

A Correlational Study on Knowledge and Attitude Regarding Artificial Intelligence in Health Care Among Nursing Students of D. Y. Patil College of Nursing, Kolhapur, Maharashtra.

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Abstract:

Healthcare system is undergoing a digital transformation, and artificial intelligence will play a significant role in defining everyday medical practice. The digital networking of patients, hospitals, physicians and other healthcare services is enabling a shift from a physician-centric approach to more patient-centred treatment. To exploit the potential of this technical innovation and ensure optimized care for patients, future doctors must be equipped with the appropriate skills. The use of Artificial intelligence has gained popularity during the last few decades and its use in medicine is increasing globally. Developing countries like India are lagging in the implementation of AI-based solutions in healthcare. There is a need to incorporate AI in the health system which may help not only in expediting diagnosis and management but also in judicious resource allocation. Hence it is necessary for the upcoming nurses to work with these technologies in order to provide holistic care with the advancements in healthcare. It is also necessary for the nursing students to have a positive or favourable knowledge and attitude towards artificial intelligence in their care.

Objectives: 1. To identify the knowledge regarding Artificial Intelligence in healthcare among nursing students. 2. To identify the attitude regarding Artificial Intelligence in healthcare among nursing students. 3. To find out a correlation between knowledge & attitude regarding Artificial Intelligence in healthcare among nursing students. 4. To find out an association between knowledge scores regarding Artificial Intelligence in healthcare among nursing students with their selected socio-demographic variables.

Methods: The research approach adopted for the study was a correlational survey approach. Research design was Non experimental, Descriptive Correlational research design. The samples were selected for the study included 100 nursing students studying in D. Y. Patil College of Nursing by using nonprobability convenience sampling technique. Structured knowledge and attitude questionnaire was used to assess the knowledge and attitude of nursing students regarding Artificial Intelligence in Healthcare. **Result:** Majority of the subjects 82 (82%) had average knowledge, 15 (15%) had poor knowledge and minimum

03 (3%) had good knowledge. Majority of the subjects 71 (71%) had positive attitude and minimum 29 (29 %) had positive attitude. The calculated correlation value was ($r = 0.97$) greater than 0 shows positive relationship. This indicated that there was a strongly positive correlation between knowledge and attitude which was statistically significant at $p < 0.05$ level, regarding artificial intelligence in healthcare. There was no any significant association between knowledge scores and selected socio-demographic variables. The calculated Chi-square values was lesser than tabulated value at $p < 0.05$ level of significance. This indicated that there was no any significant association between knowledge scores with their selected socio-demographic variables at $p < 0.05$ level of significance. **Interpretation and conclusion:** The overall finding shows that majority of nursing students had average knowledge and positive attitude regarding artificial intelligence and there was an significant association between knowledge and attitude regarding Artificial Intelligence in Healthcare.

Background of the study “AI will not replace doctors, but instead will augment them, enabling physicians to practice better medicine with greater accuracy and increased says by. Benjamin Bell.

The development of artificial intelligence (AI) and information technology are increasingly prevalent in different organizations and society sectors, one of these sectors is healthcare where, these technologies have the ability to make transformation on aspects of patient care. In addition, Artificial Intelligence will be used more and more in health care as a result of the complexity and growth of data in these activities. The replication of cognitive abilities in humans is a common aspects of Artificial Intelligence. From the health care perspective. Artificial Intelligence is a “paradigm change” in health care, propelled by rising availability of health care data and quick progress of analytics techniques. The main categories of applications include diagnosis and treatment.

Artificial intelligence technology is a branch of computer science designed to reassemble health care team member’s intelligence with computer systems by achieving tasks or solving problems are used in health care also, automating various processes, including learning and decision making. There are types of Artificial Intelligence Technology in healthcare include machine learning refers to set of statistical techniques for problem solving, the other is deep learning that refers to a type of machine learning approach and extension of neural networks, the last one is natural language processing that refers to confluence of AI and involve intelligent analysis of written language.

