

A Study to Assess the Knowledge Regarding High- altitude Sickness and its Management among B.Sc. Nursing Students at Applied Medical Science College in Al-Namas

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ABSTRACT

High-altitude sickness is otherwise known as mountain sickness. It is mainly due to the decreasing the amount of oxygen at above sea level altitudes ranging usually about 4800 ft or 1500 m that may range from a mild headache to even fatality at moderate and high altitudes. Based on various research reviews, people residing at above 8,000 feet can be at risk for altitude sickness. As the altitude of Al-Namas is around 2500 m, I select this study to assess the knowledge of B.Sc. nursing students at Applied Medical Science College for Females at Al-Namas regarding high-altitude sickness and its management with the objectives to assess the knowledge regarding high-altitude sickness and its management among B.Sc. nursing students at Applied Medical Science College at Al-Namas and to find the association between knowledge and selected demographic variables. The hypothesis will be tested at 0.05 level of significance. There will be significant association between the levels of knowledge with selected demographic variables. The study was conducted among 60 B.Sc. nursing students at Applied Medical Science College for Females, Al-Namas. The samples were selected by convenient sampling method. Researcher's convenience and familiarity with settings were added reason. Based on the objectives of the study, a structured questionnaire was developed to assess the knowledge regarding high-altitude sickness and its management. Data analysis was done according to the objectives of the study using descriptive statistics and inferential statistics. The study reveals that among 60 participants, 19 participants (31.66%) are having good knowledge regarding high-altitude sickness and its management, 27 participants (45%) are having average knowledge regarding high-altitude sickness and its management, and 14 participants (23.33%) are having poor knowledge regarding high-altitude sickness and its management.

Key words: Acute, altitude, cerebral edema, management, mountain, respiratory collapse, sickness

INTRODUCTION

Altitude sickness (sometimes termed mountain sickness) is an illness due to the decreasing the amount of oxygen at above sea level altitudes ranging usually about 4800 ft or 1500 m that may range from a mild headache and weariness to a life-threatening buildup of fluid in the lungs or brain, and even fatality at moderate to high altitudes. The pressure of the air that surrounds you is

called barometric pressure. When you go to higher altitudes, this pressure drops. If you live in a place that is located at a moderately high altitude, you get used to the air pressure. However, if you travel to a place at a higher altitude than you are used to, your body will need time to adjust to the change in pressure.

Altitude sickness usually occurs when people travel from lower altitudes in <1 day to higher altitudes (8000 feet or

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2438 m or higher), but depending on the individual's health, altitude sickness may occur at considerably lower altitudes, even 4800 feet or 1500 m, due to the decreasing amount of oxygen (low PO₂) that occurs at high altitudes. Altitude sickness has a spectrum of symptoms and is a general term that covers three major syndromes and they are acute mountain sickness (AMS), high-altitude pulmonary edema (HAPE), and high-altitude cerebral edema (HACE). Moderate to high altitude is considered 4800 feet to about 6400 feet (1500–2000 m) above sea level. High altitude is considered to be about 6400–11,200 feet (2000–3500 m). Very high altitude is considered 11,200 feet–18,000 feet (3500–5600 m). Extreme altitude is >18,000 feet.

Acute altitude sickness or AMS is the mildest and most common form of altitude sickness. HAPE often comes on quickly. If left untreated, it can progress to respiratory collapse and ultimately to death. A severe form of altitude sickness is HACE, in which fluid builds up within the brain. As the brain swells with fluid, the person's mental state changes. Loss of coordination, coma, and, finally, death can follow unless the problem is recognized and treated promptly. It can be diagnosed by the patient's clinical condition and other investigations such as chest X-ray, head computed tomography, and/or magnetic resonance imaging scans. Although many people with mild AMS require no medical care, as symptoms worsen may need to be consulted. Medical treatment for altitude sickness may include oxygen, hyperbaric treatment, and medicines. However, definitive treatment is for the patient to go to a lower altitude. Most people with self-curing AMS do not need a follow-up with a health-care professional. However, those that develop HAPE and/or HACE may require more extensive follow-up with their doctors. The prognosis for a person that gets altitude sickness depends on the severity of the sickness. AMS can usually resolve without problems, but patients who develop HAPE and/or HACE have a more guarded prognosis. About 50% of individuals that develop coma with HACE die.

