

INFECTION AND HEALTH CARE ASSISTANTS

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Abstract- Infections can cause preventable deaths and economic loss of varying severity. Ward attendants are very much at the front line and play an important role in providing basic patient care. A quasi experimental study was carried out to evaluate the effectiveness of self structured teaching program on knowledge of infection control among ward attendants in CMCH. The objectives of study were to assess and compare the mean pre and post test knowledge of ward attendants (WA's) and to find out the relationship of effectiveness of structured teaching program (regarding infection control) with selected variables thereby improving their knowledge which will help in prevention and control of infection in the hospital. A non equivalent quasi experimental research design was used. Sample of 60 ward attendants (30 experimental and 30 control group) was selected from all 23 wards and 8 critical care units of CMC, Ludhiana using purposive sampling technique. Data analysis was done by calculating the "t" value and chi-square test. Results revealed, that there was no statistical significance in mean pre-test knowledge score among experimental and control group (26.10 & 24.46) whereas post- test knowledge score among experimental and control group (43.1 & 25.2) was highly significant at $p < 0.001$ level. No statistically significant effect of all variables at $p > 0.05$ level was found on knowledge score in both experimental and control groups except that the pre-test knowledge of 10+2 pass ward attendants was higher than matric pass ward attendants at 0.05 level.

Key Words – Ward attendants, Infection, Structured Teaching Program

INTRODUCTION

Health care providers include not only doctors, nurses and other paramedical staff concerned and connected with restoring and maintaining of health of society but also the ward helpers, ward attendants and house keeping personnel who directly and indirectly influence the patient care. General duty attendants / ward attendants/ward helpers/unlicensed assistive personnel contribute significantly in the proper and efficient delivery of health care as they are the actual work force and form the absolute manpower and machinery of the hospital. Without their interventions it would not be possible to deliver comprehensive, organized and optimum health care to all patients. The role of the Health Care Assistant emerged primarily to support the professional nurse and to undertake perceived "non nursing duties" under the direction and supervision of qualified nurses. While they represent a substantial proportion of the health care workforce the growth of their role has taken place without regulation, clear boundaries, or systematic education and training¹. Hospital personnel and environmental surfaces may serve as reservoirs of infection or may be responsible for transmission of a nosocomial pathogen to the patient². Infections can cause preventable deaths and economic loss of varying severity³. Nosocomial infections not only affect patients but also involve health care workers and visitors⁴ and about 1/3rd of all nosocomial infections are preventable⁵.

Hands of hospital staff, medical equipment such as catheters, surgical instruments, implants, ventilators, endoscopes, thermometers, ultrasound probes, otoscopes etc may all serve as the reservoir for micro-organisms^{6,7}. Hospital is one of the most likely place for acquiring an infection because it harbors a high population of virulent strains of microorganisms that are usually resistant to antibiotics. Patient in health care settings can easily acquire infection because they are in high risk group⁸. Nosocomial

infections not only affect patients but also involve health care workers and visitors⁴. The efficacy of infection control measures is highly dependant on the compliance of the hospital staff⁹. Ward helpers working in wards, clinical labs, histology units, pathology department, operation theatres carry high risk of transmission of infection due to handling of infected and pathological specimens sent for examinations from a patient's body including bio-medical wastes. Disposal of bio-medical wastes from hospitals is still not reached to a level where society can be protected: municipal staff of many cities and towns of this country run the risk of getting themselves infected and transferring these infections to others¹⁰. Moreover there have been very few studies to demonstrate the efficiency of domestic services in hospital¹¹.

Ward attendants are very much at the front line and play an important role in providing basic patient care and performing disinfectant duties to keep health care settings as clean as they can, however literature lacks information about how to structure infection control courses, and how to conduct such courses for ward attendants¹². Inadequate knowledge of infection control is one of the reasons for the spread of cross infection in nursing homes¹³.

Ward attendants currently undertake diverse procedures ranging from general tidying to carrying out complex clinical procedures¹⁴. The introduction of Health care assistants/ward attendants, is directly associated with a reduction in both direct and indirect care provided by qualified nurses¹⁵. Infection control education should be offered to health care providers in various settings such as home-based care training¹⁶, nursing school¹⁷, and ward based nursing education¹⁸. Proper supervision and education for health care assistants /ward attendants can ensure that they maintain patient safety and provide quality care¹. Making sure that ward attendants have a degree of competence can in turn help raise the standard of patient care¹⁹.

