

NURSES' ATTITUDE AND EFFECTIVENESS OF SURGICAL HYGIENE TECHNIQUES TRAINING AT DESSIE REFERRAL HOSPITAL, AMHARA REGION, ETHIOPIA

Yemiamrew Getachew ^{*1}, Prema Kumara ², Wondwossen Yimam ³, Delelegn Tsegaye ⁴.

^{*1}Head, Department of Comprehensive Nursing, College of Medicine and Health Sciences (CMHS), Wollo University, Ethiopia.

²Assistant professor, Department of Comprehensive Nursing, CMHS, Wollo University, Ethiopia.

³Dean, School of Nursing & Midwifery, CMHS, Wollo University, Ethiopia.

⁴Lecturer, Department of Comprehensive Nursing, CMHS, Wollo University, Ethiopia.

ABSTRACT

Introduction: Surgical Hygiene is a set of method to prevent the spread of health-care-associated infection. It is very essential to protect patients from pathogens during medical and surgical procedures. Health care forces should use Surgical Hygiene techniques to prevent these infections.

Objectives: To assess the Nurses' attitude and effectiveness of the Surgical Hygiene Techniques training in Dessie Referral Hospital, Eastern Ethiopia.

Materials and Methods: Institution based one group pre-post-intervention pre-experimental design was used for 51 study subjects using convenient sampling technique. The study samples included nurses working at Operation theatre. Data collection took place between October-November 2016. The collected data were analyzed using descriptive and inferential statistics. Statistical significances for variables were set at p- value less than 0.05.

Results: There were significant differences almost in all attitude related factors under this study before and after the educational program. There were significant median differences in attitude ($p = 0.001$) and practice scores after the training on Surgical Hygiene Techniques in this study subjects. Sixty-seven % of respondents rated the training program as very good. Seventeen (17) % of respondents had rated as good, and 4% rated as fair and also 4% of the respondents rated as poor.

Conclusion & Recommendation: The training program provided by Wollo University staff was found to be helpful, and credible in attitude on Surgical Hygiene Techniques and which can be scaled up further to other Hospital staff. Periodic training and supportive supervision program shall be provided to nurses who work at operation theatre to update their attitude regarding Surgical Hygiene Techniques.

KEY WORDS: Nurses, Attitude, Effectiveness, Training, Surgical Hygiene Techniques.

Address for correspondence: Yemiamrew Getachew, Head, Department of Comprehensive Nursing, College of Medicine and Health Sciences (CMHS), Wollo University, Ethiopia.

E-Mail: greenwater3020@gmail.com

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INTRODUCTION

Health-care-associated infection (HAI) is a major global safety concern for both patients and health-care professionals. HAI is defined as an

infection occurring in a patient during the process of care in a hospital or other health-care facility that was not manifest or incubating

at the time of admission. This includes infections acquired in the hospital and any other setting where patients receive health care and may appear even after discharge and it accounts for a major risk factor for serious health issues leading to death [1-3].

Infections that are acquired by hospital staff, visitors or other healthcare personnel may also be considered as health-care-associated infection [4]. Infections acquired in health care settings are among the major causes of death and increased morbidity among hospitalized patients. Improper hand hygiene is one of the most important contributing factors to health care-acquired infections [5].

Globally, over 1.4 million people worldwide suffer from infectious complications acquired in hospital [6]. About 75% of the burden of these infections is present in developing countries [7]. Asymptomatic patients may be considered infected if these pathogens are found in the body fluids or at a sterile body site, such as blood or cerebrospinal fluid [8]. The burden of HAI is already substantial in developed countries, where it affects from 5% to 15% of hospitalized patients in regular wards and as many as 50% or more of patients in intensive care units (ICUs) [9-11].

Studies conducted in different parts of the world show that in North America and Europe 5%–10% of all hospitalizations result in nosocomial infections, while Latin America, Sub-Saharan Africa and Asia show more than 40% hospitalizations with nosocomial infections [12]. Overall HAI cumulative incidence in surgical wards ranged from 5.7% to 45.8% in studies conducted in Ethiopia and Nigeria. The latter reported an incidence as high as 45.8% and an incidence density equal to 26.8 infections per 1000 patient-days in pediatric surgical patients. In a study conducted in the surgical wards of two Ethiopian hospitals, the overall cumulative incidence of patients affected by HAI was 6.2% and 5.7%. Health care associated infections are among the most aggravating agents of mortality, morbidity, length of hospital stay and cost in the world [13-14].