According to Ren *et al.*^[12] in their study on the incidence of high-altitude illnesses among unacclimatized persons who acutely ascended to Tibet revealed that the high-altitude illnesses pose health threats to unwary travelers after their acute ascent to high-altitude locations.

MacInnis *et al.* (2013)^[9] done that a prospective epidemiological study of AMS in Nepalese pilgrims ascending to high altitude (4380 m) states that among 491 subjects (91% follow-up rate) who were assessed on arrival at Gosainkunda, the incidence of AMS was 34.0%. AMS was more common in females than in males (relative risk [RR] = 1.57; 95% confidence interval [CI] = 1.23, 2.00), and the AMS incidence was greater in subjects >35 years compared to subjects ≤35 years (RR = 1.63; 95% CI = 1.36, 1.95). There was a greater

incidence of AMS in subjects who chose to use garlic as a prophylactic compared to those who did not (RR = 1.69; 95% CI = 1.26, 2.28). Although the LLS of brothers had a moderate correlation (intraclass correlation = 0.40, *P* = 0.023), sibling AMS status was a weak predictor of AMS.

NEED FOR THE STUDY

Al-Namas is a governorate in the southern Asir province, it is located in between Al-Baha and Abha. Al-Namas is a famous hill station on the Sarawat Mountains. Situated around 2,500 m (8202.1 feet) from sea level, it overlooks the coastal plains of Tihama. The city is known for its great weather in summer, which makes it a unique destination for tourists. Al-Namas is a window to Arab culture and traditions date back to pre-Islamic period. Al-Namas is slightly wetter than Abha, with about 10–30 mm higher average rainfall during February–April. Al-Namas is one of a beautiful tourist spots in Kingdom of Saudi Arabia.

Based on various research reviews, people residing at >8,000 feet can be at risk for altitude sickness. As the altitude of Al-Namas is around 2500 m, this area people may get some minor health problems due to mountain sickness in such situation nursing students; if they have adequate knowledge on mountain sickness, they can able to easily handle the patients with the similar condition and act immediately to save the life of the people. Hence, I select this study to assess the knowledge of B.Sc. nursing students at Applied Medical Science College for Females at Al-Namas regarding high-altitude sickness and its management, which will be helpful for them to acquire more knowledge regarding mountain sickness and serve the community to meet the health needs of the public in higher altitude sickness.

STATEMENT OF THE PROBLEM

A Study to Assess the Knowledge Regarding High-Altitude Sickness and Its Management among B.Sc. Nursing Students at Applied Medical Science College in Al-Namas.

Objectives of the Study

The objectives of this study were as follows:

- To assess the knowledge regarding high-altitude sickness and its management among B.Sc. nursing students at Applied Medical Science College at Al-Namas.
- To find the association between knowledge and selected demographic variables.

Hypothesis

The hypothesis will be tested at 0.05 level of significance.

There will be significant association between the levels of knowledge with selected demographic variables.

Research Approach

The research approach used for this study was a descriptive approach.

Research Design

Descriptive research design was used for the study. Descriptive design is a design used to identify the phenomenon of interest, ideality variables within the phenomenon, develop conceptual and operational definitions of variables, and desirable variables.^[2]

Variables

Variables are qualities, properties, or characteristics of person's things or situation that changes or varies.

Research Variables

Knowledge Of B.Sc. Nursing Students Regarding High-Altitude Sickness And Its Management.

Demographic Variables

Age, year of study, previous schooling, previous knowledge on high-altitude sickness, and area of residence.

Setting of the Study

The study was conducted among 60 B.Sc. nursing students from Applied Medical Science College, Al-Namas. This setting was selected due to the availability of participants and feasibility of conducting the study. Researcher's convenience and familiarity with settings were added reason.

Population

The target population for this study is 60 B.Sc. nursing students from Applied Medical Science College, Al-Namas.

Sample

Sample consisted of 60 B.Sc. nursing students from Applied Medical Science College, Al-Namas.

Sampling Technique

Non-probability sampling technique was considered appropriate for this study. The convenience sampling technique is a type of non-probability sampling, which was found to be appropriate for this study.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

The students who are willing to participate in the study.

