

Knowledge and Attitude Regarding Use of Hospital Information System among Nursing Personnel in a Tertiary Care Hospital in North India

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ABSTRACT

Background and objective: Hospital information system (HIS) is emerging as an essential component of healthcare. In the era of modern technology, hospitals need to be computerized to maintain electronic records of patients like admission, transfer, discharge, and death. The knowledge and attitudes of nursing personnel influence their effective use of the HIS. This study was designed to assess the knowledge and attitude among nursing personnel in using HIS.

Materials and methods: Three hundred and fifty nursing personnel working in PGIMER were selected using a stratified random selection procedure using their employee numbers. Their knowledge and attitude were assessed by a validated questionnaire.

Results and analysis: Out of 350 nursing personnel, 11% female and 73% male staff had used computers for more than 2 years. Thirty six percentage of males and 28% of female nursing staff got formal training from the Computer Department of PGIMER, Chandigarh. Fifty-nine percentage of males spent more than one hour daily in using computers. Less than 50% of subjects were able to answer the questions related to computers and HIS correctly. Male staff had more knowledge than females. Sixty-eight percentage of subjects had attitude that HIS does not help in reducing the duplication of work.

Conclusion: The present study shows that most of the subjects were females, however, more males were using computers and spent more time on it than their counterparts spend.

Keywords: Attitude, Hospital information system, Knowledge, Nursing personnel.

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INTRODUCTION

Documentation of patient's information is as important as patient care.¹ Nurses play a pivotal role in maintaining the records through the hospital information system (HIS). For accurate recording, they must possess sufficient knowledge regarding the use of HIS.² It was observed that since the HIS was started in PGIMER, Chandigarh, nursing personnel were not able to use it efficiently and spend a large amount of time in keeping patient's information manually that compromised the quality of patient care. Electronic documentation needs skill, which is greatly influenced by knowledge and attitude of nurses regarding the use of HIS.³

Kivuti and Chepchirchir found that computer experience was positively influenced by the level of education and previous computer training.⁴ Chan discovered that higher education improves nurse's knowledge and attitude towards using computers.⁵ Takhti and Rahman found that 78% of nurses used to spend around 25% of their shift time on documentation.⁶ Fifty-four percentage of nurses in the study by Ball felt that computerization had increased their work because they had to document information first on paper and then through HIS.⁷ Nurses between 30 years and 39 years of age and those with a higher level of computer experience had a positive attitude towards electronic patient records (EPR).⁶ Adequate training of computerization helped in developing a favorable attitude towards information technology.⁷

The need for HIS arose because paper documentation was laborious and used to take maximum time in maintaining records.⁸ Hospital information system helps in avoiding entry of same data at more than one place and aids in retrieving data easily, quickly, and eventually saves time for patient care.⁹ Nurses should have

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proper knowledge about computers and HIS and a positive attitude towards its use for efficient work. Study by Darbyshire shows that level of education positively affects the use of computers by nurses.¹⁰ This study was designed to assess knowledge and attitude of nursing personnel using HIS in PGIMER, Chandigarh.

MATERIALS AND METHODS

A cross-sectional study was conducted in the general wards of PGIMER, Chandigarh during the months of July and August 2013, among the nursing personnel after getting it approved from the Institute Ethics Committee on 2nd April 2013 with

reference number Histo/13/842. Nursing personnel from all strata (DNS, ANS, Sister grade-I and Sister grade-II, in order of their seniority) were selected according to their employee numbers. A convenience sample size of 350, 18% of total nursing personnel in PGIMER, was chosen using stratified randomized selection. Six deputy nursing superintendents (DNS), 16 assistant nursing superintendents (ANS), 127 Sister grade-I, and 201 Sister grade-II were included.

Questionnaire based on questions related to computers and HIS was validated by five experts from nursing education and six from information technology. All the nursing personnel who approached for the study agreed to participate and completed the questionnaire. Data were collected from the participants, and every participant filled the questionnaire in the presence of the investigator. Descriptive statistics were used to analyze the data using SPSS (Version 16, IBM technologies, Chicago, US) and R version 2.15.2. Percentages were used for description.

RESULTS

The demographic data given in Table 1 shows that the majority (77%) of subjects were women. Most (77%) of the subjects had professional qualifications up to general nursing and midwifery (GNM).

Duration of using computers among nursing personnel is given in Figure 1. A much higher proportion of men than women had used computers for more than 2 years. Also, fewer men than women were novices, who used computers for less than 6 months.

Sources of training received by the nurses are shown in Figure 2. More men had learned about computers, informal classes. Also, more men had attended the training provided by the computer department than women. Almost equal numbers of both men and women learned computers from their colleagues. Almost sixty percent of men spend more than 1 hour per day on computers, whereas more than a third of women do not use computers at all (Fig. 3).

Less than 50% of the staff could answer each of the questions related to the use of HIS correctly (Table 2).

