirus is the predominant cause of severe diarrhea in young children, and vaccination initiatives have resulted in a significant reduction in hospitalizations and fatalities in several countries (Patel et al., 2011).

1.3 Bangladesh Perspective

Bangladesh still has significant issues with diarrhea, even though water and sanitary services have improved a lot in the last few decades. When water sources get dirty during certain times of the year, like during rainy and monsoon seasons, illnesses frequently arise. People in rural areas are more likely to get diarrhea because they don't have easy access to clean water and don't practice good cleanliness (Pratt et al., 2014). Children and adolescents in Bangladesh are more susceptible to diarrhea. Despite public health initiatives enhancing awareness of hygiene and sanitation, considerable deficiencies persist in both understanding and implementation, particularly among school-aged children. High rates of poverty and starvation in some places make the problem worse, making diarrhea a constant problem across the country (Rahman et al., 2021).

1.4 Importance of KAP Studies:

Knowledge, attitude, and practice (KAP) studies are important methods in public health research, as they offer valuable insights into community behavior, beliefs, and practices that are significant to health concerns. These studies facilitate the development of targeted interventions for behavior change by identifying knowledge gaps, misconceptions, and hazardous practices. Understanding the impact of traditional thoughts and beliefs on health could improve medical care to better align with community needs, lead to better health results. KAP studies are especially helpful in developing regions for dealing with issues related to hygiene, healthcare for mothers and babies, and infectious diseases (Matters Anthropology & Launiala, 2009).

High school students provide a crucial population for KAP research, since they are at a transitional age during which they begin to establish and reinforce health habits that will persist into adulthood. During this era, adolescents are increasingly exposed to many health information sources, necessitating an evaluation of their knowledge, attitudes, and behaviors about health concerns. Thus, improving their understanding of health-related topics, individuals may be able to make better choices and adopt healthier lifestyles, therefore positively affecting their long-term health and well-being (Oreskovic et al., 2016). Individuals may be able to make smarter choices, which may lead to improved behaviors and lifestyles, by improving their understanding of health. Enhancing the health literacy of high school students may foster a generation that values health, perhaps leading to a decreased incidence of avoidable illnesses such as diarrhea. By adopting beneficial health habits, these young people may impart this knowledge and practice to their peers and future children, creating a health-oriented culture that can substantially reduce illness prevalence in their communities (Sawyer et al., 2012).

1.5 Objectives

General Objectives:

The study was executed to observe the knowledge, attitudes and practices concerning diarrhea among high school students of Savar Upazila.

Specific Objectives:

- ✓ To assess the level of knowledge regarding diarrhea among students in from four high schools of Mograkanda, Bhakurta Union, Savar
- ✓ To assess the attitudes of students towards diarrhea
- ✓ To find out the relationship between socio-demographic characteristics and the KAP regarding diarrhea
- ✓ To highlight the importance of hygiene practice to reducing health problems like diarrhea diseases among students

CHAPTER 2

LITERATURE REVIEW

2.1 Literature Review

Children need to learn about good personal hygiene at a young age so that infectious diseases don't spread and people can be more productive in the long run. An extensive evaluation of 408 students from public and private schools in Sadar Upazila, Noakhali District, was conducted at their schools. The objective of the study was to find out what the students understood, how they felt, and what they did regarding various aspects of personal hygiene. People who participated in the survey, there was an equal number of male and females. The average age of the respondents was 9.77 years, and the standard deviation was 1.62 years. There was a significant amount of sanitation knowledge shown by 78.4% of the youngsters, with females demonstrating a slightly higher level of awareness (79.4%) than males did. The findings suggested that the majority of the children were aware of sanitation. The research also demonstrated a substantial positive correlation between hygiene practices, attitudes, and knowledge ($P=0.000$). Additionally, children who exhibited sufficient hygiene knowledge were more likely to maintain dental hygiene and wear clean garments (AOR 2.37, CI 1.2-4.6, and AOR 2.51, CI 1.4-4.5, respectively). The study results show how vital it is to educate children about health and encourage them to change their behavior in order to improve their personal hygiene habits. To find out more, we need search into studies aimed at the long-term impact of school hygiene programs on students' well-being and overall health (Ghosh et al., 2020).

Poor sanitation and hygiene conditions have a big effect on the large number of transmissible illnesses that happen in poorer countries. The study looked at the knowledge, attitudes, and practices (KAP) of sanitation among school children in rural Ethiopia. It also looked at how sanitation affects individual hygiene and infection diseases in the gut. A cross-sectional study was done at Angolela Primary School with 669 kids in grades 1 through 6. The test results showed that only 52% of the students knew enough about good hygiene. 99% of students said they washed their hands before meals, but only 36.2% said they used soap. Additionally, only 14.8% of students exercised hand washing after defecation, despite the fact that 76.7% acknowledged its significance. Students who possessed a higher level of sanitation knowledge were more inclined to wear clean clothing (AOR 1.62) and had a lower risk of parasitic infection (AOR 0.78), albeit statistically insignificant. These results underscore the urgent necessity of sanitation education in schools, indicating that targeted health interventions could alleviate the disease burden among rural children (Vivas et al., 2010).