OBJECTIVES OF THE STUDY:

1. To identify the knowledge regarding Artificial Intelligence in healthcare among nursing students. 2. To identify the attitude regarding Artificial Intelligence in healthcare among nursing students. 3. To find out a correlation between knowledge & attitude regarding Artificial Intelligence in healthcare among nursing students. 4. To find out an association between knowledge scores regarding Artificial Intelligence in healthcare among nursing students with their selected socio-demographic variables. The research study is an overall plan for addressing a research question, including specifications for enhancing the study’s integrity. The research design of a study spells out the basic strategies that researcher adopts to develop evidence that is accurate and interpretable. As this study involves identify knowledge and attitude regarding artificial intelligence in healthcare among nursing students. So, Nonexperimental, Descriptive Correlational research design was chosen.

Variables are concepts at various levels of abstraction that are measured, manipulated or controlled in a study. Variables identified in this study were research variable and selected socio – demographic

variables. Research variables is descriptive, exploratory comparative and qualitative research studies, variables are observed or measured in natural setting as they exist, without manipulating the effect of intervention or treatment. In the present study, knowledge and attitude regarding artificial intelligence in healthcare were the research variables. Socio - demographic variables are the pre-existing characteristics of study participants, which the researcher simply observes or measures. Total seven selected socio – demographic variables were used in the study and those were, Age in years, Year of study, Religion, Type of family, Area of residence, Source of information. The study was conducted at D. Y. Patil College Of Nursing, Kolhapur city. A population is the entire set of individuals or objects having some common characteristics. In the present study, population comprised of nursing students. In this study the sample comprised of nursing students studying at D. Y. Patil College Of Nursing, Kolhapur city and those were fulfilling the inclusion and exclusion criteria. Sample size is the number of people who participate in a study. The sample size of the present study consisted of 100 nursing students. Sample size is calculated after discussion with the statistician by using Solving formula. Sampling technique is the Nonprobability, convenience sampling technique is used.

Inclusion criteria: In present study the inclusion criteria Students who are willing to participate.

Exclusion criteria: MSc and BSc Nursing students who were, Students who are not available at the time of data collection. Result The Structured knowledge questionnaire consisted of multiple choice questions on knowledge regarding artificial intelligence in healthcare. Every correct answer was awarded a score of one (1) and every incorrect/unanswered item awarded a score of zero (0). The maximum score on structured knowledge questionnaire was seventeen (17). The score on knowledge questionnaire were categorized as follows:

Category	Scores
Good	17 – 25
Average	09 – 16
Poor	00 – 08

The Five point Likert scale consisted 12 statements on attitude regarding artificial intelligence. Out of 12, 6 were positive and 6 were negative statements.

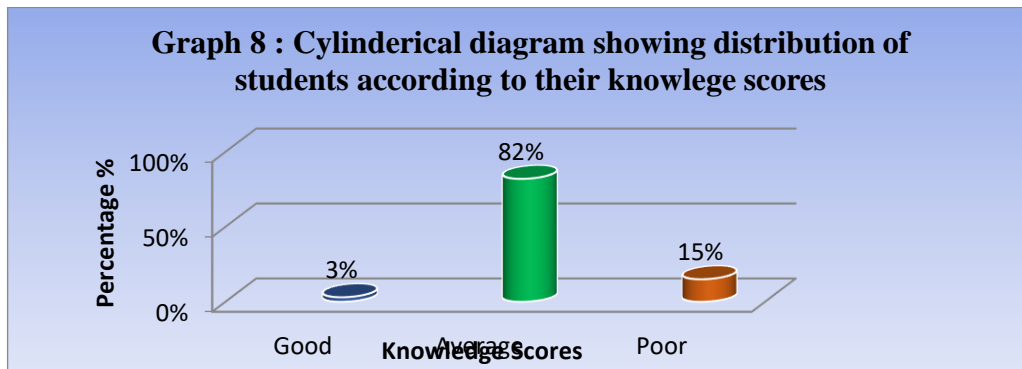
STATEMENT	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
Positive statement	5	4	3	2	1
Negative statement	1	2	3	4	5

Thus for a total of 12 statements the maximum attainable score was 60 and the minimum score was 12. The Grading’s are as follow:

