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A Study to Assess the Level of Knowledge Regarding Human Metapneumovirus (HMPV) Infection Among the School Students in A Selected School of Guwahati, Assam

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Abstract

Background: Human metapneumovirus(HMPV), a common respiratory virus, was first identified in 2001, causing infections similar to a cold or respiratory syncytial virus(RSV). It's a significant cause of respiratory illness, particularly in children, and can lead to complications like bronchiolitis or pneumonia.

Objectives : To assess the level of knowledge regarding HMPV infection among the school students in a selected school of Guwahati, Assam.

Materials and Methods: The study adopted a Non-Experimental descriptive research design, 40 students studying in a selected school of Guwahati, Assam were recruited as sample of the study using Non probability convenience sampling technique. The tool used for the study are demographic variables and self-structured knowledge questionnaire. Data were analyzed by using descriptive and inferential statistics.

Results: The findings of the study revealed that out of 40 students 21(52.5%) of the students were in the age group of 14-15 years, 25(62.5%) of the students were male, 21(52.5%) of the students belong to Hinduism religion, 18(45%) of the students belong to class 7, 17(42.5%) of the students source of information were from mass media, 18(45%) of the students educational qualification of father were matric passed, 15(37.5%) of the students educational qualification of mother were both under matric and matric passed. In level of knowledge of the school students regarding HMPV infection , majority 20(50%) had moderate knowledge. The mean score of the level of knowledge was 10.15 with standard deviation was 2.537. There was significant association of knowledge regarding HMPV infection among school students with selected demographic variables that is mothers educational qualification but there was no association with other demographic variables such as age, gender, religion, class, source of information, educational qualification of father.

Conclusion: The study concluded that knowledge regarding HMPV infection among the school students was moderate. Therefore educational programs are needed to improve such knowledge.

CHAPTER I INTRODUCTION

"Take Risks in your, life, if you can lead!
If you lose, you can guide!"
Swami Vivekananda

Human metapneumovirus (HMPV) is a respiratory virus belonging to the paramyxovirus family. It causes respiratory infections that range from mild too cold like symptoms to more Severe respiratory illnesses[1].

Human metapneumovirus(HMPV) is a common respiratory virus that causes both upper and lower respiratory infections, similar to a cold. It is typically circulates during the winter and early spring and is similar to flu[2].

Human metapneumovirus (HMPV) infection is a major worldwide respiratory pathogen first isolated in 2001 from children with respiratory syncytial virus (RSV)-like infection symptoms[3].

Human metapneumoirus (HMPV) infection is a common infection of upper respiratory system. HMPV infection is a leading cause of death in developing countries especially in children. In 2021, it accounted for nearly one percent of acute lower respiratory infection – related death in children under age 5, died in the world, killing around 3%-5% of hospital admissions children being under 5 years of age[4].

According to WHO Human metapneumovirus (HMPV) is a respiratory virus that causes upper and lower respiratory infections. It can cause mild to life threatening illness in people of all ages, however it is the single largest infectious cause of death in children worldwide[5].

BACKGROUND OF THE STUDY

Human metapneumovirus (HMPV) infection is an infectious disease of the lung, which is a main cause for mild to severe illness. It is associated with common cold, bronchitis, pneumonia, and asthma exacerbations. Human metapneumovirus is the most prevalent viral reason for HMPV infection and worldwide mortality[6].

As of January 2025, there is no vaccine available for Human metapneumovirus (HMPV). However, research is ongoing to develop an effective vaccine[7].

The WHO and UNICEF have endorsed, strengthening family capability to identify danger signs and swift care seeking as one of the interventions for controlling Human metapneumovirus (HMPV) in children[8].

NEED OF THE STUDY

This is to justify about Human metapneumovirus (HMPV) infection, its causes, and to identify awareness among the school students regarding HMPV infection. The study to find out the knowledge and practices among school students regarding HMPV infection and to identify factors of Human metapneumovirus (HMPV) infection, HMPV infection is one of the common causes of death in children.

Globally, incidence of Human metapneumovirus (HMPV) infection is estimated 14.2 million cases of HMPV-associated acute lower respiratory infections in children under 5 years old.

In India, As of January 2025 ,India has reported cases of Human metapneumovirus (HMPV) is several states, including Gujarat, Maharashtra, Tamil Nadu, and Bengaluru.

In Assam, ICMR- Regional Medical Research Centre, Dibrugarh detected the first case on 2025.

From the above findings, the researchers felt that research on Human metapneumovirus (HMPV)

infection is important among school students because it can help to improve prevention strategies and therapies for the leading causes of death in children and school students

MASSIMILIANO DON et. al. (2008) Conducted a prospective study on Human metapneumovirus pneumonia in children.During 15 month study period,124 children were admitted due to presumptive community acquired pneumonia (CAP) and 116 of them, community acquired pneumonia (CAP) was radiologically confirmed. The study was conducted by reviewing and analyzing the medical records .The etiology of CAP was assessed by serology to 15 microorganisms,including enzyme immune assay to HMPV. HMPV infection was found in 5 children(49%),being single in 2 and mixed in 3 cases. The seroconversion rate to HMPV increased with age, reaching nearly 100% seropositivity rate at school age. The study concluded HMPV caused 0%to 17.5% of LRTI cases in children in the mini review. Thus,HMPV is a real but rare cause of pediatric community acquired pneumonia (CAP) although seroconversion to HMPV is most common in early childhood.

MD HenrikDollner et.al.(2004)conducted a quantitative study on "outbreak of Human metapneumovirus infection in Norwegian children." During 5 months from November 15, 2002 to April 14, 2003, they collected nasopharyngeal aspirate specimens from 236 children admitted because of respiratory tract infection (RTI). Samples were analyzed for influenza virus A/B, Para influenza viruses 1, 2, and 3 and respiratory syncytial virus by direct immunofluorescence assays and cell culture. Human metapneumovirus was identified in 50 of 236 children (21%). Most (41 to 50) HMPV- infected children were hospitalized between November 15 and January 15 and during these 2 months HMPV was the most common isolate(41 of 72 isolates; 57%).This study concludes that Human metapneumovirus was the most common virus isolate during the winter season 2002 to 2003 in children hospitalized for respiratory tract infection.

PROBLEM STATEMENT

"A study to assess the level of knowledge regarding Human metapneumovirus (HMPV) infection among the school students in a selected school of Guwahati, Assam."

OBJECTIVES OF THE STUDY

1. To assess the level of knowledge regarding HMPV infection among the school students
2. To determine the association between knowledge regarding HMPV infection among the school students with the selected demographic variables

Assumption

In this study, it was assumed that:

The students may have inadequate knowledge regarding HMPV infection.

OPERATIONAL DEFINITIONS:

Assess: According to Oxford Dictionary, Assess means to make a judgment or to calculate the amount, value on something or to impose a tax or other charge.

In this study, it refers to evaluate or estimate the level of knowledge about Human metapneumovirus (HMPV) infection among the school students using self-structured knowledge questionnaire.

Knowledge: According to Oxford dictionary, knowledge means the information, understanding and skills that one gains through education on experience. It can also refer to the state of knowledge about a fact or situation.

In this study, it refers to the level of understanding of school students regarding HMPV Infection as

expressed by their response to the items of the knowledge questionnaire.

HMPV: Human metapneumovirus (HMPV) infection is a respiratory virus that causes upper and lower respiratory infections. It can cause mild to life threatening illness in people of all ages, however it is the single largest infections cause of death in children worldwide.

Human metapneumovirus (HMPV) infection is a common respiratory viral illness that causes both upper and lower respiratory system, similar to a cold. It is typically circulates during the winter and early spring and is similar to flu.

Students: According to the Oxford dictionary, a student is a person who is studying at a school ,college, or university.

In this study, it refers to the school students who are in 7^{th},$8^{th,}$ and 9^{th} standard.

School:according to Oxford dictionary, school is a place where people can learn a specific skill or subject.

In this study, it refers to the students who are studying in Down Town Public School, Guwahati, Assam.

Hypothesis: Hypothesis was tested at 0.05 level of significance.

H1: There was a significant association between knowledge regarding HMPV infection among the school students with selected demographic variables.

DELIMITATION:

- The study was delimited to only one setting(down town public school)

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CONCEPTUAL FRAMEWORK:

A concept is an abstract idea or name is the subject of analysis and inquiry. According to Miles and Huberman, a conceptual framework is a visual or written representation of the main things to be studied and the relationship between them. A conceptual framework is a representation of the ideas and relationship that are important to a topic or problem and how they can be used to solve it.

The purpose of the conceptual framework is to provide roadmap to guide the study of defining key concepts variables and their relationship ultimately helping to clarify the research problem, to refine research question, and direct data collection and analysis processes essentially cutting as a coherent overview of the research project. It is to ensure its logical progression and understanding for both the research and readers.

