

Attitude Regarding Artificial Intelligence among Nursing Students in a College

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ABSTRACT

Introduction: Artificial intelligence allows it to interpret, manipulate and comprehend natural human language. It helps in prediction, decision making based on data. It can be used for individualized learning, assist students in solving educational problems, and critical thinking. The objective of this study was to find out the level of attitude of artificial intelligence among nursing students.

Methods: A cross-sectional study was conducted among 213 nursing students in nursing campus to assess the students' attitude regarding artificial intelligence. Data were collected by using convenience sampling technique. A self-administered 5-point Likert scale was used for data collection and the data were analyzed using Statistical Package for Social Science (SPSS) version 22 and interpreted in the form of descriptive statistics.

Results: The study revealed that majority (72.8%) of the respondents had positive attitude of artificial intelligence. Almost all of the respondents (97.7%) had used artificial intelligence. About 41.8% disagreed on using artificial intelligence for routine tasks. Over one-third of the respondents (36.6%) agreed that they are interested in using artificially intelligent systems for their daily nursing tasks.

Conclusions: This study revealed that the majority of the nursing students had positive attitude towards artificial intelligence. The result of the present study showed that nursing students being agreed to adopt AI as a learning and supportive tool that enhance academic learning.

Keywords: Artificial Intelligence; Attitude; Nursing Students.

INTRODUCTION

Artificial intelligence (AI) can be defined as machine learning.¹ AI is a broad term that use methods to train computers to mimic human thinking processes such as learning, reasoning, communicating and decision making.² AI is a system designed to mimic human intelligence helping an individual for deep learning, representation learning, machine learning and language processing.³ AI is thought to play an essential role in nursing education, benefiting nursing students in academic.⁴

AI is increasingly influencing healthcare by providing benefits such as language translation, individualized learning, assists students in solving educational problems and understanding nursing students' attitude toward AI is crucial to integrate into their future practice.⁵ AI has become an important tool in nursing education being potential to enhance clinical decision-making, improve patient care, and support nursing students in their

academic development.^{6,7}

Thus the study was primarily aimed to identify the attitude towards artificial intelligence among nursing students.

METHODS

A descriptive cross-sectional study was conducted at bir Hospital Nursing Campus, National Academy of Medical Sciences, Mahaboudha, Kathmandu. The inclusion criteria of study population were undergraduate level nursing students, who were willing to participate in the study and present during the period of data collection. Data were collected using convenience sampling technique. The calculated sample size was 235 using Cochran's formula with prevalence of positive attitude towards artificial intelligence 67.3%.⁸ With 90% response rate final 213 samples was included for analysis. General Attitudes towards Artificial Intelligence Scale (GA AIS) tool was used

to assess the attitude regarding AI which was developed by Schepman and Rodway with good psychometric properties, convergent and discriminant validity, and good cross-validation patterns. It consists of 20 items.⁹

95% confidence intervals for all the factors included values of 0.80 or over, interpret the factors as internally consistent and all the items belonging to a factor (or sub-scale) were coherent, i.e., conceptually related.¹⁰

During the study period all ethical consideration were maintained. Formal approval was taken from the Institutional Review Board of National Academy of Medical Sciences with ref no. 27/2082/83. The participants were selected without any discrimination of ethnicity, cultural and socio-economic status. Before giving the questionnaire, the researchers explained the objectives of the study and got written consent from each participant, ensuring their voluntary participation. Participants were provided the liberty to withdraw from the study at any time when they wanted. Respondents were not harmed in any way via words or actions. Confidentiality was maintained by not disclosing participant's information. The respondents were assured that gathered information will only be used for study purpose. Code number was used instead of respondent's name. Break and leisure time was utilized for data collection without disturbing the class.

For the data collection, respective classes were visited as per previously fixed date and time. Introduction of the researchers was given and objectives of the study was clearly explained to the respondents. The coded pretested questionnaire along with the printed form of informed consent were distributed after providing clear instructions. Informed written consent was taken from the respondents who were willing to participate voluntarily. Data collection was done using self-administered structured questionnaire from the respondents. During data collection appropriate distance was maintained as much as possible between respondents in the classroom to prevent data contamination. Liberty to withdraw from the study was given to them. All the respondents were requested to complete the form reading correct instructions in presence of the researchers in the classroom. The filled forms were collected by the researchers after the completion of the questionnaire on the same day of distribution then collected filled forms were kept in record file. Data were collected within duration of 20 minutes. Confidentiality was maintained through not disclosing respondent's information as well as using it for research purpose only. The collected data were coded, tabulated and entered in Statistical Package for Social Science (SPSS) version 22 for further analysis. Data were analyzed by descriptive statistics. The findings were presented in the tables and figures.