Approximately 12 million children die before their fifth birthday each year in developing countries, primarily as a result of acute respiratory infections, diarrheal diseases, and malnutrition. The rate of childhood mortality continues to be extremely high. The mother's health knowledge and behaviors are very important for the baby's health, since the person is usually the primary caregiver in many societies. A study that assessed the knowledge, attitudes, and practices (KAP) of students and their parents about acute diarrheal diseases (ADD) found that even though more than half of the children had normal understanding,

their views and actions were not sufficient. Mothers exhibited notably poor KAP scores with respect to ADD, while the overall KAP scores for both children and mothers ranged from poor to average. These results emphasize the significance of enhancing maternal health literacy, as it has a direct impact on the health and well-being of their offspring (Mutalik et al., 2016).

During the period of a research that conducted in schools located in the Vhembe District of South Africa, the knowledge, attitudes, and practices (KAP) of students on water, sanitation, and hygiene were examined. In spite of the fact that there was a reasonably high degree of information about aquatic illnesses (76.7%), the survey revealed that there was a considerable lack of understanding regarding the transmission pathways and prevention of water-based diseases (78.4%). This was accomplished via the use of a questionnaire, evaluations of the sanitary facilities, and discussions with the school administration. However, a substantial number of hygienic practices and positive attitudes were identified (91.4%). In urban schools, handwashing facilities were acceptable; yet, detergent was not accessible for use in these schools. In contrast, rural schools had major problems, including insufficient sanitary facilities for female students, limited water supply, and a scarcity of handwashing stations. These problems were enough to hamper students' participation at school. The insufficient quantity of water taps for the whole school community worsens hygienic issues. The condition was due to a number of damaged bathroom doors in several rural schools, limiting students' privacy. These results show the need of improving sanitary infrastructure and delivering hygiene education in remote communities (Sibiya et al., 2013).

The effectiveness of educational programs on dengue and diarrheal disease-related knowledge, attitudes, and practices (KAP) was assessed in 35 rural primary schools in Cundinamarca, Colombia, using a cluster-randomized controlled experiment. The study's goal was to find out if students, teachers, and parents would do better on the KAP test if they knew more about these diseases. Each school was randomly assigned to one of four experimental groups: control (CON), dengue (DEN), diarrhea (DIA), or a combination of both (DIADEN). Extensive instructions for teaching were developed, which included both mental and physical exercises. Students who were getting treatment for dengue (DEN, DIADEN) and diarrhea (DIA, DIADEN) spotted significant improvements in their knowledge scores over the course of two school years, by 1.16 and 1.15 points, respectively ($p < 0.001$). No significant changes were seen about dengue in these locations. Children who received treatment with diarrhea performed better on assessments of their attitude and practice. The research indicated that students informed their parents about dengue, but not about diarrhea. Though these data show that educational methods can help students learn more, they also show how important it is to pay more attention to the parts of attitude and practice (Sarmiento-Senior et al., 2022).

It is still the second most common cause of illness and death in children under five years old around the world. But a lot of these problems can be avoided if you know how to handle people well, step in at the right time, and do your research at home and in healthcare places. Researchers at a Mangaluru Medical College Hospital did a cross-sectional study to find

out what 100 mothers knew, how they felt, and what they did when their children under five got diarrhea. The study showed that most mothers (84%) knew everything they needed to know about the signs, symptoms, spread, and prevention of diarrhea. In addition, 77% of mothers took the illness seriously, and 76% of mothers took practical steps to improve their child's food and avoid getting diarrhea. Still, only 35% of the parents had given their children the rotavirus vaccine. There was a strong link ($P \leq 0.0001$) between KAP grades and the mother's age, level of schooling, and social status. The statistics make it clear how important it is to teach mothers about health so that they can better understand and deal with diarrhea. They also believe that the rotavirus vaccine should be included in government vaccination programs so that more people can get it and the number of deaths and illness caused by diarrhea may decrease (Gollar & Avabratha, 2018).

Children in poorer countries mostly get sick and die because they don't eat well or have sudden breathing problems. Every year, more than 12 million children die. A lot of them die in their first year. Mothers, who take care of their children most of the time, have a big effect on their health through what they know, how they act, and what they do. In a study of students in school and their parents, KAP was associated to new lung illnesses. It found that even though more than half of the children knew the basics, they weren't acting and thinking properly, especially when they had diarrhea. When it came to acute lung illnesses, mothers with very low KAP adversely affected the well-being of their children as an entire group. These findings show how important it is to improve mothers' health and education, since what women know and how they act directly affects their children's health and life (Mutalik et al., 2017).

