ORIGINAL ARTICLE

Computer Literacy among Undergraduate Nursing Students of Kathmandu Model Hospital School of Nursing

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ABSTRACT

Introduction: Information and computer literacy are essential to nursing's future in the modern era. In health science departments, flexible learning and information technology (IT) have been introduced successively. This study aimed to assess the basic computer literacy among undergraduate nursing students in Kathmandu Model Hospital School of Nursing.

Methods: A descriptive cross-sectional study was adopted in 112 nursing students with total enumerative sampling technique being used. Data was collected via self- administered questionnaire method and analyzed using IBM SPSS. Data was obtained from ethical clearance from IRC phect-NEPAL.

Results: This study found out that 49 (43.75%) had high level literacy and, half of the respondents, 57 (50.89%) had expert level competency. Furthermore, more than half of the respondents responded that additional courses for computer classes was needed in nursing curriculum where, 34 (30.36%) represented 1 month course to be added in the curriculum.

Conclusion: Even though overall competency had about half of the respondents with expert level competency, there was still a need of improvement required in excel sheet and browsing internet. Furthermore, a month course of computer classes should be added in nursing curriculum.

Keywords: Computercompetency, Computer literacy, Informationtechnology, Undergraduate nursing students

INTRODUCTION

Information technology (IT) integration in education is crucial for nursing students to effectively access, manage, and utilize information in healthcare practices, but there are still gaps in students' proficiency and confidence in computer skills.[1-5]Computer technology has significantly impacted healthcare and education since the mid-20th century, improving patient care, diagnostic tools, remote learning, and clinical procedures.[6-9] However, a lack of resources and training presents significant obstacles for nursing students, with studies showing varied computer literacy and limited exposure to informatics in training settings.[1,6-13] The lack of easily available IT resources further impacts clinical readiness and academic achievement.[3,5,14-17] We examined the level of computer literacy and competency among nursing students, emphasizing the importance of IT skills in nursing curricula. Inadequate IT skills can hinder academic performance and clinical treatment quality.[5,18,19] The research underscores the need for targeted interventions in underdeveloped nations, where funding and training are scarce.

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METHODS

A cross-sectional study was conducted at the Kathmandu Model Hospital School of Nursing (KAMHSON), a college under phect-NEPAL. We assessed computer literacy among 112 nursing students, including 20 BSN 1st year, 4 BSN 2nd year, 19 BSN 4th year, 18 PBNS 1st year, 14 PBNS 2nd year, and 37 PBNS 3rd year students. The total enumerative sampling technique was used, and questions were developed based on literature and competency skills developed by modifying the Nursing Informatics Competency Assessment Tool (NICAT) scale of Rahmer 2015 in Part IV.

The study involved validation by a continuous literature review and a self-administered questionnaire for data collection from 12 students at ACAS- Asian College for Advance Studies, Satdobato, Lalitpur. The research was approved by the Institutional Review Committee (IRC) of PHECT- Nepal and the authority of KAMHSON. The study's purpose and objectives were explained in clear and understandable terms, and participants were given informed written consent. No discriminative words were used during the study, and participants had full authority to withdraw at any time. The collected data was checked and organized for completeness and accuracy over a week period, i.e.,10th Mangsir to 23rd Mangsir 2080 and any errors, incompleteness, or inconsistencies were removed. The data was coded and analyzed using IBM SPSS software, and descriptive statistics were used to measure socio-demographic variables.

RESULTS

Table 1: Socio-demographic Information of the Respondents (n= 112)

Variables	Frequency	Percentage
Age Group in years		
18 - 22	40	35.71
23 - 27	56	50.00
28 - 32	15	13.39
33 - 37	1	0.89
Educational Level		
BSN	43	38.39
PBNS	69	61.61
Academic year		
BSN		
1st Year	20	17.86
2nd Year	4	3.57
4th Year	19	16.96
PBNS		
1st Year	18	16.07
2nd Year	14	12.50
3rd Year	37	33.04
Permanent Address		
Koshi Pradesh	9	8.04
Madhesh Pradesh	4	3.57
Bagmati Pradesh	65	58.04
Gandaki Pradesh	17	15.18
Lumbini Pradesh	9	8.04
Karnali Pradesh	3	2.68
Sudurpaschim Pradesh	5	4.46
Annual Family Income (in NRs.)		
Less than 1,00,000	13	11.61
1,00,000 to 5,00,000	48	42.86
5,00,000 to 10,00,000	37	33.04
More than 10,00,000	14	12.50

The socio-demographic information of the respondents is presented in Table 1. Out of 112 respondents, 50.00% are aged 23 to 27, with a mean age of 24. Over half of the respondents (61.61%) are PBNS students, while 65 (58.04%) are from Bagmati Pradesh. Only 2.68% and 3.57% are from Karnali Pradesh and Madhesh Pradesh, respectively. About half of the respondents (42.86%) have a family income of 1,00,000 to 5,00,000 annually. The majority of respondents are from Bagmati Pradesh, while only 2.68% and 3.57% are from Karnali Pradesh and Madhesh Pradesh.