Health care workers (HCW'S) are at the front line of patient care delivery. It is essential that they are appropriately trained and competent in the skills required to deliver the fundamentals of

care. There is also a need for HCW'S to have access to continuing professional development that offers a career pathway ²⁰. Hand washing appears to be the most important infection control measure in hospital. Education is the key preventive measure, the importance of which is accentuated by the great turn over in personnel. A coordinated effective educational program has shown to result in improved infection control activities ²¹.

METHODOLOGY

A non equivalent quasi- experimental research design is used for the study. Independent variables comprised of age, academic qualification, work experience, sex, area of work, family income, and in-service education program. Dependent variables in the study were pre and post test knowledge score regarding infection control among ward attendants of CMC &Hospital, Ludhiana. Final tool consisted of 3 Parts .Part I consisted of Sample characteristics, Part II is the actual tool for assessment of Knowledge regarding Infection control, consisting of 50 multiple choice type questions and each correct answer carries one mark. 6 broad categories of Infection were included ie. Infection and disease, Universal precautions, Assisting nurses in doing procedures, Transmission of infection to community, Dusting & segregation of hospital wastes, Sterilization & disinfection. Part III consisted of building up of an extensive self structured teaching program regarding infection control based upon all the above written aspects of infection. The investigator selected a sample of 60 ward attendants 30 for experimental and 30 for control group using purposive sampling method. Initially all sample characteristics like age, sex, academic qualification, in-service education program, family income, area of work, work experience were matched for which investigator had to go to all 23 wards and 8 critical care units of the hospital day and night (as duties are in shifts). Matching was done for the variables like in-service education, academic qualification, sex, work experience, family income. Night duty and morning duty attendants were included in the study to prevent contamination. Pilot study was conducted in the month of Sept 2006 to ensure the reliability of tool and feasibility of the study. Reliability of the tool was established by Split Half Technique and was calculated by Karl Pearson co-efficient of co-relation and Spearman Brown formula and the reliability of tool was found to be 0.8 and hence the tool was highly reliable. Validity of tool was calculated by square root of reliability and came out to be 0.89. Hence the tool was valid. Data collection was conducted during the month of October, 2006 .First day, pretest from both the groups (experimental and control) was taken. Next day self structured teaching program regarding infection control (including demonstrations) was administered to only the experimental group and subsequently the post-test was taken on the third day from both the groups(experimental and control)The post-test was taken from both the groups after giving a gap of one day to assess the memory retention of ward attendants. The data analysis was done by calculating the percentage, mean, standard deviation, coefficient of correlation and 't' value.

RESULTS

Table- 1 shows that pre-test and post-test knowledge score of control group (24.46, 25.2) is not statistically significant, whereas the pre-test and post-test knowledge score of the experimental group (26.10, 43.1) is highly significant P 0.001. This table also depicts that there is no statistical by significant difference in mean pre-test knowledge score among experimental and control group (26.10 and 24.46) whereas post-test knowledge score among experimental group and control group (43.1, 25.2) is highly significant at 0.001 level.

Table – 1 Comparison of mean pre and post-test knowledge score of ward attendants regarding infection control among experimental and control group

Knowledge score						
Experimental Group n=30			Control Group n=30			t
Mean	SD		Mean	SD	df	
Pre-test (a)	26.10	5.3	(c)	24.46	4.9	58
Post-test (b)	43.1	4.5	(d)	25.2	4.9	58
	df	t		df	t	
(a+b)	58	13.6***	(c+d)	58	0.6NS	

Maximum Score=50
Minimum Score=0

NS-- non significant
***--Significant at (p<0.001)

Hence it is concluded that structured teaching programme regarding infection control has significant impact on the post-test knowledge of ward attendants in the experimental group.