The knowledge, attitude, and practice (KAP) levels of faculty members are a significant factor in the prevalence of norovirus gastroenteritis outbreaks in schools and kindergartens. The impact of a public health intervention on KAP related to outbreak prevention was evaluated in a study conducted among 1095 kindergarten and 1028 school personnel in Shenzhen, China. The findings showed that female participants, especially those in primary institutions, showed improved knowledge scores after the intervention. However, post-intervention scores for attitudes and behaviors were reduced among senior staff members (aged 35 and older) and those with more than 10 years of service. Moreover, there was a notable lack of understanding about the seasonal characteristics of norovirus (NoVs) outbreaks of diarrhea and aerosol transmission. The understanding of primary school staff aged 26 and older about the effectiveness of medicinal alcohol and the handling of unclear regurgitation improved, whereas private school workers shown more significant advancements in their practice post-intervention. A major obstacle to effective prevention was noted as negative perceptions, especially among school officials, toward morning inspections. The research highlights the need for focused educational programs to improve knowledge deficiencies, especially among senior personnel and administrators. It shows the need of implementing the detection and treatment of vomiting as an essential element of norovirus outbreak prevention efforts in educational institutions. Education authorities are reminded to execute extensive public health activities to avert future outbreaks (Lyu et al., 2024).

In sub-Saharan Africa and southern Asia, malaria, diarrhea, and pneumonia (MDP) are the leading causes of childhood mortality, accounting for 82% of all deaths in these regions. Research in Ibadan, Nigeria, examined the effect of a school-based health education program on parents' awareness of school-related injury risks and their knowledge, attitudes, and practices (KAP) about MDP. A study was conducted within the structure of the Improving Child Health in Public Schools (IPCIP) program to analyze Knowledge, Attitudes, and Practices (KAP) data collected from parents at baseline and after two years of preventative health education provided during PTA meetings. Although significant improvements in parents' perspectives on medication adherence and healthcare-seeking behaviors, their comprehension of the causes and symptoms of MDP, other from malaria, mostly remained static. Moreover, the program substantially reduced the occurrence of injuries among schoolchildren, underscoring the need of injury risk counseling. The research highlights the need of addressing pneumonia as a public health issue owing to insufficient awareness. It also advises that educators get training in injury risk reduction, first aid, and the provision of first aid kits in educational settings. This implies that PTA meetings and school-based initiatives may successfully improve health outcomes in low- and middle-income nations (Jegede, 2018).

CHAPTER 3

METHODOLOGY

3.1 Study Design & Study Setting

The research was designed as a cross-sectional study and focused data collected from four schools of Mograkanda, Bhakurta Union, Savar.

School name:

- (1) Dhaka Ideal Model School
- (2) Rising Star Public School
- (3) Authentic Model School
- (4) Bhakurta Union High School & College

3.2 Study Population

I have gathered data from 288 individuals' knowledge, attitude, and practice (KAP) about diarrhea among high school students. The sample size was determined using the formula,

$$n = \frac{z^2 pq}{d^2}$$

n = Desired sample size

P = Anticipated population proportion, 50% = 0.5

So, q = (1-p) = 1-0.5 = 0.5

d = Margin of error = 5% = 0.05

At confidence level 95%, z value = 1.96

$$\text{Now, } n = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.05^2} \\ = 384$$

Therefore, the desired sample size is 384. However, due to time limitation, we have collected 288 samples from four schools.

3.3 Research Instrument

Data collection was performed using a validated questionnaire and a standardized instrument.

3.4 Socio-Demographic Characteristics

Participants provided details about their gender, class, their parent's educational background, parent's profession, monthly household income, and family type.

3.5 Statistical Analysis

Data analysis was conducted with SPSS Statistics software (Version 25.0, IBM, Armonk, NY, USA). Descriptive statistics included frequency distributions, percentages. To explore relationships between variables, a Chi-square test was applied for inferential analysis.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Results

Table 1: Distribution of the students with regard to socio-demographic characteristics

Variables	Category	Frequency (n=288)	Percentage (%)
Gender	Boy	144	50
	Girl	144	50
Class	Six	72	25
	Seven	72	25
	Eight	72	25
	Nine	72	25
Father's Education	Illiterate	21	7.3
	Primary	96	33.3
	Secondary	113	39.2
	Higher Secondary	38	13.2
	Graduate	20	6.9
Mother's Education	Illiterate	15	5.2
	Primary	88	30.6
	Secondary	149	51.7
	Higher Secondary	24	8.3
	Graduate	12	4.2
Father's Occupation	Unemployed	8	2.8
	Laborer	46	16.0
	Farmer	28	9.7
	Businessman	137	47.6
	Govt Officer	9	3.1
	Others	60	20.8
Mother's Occupation	Housewife	269	93.4
	Employed	13	4.5
	Others	6	2.1
Family Type	Nuclear Family	198	68.8
	Joint Family	90	31.3
Monthly Household Income	>30000 Tk.	23	8.0
	(15000-30000) Tk.	255	88.5
	<15000 Tk.	10	3.5

