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RESEARCH ARTICLE

A PRE EXPERIMENTAL STUDY TO DETERMINE THE EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE REGARDING TELEHEALTH AMONG NURSING STAFF IN A SELECTED HOSPITAL OF INDORE CITY

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Abstract

This study aims to determine the level of knowledge among staff nurses on telehealth and ascertain their knowledge by planned teaching programme with pre-test, post-test method. The study attempted to assess the knowledge on telehealth among nursing staff before and after planned teaching programme; evaluate the effectiveness of planned teaching programme on telehealth among nursing staff; and find out the association of pre-test knowledge regarding telehealth among nursing staff and their selected demographic variables. A pre experimental study was carried out with 40 staff nurses from Bombay Hospital Indore. Self administered tool- multiple choice statements were used to evaluate the knowledge level on telehealth before & after planned teaching programme. Data was analyzed with chi-square and t test. The result showed that there was a significant difference between pre-test and post-test knowledge scores as assessed by the paired t-test value at 17.3 (HS), $t_{(39)}=2.04$ $p \leq 0.05$ and there was significant association of knowledge regarding telehealth among nursing staff and their selected demographic variables (professional qualification, working experience, working area and experience of computer technology in clinical area) at 0.05 level of significance. Thus for this study one can conclude that planned teaching programme could be an effective strategy to improve the knowledge of staff nurses on telehealth.

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INTRODUCTION:-

Medical health is an area of concern in developing countries like India. However 700 million Indians, have no direct access to secondary and tertiary care, having to travel 40-100km. ⁽¹⁾

With exponential growth in Information and Communication Technology (ICT), a rural tele-density of 43%, India may eventually show the way to achieve quality, affordable, accessible health care to everyone, anytime, anywhere making distance meaningless and Geography History, by deploying telehealth⁽²⁾. Tele-Health is the use of communications and information technology to deliver health and health care services and information over large and small distances. It encompasses preventive, promotive and curative aspects. It is the expansion of telemedicine- which is the use of electronic communications and information technologies to provide clinical services to patients in other locations. ⁽³⁾ **As the nurse's role in telehealth has increased in breadth and scope, the need for practice standards emerged.** Although the use of technology changes the delivery medium of nursing care and may necessitate competencies related to its use- to deliver nursing care, the nursing process and scope of practice does not differ with telenursing. ⁽⁴⁾ Nurses engaged in telenursing practice continue to assess, plan, intervene, and evaluate the outcomes of nursing care, but they do so using technologies such as the Internet, computers, telephones, digital

assessment tools, and telemonitoring equipment. This field of health care is not so very well established all over the world, but is a very valuable innovative method of providing nursing care especially in home health care. We Indians are becoming more technology savvy and it is need of the hour to understand and utilize Telehealth to our best advantage, as we are hugely populated. People should get all nursing and medical facilities even if they are in different geographical areas.⁽⁵⁾

OBJECTIVES:-

- 1) To assess the existing knowledge scores on telehealth among nursing staff.
- 2) To determine the effectiveness of planned teaching programme on knowledge regarding telehealth among nursing staff.
- 3) To find out the association of knowledge regarding telehealth among nursing staff with their selected demographic variables.

HYPOTHESIS:-

H1- There will be significant difference in the mean pre test and post test knowledge scores regarding telehealth among nursing staff.

H2- There will be association of knowledge regarding telehealth among nursing staff with their selected demographic variables.

METHODOLOGY:-

A pre experimental research design was used to evaluate the effectiveness of planned teaching programme through the difference between the pre test and post test score.

Study Approach- Quantitative approach

Research Design- Pre experimental research design.

Setting- The study was conducted at Bombay Hospital, Indore.

Population- The population for this study was Staff nurses of Bombay Hospital, Indore.

Sample- Staff nurses who met the inclusion criteria were selected as samples.

Sample Size- The sample size for the study was 40.

Inclusion criteria:

- 1) Staff nurses who were equal to or above 26 years of age .
- 2) Staff nurses who had working experience of 2 years and more.
- 3) Staff nurses who were willing to participate in the study.

Exclusion criteria:-

- 1) Staff nurses who were on leave.
- 2) Staff nurses who were less than 26 years of age with less than 2 years of working experience.

Reliability and validity of the tool:-

A pre test was done to establish the reliability, it was assessed by using split-half method. In this study the reliability was found to be 0.82. Hence the tool was highly reliable. Validity of the tool was confirmed by the expert committee of Bombay Hospital College of Nursing, Indore.

Data collection and procedure:-

Data was collected by using self administered tool- multiple choice statements on staff nurses who were randomly selected. The tool consist of two sections, first section consist of 6 socio demographic variables and second section consist of 20 multiple choice statements related to knowledge regarding telehealth. Pre test was conducted among 40 randomly selected staff nurses, then for 2 days planned teaching programme regarding telehealth was scheduled and post test was done. The collected data was analyzed by using descriptive and inferential statistics.

