

# A Study To Assess The Knowledge Regarding Application of Informatics In Community Health Nursing Among B.Sc.Nursing Students At Applied Medical Science College In Alnamas

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Received Date: 16 June 2019

Revised Date: 04 July 2019

Accepted Date: 11 July 2019

**Abstract** - Health informatics is a new discipline that is one of the fastest-growing areas within the healthcare setting. In 2011, the Saudi ministry of health (MOH) launched the e-Health Strategy and 5 year Roadmap projects to improve the equability, standards, availability, and quality of care in the Kingdom of Saudi Arabia. Moreover, the Saudi universities were now revising nursing curriculum with nursing informatics. Nursing students should get aware about nursing informatics, and they should know about the application of informatics in community setup and thereby develop the health status of the nation through community participation. So I selected a study to assess the knowledge regarding the application of informatics in community health nursing among B.Sc. Nursing students at applied medical science college at Alnamas. With objectives to assess the knowledge regarding the application of informatics in community health nursing among B.Sc. Nursing students at applied medical science college at Alnamas and to find an association between knowledge and selected demographic variables. The descriptive research design was used for the study, 40 B.Sc. Nursing students from Applied Medical Science College For Females, Alnamas were selected by simple random sampling method. Based on the objectives of the study, a structured questionnaire was developed to assess the knowledge regarding the application of informatics in community health nursing. Before conducting the study, formal permission was obtained. The period of data collection was done for four weeks. The researcher introduced themselves to each subject and explained the purpose of the study. Data analysis was done using descriptive statistics and inferential statistics. Chi-square was used to determine the association between demographic variables with the knowledge regarding the application of informatics in community health nursing. The study reveals that among 40 participants, 11 participants (27.5%) are having a good knowledge level, 21 participants (52.5%) are having an average knowledge level, and 08 participants (20%) are having poor knowledge level regarding the application of informatics in the community health nursing. The knowledge level with

selected variables and chi-square test was computed, and findings revealed that there was a significant association between knowledge level and year of study, previous schooling, and previous knowledge on informatics in nursing. But there is no association between knowledge level and age, area of residence. Based on the study findings, the nursing institutions can repeatedly encourage idea generation in nursing informatics, and it might be applied in classroom teaching to improve the knowledge of nursing students regarding the application of informatics in the community health nursing department, which will stimulate them in active participation of health promotion and disease prevention activities of various health care delivery organizations to promote the health of the society and the nation.

**Keywords** - Informatics, community, health, nursing, research

## I. INTRODUCTION

Nursing Informatics is the "science and practice (that) integrates nursing, its information, and knowledge, with information and communication technologies to promote the health of people, families, and communities worldwide." In this current era, nursing students should be aware of nursing informatics which helps them in delivering effective service after their graduation. Health informatics has much to offer community health care. Computer networks and telecommunications provide particular support that can enhance the collaboration among clinicians, care providers, and patients. Special-purpose computer tools referred to as Consumer Health Informatics (CHI) represent the application of computer and information technologies specifically to support the health information and communication needs of patients and laypersons. Research projects like Computer Link and CHES demonstrate that CHI is acceptable to patients and promotes self-care and disease management. Three grand challenges must be faced to ensure the realization of the promise of health informatics to community health care: development of knowledge management and information discovery tools for patients, insurance of health



information literacy for all persons, and re-engineering clinical practice to capitalize on patients as full partners in health care.

Nursing Informatics in community health care has more importance in delivering health care to the public. It can help to provide support and improve collaboration among doctors, community health nurses, community health providers, and patients. It is also useful in monitoring and tracking the health status of the community. The goal of community health informatics involves effective and timely assessment, monitoring, and tracking the health status of populations, including identifying and controlling disease outbreaks and epidemics.

Community health informatics has been termed as the systematic application of information and computer science and technology to public health practice, research, and learning. It is an interdisciplinary profession that applies mathematics, engineering, information science, and related social sciences (e.g., decision analysis) to important public health problems and processes. Public health informatics is a subdomain of the larger field known as biomedical or health informatics. Health informatics is not synonymous with the term health information technology (IT). Although the concept of health IT encompasses the use of technology in the field of health care, one can think of health informatics as defining the science, the how and why behind health IT. For example, health IT professionals should be able to resolve infrastructure problems with a network connection, whereas trained public health informaticians should be able to support public health decisions by facilitating the availability of timely, relevant, and high-quality information. In other words, they should always be able to provide advice on methods for achieving a public health goal faster, better, or at a lower cost by leveraging computer science, information science, or technology. The work of public health informatics can be divided into three categories. First is the study and description of complex systems (e.g., models of disease transmission or public health nursing workflow). Second is the identification of opportunities to improve the efficiency and effectiveness of public health systems through innovative data collection or the use of information. The third is the implementation and maintenance of processes and systems to achieve such improvements.