A conceptual framework in used in research to help clarify the research problem and purpose, guide the data collection and analysis process and provide a coherent perspective for the researcher and reader.

In this study, modified health belief model was used as the investigation aimed to assess the knowledge regarding HMPV infection among the school students in selected schools of Guwahati, Assam .The purpose of this model is to explained and predict constructs representing the perceived barriers. These concepts were purposed “accounting for people “readiness to out.”

The health belief model has three components:

- Individual perception
- Modifying factors
- Likelihood of action

INDIVIDUAL PERCEPTION:

Individual perceptions include the following:

Perceived susceptibility: Perceived susceptibility refers to a person's subjective perception of the risk of acquiring an illness or disease. It is one of the more powerful perceptions in promoting people to adopt healthier behaviour[9].

In this study, perceived susceptibility includes age (young children and older adults), weak immune system.

Perceived severity: Perceived severity refers to ones opinion of how serious a condition and its consequences are. It makes the individual to think that whether the illness causes death or has serious consequences.

In this study, perceived severity includes bronchiolitis, pneumonia.

MODIFYING FACTORS

The second component of the model consists of modifying factors such as demographic variables, perceived threat of illness and cues of action. According to the model, modifying factors are those that modify person's perception.

DEMOGRAPHIC VARIABLES

According to this model, it includes age, sex, race, and ethnicity.

In this study, demographic variables are age, gender, religion, standard/class, source of information, educational qualification of father, and educational qualification of mother.

Perceived threat: Perceived susceptibility and perceived seriousness combine to determine the total perceived threat of an illness to a specific individual.

In this study, perceived threat may be due to lack of knowledge, weak immune system, and previous history of lung infection.

Cues to action: Cues to action are the stimulus needed to trigger the decision- making process to accept a recommended health action. The intensity of cues needed to prompt action varies between person by perceive susceptibility, seriousness, benefit and barrier.

In this study cues to action such as TV, mass media, medical staff, community/friend.

Likely hood of action:

The third component of this present studies is likely hood of action. Likely hood of action is the perceived benefits minus perceived barriers.

Perceived benefits refer to a person's perceptions of the effectiveness of various action available to reduce the threat of illness or disease (or to cure illness or disease).

Perceived barriers refer to a person's feeling on the obstacle to performing recommended health action.

The schematic diagram of conceptual framework is in figure 1

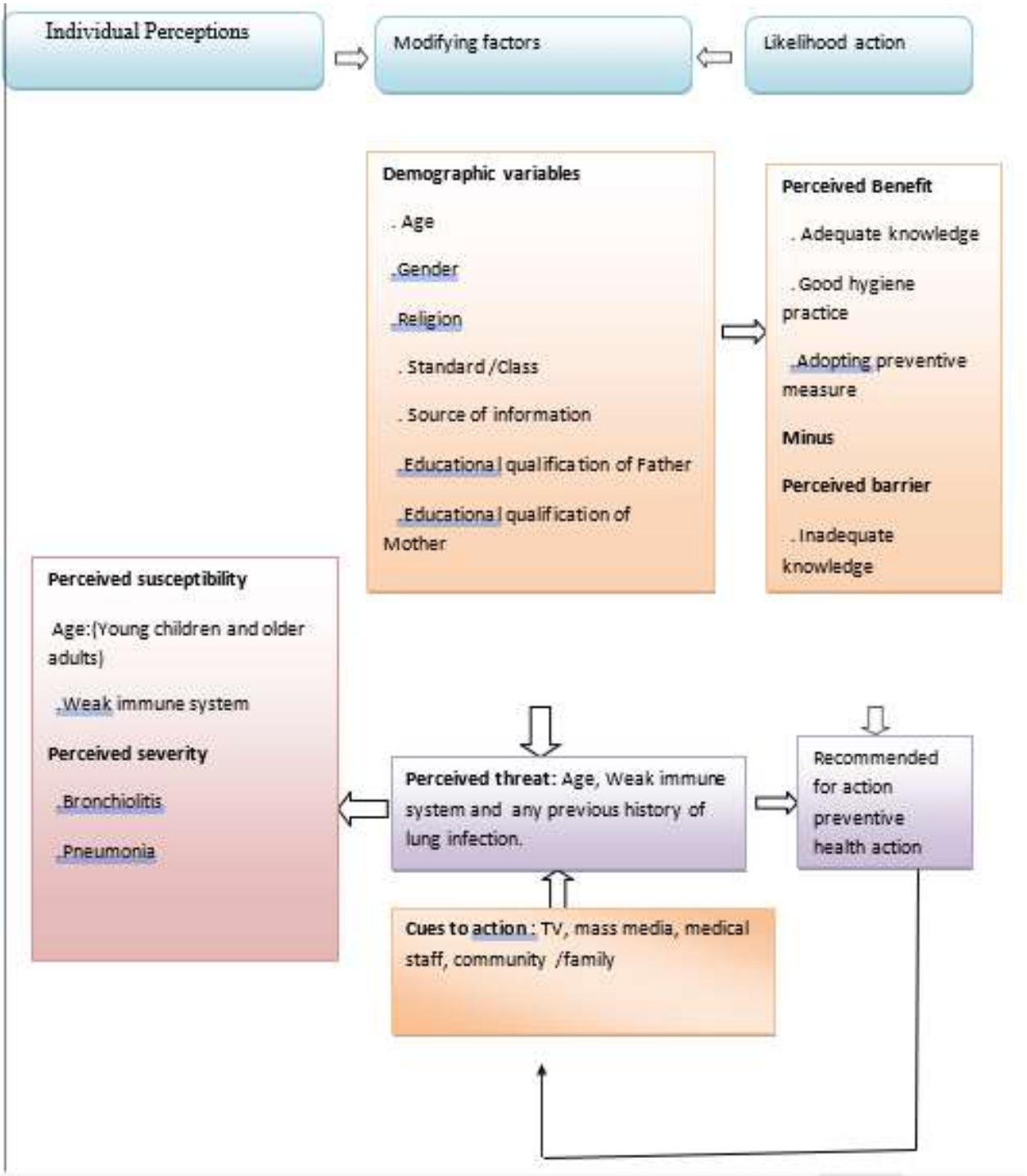

Fig 1: SCHEMATIC REPRESENTATION OF CONCEPTUAL FRAMEWORK BASED ON HEALTH BELIEF MODEL (ROSENTOCK &JANZ AND BECKER), 1988

SUMMARY

The chapter deals with the introduction, background of the study, need of the study, statement of problem, objectives of the study, assumption, operational definitions, hypothesis and delimitation and

conceptual framework.

CHAPTER-II REVIEW OF LITERATURE

A literature review discusses and analyses published information in a particular subject area. Sometimes the information covers a certain time. A literature review is more than a summary of the sources; it has an organizational pattern that combines both summary and synthesis.
The review of literature is arranged under the following headings:

Studies related to HMPV infection.

WILLIAMS V. JOHN et. al. (2010) Conducted a qualitative study on "population based incidence of Human metapneumovirus infection among hospitalized children. They conducted population based prospective surveillance for 2 years in 2 US countries of HMPV infection among children<5 years old who were hospitalized with acute respiratory infection (ARI) or fever .Forty –two (3.8%) of 1104 children tested +ve for HMPV. The overall annual rate of HMPV associated hospitalizations per 1000 children< 5 years old was 1.2 (95%).This rate was highest among infants 0-5 months old, followed by children 6 -11 months old. The finding reveals that HMPV was detected 3.8% of children hospitalization with acute respiratory infection (ARI) or fever with a population incidence similar to that of influenza virus and Para influenza virus[19.]

FRANK FA IJPMA et. al. (2004) conducted a prospective study on" Human metapneumovirus infection in hospital referred South Africa. A prospective analysis of the epidemiology, clinical manifestation and seroprevalence of HMPV and other respiratory viruses in South African children referred to hospital for upper and lower respiratory tract infection were carried out during a single winter season by using RTPCR, viral culture, and enzyme linked immunosorbent assays. In nasopharyngeal aspirates from 137 children,HMPV was detected by RTPCR(Reverse Transcription-polymerase chain reaction) in 8 (58%) children(2-43 months of age) as a sole viral pathogen, respiratory syncytial virus (RSV) in 21 (15%).The findings reveals that HMPV contributes to upper and lower respiratory tract – morbidity in south African children.

PANDA SWAGATIK et. al. (2014) conducted a qualitative study on" human metapenumovirus" review of an important respiratory system. Globally, ARI's (acute respiratory tract infection) were responsible for about 20% of total death in children less than 5 years of age in 200 alone, Moreover about 70% of these deaths occurred in Sub-Saharan Africa and the southern region of Asia. Non-probability sampling technique was use to select in 2000 samples. The tool use for data collection was genome analysis has shown that hMPV exists as two genotypes, A and B .The risk of pneumonia is higher in children in developing countries (10- 20% compared to 3-4% in developed countries[16.]