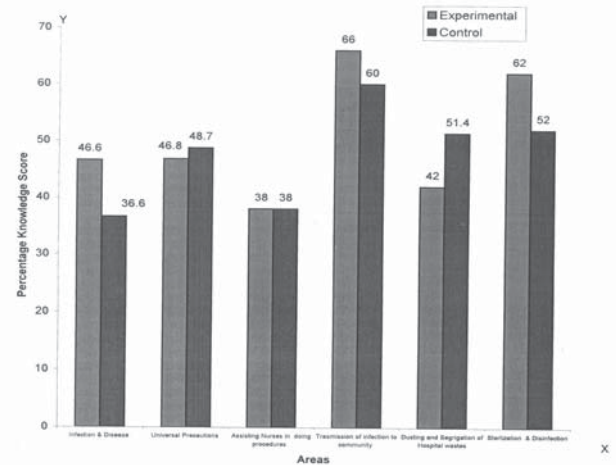


Fig.1 Percentage distribution of mean pre test Knowledge score of ward attendants regarding infection control among experimental and control group according to areas

It is evident from Fig.1 that experimental group ward attendants had higher pre-test knowledge score in the area of transmission of infection to community and lower knowledge in the area of assisting nurses in doing procedures, whereas ward attendants of control group had lower pre-test knowledge in all the areas ie. transmission of infection to community, universal precautions, dusting and segregation of hospital wastes, sterilization and disinfection and area of infection and disease.

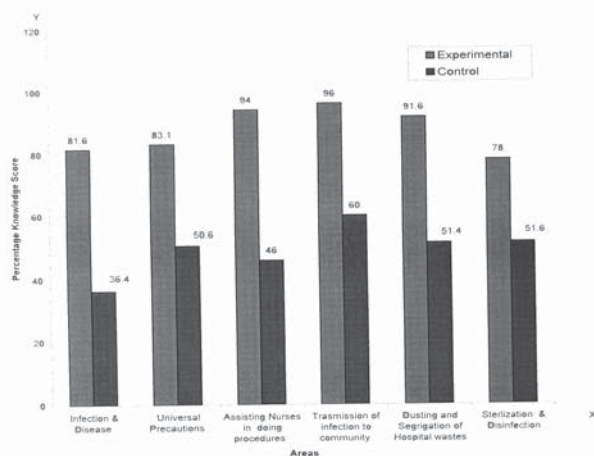


Fig.2. Percentage distribution of mean post test Knowledge score of ward attendants regarding infection control among experimental and control group according to areas

The above barred diagram (Fig.2) shows that ward attendants in post-test experimental group had higher knowledge score in all areas whereas ward attendants in post-test control group remained almost same with lower knowledge scores in all areas. It shows that structured teaching programme made significant impact to increase the knowledge regarding infection control among ward attendants.

TABLE 2 : Comparison of Mean Pre and Post-test Knowledge Score of Infection Control among Ward Attendants in Experimental and Control Group according to Academic Qualification

		Experimental (n=30)				Control (n=30)						
		n	Pre mean	SD	Post mean	n	Pre mean	SD	Post mean	df	't' value	
Primary	—	—	—	—	—	—	—	—	—	—	—	
Middle	6	25.16a	5.3	39.16a	6.8	6	20.3d	6.0	21.8d	5.6	10	4.5***
10 ^h	17	26.29b	4.0	44.27b	2.8	16	25.12e	4.1	25.9e	4.6	31	16.1***
10+2	7	26.42c	8.2	43.5c	4.5	8	26.25f	4.4	26.7f	3.9	13	7.4***
		df		't' value		df			't' value			
(a+d)		10		1.3 NS		12			0.3 NS			
(b+c)		31		0.9 NS		12			2.2*			
(c+f)		13		0.05 NS		21			0.5 NS			
(a+b)		21		0.6 NS		22			0.15 NS			
(b+c)		22		0.05 NS		11			1.4 NS			
(a+c)		11		0.35 NS		20			2.4 NS			
(d+e)		20		2*		22			0.3			
(e+f)		22		0.13 NS								

Maximum score=50

(p>0.05) NS =non significant

* Significant at 0.05 level

***Highly significant (p <0.001level)

Table 2 reveals that the ward attendants with middle, matriculate and 10+2 qualification in experimental group had significant increase in mean post-test knowledge score (39.16,44.27and 43.5 respectively)regarding infection control ,whereas control group showed no effect on mean post-test knowledge score and this difference was statistically highly significant at 0.001 level.