Table 2: Usage of Computers of the Respondents (n= 112)

Description	Frequency	Percentage
Gadgets used for studies*		
Desktop	15	13.64
Laptop	104	94.55
Mobile Phone	98	89.09

Tablet	12	10.91
Way of using computer		
Personal Computer	91	81.25
Borrowing from siblings	8	7.14
Using parents'	2	1.76
Cyber	5	4.46
None	6	5.36
Ownership of personal computer* (n= 91)		
Laptop	91	100.00
Desktop	5	5.49

*Multiple Response**

The Table 2 depicts that among all, 112 (100%) of the respondents who used gadgets had majority of them, 104 (94.55%) using laptop with 98 (89.09%) of them also using mobile phone for studies. Likewise, majority, 91 (81.25%) of the respondents owned a personal computer while only 2 (1.76%) used computer of their parents for studies. Similarly, the respondents who owned the personal computer, all 91 (100%) of them had laptop and 5 (5.49%) had both laptop and desktop.

Table 3: Level of Computer Literacy (n= 112)

Level	Frequency	Percentage
Low level literacy (<25%)	2	1.79
Fair level literacy (25% to 50%)	16	14.29
Moderate level literacy (50% to 75%)	45	40.18
High level literacy (>75%)	49	43.75

Quartile classification

Table 3 shows that 43.75% of respondents had high level literacy, while 45 had moderate level literacy. Fair level literacy was found in 14.29% of respondents, while only 1.79% had low level literacy. Low-level literacy was classified as scores below the first quartile, while scores between the first and second quartiles were classified as fair level literacy. Moderate level literacy was classified as scores between the second and third quartiles, and high-level literacy was classified as scores above the third quartile.

Table 4: Obstacles, Limitations and Problems faced while using Computer (n= 112)

Description	Frequency	Percentage
Obstacles while using Computer*		
Cost of internet is high.	56	50.00
Everyone might not be competent.	72	64.29
Very expensive	56	50.00
Chances of data getting lost.	50	44.64
Threat of virus.	93	83.04
Malfunction of software.	53	47.32
Limitations while using Computer*		
Makes people lazy	72	64.29
Dependency	89	79.46
Decreases self-confidence	33	29.46
Lack of decision-making	44	39.29
Low IQ	40	35.71
Eye strain	94	83.93
Headaches/ migraine	89	79.46
Social isolation	72	64.29
Backaches	75	66.96
Potential loss of privacy	44	39.29
Short attention span	32	28.57
Can limit learning	23	20.54
Problems faced while using Computers*		
Lack of guidance	57	50.89
Lack of electricity	35	31.25
Lack of interest	59	52.68
Lack of personal computer	31	27.68
Do not know how to use	15	13.39
Others: None	8	7.14

*Multiple Response**

Table 4 reveals respondents' opinions on computer use, with 93 (83.04%) stating that computers are a threat of viruses, 72 (64.29%) believing everyone might not be competent, and 50.00% stating that internet and computers are expensive. The majority (94.93%) reported eye strains and headaches from computers, while 79.46%) felt they increased dependency. Over half (52.68%) had no interest in using computers, while 50.89% experienced lack of guidance. Only 7.14% had no problems using computers.

Table 5: Level of Specific Competency Skills (n= 112)

Level Specific Skills	Not proficient level competency (<25%)	Fairly proficient level competency (25%- 50%)	Proficient level competency (50%-75%)	Expert level competency (>75%)
General skills	1 (0.89)	19 (16.96)	24 (21.43)	68 (60.71)
File management	0 (0.00)	13 (11.11)	12 (9.82)	87 (77.68)
Word processing	1 (0.89)	15 (13.35)	22 (19.58)	74 (65.86)
Excel sheet	52 (46.28)	39 (34.71)	21 (18.75)	0 (0.00)
PowerPoint slides	10 (8.93)	25 (22.25)	30 (26.70)	47 (41.96)
E-mail	0 (0.00)	8 (7.12)	16 (14.28)	88 (78.32)
Browsing internet	26 (23,14)	41 (47.17)	14 (12,50)	19 (16.96)

Table 5 explains that more than half, 68 (60.71%) of the respondents had expert level competency in general skills. Likewise, majority, 87 (77.68%) of the respondents had expert level competency in file management and more than half, 74 (65.86%) of the respondents had expert level competency in word processing. Subsequently, this table depicts that about half, 52 (46.28%) of the respondents were not proficient in excel. Furthermore, 47 (41.96%) of the respondents had expert level competency whereas 10 (893%) were not proficient in PowerPoint slides. Similarly, that majority, 88 (78.32%) of the respondents had expert level competency in e-mail. Likewise, about half of the respondents, 41 (47.17%) were fairly proficient in browsing internet.