Category	Scores
Positive Attitude	37 – 60
Negative Attitude	12 – 36

Findings related to frequency and percentage distribution of subjects according to their selected socio-demographic variables. AQ Majority of subjects 61 (61%) belonged to the Age group of 18-19 years and minimum 10 (10%) belonged to 22-23 years of age group. Majority of subject 61 (61%) belonged to Gender Male and minimum 39 (39%) belonged to Gender Female. Majority of subject 78 (78%) belonged to First Year & minimum 0 (0%) belonged to Third Year. Majority of subjects 70 (70%) belonged to Hindu religion where minimum 2 (2%) belonged to other religion. Majority of subjects 63 (63%) belonged to nuclear family while minimum 37 (37%) belonged to joint family. Majority of subjects 55 (55%) were from Urban area of residence while minimum 45 (45%) were from Rural area of residence. Majority of subjects 81 (81%) had received information from Internet and minimum subjects 1 (1%) had received information from Journals. Majority of the subjects 82(82%) had average knowledge 15 (15%) had poor knowledge and minimum 03 (03 %) had good knowledge.

On graphical shows that Majority of the subjects 82(82%) had average knowledge , 15 (15%) had poor knowledge and minimum 03 (03 %) had good knowledge Findings related to mean, median, mode, standard deviation and range of knowledge scores of subjects regarding artificial intelligence in healthcare.



Findings related to Mean, Median, Mode, Standard deviation and range of knowledge scores of subjects regarding artificial intelligence in healthcare.

Area of analysis	Mean	Median	Mode	Standard Deviation	n = 100
					Range
Knowledge	11.5	11	11	2.9	13

Table 4: Findings related to frequency and percentage distribution of attitude scores of subjects regarding artificial intelligence in healthcare.

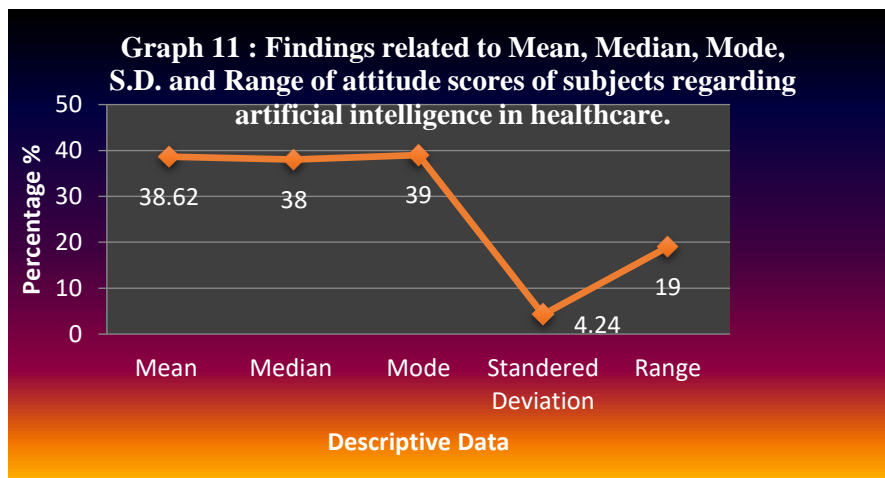
n = 100		
Attitude Scores	Frequency <i>f</i>	Percentage %
Positive Attitude	71	71
Negative Attitude	29	29

Table 5: Findings related to Mean, Median, Mode, S.D. and Range of attitude scores of subjects regarding artificial intelligence in healthcare.

n = 100					
Area of analysis	Mean	Median	Mode	Standard Deviation	Range
Attitude Scores	38.62	38	39	4.24	19

Table 5: Indicated that,

- Mean was 38.62, Median was 38, Mode was 39, Standard deviation was 4.24 and Range was 19



GRAPH 11: Testing of hypotheses at 0.05 level of significance. Testing of hypothesis for correlation between knowledge scores and attitude scores of subjects regarding artificial intelligence in healthcare. **H₁:** There is a correlation between knowledge score and attitude score regarding artificial intelligence in healthcare among nursing students. In this section the researcher analyzed and categorized knowledge and attitude scores of subjects regarding artificial intelligence in healthcare.

Table 6: Finding related to correlation between knowledge and attitude scores regarding artificial intelligence in healthcare.

*Indicated significance

n=100

Karl Pearson Correlation Value	Df
Calculated value 0.96	98

The calculated correlation value was ($t_{cal}=0.96$) greater than 0 indicates a positive relationship. Hence H_1 was accepted. This indicated that there was a strongly positive correlation between knowledge and attitude regarding artificial intelligence in health which was statistically significant at $p < 0.05$ level.

