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EFFECTIVENESS OF ALCOHOL BASED HAND RUB AND ANTISEPTIC SOAP HAND WASHING ON REDUCTION OF BACTERIOLOGICAL GROWTH AMONG B.SC NURSING STUDENTS POSTED IN MEDICAL WARD

Nursing

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ABSTRACT

Hands are regarded as a major source of transmitting infection. It has been estimated that there are not less than 10000 organisms per cm2 of normal skin. This includes both nonpathogenic resident flora as well as pathogenic transient flora. Hand washing is emphasised as the single most important measure to prevent cross transmission of microorganisms and thus to prevent nosocomial infections. It is an important aspect of our everyday routine, and is of particular importance in the routines of health care professionals. The objective of the study is to assess the effectiveness of Alcohol based hand rub and antiseptic soap hand washing on reduction of bacteriological growth among B.Sc nursing students posted in Medical ward. Two group pre-test post-test design) was used in the present study.Sample were selected using Purposive sampling technique. The tool consist of demographic variables and self structured rating scale,scanty growth (<20 colony), moderate growth (20-50 colony), Heavy growth (>50) to assess the bacteriological growth. Reliability was calculated by using split half method. Analysis of the data was done using descriptive and inferential statistics.

KEYWORDS

Effectiveness, Alcohol based hand rub, Antiseptic soap, Hand Washing, Bacteriological Growth

INTRODUCTION

Hand hygiene is considered to be the most important tool in Hospital acquired infection prevention & control. It is an effective strategy for reducing the global burden of infectious disease, particularly respiratory and gastrointestinal illnesses. Clean hands prevent and control the spread of pathogens via the fecal–oral route as well as integumentary route including the transmission of pathogens from hands to food and drinking water. Hand hygiene is a core element of patient safety for the prevention of Health Care Associated Infection (HAIs) and spread of anti microbial resistance in patients. Its promotion represents a challenge that requires a multi-model strategy. Hand hygiene prevents cross infection in hospital settings, but Health Care Workers (HCWs) adherence to hand hygiene guidelines is generally poor, Easy, timely access to both hand hygiene and skin protection is necessary for satisfactory hand hygiene behavior among the health professionals. Alcohol based hand rubs may be better than traditional hand washing as they require less time, acts faster, are less irritating, and contribute to sustained improvement in compliance associated with decreased infection rates.[1]

The use of alcohol-based hand rub solutions (ABHRSs) in health care settings has been associated with increased hand hygiene compliance and reduced rates of nosocomial infection in health care settings. Complaiance to hand hygiene recommendations in the Health care units is variable and moderate, at best.[2]

Over the last few decades alcohol-based hand rubs and disinfectants have become prominently available within health care setups, providing an alternative means of achieving good hand decontamination. In the hospital setting their advantage over soap and water is that they can be applied in transit to the next patient or task and therefore may help improve compliance with hand decontamination.[3]

Alcohol-based hand sanitizers and rubs are an alternative to hand washing with soap that do not require water. They have been found to improve hand hygiene compliance, and to significantly reduce the rate of infection and its prevalence in health care settings. Multiple laboratory studies have demonstrated and revealed that Alcohol-based hand sanitizers can reduce bacterial test organisms such as Escherichia coli, Staphylococcus aureus, and Serratia marcescens by greater magnitudes than soap and water.[4]

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II. STATEMENT OF PROBLEM

A Pre- experimental study to assess the effectiveness of Alcohol based hand rub and antiseptic soap hand washing on reduction of bacteriological growth among B.Sc nursing students posted in Medical ward of Dr. Bhim Rao Ambedker Memorial Hospital, Raipur (C.G).

OBJECTIVES OF THE STUDY

1. To assess the bacterial growth before and after routine patient care through swab culture method among B.Sc nursing students.
2. To assess the effectiveness of hand washing with Alcohol based hand rub in reducing bacterial growth among B.Sc nursing students.
3. To assess the effectiveness of hand washing with Antiseptic soap hand washing in reducing bacterial growth among B.Sc nursing students.
4. To compare the effectiveness of Alcohol based hand rub and Antiseptic soap hand washing on reduction of bacteriological growth among B.Sc nursing students.

HYPOTHESIS:

(Ho) –There will be no significant difference between the effectiveness of alcohol based hand rub and antiseptic soap hand washing on reduction of bacteriological count.

(H1) -There will be significant difference between the effectiveness of alcohol based hand rub and antiseptic soap hand washing on reduction of bacteriological count.