Table 1 includes an extensive range of demographic and socio-economic variables relevant to the 288 subjects. Gender is distributed equally between boys and girls, with each gender accounting for 50% of the total. Students are equitably distributed across the class, with 25% of the participants from each class (six, seven, eight, and nine). Most fathers (39.2%)

and mothers (51.7%) have secondary-level education. Fathers are mainly businesspersons (47.6%), and most mothers are housewives (93.4%). Most students come from nuclear families (68.8%). 88.5% students have a monthly family income between 15,000 and 30,000 Tk.

Table 2: Association with socio-demographic characteristics of the students and their knowledge about diarrhea

Variables		Knowledge n=288 (%)			X ²
		Poor	Average	Good	
Gender	Boy	26(59.1)	48(45.7)	70(50.4)	2.233 ^{NS}
	Girl	18(40.9)	57(54.3)	69(49.6)	
Class	Six	13(29.5)	21(20.0)	38(27.3)	14.402 ^a
	Seven	9(20.5)	38(36.2)	25(18.0)	
	Eight	14(31.8)	19(18.1)	39(28.1)	
	Nine	8(18.2)	27(25.7)	37(26.6)	
Father's Education	Illiterate	3(6.8)	11(10.5)	7(5.0)	10.441 ^{NS}
	Primary	19(43.2)	33(31.4)	44(31.7)	
	Secondary	18(40.9)	35(33.3)	60(43.2)	
	Higher Secondary	4(9.1)	16(15.2)	18(12.9)	
	Graduate	N/A	10(9.5)	10(7.2)	
Mother's Education	Illiterate	2(4.5)	11(10.5)	2(1.4)	26.658 ^a
	Primary	18(40.9)	25(23.8)	45(32.4)	
	Secondary	23(52.3)	47(44.8)	79(56.8)	
	Higher Secondary	1(2.3)	13(12.4)	10(7.2)	
	Graduate	N/A	9(8.6)	3(2.2)	
Father's Occupation	Unemployed	4(9.1)	1(1.0)	3(2.2)	21.855 ^a
	Laborer	13(29.5)	18(17.1)	15(10.8)	
	Farmer	5(11.4)	7(6.7)	16(11.5)	
	Businessman	13(29.5)	54(51.4)	70(50.4)	
	Govt Officer	1(2.3)	2(1.9)	6(4.3)	
	Others	8(18.2)	23(21.9)	29(20.9)	
Mother's Occupation	Housewife	38(86.4)	103(98.1)	128(92.1)	7.903 ^{NS}
	Employed	4(9.1)	1(1.0)	8(5.8)	
	Others	2(4.5)	1(1.0)	3(2.2)	
Family Type	Nuclear Family	28(63.6)	76(72.4)	94(67.6)	1.262 ^{NS}
	Joint Family	16(36.4)	29(27.6)	45(32.4)	
Monthly Household Income	>30000 Tk.	6(13.6)	10(9.5)	7(5.0)	9.317 ^{NS}
	(15000-30000) Tk.	34(77.3)	92(87.6)	129(92.8)	
	<15000 Tk.	4(9.1)	3(2.9)	3(2.2)	

Here, X² = Chi square value, ^ap value <0.05 is significant, ^{NS}p value is not significant.

Table 2 illustrates the correlation between socio-demographic characteristics (n=288) and knowledge. The relationship between class and knowledge appears, as evidenced by a significance level of p=0.025. The highest percentages of poor (31.8%) and good

knowledge (28.1%) found in class eight, and the highest percentage of average knowledge is seen in class seven (36.2%). There is a significant and strong correlation ($p=0.001$) between the knowledge and the mother's education. Across the most student's poor (52.3%), average (44.8%), and good knowledge (56.8%) having mothers with secondary education. The father's occupation significantly influences the knowledge of the students ($p=0.016$). Poor knowledge highest among students whose fathers are laborers and businessmen (29.5% each), and average (51.4%) and good knowledge (50.4%) most common among students whose fathers are businessmen. There is no significant relationship between knowledge and gender, father's education, mother's occupation, family type, and monthly family income ($p>0.05$).