Therefore, the findings revealed that there was strongly positive correlation between knowledge and attitude regarding artificial intelligence in healthcare. This showed that knowledge and attitude was correlated with each other. Testing of hypothesis for an association between knowledge scores of subjects with their selected socio-demographic variables. H_2 : There is an association between knowledge scores regarding artificial intelligence in healthcare among nursing students with their selected socio-demographic variables.

In this section the researcher analysed and categorized the association between knowledge scores of subjects regarding artificial intelligence in healthcare with their selected socio demographic variables. Findings related to an association between knowledge scores of subjects with their selected socio demographic variables. There was no any significant association between knowledge scores and selected socio-demographic variables like age in years [$\chi^2_{cal}= 0.80$, $\chi^2_{tab}= 12.59$], gender [$\chi^2_{cal}= 1.02$, $\chi^2_{tab}= 5.99$], year of study [$\chi^2_{cal}= 8.04$, $\chi^2_{tab}= 12.59$], religion [$\chi^2_{cal}=10.02$, $\chi^2_{tab}= 12.59$], type of family [$\chi^2_{cal}= 1.25$, $\chi^2_{tab}= 5.99$], residential area [$\chi^2_{cal}= 1.52$, $\chi^2_{tab}= 5.99$], source of information [$\chi^2_{cal}= 4.27$, $\chi^2_{tab}= 12.59$]. The calculated Chi-square values was lesser than tabulated value at $p < 0.05$ level of significance. Hence H_2 was rejected. This indicated that there was no any significant association between knowledge scores with their selected socio-demographic variables at $p < 0.05$ level of significance.

CONCLUSION A descriptive correlational study was conducted at D. Y. Patil College Of Nursing, Kolhapur city to assess the knowledge and attitude regarding artificial intelligence in healthcare among nursing students. The data was collected on 14 / 03/ 2023 from 100 nursing students by using selected socio demographic variables, structured knowledge questionnaire and structured attitude scale. The subjects were selected by using non probability, convenience sampling technique, after the data collection procedure data was tabulated and analysed. Hence it concluded that there is need to improve the knowledge and develop positive attitude of nursing students regarding artificial intelligence in healthcare. Implication of the Study

The findings of the study have several implications in different areas which are discussed in

1) Nursing Education Nursing education helps the student nurses with adequate knowledge, skills and attitude to fulfil their duties and responsibilities in the nursing field. The findings of the study can be used by nurse educator to educate the student nurses, which help them to provide an effective nursing care and attitude towards artificial intelligence in healthcare among nursing students.

2) Nursing Practice- Constant updating and growth are essential to keep abreast of scientific and technological change within the nursing profession. In-service education programs are designed to upgrade the knowledge of employees. The findings of the study could be utilized as basis for orientation programs and in-service education of the nurses so that constant awareness and clear understanding may be created regarding artificial intelligence in healthcare

3) Nursing Administration Nurses are challenged to play the role of efficient administrators as well as practitioners. Administration in both private and government sectors should take initiative action to update the knowledge of health personnel regarding artificial intelligence in healthcare by in-service education. Administrators must provide adequate supply of audio visual aids for conducting awareness programmes.

4) Nursing research

The importance of research in nursing is to build the body of knowledge. Today nurses are actively generating, publishing and applying research in practice to improve client care and enhance scientific knowledge base of nursing. The study throws light on the areas of nurse's knowledge regarding artificial intelligence in healthcare. The findings of the present study serve as the basis for the professionals and the students to conduct further studies.

LIMITATIONS:

- 1) The study lacked control group.
- 2) No broad generalizations could be made due to small size of subjects and limited area of research setting.

RECOMMENDATIONS- Based on the findings of the study, the major implications for the nurses was that this study does provide information to the nurse to increase their knowledge. The following recommendations were made.

1. A similar study on larger and wider sample would be more pertinent in making broad generalizations.
2. A similar study can be replicated with experimental and control group.
3. A pre-experimental study can be done to assess the effectiveness self-instructional module, planned teaching programme. In this chapter the investigators have tried to rationalize the findings with other studies and with their own experiences at the time of data collection process. They have also specified the various implications of study with regard to nursing personnel. This chapter can thus guide the new learners more in depth about artificial intelligence and compare their findings to it.

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