RESULTS:-

SECTION-I: DESCRIPTION OF DEMOGRAPHIC VARIABLES

The data showed that out of 40 nursing staff, 13 (32.5%) belonged to age group of $26 \leq 30$ yrs while 17 (42.5%) belonged to age group of $31 \leq 35$ yrs, and 10 (25%) belong to 36 yrs & above. According to the professional qualification 10 (25%) of nursing staff were GNM, 25 (62.5%) were B.sc/Post B.sc. and only 5 (12.5%) nursing staff had acquired post-graduate degree(M.Sc). On the basis of working experience it was obtained that out of 40

nursing staff, 13 (32.5%) had working experience of 2-4yrs while 17 (42.5%) had working experience of 5-7yrs and only 10 (25%) had working experience of 8yrs and above. According to working area it was obtained that out of 40 nursing staff, 6 (15%) were working in OPD, 12(30%) were working in Ward, 12(30%) were working in ICU, 10(25%) were working in OT. On the basis of working hours it was obtained that out of 40 nursing staff, 6 (15%) were working for 6hrs, 12(30%) were working for 8hrs and 22(55%) were working for 12hrs. According to the experience in using computer based technology in clinical area 15(37.5%) nursing staff had experience of computer technology in clinical area & 25(62.5%) nursing staff did not have experience of computer technology in clinical area.

SECTION-II: - ASSESSMENT OF PRE TEST AND POST TEST KNOWLEDGE OF NURSING STAFF REGARDING TELEHEALTH

PRE TEST

Table 1:- Frequency and percentage of pre test score

Pre test score	Frequency	Percentage
Poor(less than or =5)	15	37.5%
Average (6-10)	21	52.5%
Good (11-15)	4	10%
Excellent(16-20)	0	0%
TOTAL	40	100%

Majority 52.5% of the subjects had average knowledge, 37.5% had poor knowledge, 10% subjects had good knowledge and no subject had excellent knowledge regarding telehealth.

POST TEST

Table 2:- Frequency and percentage of post test score

Post test score	Frequency	Percentage
Poor(less than or =5)	0	0%
Average (6-10)	15	37.5%
Good (11-15)	19	47.5%
Excellent (16-20)	6	15%
TOTAL	40	100%

Majority 47.5% of the subjects had good knowledge, 37.5% had average knowledge, 15% subjects had excellent knowledge and no subject had poor knowledge regarding telehealth.

SECTION III: ASSESSMENT OF EFFECTIVENESS OF PTP

This section deals with the effectiveness of PTP in terms of knowledge increased.

The section was further classified into subsections:

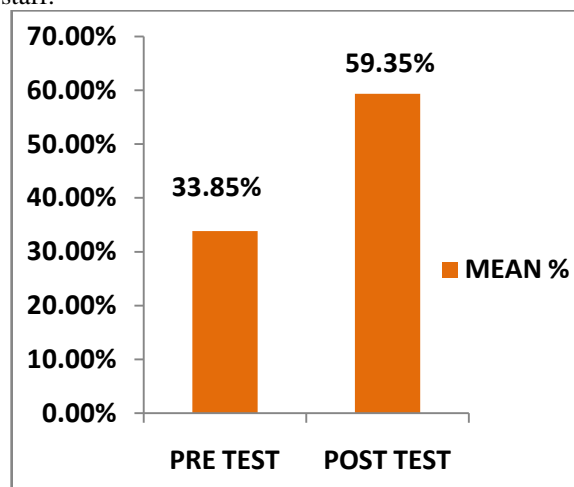
- 1) Mean and standard deviation of pre test and post test knowledge scores of telehealth.
- 2) Significance of PTP by 't' test computation.

1)MEAN, STANDARD DEVIATION OF THE PRE TEST AND POST TEST KNOWLEDGE SCORE OF NURSING STAFF

Table 3:- Mean and standard deviation of pre test and post test score
n=40

SCORE	MEAN	STANDARD DEVIATION
PRE-TEST	6.77	2.88
POST-TEST	11.87	3.16

Figure 1:- Column diagram showing the mean percentage of pre test and post test knowledge scores of nursing staff.



2) SIGNIFICANCE OF PTP BY 't' TEST COMPUTATION.

H₁- There will be significant difference in the mean pre test and post test knowledge scores regarding telehealth among nursing staff.

The significance of the mean difference between pre test and post test knowledge scores, was done by paired t test and the value is mentioned below-

Table 4:- Mean, standard deviation and paired 't' test value of knowledge score

Knowledge score	Mean (n=40)	Standard deviation	't' test
PRE-TEST	6.77	2.88	17.3*
POST-TEST	11.87	3.16	

*Highly significant, $t_{(39)}=2.04$, $p \leq 0.05$ level. It was evident that the calculated t (17.3) value was greater than the table value ($t_{(39)}=2.04$) Hence the H₁ was accepted at 0.05 level of significance

SECTION- IV: ASSOCIATION OF THE PRE -TEST KNOWLEDGE REGARDING TELEHEALTH AMONG NURSING STAFF AND THEIR SELECTED DEMOGRAPHIC VARIABLES.