Table 3: Association with socio demographic-characteristics of the students and their attitude about diarrhea

Variables		Attitude n=288(%)			X ²
		Negative	Neutral	Positive	
Gender	Boy	5(71.4)	64(56.6)	75(44.6)	5.205 ^{NS}
	Girl	2(28.6)	49(43.4)	93(55.4)	
Class	Six	N/A	41(36.3)	31(18.5)	15.025 ^a
	Seven	2(28.6)	27(23.9)	43(25.6)	
	Eight	3(42.9)	23(20.4)	46(27.4)	
	Nine	2(28.6)	22(19.5)	48(28.6)	
Father's Education	Illiterate	N/A	7(6.2)	14(8.3)	7.603 ^{NS}
	Primary	3(42.9)	36(31.9)	57(33.9)	
	Secondary	3(42.9)	52(46.0)	58(34.5)	
	Higher Secondary	1(14.3)	14(12.4)	23(13.7)	
	Graduate	N/A	4(3.5)	16(9.5)	
Mother's Education	Illiterate	1(14.3)	7(6.2)	7(4.2)	11.602 ^{NS}
	Primary	4(57.1)	35(31.0)	49(29.2)	
	Secondary	1(14.3)	62(54.9)	86(51.2)	
	Higher Secondary	1(14.3)	8(7.1)	15(8.9)	
	Graduate	N/A	1(0.9)	11(6.5)	
Father's Occupation	Unemployed	N/A	4(3.5)	4(2.4)	5.187 ^{NS}
	Laborer	1(14.3)	21(18.6)	24(14.3)	
	Farmer	N/A	11(9.7)	17(10.1)	
	Businessman	3(42.9)	49(43.4)	85(50.6)	
	Govt Officer	N/A	3(2.7)	6(3.6)	
	Others	3(42.9)	25(22.1)	32(19.0)	
Mother's Occupation	Housewife	6(85.7)	104(92.0)	159(94.6)	3.562 ^{NS}
	Employed	1(14.3)	5(4.4)	7(4.2)	
	Others	N/A	4(3.5)	2(1.2)	
Family Type	Nuclear Family	2(28.6)	75(66.4)	121(72.0)	6.395 ^a
	Joint Family	5(71.4)	38(33.6)	47(28.0)	

Monthly Household Income	>30000 Tk.	2(28.6)	6(5.3)	15(8.9)	10.546 ^a
	(15000-30000) Tk.	4(57.1)	101(89.4)	150(89.3)	
	<15000 Tk.	1(14.3)	6(5.3)	3(1.8)	

Here, X^2 = Chi square value, ^ap value <0.05 is significant, ^{NS}p value is not significant.

The connection between the socio-demographic factors of 288 participants and their attitudes is illustrated in table 3. A p-value of 0.020 indicates a significant correlation between the attitude and the class. Among these, negative attitudes are highest in class eight students (42.9%), neutral attitudes are most common in class six (36.3%), and positive attitudes are most prevalent among class nine students (28.6%). Attitude shows a significant relationship with family type ($p=0.041$). Regarding family type, negative attitudes are higher among students from joint families (71.4%), neutral attitudes are most common in nuclear families (66.4%), and positive attitudes are more prevalent in nuclear families (72.0%). Finally, attitude and monthly household income are significantly associated ($p=0.032$). Negative, neutral, and positive attitudes are all most prevalent among students from households earning 15,000–30,000 Tk., with 57.1%, 89.4%, and 89.3%, respectively. No significant relationship exists between attitude and gender, father's education, mother's education, father's occupation, and mother's occupation ($p>0.05$).

Table 4: Association with socio demographic characteristics of the students and their Practice about diarrhea

Variables		Practice n=288(%)			X^2
		Poor	Average	Good	
Gender	Boy	3(60.0)	31(53.4)	110(48.9)	0.587 ^{NS}
	Girl	2(40.0)	27(46.6)	115(51.1)	
Class	Six	N/A	22(37.9)	50(22.2)	24.587 ^a
	Seven	2(40.0)	5(8.6)	65(28.9)	
	Eight	2(40.0)	23(39.7)	47(20.9)	
	Nine	1(20.0)	8(13.8)	63(28.0)	
Father's Education	Illiterate	N/A	7(12.1)	14(6.2)	6.302 ^{NS}
	Primary	3(60.0)	17(29.3)	76(33.8)	
	Secondary	1(20.0)	21(36.2)	91(40.4)	
	Higher Secondary	1(20.0)	7(12.1)	30(13.3)	
	Graduate	N/A	6(10.3)	14(6.2)	
Mother's Education	Illiterate	N/A	4(6.9)	11(4.9)	4.763 ^{NS}
	Primary	3(60.0)	15(25.9)	70(31.1)	
	Secondary	1(20.0)	32(55.2)	116(51.6)	
	Higher Secondary	1(20.0)	5(8.6)	18(8.0)	
	Graduate	N/A	2(3.4)	10(4.4)	
Father's occupation	Unemployed	N/A	1(1.7)	7(3.1)	5.638 ^{NS}
	Laborer	1(20.0)	13(22.4)	32(14.2)	
	Farmer	N/A	8(13.8)	20(8.9)	
	Businessman	3(60.0)	25(43.1)	109(48.4)	
	Govt Officer	N/A	1(1.7)	8(3.6)	