The Saudi Ministry of Health invested in building a modern health care infrastructure with the vision of having a more efficient and robust healthcare delivery system. While many steps have been undertaken to reform the Saudi health system through the implementation of HIS and other initiatives, several challenges remain towards the goal of building a healthcare system that uses health information technology to promote the Saudi public health agenda. The lack of national HIS, security issues, and the lack of integration within and in-between governmental and non-governmental systems, despite the availability of an adequate number of operating e-HIS in the MOH

institutes, are some of the ministry's major concerns. Developing effective regulation of PHI is the key to systematically and scientifically make use of the confluence of information systems and technologies to benefit public health. Such investments will require both strong private sector partnerships to maintain and to take advantage of expected demand, mainly for unmet population health needs. Nurses in primary healthcare record data for the monitoring and evaluation of diseases and services. Information and communications technology (ICT) can improve the quality of healthcare by providing quality medical records. However, worldwide, the majority of health ICT projects have failed. Individual user acceptance is a crucial factor in successful ICT implementation.

## **II. NEED FOR THE STUDY**

Health informatics is a new discipline that is one of the fastest-growing areas within healthcare. In 2011, the Saudi ministry of health (MOH) launched the e-Health Strategy and 5 year Roadmap projects to improve the equability, standards, availability, and quality of care in the Kingdom of Saudi Arabia. The MOH strategy aims to connect healthcare providers at all levels of care and transform healthcare delivery to integrated and consistent, world-class electronic standards via the implementation of electronic health records on a national level and the adoption of the latest e-Health technologies. Moreover, the Saudi Arabia Council of Health Services, in their health strategy announcement (no. 139983/84, dated 21/04/1433H), recommended the establishment of the Bachelor's degree in Health Informatics in Saudi Universities due to the lack of qualified workforce in this field. Such changes will require a new workforce highly trained in health information technologies, health policies, and health management to facilitate, manage, and advance the transformation process. In addition, the new workforce will be needed to expedite the adoption of the e-health strategy via providing assistance and training to healthcare professionals. Thus, the health informatics degree at the Saudi Electronic University (SEU) was developed to prepare the graduates and equip them with the health informatics skills and competencies that meet national and international standards. The increasing importance of technology usage in the Healthcare field. There is a huge shortage of health informatics professionals nationally and internationally. Health Informatics is more important in improving quality and saving time and money in the Health Field. Health informatics helps health organizations to cope with growing responsibilities and health consumers' expectations, and also it contributes to national plans that aim to modernize the healthcare sector relying on highly qualified health care professionals and advanced e-health technology.

Develop and measure efficient and responsible use of information processing tools to support health care professionals' practice and their decision-making. The smartphone, bringing together communication and information technologies, is a device that offers easy

and friendly access to information. Mobile health applications (apps) are increasingly popular and could become an integral part of our daily lives, transforming many aspects of clinical practice. Healthcare professionals are using those apps in very different areas, such as accessing health care records, medical education, and training, time management, etc. Nursing students should get aware about nursing informatics, and they should know about the application of informatics in the community set up and thereby develop the health status of the nation through community participation. So I selected a study to assess the knowledge regarding the application of informatics in community health nursing among B.Sc. Nursing students at applied medical science college at Alnamas.

### III. STATEMENT OF THE PROBLEM

A Study To Assess The Knowledge Regarding Application Of Informatics In Community Health Nursing Among B.Sc. Nursing Students At Applied Medical Science College In Alnamas

### IV. OBJECTIVES OF THE STUDY

- To assess the knowledge regarding the application of informatics in community health nursing among B.Sc. Nursing students at applied medical science college at Alnamas.
- To find an association between knowledge and selected demographic variables

### V. HYPOTHESIS

The hypothesis will be tested at 0.05 level of significance There will be a significant association between levels of knowledge with selected demographic variables.

### VI. RESEARCH APPROACH

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

### VII. RESEARCH DESIGN

A descriptive research design was used for the study. Descriptive design is a design used to identify the phenomenon of interest, variables within the phenomenon, develop conceptual and operational definitions of variables and desirable variables (Burns N. Grove s, 2002).

### VIII. VARIABLES

Variables are qualities, properties, or characteristics of a person, things, or situations that change or vary.

#### A. Research Variables

Knowledge of B.Sc. Nursing students regarding application of informatics in community health nursing

#### B. Demographic Variables

Age, year of study, previous schooling, health care apps installed in mobile phone, area of residence.

### IX. SETTING OF THE STUDY

The study was conducted among 40 B.Sc. Nursing Students from Applied Medical Science College Alnamas. This setting was selected because of the availability of participants and the feasibility of conducting the study. The researcher's convenience and familiarity with settings were added reasons.

### X. POPULATION

The target population for this study is 40 B.Sc. Nursing Students from Applied Medical Science College Alnamas.

#### A. SAMPLE

The sample consisted of 40 B.Sc. Nursing Students from Applied Medical Science College Alnamas.

#### B. SAMPLING TECHNIQUE

A nonprobability sampling technique was considered appropriate for this study. The convenience sampling technique is a type of Nonprobability sampling, which was found to be appropriate for this study.