Figure 4 shows the degree of agreement or disagreement with the ten statements regarding attitude towards HIS. Forty-eight percentage agreed that computer training must be given

to the nurses. One-third (36%) subjects agreed that the computer eases the work of documentation. Fifty-four percentage disagreed that working on HIS would save time for patient care.

DISCUSSION

Our study shows 36% of subjects belonged to the age group of 31–40 years, and 39% had an experience of 10 years. Thirty-six percentage of nursing personnel felt that working on HIS would save time for patient care, whereas study by Hakes and Whillington reveals that 56% of nurses agreed that the introduction of information system helped them to save time.¹¹

Regarding attitude towards the use of HIS, 71% of subjects agreed that hospital records could be saved permanently through HIS. Majority (74%) of the subjects agreed that newly recruited

Table 1: Sociodemographic profile of the nursing personnel (n = 350)

| Variables | n (%) |
|----------------------------|------------|
| Age | |
| 21–30 | 106 (30.3) |
| 31–40 | 126 (36.0) |
| 41–50 | 93 (26.6) |
| 51–60 | 25 (7.1) |
| Gender | |
| Male | 81 (23.1) |
| Female | 269 (76.9) |
| Professional qualification | |
| GNM* | 268 (76.6) |
| B. Sc Nursing | 51 (14.6) |
| Post Basic Nursing** | 26 (7.4) |
| M. Sc Nursing | 5 (1.4) |
| Years of experience | |
| 0–10 years | 135 (38.6) |
| 10–20 years | 113 (32.3) |
| 20–30 years | 86 (24.6) |
| 30–40 years | 16 (4.6) |

*GNM, general nursing midwifery (3 years diploma nursing)

**Post basic nursing (2 years nursing graduation course after GNM)

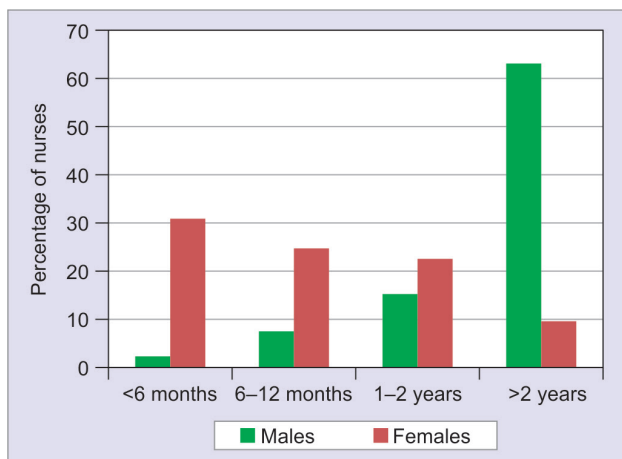


Fig. 1: Duration of prior computer experience among nursing personnel (n = 350)

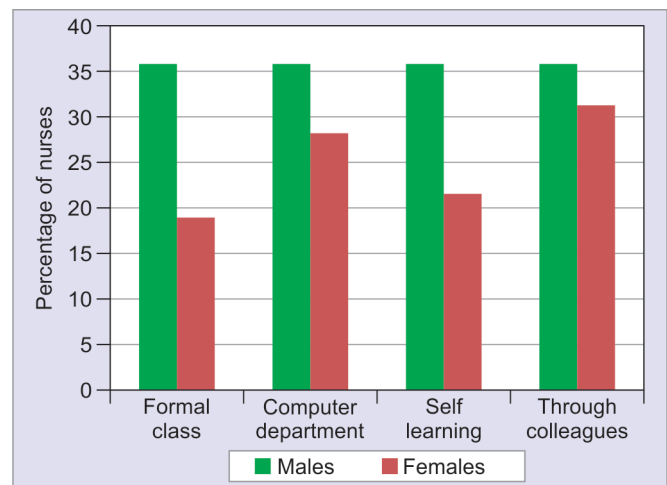


Fig. 2: Sources of training received by nursing personnel (n = 350)



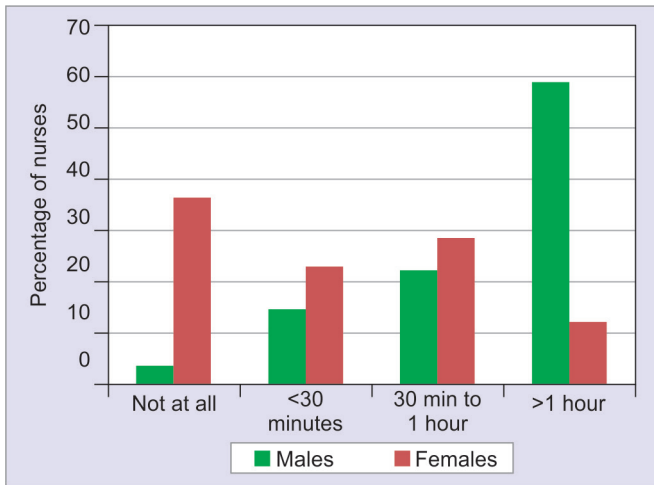


Fig. 3: Daily time spent on computers by nursing personnel (n = 350)