SUMINO C. KAHARU et. al. (2005) conducted a quantitative study on detection of severe human metapneumovirus infection by real time polymerase chain reaction and histopathplogical assessment. They evaluated consecutive bronchoalveolar lavage and bronchial wash fluid samples from 688 patients—72% were immunocompromised and were predominantly lung transplant recipients—for HMPV by use of quantitative real-time polymerase chain reaction (PCR). Positive results were correlated with clinical outcome and results of viral cultures, in situ hybridization, and lung histopathological assessment. Six cases of HMPV infection were identified, and they had a similar frequency and occurred in a similar age range as other paramyxoviral infections. Four of six infections occurred in immunocompromised patients. Infection was confirmed by in situ hybridization for the viral nucleocapsid gene. Histopathological assessment of lung tissue samples showed acute and organizing

injury, and smudge cell formation was distinct from findings in infections with other paramyxoviruses. Each patient with high titers of HMPV exhibited a complicated clinical course requiring prolonged hospitalization. The results provide in situ evidence of HMPV infection in humans and suggest that HMPV is a cause of clinically severe lower respiratory tract infection that can be detected during bronchoscopy by use of real-time PCR and routine histo pathological assessment.

Al NAKIB WIDAD ,Al-TURAB MARIAM, et. al. (2011) conducted a cross sectional study on Human metapneumovirus (HMPV) .The aim of this study was to determine the prevalence of HMPV infection in Kuwait among patients with respiratory tract infection with respect to other respiratory viruses. During January -December 2009, 460respiratory samples from 388 patients with respiratory tract infection were collected from different hospitals. They were tested for HMPV RNA by real time PCR, and for viral respiratory infection;21(5.4) were positive for HMPV, 29(7.5%) were positive for rhinovirus, 13(4%) were positive for respiratory syncytial virus, and 10(3%) were positive for adenovirus. All HMPV - positive elderly positive infants had bronchopneumonia .The HMPV infection was mostly detected between December and May, and genotype B was more prevalent than genotype. A this is the first study demonstrating the prevalence of HMPV infection in Kuwait, and suggests that HMPV infection is prevalence in infants and elderly patients with lower respiratory tract infection.

SUMMARY:

The chapter deals with the review of literature related to the present study. Studies related to the incidence and prevalence of Human metapneumovirus(HMPV) infection, studies related to the knowledge regarding Human metapneumovirus(HMPV) infection.

CHAPTER-III RESEARCH METHODOLOGY

Research methodology is a structure and scientific approach used to collect analyze and interpret quantitative or qualitative data to answer research questions or test hypothesis. A research methodology is like a plan for carrying out research and helps keep researchers or track by limiting the scope of the research. Several aspects must be considered before selecting an appropriate research methodology, such as limitations and ethical concerns that may affect your research.

a) Research approach: Research approach is the procedure selected by the researcher to collect ,analyze and interpret data .The approach that was used for this study is quantitative.

b) Research design: Research design is the master plan specifying the methods and procedures for collecting the data and analyzing the needed information in a research study.

The research design that is adopted for this study is Non –Experimental descriptive research design to assess the knowledge regarding Human metapneumovirus(HMPV) infection among the students of Guwahati, Assam.

c) Variables: variables are the characteristics number, or quantity that can be measured a quantities and that has the potential to change.

The variables that were used in this study are:

Research variables: In this study, the research variable was the knowledge regarding HMPV infection among the students.

Demographic variables: In this study, demographic variables include age, gender, religion, family type, class/ standard.

d) Setting : According to POLIT and BECK (2008), setting is the physical location and condition takes place in a study. Research settings are the specific areas from where the data are collected. The setting of the study refers to the area where the study will be conducted.

The study was conducted in down town public school of Barbari village, Guwahati, Assam.

e) Population: Population refers to the entire group of individuals, objects, or events that share common characteristics and are of interest to the researcher.

Population for this study includes all the Students who are in the 7^{th}, 8^{th} and 9^{th} standard.

Target population: The entire target population in which the researchers are interested and to which they would like to generalize the research finding.

In this study, target population are all the students who are in the 7^{th},$8^{th}$and 9^{th} standard at schools of Guwahati, Assam.

Accessible Population: The accessible population is the subset of a target population that a researcher can reasonably assess and include in a study.

The students who are studying in 7^{th} ,8^{th} and 9^{th} standard of down town public school.

f) Sample: Sample in research is a subset of larger population that a researcher will collect the data form.

In this study, the sample was the students who full fill the inclusion criteria.

Sample size: In the present of study, The sample consist of 40 students .

Sampling technique:

Sampling technique is the process of studying the population by gathering information and analyzing that data.

In this study, the researchers has selected non –probability convenient sampling technique.

Sampling criteria:

The study sample was selected based on the following inclusive and exclusive criteria:

Inclusion criteria:

- Students who are in 7^{th}, 8^{th} and 9^{th} standard

Exclusion criteria:

- Student whose parents didn't give consent to participate
- Students who are not available at the time of data collection

g) Data collection tools and techniques:

Data collection tools are the devices that a researcher will be used to collect the data. Research tools are the devices will be used to collect the data. The instrument facilitates the observation and measurement of the variable of interest. The study was conducted by using self-Structured knowledge questionnaire.

Section A: Demographic variables

Section B: Self-Structured knowledge questionnaire to assess the knowledge regarding HMPV infection.

Validity of the tool: Validity is the state of being acceptable according to the law. The validity is the degree to which an instrument measures what is supposed to measure.

- To ensure the content validity of the tool, research tools were given to three experts for validation.
- The content validity was determined by three experts from the field of Medical surgical nursing for checking its accuracy and relevancy.
- Experts were selected based on their clinical expertise and experience. Experts were requested to

judge the items for its clarity, relatedness, and meaningfulness and to give their opinion and suggestion regarding the content and items in the tool.

- Suggestions from experts were received and necessary modifications were made according to expert opinion considering the practicability after discussing with the guide.
- Reorganization of the tools was done finally and validated tools were ready to ascertain the data from the school student.

The tools were prepared by the investigator based on the literature review, under the guidance of experts and on the basis of objectives, which has been assessed and evaluated, approved by the 3 experts of research committee. The content of validity of the tools was obtained from research experts from the field of Medical surgical nursing.

Reliability: Reliability refers to the accuracy and consistency of information obtained in the study.

- The reliability of the Self-structured questionnaire was established by split half method and was calculated using KARL PEARSON coefficient correlation formula.
- The tool was administered to 20 students of 7^{th}, 8^{th} and 9^{th} standard down town public school, BARBARI VILLAGE, GUWAHATI, ASSAM who can read and understand English.

The reliability score is 0.76. The tools were found to be reliable.

PILOT STUDY:

According to Sharma S.K. " pilot study is a smaller version of study carried out before the actual investigation done. Researchers use information gathered in pilot studies to refine or modify the research methodology for a study and to develop large scale studies".

In this study ,pilot study was conducted with 10 samples at Down Town Public School of Barbari village, Guwahati, Assam, after obtaining formal permission from the parents of the students.

ETHICAL CONSIDERING:

1. Permission was obtained from the Principal of RAHMAN INSTITUTE OF NURSING AND PARAMEDICAL SCIENCES to conduct the study.
2. Written permission was obtained from the principal of Down Town Public School of Guwahati, Assam.
3. Formal approval was obtained from Institutional Ethics committee of RAHMAN HOSPITALS PVT LTD and its Allied Educational Institutions.
4. Written informed consent was obtained individually from all the parents of the subject who participated in the study.

J) Plan for data collection:

The data was collected in one week from the students of Down Town Public School of Guwahati, Assam.. The sample was selected by non-probability purposive sampling technique. Formal permission was obtained from the principal of the school. The purpose of the study was explained to the participants and informed consent was taken from their parents. Self-structured knowledge questionnaire was used to assess the knowledge level.

k) Plan for data analysis:

Descriptive statistics:

Collected data was analyzed by descriptive statistics such as mean, standard deviation frequencies, and

percentages.

Inferential Statistics:

The association between knowledge regarding HMPV infection among the school students were tested by x^2 test. The results were presented by frequency table, diagrams, and graphs.

SUMMARY

This chapter deals about the research approach, research design, setting of the study, population, sample, sample size, sampling technique, tools for data collection and plan for data analysis.