### XI. CRITERIA FOR SAMPLE SELECTION

#### A. Inclusion Criteria

- The Students who are willing to participate in the study.

#### B. Exclusion Criteria

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

### XII. RESEARCH TOOL AND TECHNIQUE

Based on the objectives of the study, a structured questionnaire was developed to assess the knowledge regarding the application of informatics in community health nursing.

#### A. Description of the tool

The tool used for the study includes two sections that are the section I and section II.

##### a) Section I

Section I had items related to demographic data consists of age, year of study, previous schooling, health care apps installed in mobile phones, area of residence.

##### b) Section II

Section II consists of 15 statements regarding the application of informatics in community health nursing.

#### C. Scoring Procedure

The items were multiple choice types. Total score 15. Each correct response carry one score, and an incorrect response carries a zero score

#### D. Data Collection Procedure

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

**E. Plan for data analysis**

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

**F. Descriptive Statistics**

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

**G. Inferential Statistics**

Chi-square was used to determine the association between demographic variables with the knowledge regarding the application of informatics in community health nursing.

**H. Protection of human subjects**

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

**XIII. 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

1. To assess the knowledge regarding the application of informatics in community health nursing among B.Sc. Nursing students at applied medical science college at Alnamas.
2. To find an association between knowledge and selected demographic variables

**A. Organization of the Findings**

In order to find out the relationship between the variables and also to assess the knowledge of B.Sc. Nursing students regarding the application of informatics in community health nursing, 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 application of informatics in community health nursing.
3. Association between knowledge of B.Sc. Nursing students regarding application of informatics in community health nursing and demographic variables such as age, year of study, previous schooling, health care apps installed in mobile phones, area of residence.

**XIV. RESULTS AND DISCUSSION**

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

**A. Characteristics of the participants:**

The demographic data collected from the samples include age, year of study, previous schooling, health care apps installed in mobile phones, area of residence.

**TABLE :1**

**Frequency and percentage distribution of demographic variables of B.Sc. Nursing Students N=40**

S.No	Demographic Data	Group (f)	Percentage (%)
<b>1.</b>	<b>Age</b>		
	17-18 years	14	35%
	18-19 years	10	25%
	19-20years	14	35%
	>20 years	02	5%
<b>2.</b>	<b>Year of study</b>		
	First-year( Level 1& Level 2)	9	22.5%
	Second-year ( Level 3& Level 4)	8	20%
	Third-year( Level 5& Level 6)	7	17.5%
	Fourth-year( Level 7& Level 8)	16	40%
<b>3.</b>	<b>Previous schooling</b>		
	Government school	24	60%
	Private school	11	27.5%
	International school	5	12.5%
<b>4.</b>	<b>Health care apps installed on mobile phones.</b>		
	Fitness Apps	20	50%
	Nutritional Apps	12	30%
	Medical Apps	08	20%
<b>5.</b>	<b>Area Of Residence</b>		
	Urban	11	27.5%
	Rural	29	72.5%

**Knowledge Of B.Sc. Nursing Students Regarding Application Of Informatics In Community Health Nursing**

The first objective of the study is to assess the knowledge of B.Sc. Nursing students regarding application of informatics in community health nursing.

The score for the level of knowledge is calculated by the Structured Knowledge questionnaire. The study subjects are classified according to the range and mentioned below in table:1.

**TABLE:2**  
**Distribution Of Participants According To Their Knowledge Level Regarding Application Of Informatics In Community**

Level of Knowledge	Frequency (F)	Percentage (%)
Good	11	27.5%
Average	21	52.5%
Poor	08	20%

#### Health Nursing

#### 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 towards application of informatics in community health nursing. In the study, the knowledge level with selected variables and the chi-square test were computed. The findings revealed that there was a significant association between knowledge level and year of study, health care apps installed in mobile phones. But there is no association between knowledge level and age, area of residence.

#### XV. IMPLICATIONS

The study has several implications for the following fields.

#### XVI. IMPLICATION FOR NURSING PRACTICE

The nursing profession is rapidly changing to keep up with advancements and new challenges in the healthcare field. Knowledge of the application of informatics in community health nursing will help nursing students to face challenges in the community setup.

#### XVII. IMPLICATIONS FOR NURSING ADMINISTRATION

The study reveals that knowledge on the application of informatics in community health nursing will help nursing students in the administration and management of various health care organizations and helps to provide quality health care by using advanced technology.

#### XVIII. 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 like hospitals, clinics, communities, teaching institutions.

#### XIX. RECOMMENDATIONS

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

- A comparative study can be carried out in various settings
- A prospective study can be conducted to find out the use of health informatics.

#### CONCLUSION

The study reveals that among 40 participants, 11 participants (27.5%) are having a good knowledge level, 21 participants (52.5%) are having an average knowledge level, and 08 participants (20%) are having poor knowledge level regarding the application of informatics in the community health nursing. The knowledge level with selected variables and chi-square test was computed, and findings revealed that there was a significant association between knowledge level and year of study, previous schooling, and previous knowledge on informatics in nursing. But there is no association between knowledge level and age, area of residence.

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