RESULTS

Almost all 208 (97.7%) of the participants had used AI in any field. Almost all of the participants 200 (96.2%) had used ChatGPT and 195 (93.8%) had used AI for writing assignments, report, or case studies. Furthermore, majority of the participants 147 (70.7%) had used AI frequently and almost all of them 205 (98.6%) felt easy to use AI for academic purpose. (Table 2)

Similarly, majority of the participants 155 (72.8%) had positive attitude and 58 (27.2%) had negative attitude towards AI (Table 4).

In this study for response to attitude towards artificial intelligence, half 110 (51.6%) of the participants agreed that AI can benefit human health. Majority 124 (58.2%) agreed that use of AI as exciting. Similarly, 114 (53.5%) agreed for beneficial applications of AI in nursing. Below half 102 (47.9%) disagreed use of AI in nursing is unethical. Half of the respondents 107 (50.2%) agreed that nursing profession will benefit from wider use of artificial intelligence in the future. Over one-third of the respondents 78 (36.6%) agreed using AI for daily nursing tasks. However, 89 (41.8%) disagreed on using it for routine tasks (Table 3)

Table 1: Socio-demographic characteristics of the respondents (n=213)

Variables	N	%
Age in completed years		
≤24 years	158	74.2
25-29 years	43	20.2
30-34 years	8	3.8
≥35 years	4	1.9
Mean age ± SD: 22.83±3.747		
Range: 18-39		
Sex		
Female	211	99.1
Male	2	0.9
Educational stream		
BNS	86	40.4
BSc. Nursing	127	59.6
Academic year		
1 st year	64	30.0
2 nd year	64	30.0
3 rd year	70	32.9
4 th year	15	7.0

*Multiple responses, other a: Friends

Table 2: Practice regarding Artificial Intelligence (n=213)

Variable	N	%
AI technology used in any field		
Yes	208	(97.7)
No	5	(2.3)
Type of AI technology used* (208)		
ChatGPT	200	(96.2)
Gemini	76	(36.5)
Siri AI	43	(20.7)
Deepseek	18	(8.6)
Other ^b	16	(7.6)
Purpose of AI used* (208)		
Writing assignments, reports, or case studies	195	(93.8)
Preparing for exams	138	(66.3)
Checking spelling and grammar	104	(50)
Other ^c	16	(7.6)
Frequency of using AI based technologies for academic purpose (208)		
Frequently (once a week or more)	147	(70.7)
Occasionally (2-3times a month)	48	(23.1)
Rarely (once a month or less)	13	(6.3)
Never		
Ease to use AI for academic purpose (208)		
Yes	205	(98.6)
No	3	(1.4)

Other b: Bard, Claude, Copilot, Gamma, Google, Grammarly Other c: Entertainment, Location find out, Explanation, Learn new information, Preparing presentation, Sharing feelings and thoughts, Solve difficult question, Writing formal emails and letters.

Table 3: Frequency Table of attitude regarding Artificial intelligence (n=213)

Statements	SA N(%)	A N(%)	N N (%)	D N(%)	SD N(%)
AI systems can benefit human health	44(20.7)	110(51.6)	43(20.2)	13(6.1)	3(1.4)
impressed by what AI can do	82(38.5)	105(49.3)	23(10.8)	1(0.5)	2(0.9)
AI can have positive impacts on people's wellbeing	41(19.2)	97(45.5)	61(28.6)	12(5.6)	2(0.9)
AI can provide new opportunities for nursing professionals	47(22.1)	97(45.5)	53(24.9)	14(6.6)	2(0.9)
Possibilities for use of artificial intelligence in nursing are exciting	41(19.2)	124(58.2)	37(17.4)	7(3.3)	4(1.9)
There are many beneficial applications of artificial intelligence in nursing	52(24.4)	114(53.5)	38(17.8)	8(3.8)	1(0.5)
I think that using artificial intelligence in healthcare is dangerous*	11(5.2)	30(14.1)	89(41.8)	75(35.2)	8(3.8)