	Others	1(20.0)	10(17.2)	49(21.8)	
Mother's Occupation	Housewife	5(100.0)	56(96.6)	208(92.4)	1.828 ^{NS}
	Employed	N/A	1(1.7)	12(5.3)	
	Others	N/A	1(1.7)	5(2.2)	
Family Type	Nuclear Family	3(60.0)	45(77.6)	150(66.7)	2.741 ^{NS}
	Joint Family	2(40.0)	13(22.4)	75(33.3)	
Monthly Household Income	>30000 Tk.	1(20.0)	8(13.8)	14(6.2)	4.740 ^{NS}
	(15000-30000) Tk.	4(80.0)	48(82.8)	203(90.2)	
	<15000 Tk.	N/A	2(3.4)	8(3.6)	

Here, X^2 = Chi square value, ^ap value <0.05 is significant, ^{NS}p value is not significant.

The correlations between socio-demographic characteristics and practice for 288 individuals are analyzed in Table 4. Class and practice are significantly correlated ($p=0.000$). Poor practice is most common in classes seven and eight (40.0% each). Class eight has the most students with average practice (39.7%), while class seven leads in good practice (28.9%). No significant relationship was found between practice and gender, father's education, mother's education, father's occupation, mother's occupation, family type, and monthly household income ($p>0.05$).

4.2 Discussion

This research aimed to evaluate the knowledge, attitude, and practice (KAP) about diarrhea among high school students in Mograkanda, Bhakurta Union, Savar.

The study found that socio-demographic factors, such as education and occupation, significantly influenced knowledge about diarrhea prevention. The study did not find a clear relation between gender and the outcome, which is similar to our findings (Sivasubramanian, 2022). Another example comes from a study that found that people have different levels of knowledge about how viruses are transmitted, and this is similar to our study. Our study has found knowledge differences among class (Lyu et al., 2024). The study had found a significant influence of education on mother knowledge in preventing diarrhea which is similar to our study (Setiawati et al., 2024). Parent's education and mother's occupation have a strong association with knowledge which is almost similar to our study. But we did not find any significant relationship with fathers' education (Ghosh et al., 2022).

When looking at attitude, the class showed a statistically significant connection, but the gender, father's education, and occupation did not. Based on how much the student's class and knowledge changed their attitudes (Sunanda et al., 2017). Additionally, the family type and monthly household income had a great impact on attitudes in our study, which is in link with the research that has shown that family type and social context influence health-related attitudes as well as hygiene and disease prevention (Shalshabilla et al., 2024). In contrast, the study stated that gender substantially influenced attitudes toward diarrhea management, highlighting differences in perception between mothers and fathers. This finding was not found in our research (Gul et al., 2017). Parent's education and mother's occupation, and types of school have a strong correlation with attitude which is not found in our study (Ghosh et al., 2022).

The results shows that there is a relationship between class and practice. Nevertheless, there was no noticeable correlation between the father's education and occupation, as well as their monthly family income, and practice. This is supported by the study that showed big differences in how people clean themselves. Class and schooling had bigger impact in their practice (Yikii et al., 2019). In the same way, the study found that mothers' occupation didn't have much of an effect on how their children behaved, which is similar with the insignificance of this factor in our study (Mutalik et al., 2016). It is interesting that our results did not show a strong link between practice and family type. This is different from the study, which showed that family type and community factors play a big role in how people form cleanliness habits. The difference in results could be due to the study focused on training programs or different levels of intervention, which showed that treatments were effective at improving practice-related outcomes (Shalshabilla et al., 2024). Parent's education and mother's occupation, and types of school have a strong connection with practice which is dissimilar to our study (Ghosh et al., 2022).

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study shows the strong correlation between socio-demographic characteristics and the knowledge, attitudes, and practices (KAP) about diarrhea among high school students in Mograkanda, Bhakurta Union, Savar. In this study, a significant relationship was observed between class and the students' knowledge, attitude, and practice, indicating that the type of education provided in schools according to class has an influence on their health-related awareness, outlook and practice. Additionally, there is a notable connection between the mother's education and the father's occupation with the students' knowledge, suggesting that parents' education and occupation play an important role in students' health and disease-related knowledge. Furthermore, there is a relationship between family type and monthly family income with the students' attitude, implying that family type and monthly family income influence their mindset to health-related matters. However, for practice, no socio- demographic factors other than class were found to have a significant connection, which highlights the impact of institutional education in shaping students' disease-related hygiene practices.

5.2 Recommendation

These results provide important information for policymakers and educators, improving the development of specialized health education programs that take into consideration students' socio-demographic backgrounds. Interventions may include seminars and culturally suitable educational resources designed to improve knowledge and attitudes toward diarrhea prevention. Addressing these socio-demographic characteristics may enhance students' knowledge and behavior via health education programs, therefore contributing to better health outcomes in the wider community. This study offers a foundation for further research and health strategies.