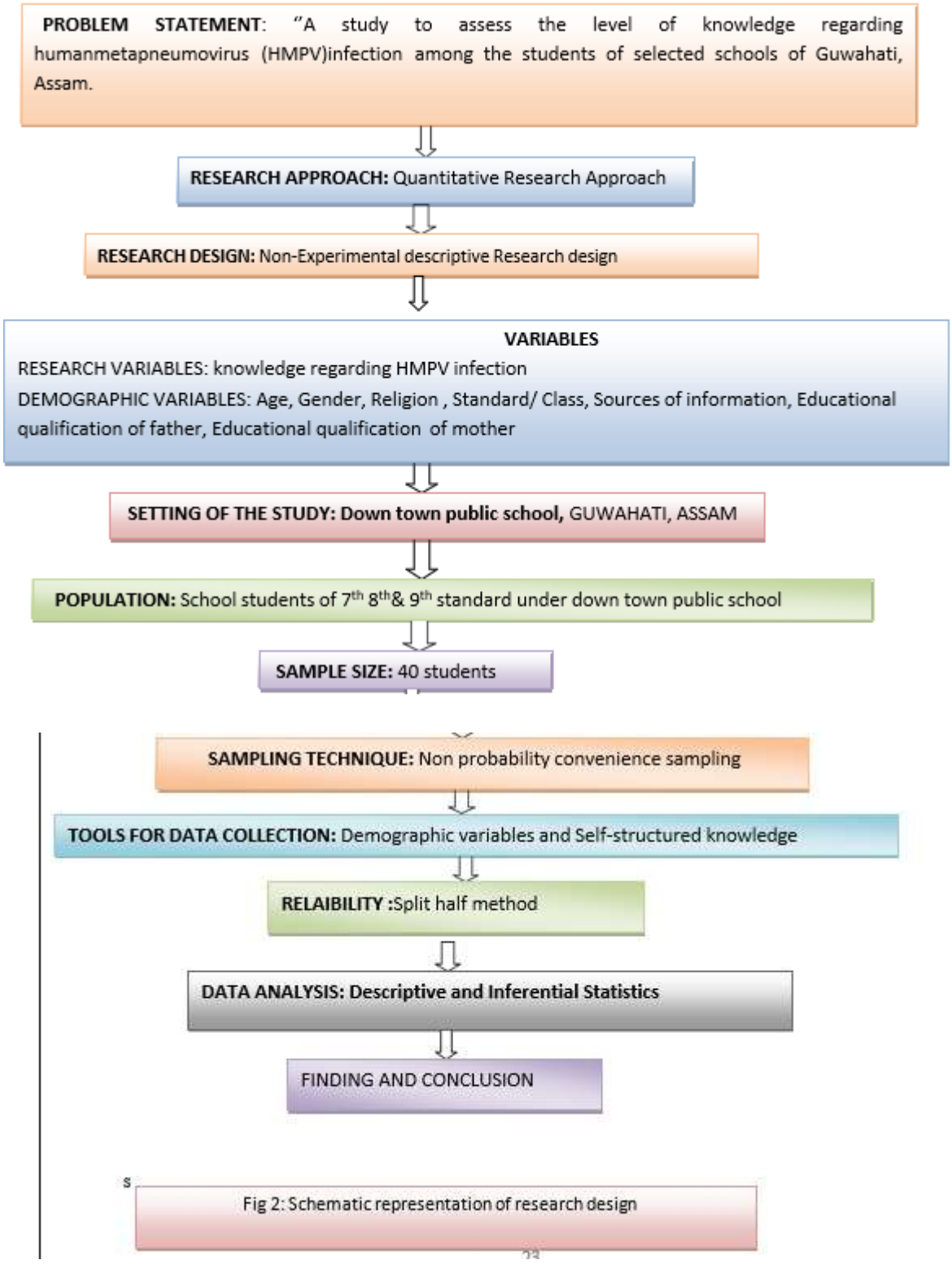

Fig 2: Schematic representation of research design

CHAPTER – IV
ANALYSIS AND INTERPRATATION OF DATA

This chapter deals with the analysis and interpretation of the data collected from 40 students in a selected school of Guwahati, Assam.The present study aimed to assess the level of knowledge regarding human Metapneumovirus (HMPV) infection among the school students in a selected school of Guwahati, Assam. Data were fitted in the master sheet and were calculated using SPSS version 20.The purpose of analysis is to reduce the data in an unpredictable form,so that research problem can be studied.

According to **Polit** and **Hunglerz** (1999),"Data analysis is the systematic organization and synthesis of research hypothesis using those data."

The analysis and interpretation of data was done by using descriptive and inferential statistics based on the following objectives.

1. To assess the knowledge regarding HMPV (human Metapneumovirus) infection among the school students.
2. To determine the association between knowledge regarding HMPV (human Metapneumovirus) infection among the school students with the selected demographic variables.

Organization and presentation of data:-

Theobtained data were analyzed, tabulated and interpretated by employing descriptive and inferential statistics. The data collected were organized under the following sections:

The obtained data has been analyzed, organizedand presentedas follows:-

Section I

Frequency and Percentage Distribution of school students according to their Demographic Variables

Section II

Distribution of level of knowledge regarding HMPV infection among school students

Section III

Association between levels of knowledge regarding HMPV infection among school students with their selected socio-demographic variables

SECTION - I

Table 1: Frequency and Percentage Distribution of school students according to their Demographic Variables.

n=40

	Demographic Variables	Frequency (f)	Percentage (%)
1	Age in years a. 12-13 years b. 14-15 years c. Above 15 years	11 21 8	27.5 52.5 20

2	Gender a. Male b. Female c. Others	25 15 –	62.5 37.5 –
3	Religion a. Hinduism b. Islam c. Christianity d. Others	21 14 3 2	52.5 35 7.5 5
4	Class a. Class 7 b. Class 8 c. Class 9	18 11 11	45 27.5 27.5
5	Source of information a. Mass media b. Medical staff c. Friends d. Community Family e. Others	17 13 6 1 3	42.5 32.5 15 2.5 7.5
6	Educational qualification of father a. Illiterate b. Under matric c. Matric passed d. Graduate e. Post graduate	0 2 11 18 9	0 5 27.5 45 22.5
7	Educational qualification of mother a. Illiterate b. Under matric c. Matric passed d. Graduate e. Post graduate	2 0 15 15 8	5 0 37.5 37.5 20

Table 1 depicts the frequency and percentage distribution of demographic variables of school students. According to their age majority 21(52.5%) were in 14-15 years of age, 11(27.5%) were in 12-13 years of age and 8(20%) were in above 15 years of age.

As per gender of school students, maximum 25(62.5%) were male students and 15(37.5%) were female students.

Regarding religion of school students, more than half 21(52.5%) belongs to Hinduism, 14(35%) belongs to Islam, 3(7.5%) belongs to Christianity and 2 (5%) belongs to other religion.

With regard to class of school students, majority 18(45%) were in class 7, 11(27.5%) were in class 8 and 11(27.5%) were in class 9.

According to source of information of school students, maximum 17(42.5%) had information from mass media, 13(32.5% had information from medical staff, 6(15%) had information from friends, 3(7.5% had information from either sources and 1(2.5%) had information from community or family.

As per educational qualification of father of school students, majority 18(45%) were graduated, 11(27.5%) had matric passed, 9(22.5%) were post graduate, and 2(5%) were under matric.

With regard to educational qualification of mother of school students, maximum 15(37.5%) were matric passed, 15(37.5%) were graduate, 8(20%) were post graduate and 2(5%) were illiterate.