MATERIALS AND METHODS:

Research Approach: Quantitative research approach was used for the present study.

Research Designs: The design selected for the present study was two group pre-test post design.

Research Setting: Medical ward of Dr. Bhim Rao Ambedker Memorial Hospital, Raipur (C.G).

Sample and sample size: The sample size for this present study was 40 B.Sc Nursing Students.

Sampling Techniques: Convenient Sampling Technique was used in the present study.

DESCRIPTION OF THE TOOLS

The tools include socio-demographic data and self structured rating scale to assess the bacteriological growth before and after handwashing with alcohol based hand rub and antiseptic soap handwashing.

Description of the tool for data collection was in two parts

SECTION-I: Socio-demographic data Self structured interview schedule consists of socio-demographic data like Age of the students (in year), education before nursing training, Marital status, Sources of Information.

SECTION-II: Self structured rating scale to assess the level of the

bacteriological growth before and after hand washing with alcohol based hand rub and antiseptic soap hand washing.

SCORING CRITERIA

The observation is marked under 3 headings for identification of bacteriological growth. Scanty growth (<20 colony), moderate growth (20-50 colony), Heavy growth (>50), each item had score for bacteriological growth it was under the following heading.

Level of bacteriological growth	Range of score
Scanty growth	(<20)
Moderate growth	(20-50)
Heavy growth	(>50)

RESULTS:

Section-I Assesment Of Bacteriological Growth On B. Sc Nursing Students Among Experimental Group-i And Experimental Group-II N=40

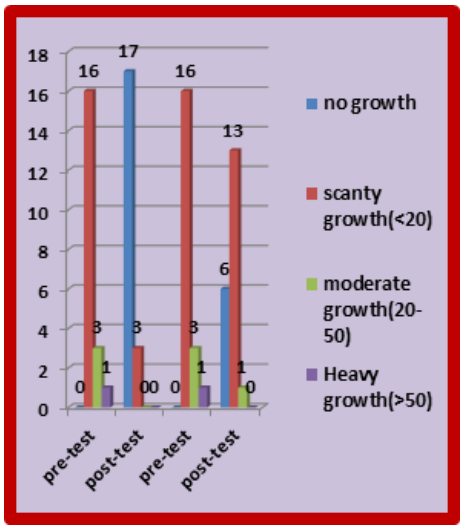

Figure 1: Bar diagram represented that in Experimental group-I (80%) students having scanty growth, (15%) students having moderate growth, (5%) students having Heavy growth in pre test, and in the post test of Experimental group-I (85%) students having no growth, (15%) students having scanty growth, Nil students having moderate growth and Heavy growth. In Experimental group-II (80%) students having scanty growth, (15%) students having moderate growth, (5%) patient having Heavy growth in pre test, and in the post test of Experimental group-II (30%) students having no growth, (65%) students having scanty growth, (05%) students having moderate growth, Nil students having Heavy growth.

Section-II Comparison Of Pre-test And Post-test Of Alcohol Based Hand Rub And Antiseptic Soap Hand Washing On Reduction Of Bacteriological Growth . N=40

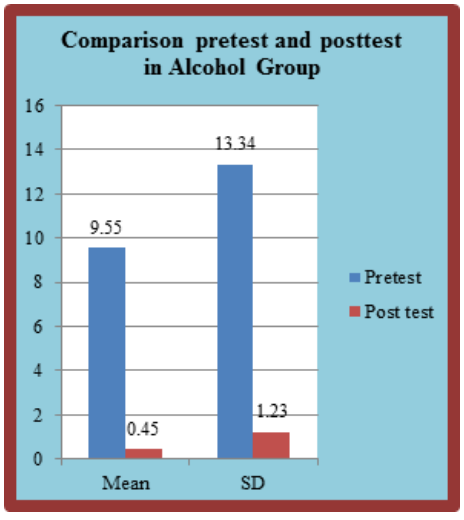

Figure 2: The finding depicts analysis of pre test and post test of alcohol based hand rub on reduction of bacteriological growth. The pre test mean (9.55),standard deviation (13.34), and post test mean (0.45), standard deviation (1.23), for the experimental group-I. The level of bacteriological growth in experimental group-I is more before procedure, after handwashing with alcohol based hand rub the level of bacteriological growth is decreased after procedure in post test.