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APPENDICES

Appendix 01: Questionnaire

Consent Letter

I am conducting a study on “Knowledge, Attitude and Practice (KAP) Towards Diarrhea Among High School Students in Savar Upazila: A Cross-Sectional Study.” I invite you to participate in this study by completing a questionnaire. Your participation will be kept strictly confidential.

If you agree to participate, please sign the attached consent form and complete the questionnaire. The questionnaire will take approximately 15-20 minutes to complete. Your contribution will help us to understand the knowledge, attitude and practices of high school going students about diarrhea.

If you have any questions or concern about the study, please do not hesitate to contact me.
Sincerely,

Salima Jannath Urmi

ID: 193-34-984

Consent Form

I have read and understand the information provided above consent letter and hereby give my informed consent to participate in the study on “Knowledge, Attitude and Practice (KAP) Towards Diarrhea Among High School Students in Savar Upazila: A Cross-Sectional Study.”

.....
Participant’s Signature

Title: Knowledge, Attitude and Practice (KAP) Towards Diarrhea Among High School Students in Savar Upazila: A Cross-Sectional Study

Socio-Demographic Statistics

Name:

School:

1. Gender:

- a. Boy b. Girl

2. Class:

- a. Six b. Seven
c. Eight c. Nine

3. Father's Education:

- a. Illiterate b. Primary c. Secondary
d. Higher Secondary e. Graduate

4. Mother's Education:

- a. Illiterate b. Primary c. Secondary
d. Higher Secondary e. Graduate

5. Father's Occupation:

- a. Unemployed b. Laborer c. Farmer
d. Businessman e. Govt Officer f. Others

6. Mother's Occupation:

- a. Housewife b. Employed c. Others

7. Family Type:

- a. Nuclear Family b. Joint Family

8. Monthly Household Income:

- a. >30000 Tk. b. 15000-30000 Tk. c. <15000 Tk.

Knowledge

1. What do you understand by diarrhea?

- a. Watery stool once a day b. Watery stool more than 3 times a day
c. Hard stool more than 3 times a day d. I don't know

2. What are the causes of diarrhea?

- a. Viral and bacterial infections, unhealthy water contaminated food
b. Cold water, insects, foul smell c. I don't know

3. What are the symptoms of diarrhea?

- a. Loose motion, abdominal pain, vomiting, fever
b. Weight gain, cold cough, heart burn c. I don't know

4. What is the main complication of diarrhea?

- a. Headache b. Dehydration
c. Abdominal pain d. I don't know

5. Why is ORS given during diarrhea?

- a. To treat dehydration b. To treat fever
c. To treat headache d. I don't know

6. How to prevent diarrhea?
- a. Boiling water, properly covering food, washing hand
 - b. Drinking coffee, washing hand only after eating
 - c. I don't know

Attitude

1. Diarrhea is a water borne illness.
 - a. Agree
 - b. Disagree
 - c. Not sure
2. Diarrhea is caused due to poor hygiene.
 - a. Agree
 - b. Disagree
 - c. Not sure
3. Eating unhygienic food never causes diarrhea.
 - a. Agree
 - b. Disagree
 - c. Not sure
4. Diarrhea is only a disease of children.
 - a. Agree
 - b. Disagree
 - c. Not sure
5. ORS is beneficial in treating diarrhea.
 - a. Agree
 - b. Disagree
 - c. Not sure
6. Drinking clean water can prevent diarrhea.
 - a. Agree
 - b. Disagree
 - c. Not sure

Practice

1. Do you eat a balanced diet during diarrhea?
 - a. Yes
 - b. No
2. Do you drink more fluids than usual during diarrhea?
 - a. Yes
 - b. No
3. Do you avoid spicy and fatty foods during diarrhea?
 - a. Yes
 - b. No
4. Do you maintain food hygiene?
 - a. Yes
 - b. No
5. Do you drink safe water?
 - a. Yes
 - b. No
6. Do you wash your hand properly before and after taking meal?
 - a. Yes
 - b. No
7. Do you wash your hand after using the toilet?
 - a. Yes
 - b. No

Appendix 02: Synopsis

Daffodil International University

Faculty Of Health & Life Sciences (FHLS)

Daffodil International University

Daffodil Smart City, Birulia, Savar, Dhaka – 1216, Bangladesh

Student's Name: Salima Jannath Urmi

ID: 193-34-984

Section: A

1. Title: Knowledge, Attitude and Practice (KAP) Towards Diarrhea Among High School Students in Savar Upazila: A Cross-Sectional Study

2. Introduction:

Background:

Diarrhea is defined as, the passage of three or more loose or liquid stools per day. One of the main causes of morbidity and mortality in children is diarrhea. Diarrhea can be caused by a variety of reasons, including bacterial, protozoal, and viral illnesses, such as rotavirus, cholera, and typhoid enteritis, all of which are transmitted by the fecal-oral route. Diarrhea affects 1 to 2.5 billion individuals annually and causes 1.5 to 2.5 deaths of children (LekanAgunbiade et al., 2021).