Table 2: Correct responses to the questions related to hospital information system (n = 350)

| S. no. | Areas of knowledge regarding HIS | Correct responses n (%) |
|--------|--|-------------------------|
| 1 | Options given in the admission—discharge transfer (ADT) module | 136 (38.7) |
| 2 | Meaning of “In Transit” | 148 (42.2) |
| 3 | Tracking any admitted patient | 148 (42.2) |
| 4 | Steps while accepting patient | 152 (43.3) |
| 5 | Tracking an absconded patient | 141 (40.2) |
| 6 | Transferring a patient from one ward to another | 139 (39.6) |
| 7 | Entry of death | 143 (40.7) |
| 8 | Discharging a patient | 147 (41.9) |
| 9 | Time constrains for cancelling a patient | 157 (44.7) |
| 10 | Cancellation of discharged patient | 113 (32.5) |

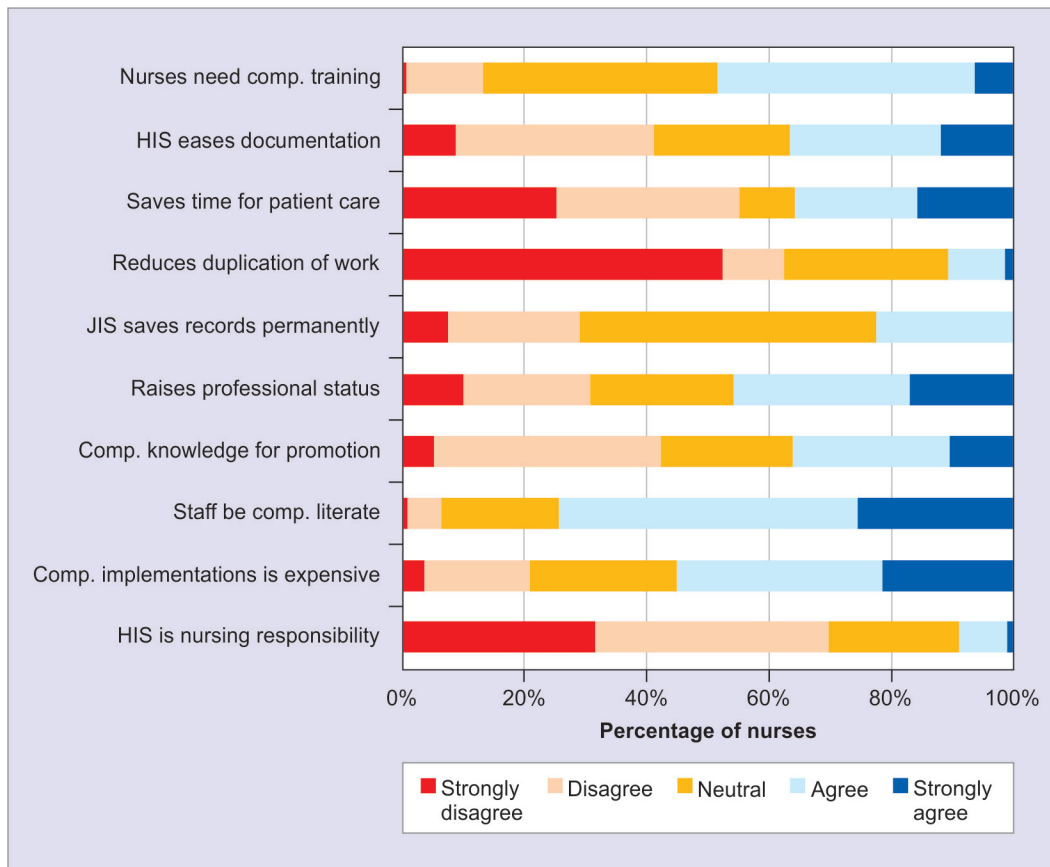


Fig. 4: Attitude of nursing personnel regarding hospital information system

staff should be computer literate. Fifty-five percentage of nurses agreed that implementing computerization would be expensive. Sullivan found that the level of computer competency and previous experience with computers led to a positive attitude.¹² Only 36% of nurses agreed that the computer eases the work of documentation while others thought that working on computers is difficult.

A study by Ball revealed that computerization helps in reducing the duplication of work as felt by 54% of nurses.⁷ However, we found that 68% of subjects disagreed that the use of HIS reduces

duplication of work as most of the nursing personnel had to document patient’s records on paper as well as on HIS.

We concluded that though the majority of participants were female, disproportionately more men had a long experience of using computers. Less than 50% of subjects could answer the questions related to HIS correctly.

In general, most participants had a positive attitude towards the use of computers and HIS. However, a majority of our participants felt that HIS did not decrease duplication of work or save time for patient care. This can be remedied by increased training

and familiarization, as well as removing the mandatory paper documentation by switching to EPR.

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