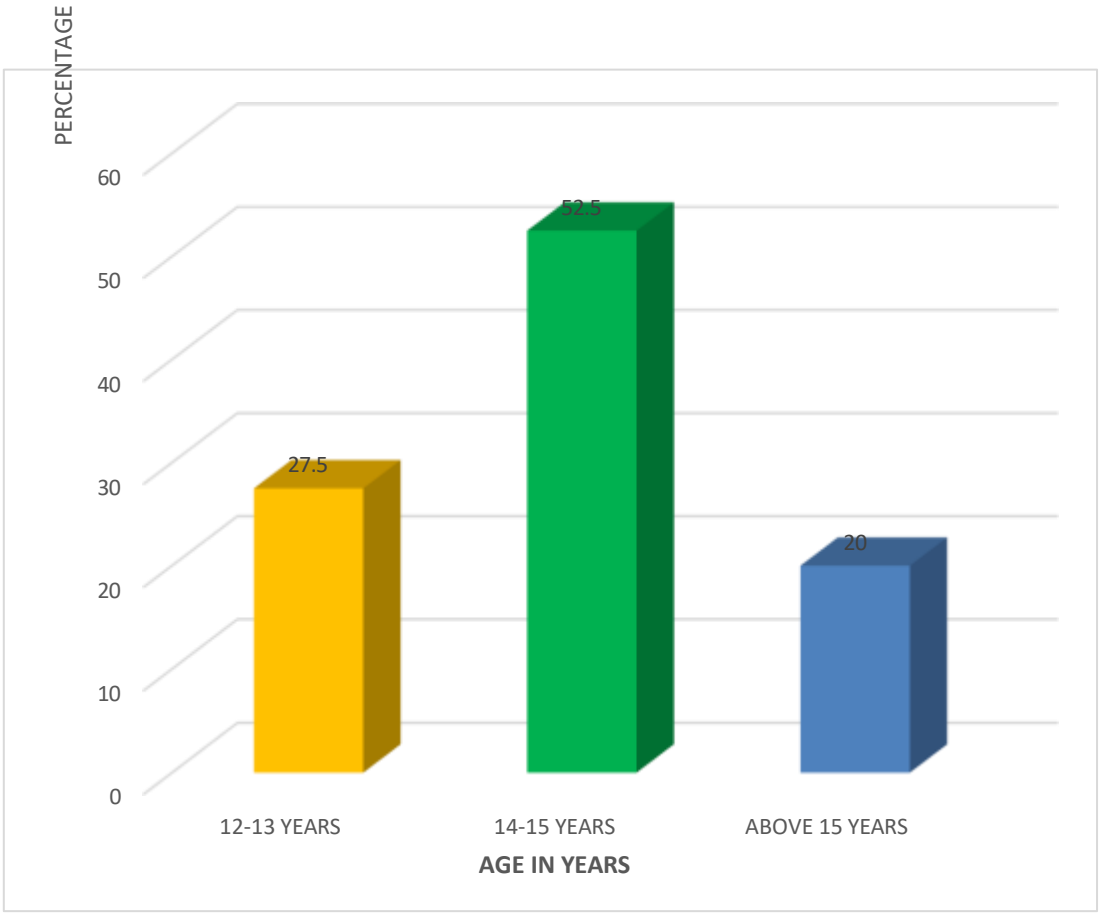

Figure 3: Distribution of age of school students

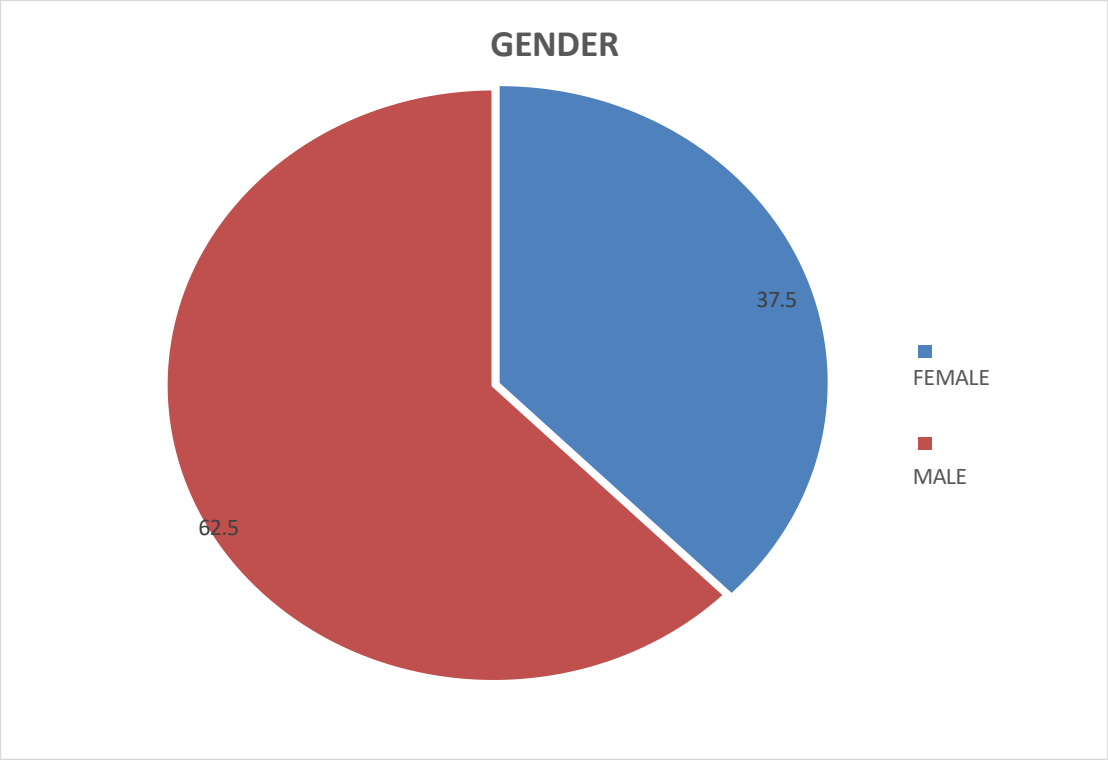

Figure 4: Distribution of gender of school students

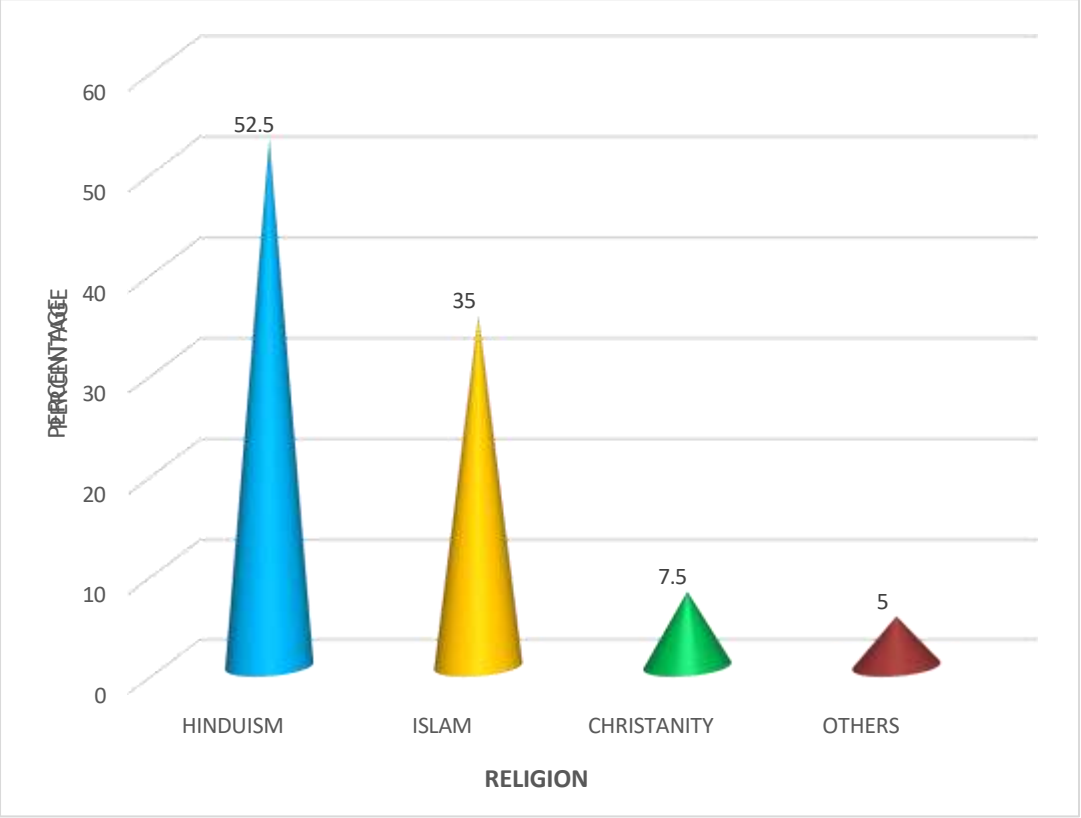

Figure 5: Distribution of religion of school students

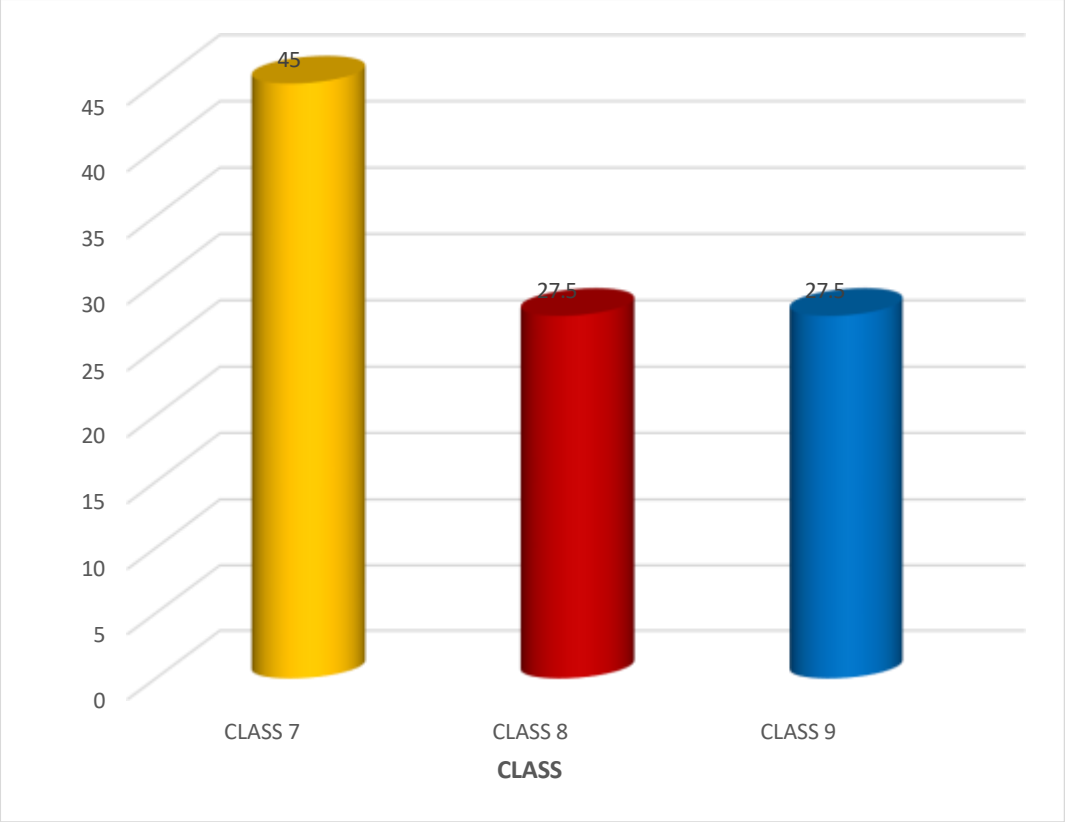

Figure 6: Distribution of class of school students

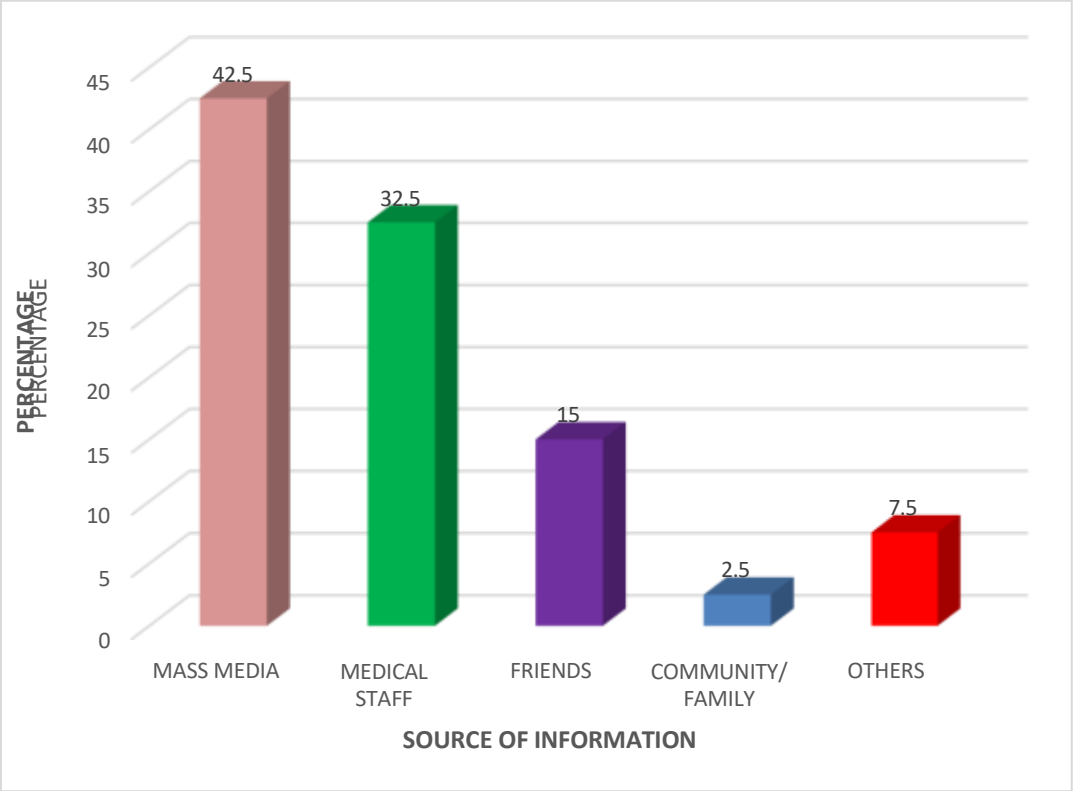

Figure :7: Distribution of source of information of school students

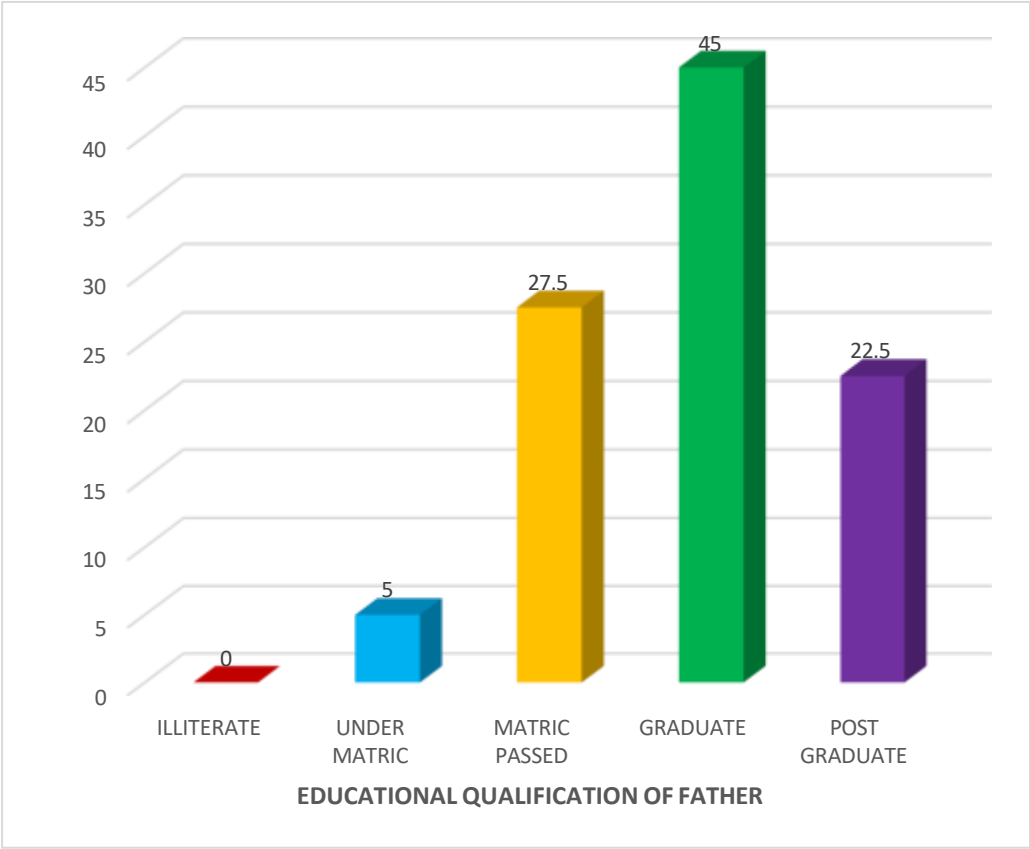

Figure 8: Distribution of educational qualification of father of school students

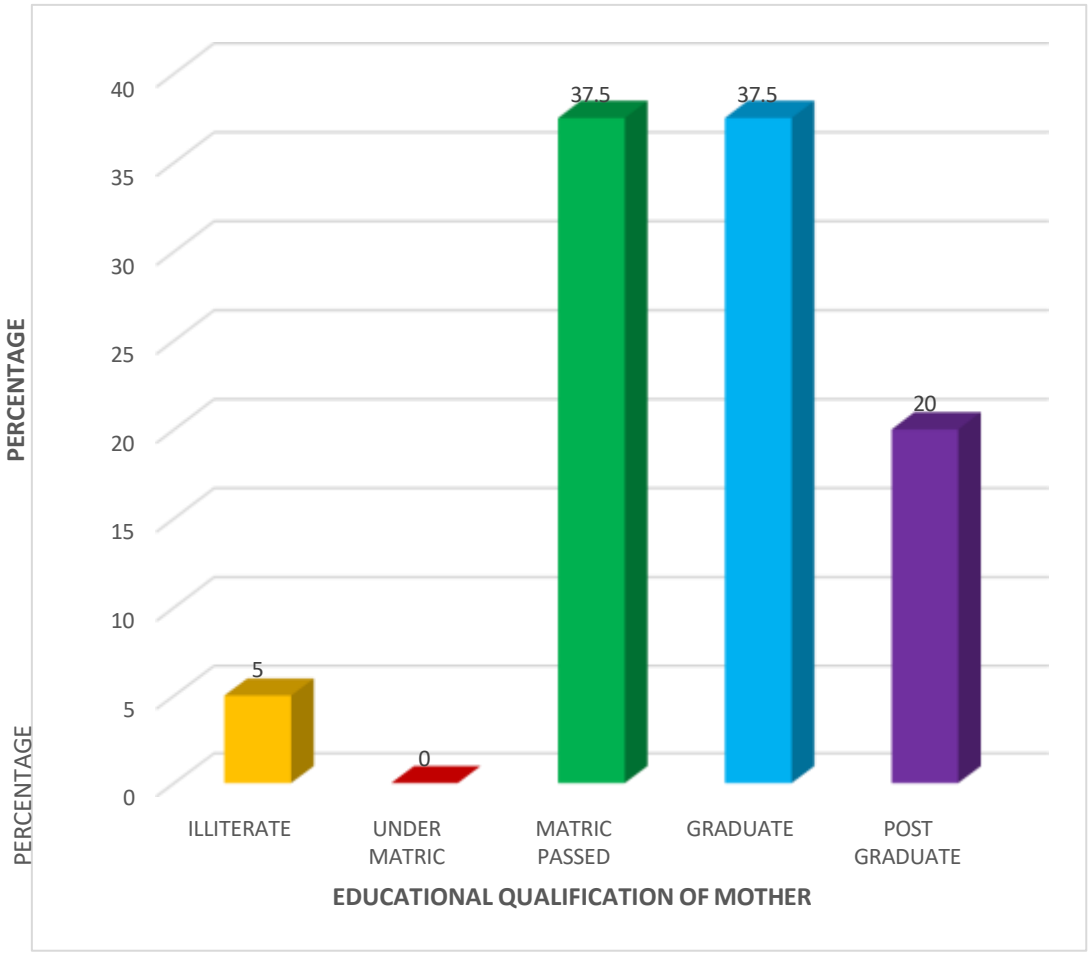

Figure 9: Distribution of educational qualification of mother of school students

SECTION - II

Table 2: Distribution of level of knowledge regarding HMPV infection among school students N=40

Knowledge	Frequency (f)	Percentage (%)	Score Range	Median	Mean	SD
Inadequate(0-7)	6	15	4-14	10	10.15	2.537
Moderate (8-11)	20	50				
Adequate (12-14)	14	35				