H₂- To find out the association of knowledge regarding telehealth among nursing staff with their selected demographic variables.

Table 5:-Association of pre test knowledge and demographic variables

n=40				
S.No	Socio Demographic variables	χ^2 calculated value	Table value	Level of Significance at 0.05
1	Age	25.06	33.92	NS
2	Professional qualification	39.40	33.92	S*
3	Working Experience	37.88	33.92	S*
4	Working Area	49.31	47.40	S*
5	Working Hours	15.14	33.92	NS
6	Experience of computer technology in clinical area	27.20	19.67	S*

S*-significant NS- not significant

The findings of the study revealed that the calculated Chi-square values was more than the table value at 0.05 level of significance. Hence there was significant association of pre test knowledge scores regarding telehealth among nursing staff and their selected socio demographic variables such as professional qualification, work experience, working area and experience of computer technology in clinical area , at 0.05 level of significance. Thus the H2 hypothesis was accepted.

DISCUSSION:-

Maximum of the subjects (42.5%) were in the age group of $31 \leq 35$ yrs. Maximum of the subjects (62.5%) were B.Sc nurses and Post Basic. (42.5%) Staff nurses were having more than 5-7 yrs of working experience. Majority of the subjects (30%) were working in ward and ICU. Majority of staff nurses (55%) had the working hours of 12 hrs. Majority of the staff nurses (62.5%) had no experience of computer technology in clinical area. In pre test majority of the staff nurses (52.5%) had average knowledge, (37.5%) had poor knowledge & (10%) staff nurses had good knowledge & no subjects were in the category of excellent knowledge scores. In post test majority of the staff nurses (47.5%) had good knowledge, (37.5%) were in the category of average knowledge and (15%) were in the category of excellent knowledge. No subjects were in poor category. It shows that mean score of pre test was 6.77 and mean score of post test was 11.87 so the difference between them was assessed by paired t test. The calculated t (17.3) value was greater than the table value ($t_{(39)}=2.04$) Hence the H1 was accepted at 0.05 level of significance. **Dellifraie JL, et.al (2008)** conducted a systematic review to identify studies on the effect of home telehealth on clinical care outcomes. The weighted mean effect size for the overall meta-analysis was 0.50, and the z-statistic was 3.0, indicating that telehealth had a moderate, positive and significant effect ($P < \text{or} = 0.01$) on clinical outcomes.⁽⁶⁾

Rajiv Raman, et.al.(2005), conducted study to evaluate the efficacy of telehealth programme for diabetic retinopathy and estimate the grading-agreement between digital fundus photography and indirect Ophthalmoscopy observations. The data were obtained from 511 diabetics examined. Patients with sight threatening diabetic retinopathy were re-examined in the base hospital, and their fundus findings based on indirect ophthalmoscopy were compared with those obtained by digital fundus photography. Of the 1013 images, 22 (2.2%) could not be graded due to poor image quality. Of the remaining 991 images, the fundus was graded normal in 802 and abnormal with evidence of any diabetic retinopathy in 189 (19.1%). Of the 189 eyes with diabetic retinopathy, non-proliferative DR was evident in 159 (84.1%), proliferative DR in 30 (15.9%); macular edema was evident in 52 (27.5%) eyes. The grading-agreement of DR between digital photograph and indirect ophthalmoscope was good for any retinopathy versus no retinopathy (kappa value=0.79, 95%CI: 0.68-0.88). Similarly, grading-agreement between sight-threatening DR and no sight threatening DR, as determined by ICC, was 0.76 (95% CI, 0.63-0.85). Telehealth programme was an effective tool of early detection of sight threatening complications of diabetic retinopathy. Its use can be extended for mass screening of patient.⁽⁷⁾

The calculated Chi-square values was more than the table value at 0.05 level of significance. Hence there was significant association of pre test knowledge scores regarding telehealth among nursing staff and their selected socio

demographic variables such as professional qualification, work experience, working area and experience of computer technology in clinical area, at 0.05 level of significance. Thus the H2 hypothesis was accepted.

IMPLICATIONS:-

NURSING PRACTICE:- Nurses who embrace new technology will find that their load was lightened and their patients were healthier and more satisfied with their care

NURSING EDUCATION:- Student nurses should be educated about telehealth as it will be beneficial to them when they will be in clinical areas.

NURSING RESEARCH:- It will also help in opening new avenues for nurses and expand the scope in practice.

NURSING ADMINISTRATION:- Nurses posted in various wards should be trained through in service education to possess the required knowledge, skill and attitude, for the better health of their patients.

RECOMMENDATIONS:-

- A similar study can be replicated on large sample to draw more definite conclusions.
- A similar study can be conducted among medical staff.
- A study can be conducted to assess the effectiveness of phone monitoring regarding follow up among patients.

CONCLUSION:-

The planned teaching programme was effective to increase the knowledge of staff nurses regarding telehealth.

There was significant association of the pre test knowledge scores regarding telehealth among nursing staff and their selected demographic variables such as professional qualification, working experience, working area and experience of using computer technology in clinical area.

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