. 10+2pass ward attendants had high mean pre-test knowledge than matriculate ward attendants and this difference is also

statistically significant at 0.05 level. Therefore it can be concluded that higher academic qualification had an effect on the knowledge level of ward attendants.

There was no statistically significant effect of variables –age, sex, work experience, in-service education, area of work, family income at p > 0.05 level on the knowledge score regarding infection control among ward attendants of both experimental and control groups.10+2 pass ward attendants had high mean pre-test knowledge score than matriculate ward attendants and this difference is also statistically significant at 0.05 level. Therefore it can be concluded that higher academic qualification had an effect on knowledge level of ward attendants.

DISCUSSION

Analysis of pre and post test knowledge score revealed a higher mean post test knowledge score among the experimental group (43.1) than that of the control group (25.2) regarding infection control. This difference was found significant at (p <0.001) level. Hence, the findings indicated that structured teaching program regarding infection control was effective in increasing the knowledge score of ward attendants belonging to experimental group.

In one study it was reported that ward attendants knowledge regarding AIDS awareness increased significantly after attending the seminar conducted by UT AIDS Control Society and overall knowledge of AIDS was 80% at the end of seminar²² and similarly it was reported in another study that on the job training and a health care support course when imparted to ward attendants/ health care assistants not only increased the knowledge and skills of ward attendants significantly, but also benefitted the registered nurses and patients²⁴.

Similarly, a study was conducted to evaluate the effectiveness of training program on knowledge and practices of infection control among infection control practitioners in Nebraska Medical centre, Omaha, it was found that there was significant increase after training program for both knowledge and practices (implementation measures) in experimental group of infection control practitioners and these increases were also maintained at 12 months follow-up²¹.In another study it was reported that a cross training approach to train nurses in nursery and labour room was undertaken which increased efficiency and satisfaction of nursing staff²³. A quasi experimental study was conducted to evaluate the effectiveness of self structured teaching program on knowledge and practices related to hand washing technique among food handlers in nurses mess of CMCH, Ludhiana revealed that mean pre-test knowledge score of food handlers was 43.7% and mean post-test knowledge score was 83.1% after getting the structured teaching program, which clearly shows that structured teaching program was highly significant in increasing the knowledge of food handlers²⁵.

Another finding of study indicated that experimental group ward attendants had higher pre-test knowledge score in the area of transmission of infection to community and lower knowledge in the area of assisting nurses in doing procedures, whereas ward attendants of control group had lower pre-test knowledge in all the areas ie. transmission of infection to community, universal

precautions, dusting and segregation of hospital wastes, sterilization and disinfection and area of infection and disease. A study done by Centre for Occupational and Environmental Research, New Delhi (1999) revealed that 5% health workers unaware of infection control techniques and 85% of employees did not go for medical check up²⁶. Another study revealed that knowledge of universal precautions among the supportive staff is average and practices were 49.4%²⁷.

After giving structured teaching programme regarding infection control, in the present study it was found that ward attendants of experimental group had excellent mean percentage knowledge score in all above areas i.e. excellent knowledge in the areas of infection and disease (81.6%), universal precautions (83.1%), dusting and segregation of hospital wastes (91.6%). Structured teaching program was highly effective in improving the knowledge, skills and attitudes of a group of in patients with diabetes mellitus and the mean post-test knowledge score of experimental group was 83.6 as compared to control group with 51.6²⁸.

There was **no** statistically significant effect of variables- age, sex, work experience, area of work, in service education and family income at $p > 0.05$ level on the knowledge score regarding infection control among ward attendants of both experimental and control groups except academic qualification. It was found that 10+2 pass ward attendants had high pre-test knowledge score than matriculate attendants

In one of the studies it was reported that graduate multipurpose health workers (MPHW) had significantly higher post-test knowledge score as compared to those with 8th pass qualification²⁹. Similarly another study reported that knowledge score of the ward attendants increased with higher academic qualification as the 10+2 pass ward attendants had higher mean knowledge score than matriculate ward attendants²².

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