Table 3 illustrates the distribution of level of knowledge regarding HMPV infection among school students revealed that majority 20(50%) had moderate knowledge, 14(35%) had adequate knowledge and 6(15%) had inadequate knowledge with obtained score range between (4-14), with median score of 10 and mean knowledge score was 10.15 with standard deviation 2.537.

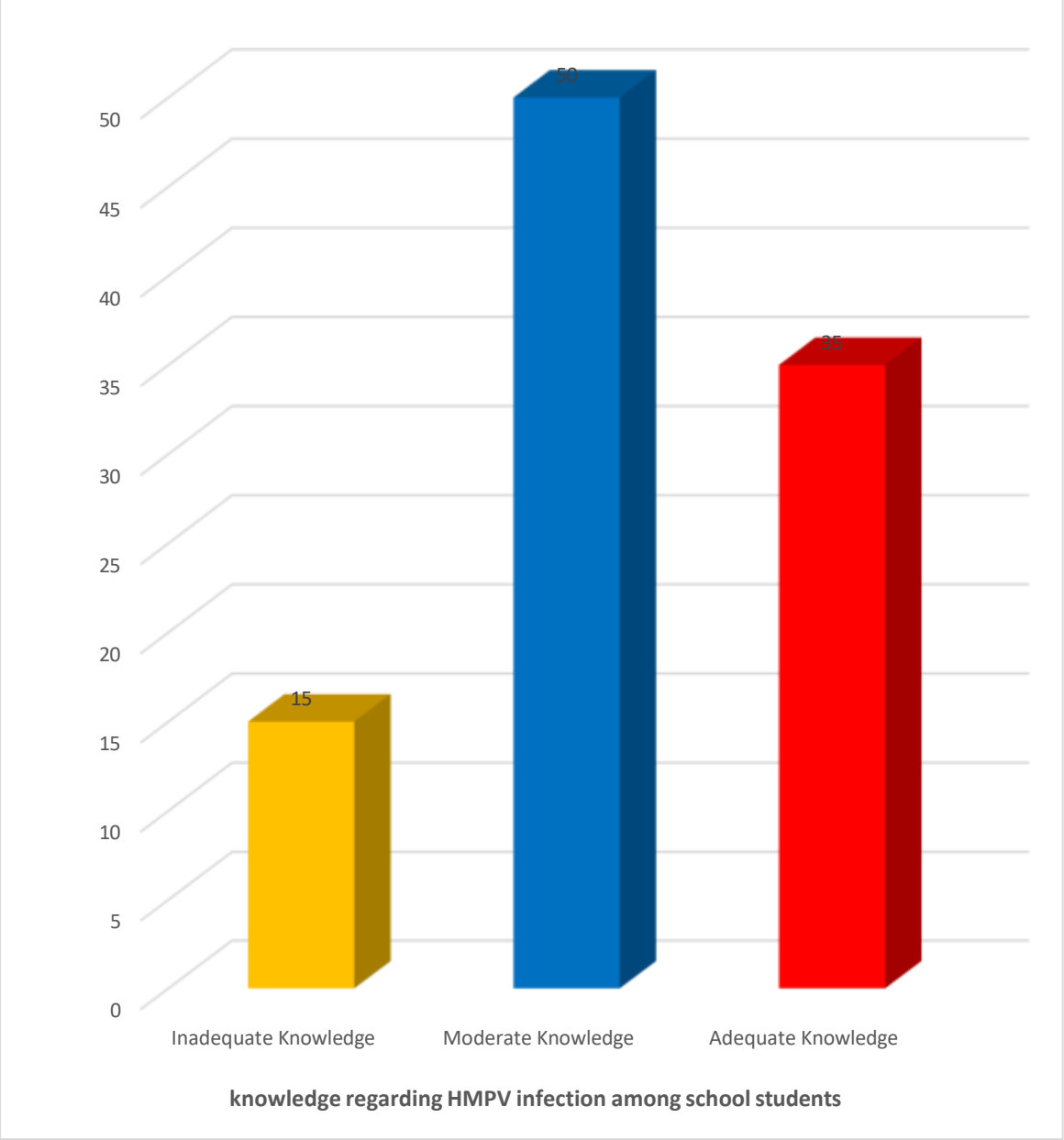

Fig 10: Distribution of level of knowledge regarding HMPV infection among school students

SECTION – III

Table 3: Association between levels of knowledge regarding HMPV infection among school students with their selected socio-demographic variables

n=40

Demographic Variables	Knowledge			χ^2 value	df	p value
	Inadequate	Moderate	Adequate			
Age in years						
a. 12-13 years	1	6	4	1.153	4	0.885^{NS}
b. 14-15 years	3	11	7			

c. Above 15 years	2	3	3			
Gender a. Male b. Female c. Others	 4 2 _	 11 9 _	 10 4 -	1.001	2	0.606^{NS}
Religion a. Hinduism b. Islam c. Christianity d. Others	 3 2 1 0	 11 7 1 1	 7 5 1 1	1.324	6	0.970^{NS}
Class a. Class 7 b. Class 8 c. Class 9	 3 2 1	 9 4 7	 6 5 3	1.727	4	0.785^{NS}
Source of information a. Mass media b. Medical staff c. Friends	 3 2 1	 8 6 3	 6 5 2	1.828	8	0.985^{NS}

d. Community Family e. Others	0 0 -	1 2 -	0 1 -			
Educational qualification of father						
a. Illiterate	0	0	0	4.804	8	0.778[NS]
b. Under matric	0	2	0			
c. Matric passed	1	5	5			
d. Graduate	4	7	7			
e. Post graduate	1	6	2			
Educational qualification of mother						
a. Illiterate	0	2	0	7.618	8	**0.045***
b. Under matric	0	0	0			
c. Matric passed	3	7	5			
d. Graduate	2	6	7			
e. Post graduate	1	5	2			

***p value < 0.05 level of significance NS-Non Significant**

Table 3 depicts the association between levels of knowledge regarding HMPV infection among school students with their selected socio-demographic variables, whichwas tested by using chi- square test. Result showed that educational qualification of mother was found significant association at $p<0.05$ but other demographic variables such as age, gender, religion, class, source of information, educational qualification of father and were found to be non significant at $p<0.05$ level with knowledge regarding HMPV infection among school students.So our research hypothesis will be partially accepted.