A KAP survey is used to gather information about what people know, feel, and do regarding specific topics. These surveys can identify needs, issues, and obstacles, which can guide the planning and implementation of health programs (Ciglenecki et al., 2013). By exploring what people commonly understand, believe, and practice, KAP studies provide insights into behaviors and the factors influencing them. They also help to find the best ways to communicate information, set priorities, and make decisions for more effective programs (World Health Assembly, 2011).

Rationale of the Study:

Diarrheal infections are the fifth leading cause of mortality worldwide. Rotavirus can result in fluid, electrolyte, and nutritional deficiencies in the intestines, which can proceed rather quickly to lead to dehydration and death. Although diarrhea itself is not fatal, people's incorrect information, bad habits, and negative attitudes about it, along with their misguided approach to managing and preventing it, can result in severe dehydration and ultimately death (Workie et al., 2018). This study therefore aims to appraise knowledge, attitude and practice (KAP) among high school students regarding diarrhea (Workie et al., 2018).

Research Question:

What are the levels of knowledge, attitude, and practice toward diarrhea among high school students in Savar Upazila, and how do these factors correlate with socio-demographic characteristics?

3. Objectives:

General Objectives:

The study will be conducted to perceive the diarrhea related knowledge, attitude and practices among high school students of Savar Upazila.

Specific Objectives:

- ✓ To detect the connection between socio-demographic factors and the KAP about diarrhea
- ✓ To evaluate high school student's knowledge about diarrheal disease
- ✓ To estimate the perspective of students concerning diarrhea
- ✓ To appraise the diarrhea preventive measures and hygiene practices among students

4. Methodology:

Study Design and Sampling

A descriptive cross-sectional design will aim to assess diarrhea-related knowledge, attitude, and practice (KAP) among high school students. The target sample will be collected from four schools in Mograkanda, Bhakurta Union, Savar, Dhaka. The schools that will be included are Dhaka Ideal Model School, Rising Star Public School, Authentic Model School, and Bhakurta Union High School & College.

The following formula will be adopted for sample size calculation, $n = \frac{z^2 pq}{d^2}$

n = Desired sample size

P = Anticipated population proportion, 50% = 0.5

So, q = (1-p) = 1-0.5 = 0.5

d = Margin of error = 5% = 0.05

At confidence level 95%, z value = 1.96

$$\text{Now, } n = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.05^2} \\ = 384$$

Therefore, the desired sample size is 384.

Data Collection Methods

Data collection will involve the use of structured surveys, focus group interviews, and a purpose-designed questionnaire.

Statistical Analysis

Statistical analysis will be used to analyze the data. Descriptive statistics and inferential statistics will be applied

Ethical Considerations

Ethical guidelines will be strictly followed throughout the study. Approval will be obtained from the relevant institutional ethical review board. Informed consent will be obtained from all participants and their guardians, ensuring voluntary participation and confidentiality.

5. Expected Outcome

The expected outcome of this study is to achieve detailed understanding about the relationship between diarrhea related knowledge, attitude and practices of the students and socio-demographic background of their parents. Through this research, the lack of knowledge about diarrhea among the students, various misconceptions and lack of food and personal hygiene to prevent diarrhea can be identified. The study is contemplated to deliver valuable intuition for the development of particularized health education programs to improve knowledge, attitudes and practices towards diarrhea among high school students in Savar upazila.

6. Socio Economic Impact

In Bangladesh, diarrhea imposes an important socio-economic burden on low-income households by way of healthcare expenses, lost wages, and decreased educational outcomes because of unemployment. It worsens social inequalities by overloading healthcare infrastructure and disproportionately affecting vulnerable populations. Nevertheless, preventive measures, such as increasing awareness of hygiene and diarrhea prevention in schools, can result in improved long-term economic and educational outcomes, reduced healthcare costs, and increased student attendance. The development of effective policies should prioritize the improvement of sanitation, healthcare access, and health education.

7. Time Schedule of Activities

Task	Activities by Months (November 2023 to November 2024)							
	1	2	3	4	5	6-7	7-8	8-12
Literature research								
Study protocol and questionnaire development								
Ethical approval								
Pretesting of study protocols, questionnaire								
Data and sample collection phase								
Data analysis and report writing								
Report Submission								

8. References:

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Signature of the Supervisor	Signature of the Co-Supervisor

Signature of the Student

Appendix 03: Plagiarism Report

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) TOWARDS DIARRHEA AMONG HIGH SCHOOL STUDENTS IN SAVAR UPAZILA: A CROSS-SECTIONAL STUDY

ORIGINALITY REPORT

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