Use of artificial intelligence in nursing is unethical*	4(1.9)	17(8.0)	66(31.0)	102(47.9)	24(11.3)
I think artificially intelligent systems make many errors*	10(4.7)	58(27.2)	90(42.3)	54(25.4)	1(0.5)
I feel uncomfortable when I think about future uses of artificial intelligence in medicine/nursing*	17(8.0)	51(23.9)	70(32.9)	64(30.0)	11(5.2)
I find artificial intelligence sinister*	2(0.9)	23(10.8)	90(42.3)	74(34.7)	24(11.3)
Nurses/medical technicians will suffer if artificial intelligence is used more and more*	21(9.9)	69(32.4)	55(25.8)	51(23.9)	17(8.0)
Artificial intelligence is used to spy on people*	12(5.6)	60(28.2)	76(35.7)	51(23.9)	14(6.6)
Artificial intelligence might take control of people*	33(15.5)	77(36.2)	54(25.4)	40(18.8)	9(4.2)
For routine tasks, I would rather use an artificially intelligent system than a human	3(1.4)	31(14.6)	69(32.4)	89(41.8)	21(9.9)
Nursing profession will benefit from a wider use of artificial intelligence in the future	21(9.9)	107(50.2)	56(26.3)	26(12.2)	3(1.4)
An artificially intelligent agent can do many routine jobs better than a human nurse/technician	10(4.7)	48(22.5)	59(27.7)	68(31.9)	28(13.1)
Artificially intelligent systems are more efficient than nurses/medical	7(3.3)	23(10.8)	43(20.2)	90(42.3)	50(23.5)
I would like to use artificial intelligence in my job	10(4.7)	80(37.6)	76(35.7)	31(14.6)	16(7.5)
I am interested in using artificially intelligent systems for my daily nursing tasks	12(5.6)	78(36.6)	68(31.9)	47(22.1)	8(3.8)

*Negative statement SA= strongly agree, A =Agree N=Neutral, Da=Disagree, SD= Strongly Disagree

Table 4: Level of attitude regarding artificial intelligence (n=213)

Level of attitude	Frequency	Percentage
Negative attitude (Neutral < 60)	58	27.2
Positive attitude (Neutral ≥ 60)	155	72.8
Mean score 62.3±17.5		

DISCUSSION

According to the study results, almost all of the participants (97.7%) had used artificial intelligence. Furthermore, almost all of the participants (93.8%) used AI for writing assignments, reports, or case studies and almost all of them (98.6%) felt easy to use AI for academic purpose. However, study conducted in Jordan among health profession students showed AI for checking grammar and spelling (38.2%), to conduct research (35.5%), while one fourth of the respondents (29.3%) to prepare for exams.¹¹ Differences in findings might be due to differences in setting and populations in our study.

The findings of the study showed majority of the respondents (72.8%) had positive attitude and one fourth of the respondents (27.2%) had negative attitude towards AI as similar to the study conducted in Saudi Arabia showed majority of the participants (66.7%) showed positive attitude towards AI.¹² However, study conducted at Lahore showed 51.3% had positive attitude toward artificial intelligence and 48.7% had neutral attitude.¹³ The differences in attitude might be because of 97.3% being users of AI tools in our study.

The average mean score obtained in our study was 62.3 ± 17.5 which was similar with the study conducted in Republic of Croatia among first year nursing students which showed average attitude score 64.5 ± 11.7 , out of a maximum of hundred.¹⁰ Another study conducted in Turkey also showed nursing hold positive attitude toward artificial intelligence 74.5 ± 10.29 .¹⁴

The present study showed majority of the respondents (51.6%) agreed that AI can benefit human health as related to the study conducted among UK medical students towards Artificial Intelligence revealed the majority (88%) of respondents believe that AI play an essential role in healthcare.¹⁵

Present study revealed that half of the respondents (58.2%) agreed possibilities for use of AI as exciting. Likewise, a mixed method survey conducted in US, 79.4% medical students were eager to use AI technologies in their future.¹⁶ Another study showed most of the respondents (89.3%) were excited to see AI applications in nursing education in the future.⁷

This study showed nearly half participants disagreed that the use of AI in nursing is unethical. Contradictorily, 61.3% Medical Students were worried about the ethics of using AI in medicine.¹⁶ Similarly, a study conducted Nepal among medical students and interns showed nearly 90% agreed that AI will raise new ethical challenges.¹⁷ The contrast result might be due to most of the participants are users of AI might be perceiving being it ethical in the present study.

Present study revealed 6.6% of the participants strongly disagreed in the statement that AI is used to spy people. Finding is consistent with another study where 13.4% strongly disagreed that on Artificial intelligence violations of professional confidentiality might occur.⁵

In present study, only nearly one third of the participant disagreed AI can do many jobs better than human. Findings are consistent with the study conducted among UK medical students, which showed 48.3% of the respondents believed that some specialities will be replaced by AI as similar to the study that below half of the respondents (41.8%) disagreed with the statement I would rather use an AI than a human for routine task.¹⁵

CONCLUSIONS

The study highlights the positive attitude towards artificial intelligence that enhances use of AI in students for academic learning. The research findings could offer insights into nursing students being agreed to adopt AI as a learning and supportive tool.

Further multi-centric study can be conducted. The research study could also be conducted among faculty teachers' assessing practice and experiences toward AI to provide critical data for planning and implementing AI to nursing academics.

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Conflict of Interest: None

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