Summary:

This chapter deals with the analysis and interpretation of data. The gathered data were summarized using the descriptive and inferential statistics for analysis. It was presented in the form of tables, pie chart ,bar graphs. The analysis has been organized and presented under various sections based on objectives of the study.

CHAPTER – V DISCUSSION

The title of the study was to assess the knowledge regarding Human metapneumovirus (HMPV) infection among the school students in a selected school of Guwahati, Assam.

In order to achieve the objectives of the study, non- experimental descriptive research design was adopted.

In the present study, 40 students were selected as sample by non- probability convenient sampling

technique.

MAJOR FINDINGS OF THE STUDY WERE AS FOLLOWS:

Demographic variables of the participants

- More than half 21(52.5%) of the students were in the age group 14 – 15 years.
- More than half 25(62.5%) of the students were male.
- More than half 21(52.5%) of the students belong to Hinduism religion.
- Near half 18(45%) of the students belong to class 7.
- Near half 17(42.5%) of the students source of information were from mass media.
- Near half 18(45%) of the students educational qualification of father were matric passed.
- Near half 15(37.5%) of the students educational qualification of mother were both under matric and matric passed.

Level of knowledge of the participants regarding HMPV infection

- Half 20(50%) of thestudents had moderate knowledge regarding Human metapneumovirus (HMPV) infection.

DISCUSSION OF THE FINDING ON THE BASIS OF THE OBJECTIVES OF THE RESEARCH STUDY

1. To assess the knowledge regarding Human metapneumovirus(HMPV) infection among the school students

The present study was done to assess the knowledge regarding Human metapneumovirus(HMPV) infection among the school students.

The present study revealed that half 20(50%) of the students had moderate knowledge, 14(35%) had adequate knowledge and 6(15%) had inadequate knowledge ofmetapneumovirus (HMPV) infection.

A study titled "Human Metapneumovirus: A call for Awareness conducted by Parameshwari, Buchi Raju Akondi, T Mallamma, Jeevan Gowda highlighted the importance of public health campaigns to increase awareness and preventive strategies are needed to reduce the impact of HMPV on global health.

2. To determine the association between knowledge regarding HMPV infection among the school students with selected demographic variables.

The findings showed that educational qualification of mother was found significant association at $p<0.05$ but other demographic variables such as age, gender, religion, class, source of information, educational qualification of father and were found to be non significant at $p<0.05$ level with knowledge regarding HMPV infection among school students.

CHAPTER-VI SUMMARY,IMPLICATION, LIMITATION, RECOMMENDATION AND CONCLUSION

This chapter deals with summary, major findings, implication of the study in the field of nursing education, nursing administration, nursing practice and nursing research. The limitation of the study has been stated and the recommendation for future research in different aspects has also been presented in this chapter.

SUMMARY

The present study was done to assess the level of knowledge regarding Human metapneumovirus (HMPV) infection among the school students in a selected school of Guwahati, Assam.

PROBLEM STATEMENT

"A study to assess the level of knowledge regarding Human metapneumovirus (HMPV) infection

among the school students in a selected school of Guwahati, Assam"

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding Human metapneumovirus(HMPV) infection among the school students.
2. To determine the association between knowledge regarding Human metapneumovirus (HMPV) infection among the school students with the selected demographic variables.

HYPOTHESIS

Hypothesis was tested at 0.05 level of significance.

H1: There is a significant association between knowledge regarding Human metapneumovirus(HMPV) infection among the school students with selected demographic variables.

Research approach: The approach that is used for this study is Quantitative approach.

Research design: The research design that is adopted for this study is Non- Experimental descriptive research design.

Setting of the study: The study was conducted in Down Town Public School of Barbari village , Guwahati, Assam.

Sample: In this study the sample was the school students who fulfill the inclusion criteria.

Sample technique: Non- probability convenient sampling technique was used to select the sample.

Conceptual framework: The conceptual framework chosen for this study was Modified Health Belief Model by Hochbaum, Rosenstock, Kegeles and Leventhalinin the year 1950's.

Research technique and tool: The technique used in this study was self- reporting method. The tool used for collecting data is demographic variables and self-structured knowledge questionnaire.

Validity of the tool: In order to determine the content validity, the research tools was given to three experts from the field of Medical Surgical Nursing.

Reliability of the tool: The reliability of the self-structured knowledge questionnaire was established by split half method and was calculated using Karl Pearson Coefficient Correlation formula. The tool was administered to 20 school students of Down Town Public School of Barbari village, Guwahati, Assam who can read and understand English. The reliability by Coefficient of Correlation for self-structured knowledge questionnaire was r= 0.76. The tools were found to be reliable.

Pilot study: A pilot study was conducted with 10 samples at Down town public school of Barbari village, Guwahati, Assam. The problem statement reveals that the tool is feasible and practicable.

Procedure of data collection:

- The data was collected by the investigator personally by method through self-structured knowledge questionnaire.
- The data collected was organized, analyzed and interpreted according to the objectives of the study.

SUMMARY OF THE FINDINGS:

Demographic variables of the participants

- More than half 21(52.5%) of the students were in the age group 14 – 15 years.
- More than half 25(62.5%) of the students were male.
- More than half 21(52.5%) of the students belong to Hinduism religion.
- Near half 18(45%) of the students belong to class 7.
- Near half 17(42.5%) of the students source of information were from mass media.
- Near half 18(45%) of the students educational qualification of father were matric passed.
- Near half 15(37.5%) of the students educational qualification of mother were both under matric and

matric passed.

Level of knowledge of the participants regarding Human metapneumovirus (HMPV) Infection

- Half 20(50%) of thestudents had moderate knowledge regarding Human metapneumovirus(HMPV) infection.

NURSING IMPLICATION OF THE STUDY

The investigator had drawn the following implications from the study which is of vital concern to the field of nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

Nurses play an important role in public health and hold a vital role in promotion of health.In nursing practice, controlling HMPV (Human Metapneumovirus) infection primarily involves promoting good hand hygiene, practicing respiratory etiquette by covering coughs and sneezes, isolating infected patients, cleaning contaminated surfaces regularly, and educating patients and caregivers about preventative measures, especially with vulnerable populations like young children and immunocompromised individuals.

NURSING EDUCATION

Research in nursing education involves developing and testing more efficient teaching and learning process. The main aim of nursing education is to provide continuous skilled nursing manpower which is needed in the country thus the scope of a nurse education in research is to develop and evaluate the efficient educational techniques and to find out new methods or techniques which will enhance in nursing students in classrooms and clinical settings. As work related to HMPV (human metapneumovirus)infection as it is spreading so fast in India so the nursing students should be more educated in order to promote and prevent the disease and also to provide best possible nursing care.

NURSING ADMINISTRATION

The present study helped the nursing administration to provide policies, programmes to impart knowledge and practices to the student regarding prevention of work related HMPV (human metapneumovirus).This study can also provide awareness among the school students about the work related to human metapneumovirus which is a respirational health hazard.

NURSING RESEARCH

As HMPV (Human Metapneumovirus) is a respiratory virus that can cause upper and lower respiratory infections.HMPV (Human Metapneumovirus) can significantly affect school students by causing respiratory illnesses ranging from mild upper respiratory infections to more severe lower respiratory tract infections like bronchiolitis and pneumonia, particularly in younger children, potentially leading to absenteeism from school due to symptoms like coughing, wheezing, fever, and difficulty breathing; children with pre-existing conditions like asthma may experience worsened symptoms when infected with HMPV. The study will serve as a valuable reference material for future investigator.

LIMITATIONS

The present study has following limitation.

- Only 40 students were selected for the current study.
- The study is limited to only one selected school.
- The tool was structured and hence responses were limited.

STRENGTH:

- The finding of the study will throw light to the school children knowledge regardingHMPV (Human Metapneumovirus)infection and if they maintain proper hygiene, wear mask and avoid exposure to

infected person then it will not spread to others. It also helps other researchers to enhance their knowledge.

RECOMMENDATION:

On the basis of this present study, the following future direction have been made for further studies

- A similar study can be conducted on a large number of samples in a different setting to have wider generalization of findings.
- A study can also be conducted on the basis of assessing knowledge, practice and attitude.
- Different sampling technique can be adopted.

CONCLUSION:

The present study was designed to assess the level of knowledge regarding HMPV (Human Metapneumovirus) Guwahati, Assam. Out of 40 samples, the majority 20(50%) respondents had moderate knowledge and 6(15%) respondents had inadequate knowledge and 14(35%) respondent had adequate knowledge.

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