Exclusion Criteria

The students who are not willing to utilize the leisure time by answering the tools.

RESEARCH TOOL AND TECHNIQUE

Based on the objectives of the study, a structured questionnaire was developed to assess the knowledge regarding high-altitude sickness and its management.

Description of the Tool

The tool used for the study includes two section, that is, Section I and Section II.

Section I

Section I had items related to demographic data consists of age, year of study, previous schooling, previous knowledge on high-altitude sickness and its management, and area of residence.

Section II

Section II consists of 15 statements regarding high-altitude sickness and its management.

Scoring Procedure

The items were multiple choice types. Total score is 15. Each correct response carry 1 score and incorrect response carry 0 score.

Between (12–15 score) 80 and 100% - Good

Between (8–11 score) 53 and 77% - Average

>(0–7 score) 50% - Poor.

Data Collection Procedure

Before conducting the study, formal permission was obtained. The period of data collection was done for 4 weeks. The researcher introduced self to each subject and explained the purpose of the study.

Plan for Data Analysis

Data analysis was done according to the objectives of the study using descriptive statistics and inferential statistics.

Descriptive Statistics

Frequency percentage mean and standard deviation were used for the analysis.

Inferential Statistics

Chi-square was used to determine the association between demographic variables with the knowledge regarding high-altitude sickness and its management.

Protection of Human Subjects

After the problem, statement was approved, formal permission was obtained before starting the study. The oral consent was

obtained from each participant of the study before starting the data collection. Assurance was given to the subject that the anonymity of each individual would be obtained.

DATA ANALYSIS AND INTERPRETATION

The data collected during the study were analyzed based on the objectives formulated for the study. The objectives of the study were as follows:

1. To assess the knowledge regarding high-altitude sickness and its management among B.Sc. nursing students at Applied Medical Science College at Al-Namas.
2. To find the association between knowledge and selected demographic variables.

Organization of the Findings

To find out the relationship between the variables and also to be assess the knowledge of B.Sc. nursing students regarding high-altitude sickness and its management, the data gathered were tabulated, analyzed, and interpreted using both descriptive and inferential statistics. The data are presented under the following headings.

1. Frequency and percentage distribution of sample characteristics of the study.
2. Findings related to frequency and distribution of

knowledge of B.Sc. nursing students regarding high-altitude sickness and its management.

3. Association between the knowledge of B.Sc. nursing students regarding high-altitude sickness and its management and demographic variables such as age, year of study, previous schooling, previous knowledge on high-altitude sickness and its management, and area of residence.

RESULTS AND DISCUSSION

These study findings are discussed in this chapter with reference to the objectives.

Characteristics of the Participants

The demographic data collected from the samples include of age, year of study, previous schooling, previous knowledge on high-altitude sickness and its management, and area of residence.

The data presented in Table 1 show that 50% of the participants were between the age of 17 and 18 years, 20% of the participants were between the age of 18 and 19 years, 16.66% of participants were between the age of 19 and 20 years, and 13.33% of the participants were >20 years. Regarding the year of study, 50% of the students were from the 1st year (Level 1 and Level 2), 20% of the students were

Table 1: Frequency and percentage distribution of demographic variables of B.Sc. nursing students n=60

Demographic data	Group (f)	Percentage (%)
Age		
17–18	30	50
18–19	12	20
19–20	10	16.66
>20	8	13.33
Year of study		
1 st year (Level 1 and Level 2)	30	50
2 nd year (Level 3 and Level 4)	12	20
3 rd year (Level 5 and Level 6)	10	16.66
4 th year (Level 7 and Level 8)	8	13.33
Previous schooling		
Government school	32	53.33
Private school	19	31.66
International school	9	15
Previous knowledge on high-altitude sickness and its management		
Yes	29	48.33
No	31	51.66
Area of residence		
Urban	27	45
Rural	33	55

from the 2nd year (Level 3 and Level 4), 16.66% of the students were from the 3rd year (Level 5 and Level 6), and 13.33% of the students were from the 4th year (Level 7 and Level 8). Regarding the previous schooling, 53.33% of the students had education from government school, 31.66% of the students had education from private school, and 15% of the students had education from international school. Regarding the previous knowledge on high-altitude sickness and its management, 48.33% were having previous knowledge on high-altitude sickness and its management and 51.66% were having no previous knowledge on high-altitude sickness and its management. Regarding the area of residence, 45% of the students are living in urban area and remaining 55% are living in rural area.