Training evaluation is often defined as the systematic process of collecting data to deter-

-ine if training is effective. Measuring the effectiveness of a training program at the attitude gained are the most common approaches. Performing the duties properly cannot be achieved, unless they enjoy a set of positive attitude which can be obtained by learning and training [15].

Preventive measures must be provided to all staff with potential exposure to body fluids and these can be achieved by proper screening & handling of patients, proper disposal of sharps and wastes, wearing protective cloths, gloves, gowns, aprons, goggles, managing inoculation accidents, adequate water supply, disinfection and sterilization. Overcrowding, inadequate infection control practices, poor attitude, lack of infection control policies, guidelines and trained professionals also adds to the extent of the problem. Hospital-acquired infection is a major safety issue affecting the quality of care of hundreds of millions of patients every year, in both developed and developing countries, including Ethiopia. Thus, this study attempts to evaluate the effectiveness of "Surgical Hygiene Techniques" training program among nurses in Dessie Referral Hospital.

Objectives: To evaluate the Nurses' attitude on Surgical Hygiene Techniques and to assess the effectiveness of training on Surgical Hygiene Techniques in Dessie Referral Hospital, Eastern Ethiopia.

MATERIALS AND METHODS

Research design: one group pre-post-intervention Pre-experimental design was used.

Setting and sampling: The study was conducted in Dessie Referral Hospital, Ethiopia. The study samples included Bsc and Diploma nurses working at Operation theatre. Data collection took place between October-November 2016. Convenient sampling technique was used to select nurses involved in patient care. The total numbers of Bsc and Diploma nurses were 32 and 19 respectively.

Description of the tool: The tool is divided into mainly three parts

Part-A: Socio-demographic variables.

Part-B: Attitude related questions (7 items) to assess both pre- & post-test phases of the

trainees regarding Surgical Hygiene Techniques. A score of one was allotted for correct attitude related questions and zero was given for incorrect responses by the study participants.

Part-C: Performa (7 items) to assess the effectiveness of the training using five point Likert scale ranging from 5 (Excellent) to 1(Poor) and Likert scales were dichotomized as follows: Excellent, very good and good were considered as "Good", whereas fair and poor considered as "Poor"

Content validity: The tool was developed by investigators after reviewing related literatures to evaluate the effectiveness of the training program on Surgical Hygiene Techniques.

Pilot study: The instrument was piloted on five nurses in order to test the clarity and feasibility of the tool at Kemissie Primary Hospital. After the pilot study, the tool was modified by the investigators as per the requirement. The pretest assessment was conducted on day one and on the same day of the training then interactive lecture, discussion, skill demonstration was introduced for three consecutive days for the main study participants.

Data collection procedure: Prior permission was obtained from the concerned authority. Informed consent obtained from the study subjects. All nurses who participated in the study were those who actually agreed to complete the study and also nurses were approached with a full description of the study and its aim, after which the study subjects were allowed to be free to participate in the study. Confidentiality of the nurses was protected through-out the study. A Post test was administered after the training to check the attitude of participants.

Statistical analysis: Once all necessary data obtained, data was checked for completeness edited, cleaned, coded and entered in to and analyzed by SPSS version 20. The collected data was analyzed by using descriptive (frequency, percentage and median) and inferential (Sign test- Non parametric test) statistics. Statistical significances for variables were set at p- value less than 0.05.

RESULTS

The majority (72.5%) of respondents were females. The median age of the respondents

were $28.98 \pm 7.8SD$ year. The majority (68.6 %) of nurses were younger and below the age of 30 years old. The median year of experience for the sample was $2.0 \pm 6.2SD$. The highest percentages (62.7%) were with bachelor degree (Bsc nursing). Around sixty-three % of participants were single. The greater part (62.7%) of respondents had less than five years of work experience.

Almost all (98%) of samples had no recent training on Surgical Hygiene Techniques. (**Table 1**)

Table 1: Socio-demographic characteristics of the study participants (n =51) in South Wollo Referral Hospital, Ethiopia, 2016 GC.