Section-III Comparision Between Pre-test & Post-test In (antiseptic +water Group)

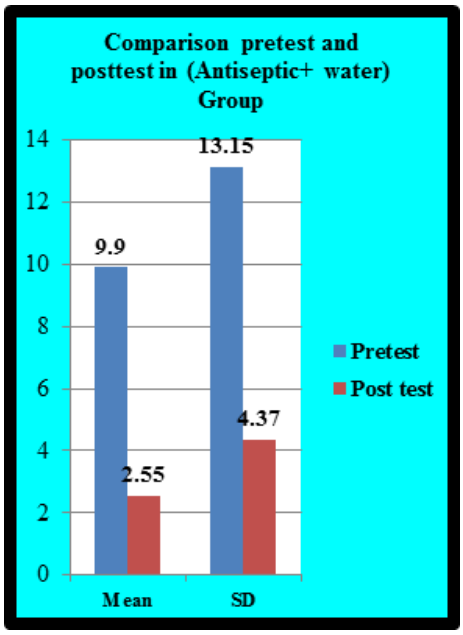

Figure 3: The findings represented that depicts analysis of pre test and post test of antiseptic soap hand washing on reduction of bacteriological growth. The pre test mean (9.9),standard deviation (13.15), and post test mean (2.55), standard deviation (4.37) for the experimental Group-II. The level of bacteriological growth in experimental group-II the is more after the procedure as compare to before procedure. The findings revealed that alcohol based hand rub is effective in reducing the level of bacteriological growth among B.Sc nursing students working in medical ward.

DISCUSSION:

The findings presented in the analysis of pre test and post test of alcohol based hand rub and antiseptic soap hand washing on reduction of bacteriological growth. The pre test mean (9.55) ,standard deviation (13.34), and post test mean (0.45), standard deviation (1.23), for the experimental group-I. And for the experimental Group-II the pre test mean (9.9),standard deviation (13.15), and post test mean (2.55), standard deviation (4.37). The level of bacteriological growth in experimental group-I is more before procedure, after handwashing with alcohol based hand rub the level of bacteriological growth is decreased after procedure in post test. But in experimental group-II the level of bacteriological growth is more after the procedure as compare to before procedure. The findings revealed that alcohol based hand rub is effective in reducing the level of bacteriological growth in B.Sc nursing students working in medical ward.

It also depicts alcohol based hand rub is effective in reducing the level of bacteriological growth by calculating t-test for which the t-value is (9.40) which is more than the tabulated value(1.73), which shows that there is significant difference in the bacteriological growth before and after the handwashing with alcohol based hand rub and antiseptic soap hand washing at 0.05 level 0f significance hence the research hypothesis (H1) is accepted. Review of hand hygiene recommendations from the World Health Organization, Centers for Disease Control, Association of the Scientific Medical Societies in Germany, and Commission for Hospital Hygiene and Prevention of Infection, Robert Koch Institute. Kampf, seems to have the strongest argument for using alcohol-based hand rubs versus soap and water. They show that hand rubs are “considerably more effective” than soap and water and “practically completely eliminated Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, and Staphylococcus epidermidis.” They do say, however, that unless

"high-ranking medical staff" and other senior staff members "set an example: junior doctors and nurses will think that hand disinfection cannot be very important.[5]

A randomized equivalence study was conducted to compare the effectiveness of hand-cleansing protocols in preventing surgical site infections during routine surgical practice in France. Six surgical services from teaching and nonteaching hospitals in France were chosen. The study concluded that Hand-rubbing with aqueous alcoholic solution, preceded by a 1-minute non antiseptic hand wash before each surgeon's first procedure of the day and before any other procedure if the hands were soiled, was as effective as traditional hand-scrubbing with antiseptic soap in preventing surgical site infections. The hand-rubbing protocol was better tolerated by the surgical teams and improved compliance with hygiene guidelines. Hand-rubbing with liquid aqueous alcoholic solution can thus be safely used as an alternative to traditional surgical hand-scrubbing.[6]

CONCLUSION:

After the detailed analysis, this study leads to following conclusion that The level of bacteriological growth in experimental group-I was more before procedure, Where as hand washing with alcohol based hand rub the level of bacteriological growth is decreased after procedure in post test. But in experimental group-II the level of bacteriological growth is more after the procedure as compare to before procedure. The findings revealed that alcohol based hand rub is effective in reducing the level of bacteriological growth in B.Sc nursing students working in medical ward.

SOURCE OF FUNDING

The funding for the study was self.

CONFLICT OF INTEREST: Nil.

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