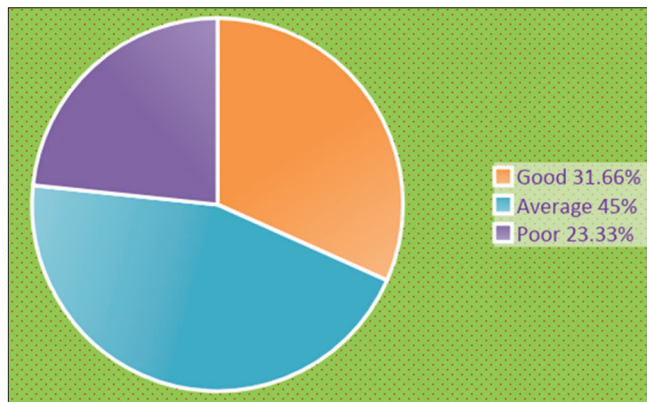
Knowledge Of B.Sc. Nursing Students Regarding High-Altitude Sickness And Its Management.

The first objective of the study is to assess the knowledge of B.Sc. nursing students regarding high-altitude sickness and its management.

The score for the level of knowledge is calculated by structured knowledge questionnaire. The study subjects are classified according to the range as follows Figure 1:

Association between the knowledge and selected demographic variables

The second objective of the study is to find the association between the knowledge and selected demographic variables of B.Sc. nursing students toward high-altitude sickness and its management. In the study, the knowledge level with selected variables and Chi-square test was computed. The findings revealed that there was significant association between



Level of knowledge	Frequency (F)	Percentage (%)
Good	19	(31.66)
Average	27	(45)
Poor	14	(23.33)

Figure 1: Distribution of Participants According to their Knowledge Level Regarding High Altitude Sickness And Its Management

knowledge level and year of study, previous schooling, and previous knowledge on high-altitude sickness and its management. However, there is no association between the knowledge level and age, and area of residence.

Implications

The study has several implications for the following fields.

Implication for Nursing Practice

Health is of the people who were living in high-altitude place is more important and they should know the signs and symptoms and its management. This study can be implied both in hospital and community areas, thus gives a great insight into community health nurses and motivates them to arrange health awareness program on high-altitude sickness and thereby helps to reduce morbidity and mortality due to high-altitude sickness by improving knowledge of individual, family, and the society.

Implications for Nursing Administration

The study reveals that not only nursing students but also all people who live in high-altitude places should know about high altitude/mountain sickness and its management. Hence, the health system of the concern country can arrange for various health awareness programs to prevent illness and promote health of public who residing at high altitude.

Implications for Nursing Research

This study also brings about the fact that more different types of research studies can be carried out in various settings and find more remedies and create health awareness among the people regarding high-altitude sickness and its management.

Recommendations

Based on the findings of the study, investigator proposed the following recommendation.

- A comparative study can be carried out in various settings.
- Prospective study can be conducted to find out the signs and symptoms of high-altitude sickness.
- Studies can be conducted to see the effect of health programs in community in creating awareness among the individual, family, and community.

CONCLUSION

High-altitude sickness is a group of symptoms that can strike if we walk or climb to a higher elevation, or altitude, too quickly so it is very important to save the people from mountain sickness by providing adequate management. The study reveals that among 60 participants, 19 participants (31.66%) are having good knowledge regarding high-altitude sickness and its management, 27 participants (45%) are having average knowledge regarding high-altitude sickness and its management, and 14 participants

(23.33%) are having poor knowledge regarding high-altitude sickness and its management. Everyone who lives in high altitude should have adequate knowledge regarding high-altitude sickness and its management to help each other to save the life.

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How to cite this article: NimaSajai XSB. A Study to Assess the Knowledge Regarding High-altitude Sickness and its Management among B.Sc. Nursing Students at Applied Medical Science College in Al-Namas. J Community Prev Med 2018;1(2):1-6.