Personal Characteristics	Frequency (n)	Percentage (%)
Sex		
M	14	27.5
F	37	72.5
Age(years)		
<30	35	68.6
30 ⁺	16	31.4
Marital status		
Single	32	62.7
Married	19	37.3
Qualification		
BSc Nurse	33	64.7
Diploma Nurse	18	35.3
Work experience(yrs)		
< 5 years	30	58.8
5 ⁺ years	21	41.2
Recent training in S. Hygiene techniques		
Yes	1	2
No	50	98
	23	45.1
	6	11.8

There were significant improvements in four factors under study after the educational program. Regarding item analysis, the attitude pertaining to six factors were improved after the training program except for one i.e. "If trained, would you be willing to practice? "(p = 0.84) However," Would you be willing to practice asepsis, regardless of condition?" (p = 0.02), "Would you be willing to teach patients and co-workers about asepsis? "(p = 0.01), "Would you be willing to attend seminars for asepsis? "(p = 0.02), and "Are you aware about techniques used during asepsis? "(p = 0.002) showed significant median differences with improvement of participants attitude on Surgical Hygiene Techniques. Overall there was a significant median difference

Table 2: Nurses' overall attitude score on Surgical Hygiene Techniques: pre- and post- training program (n =51).

Item	Pre-program (Correct response)		Post-program (Correct response)		% Change	P-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)		
Attitude						
1. Is Surgical Hygiene is a tool in reducing infection?	41	80.4	47	92	11.6	0.08
2. Would you use a mask even though uncomfortable?	33	64.7	35	68.6	3.9	0.67
3. If trained, would you be willing to practice?	37	72.5	34	66.7	-5.8	0.84
4. Would you be willing to practice asepsis, regardless of condition?	33	64.7	44	86	21.3	0.02*
5. Would you be willing to teach patients and co-workers about asepsis?	19	37	47	92	55	.001*
6. Would you be willing to attend seminars for asepsis?	34	66.7	44	86	19.3	0.02*
7. Are you aware about techniques used during asepsis?	21	41	38	74.5	33.5	0.002*
Total median ±SD	4.27 ± 1.44		5.67±1.05		4.11	0.001*

in attitude score after the training on Surgical Hygiene Techniques in this study subjects ($p = 0.04$) (Table 2)

The overall effectiveness of the training was assessed based on the following seven evaluative questions with five Likert's scales ranging from excellent (5) to poor (1) as follows:
 - How would you rate the overall quality of this instruction?, How well did the presenters state the objectives? , How well did the presenters keep the session alive and interesting?, What was your overall rating of the presenters? , How well did this program accommodate your background and needs?, How effective were the handouts? And how convenient was the location?

Based on the above seven criteria the overall effectiveness of Surgical Hygiene Techniques training program was evaluated and the result was found that 67% of respondents rated the program as very good. Seventeen (17) % of respondents have rated as good, and 4% have rated as fair and also 4% of the respondents rated as poor.

DISCUSSION

It is important to note that there is a need to support and guide all hospital staff in performing effective operative theatre Surgical Hygiene Techniques to prevent health-care-associated infections. The results of the study confirmed that interventions using Surgical Hygiene Techniques education training program showed significance median difference in attitude. Based on the results, there was a significant difference observed between the scores of pretest and posttest intervention program in this study

subjects. This finding shows that on job training has a positive improvement in attitude on operative theatre Surgical Hygiene Techniques among nurses. Similarly, a study conducted in USA revealed that well-trained hospital staff plays an important role in health care performances [16-17]. And also a study conducted in China found that dramatic improvement was observed after the training program regarding participants' attitude and practice on infection Prevention [18].

The majority of nurses in this study had no previous training on Surgical Hygiene Techniques. Whereas, a study conducted in America and India revealed that many hospitals are providing formal training and updated refresher trainings at regular intervals for their staff [19-20]. Other studies also conducted in India and Iran suggested that such trainings are very important to improve the waste handling techniques of the staff in hospital environment [21]. Another study conducted in France reported that health care workers must need regular information and reinforcing messages on the management of health care associated infections [22]. Literature proved that the practical demonstration has positively influence the performance of an individual and their behavior at their work place [23]. A study on comprehensive care for health workers showed that significant change in Surgical Hygiene Techniques that can greatly bring quality of care for health care settings [24-25].

Most of the respondents rated this training as very good (67%), good (17%) and excellent (8%)

towards the overall effectiveness of the training programs on Surgical Hygiene Techniques in the present training.

CONCLUSION

There was a spectacular and significance median difference in participants' attitude after the training program on Surgical Hygiene Techniques. The majority of the respondents rated the training program as very good and good. But, few percentages of respondents were not satisfied with the training program.

Recommendations: The training program was found to be helpful, credible for improvement of attitude on Surgical Hygiene Techniques and which can be scaled up further to other Hospital staff. Based on results of the present study it was proposed that; periodic training and supportive supervision program shall be provided to nurses who work at operation theatre units to update their attitude regarding Surgical Hygiene Techniques. Further studies needed to be performed with a qualitative method.

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