Table 6: Level of Computer Competency Skills (n= 112)

Level	Frequency	Percentage
Fairly proficient level competency (25%- 50%)	9	8.04
Proficient level competency (50%- 75%)	46	41.07
Expert level competency (>75%)	57	50.89

Quartile classification

Table 6 shows the level of specific computer competency skills among respondents. Half of the respondents (57.89%) had expert level competency, while 46 (41.07%) had highly proficient level competency. Only 8.04% had proficient level competency. Scores below the first quartile were considered not proficient, while scores between the first and second quartiles were considered fairly proficient, between the second and third quartiles proficient, and above the third quartile expert level competency.

DISCUSSION

The socio-demographic data of 112 respondents revealed that 50.00% were aged 23-27, 61.61% were PBNS students, and 85.04% were from Bagmati Pradesh. Most respondents used gadgets, with 94.55% using laptops and 89.09% using mobile phones for studies. 91.2% owned personal computers, while only 1.76% used their parents'. 86.9% learned computer knowledge from school, while 53.57% self-taught. Only 0.89% attended formal training programs, while 8.93% attended formal computer classes. Most respondents had access to technology. In contrast, a survey done by Deltsidou et al, of undergraduate nursing students at the Nursing Department of Technological Educational Institute of Lamia, it had highlighted that not all students have easy access to computers and information technology for study purposes in their homes.[6] Subsequently, in a study done by Jamshidi et al, of the participants, 48% claimed having had computer training of some kind, and just 32% had a computer[3], whereas in my study everyone had accessibility of gadgets and a few, 7.12% attended formal computer classes/ training.

In the study, regarding computer literacy, 40.18% and 43.75% of the respondents, respectively, had moderate and high levels of literacy. In contrast, only 14.29% and 1.79% of the respondents, respectively, had low and

fair levels of literacy. Furthermore, in a study done by Chipps et al, the skills related to computer literacy in final year nursing students were considered to be to be most significant overall (95%)[1], which supports my study. Similarly, 45 (40.18%) and 49 (43.75%) of the respondents, respectively, had moderate and high level of literacy in computer which is also supported by Shahi M., that majority of the nursing students scored in average knowledge in PowerPoint, Microsoft Excel, Microsoft Word and Email/ Internet.

The study revealed that, in the context of difficulties and obstacles for using computer, 24.89% of respondents spend less than 2 hours daily on a computer, while 24.10% spend more than 4 hours. Most respondents believed computers were a threat to viruses, with high internet and computer costs. They also believed computers caused eye strains, increased dependency, and headaches. Over half of respondents had no interest in using computers, and 74.11% believed there was a need for additional computer classes in nursing curriculum. In this study, 50.00% of the respondents, responded that the cost of internet and computers was high, in support of this, a survey done by Deltsidou et al, found out that, most of the students felt the cost of computers were too high.[6] Furthermore, 36.58% of the population felt availability of access of electronics in institution was not adequate similar to my study where almost half of the respondents, 55 (49.11%) did not agree that there were adequate resources in their college. [6]

The study's findings illustrated the respondents' level of computer competency skills. Of the respondents, 50.89% possessed competency at the expert level. In a similar vein, 41.07% had highly proficient level competency while 8.04% only had proficient level competency. Moreover, in a study done by Ragneskog et al, the majority of students (n= 144, 58% felt proficient in their general computer-operating abilities[7] which supports my study. In contradiction, in a study done by Chipps et al, the skills related to computer competency in final year nursing students found out (95%) of the students were competent in computer[1] whereas in my study expert level competency was possessed by about half, 57 (50.89%) of the respondents.

This study results that more than half of the respondents responded for need of additional courses for computer classes in nursing curriculum where, 34 (30.36%) represented 1 month course to be added in the curriculum. Likewise, even though overall competency has about half of the respondents with expert level competency, there is still a need of improvement required in excel sheet and browsing internet. The findings of the study would help to access the Computer Literacy among undergraduate nursing students of Kathmandu Model Hospital School of Nursing which helps to assess the basic computer literacy among undergraduate nursing students in KAMHSON. Further study can be conducted in large samples so that the findings of the study can be generalized. The comparative study can be done in different colleges. Study stresses on need of well-functioning computer laboratory with enough resources like good internet, electricity, updated versions, proper functioning devices in college for students.

CONCLUSION

This study investigated undergraduate nursing students' computer literacy of KAMHSON. Although the maximum respondents had high level computer literacy and almost half of the respondents had expert level computer competency in this study, it appears that in excel sheet and browsing internet, competency is lacking. Similarly, a month course added in the nursing curriculum would help the undergraduate nursing students.

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