



## Outcome of Demonstration Program on Hand Washing Technique among Nursing Staff in Dhiraj General Hospital

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## ABSTRACT

### Background of the study:

Thousands of people die every day around the world from infections acquired while receiving health care. Hands are the main pathways of germ transmission during health care. Hand hygiene is therefore the most important measure to avoid the transmission of harmful germs and prevent health care-associated infection. However studies have shown that hand washing practices are poor among nursing personnel.

### Objective :

To assess the knowledge and practice regarding hand washing techniques among nursing staff.

### Method :

A descriptive evaluative approach on 150 nursing staff with Probability Simple random sampling technique was used for this study.

### Results:

The mean post test knowledge score (12.48) was higher than the mean pre test knowledge score (6.72). The mean post test practice score (14.86) was higher than the mean pre test practice score (8.70).

### Conclusion:

The present study assessed the knowledge and practice among nursing staff regarding hand washing technique and found that nursing staff had inadequate knowledge and practice regarding hand washing technique. After the demonstration program was given on hand washing technique, there was significant improvement in knowledge and practice of nursing staff regarding hand washing technique. The study concluded that demonstration program was effective in improving the knowledge and practice of nursing staff regarding hand washing technique.

## KEYWORDS

*Hand hygiene, Knowledge, Practice, Demonstration program, Hand washing techniques*

## INTRODUCTION

Hand hygiene is defined as any method that removes or destroys microorganisms on hands. The most important measure for preventing the spread of pathogen is effective hand washing<sup>1</sup>. Medical hand washing is for a minimum of 15 seconds, using generous amount of soap and water or gel to lather and rub each part of the hand<sup>2</sup>. Medical hand hygiene pertains to the hygiene practices related to the

administration of medicine and medical care that prevents or minimizes disease and the spreading of disease. For control of staphylococcal infections in hospitals, it has been found that the greatest benefit from hand-cleansing came from the first 20% of washing, and that very little additional benefit was gained when hand cleansing frequency was increased beyond 35%<sup>3</sup>.



## OBJECTIVES

- To assess the knowledge regarding hand washing techniques among staff nurses in Dhiraj general hospital.
- To assess the practice regarding hand washing techniques among staff nurses Dhiraj general hospital.
- To find correlation between knowledge and practice of nurses about hand washing technique.
- To assess the effectiveness of demonstration program on hand washing procedure.

## HYPOTHESIS

1. There will be significant difference in knowledge and practice of staff nurses regarding hand washing techniques.
2. There will be significant increase in knowledge and practice of staff nurse regarding hand washing techniques after demonstration program.
3. There will be significant correlation between knowledge and practice of staff nurses regarding hand washing techniques

## MATERIALS AND METHOD

**Research approach:** A descriptive evaluative approach was used for the study.

**Research design:** Pre-experimental one group pre-test post-test design.

**Independent variable:** The independent variable in this study is demonstration on hand washing technique.

**Dependent variables:** The dependent variable in this study is knowledge and practice of nursing staff regarding hand washing technique.

**Target population:** In this study target population comprises of nursing staff who are working in Dhiraj General Hospital.

**Sample:** In this study the samples are nursing staff who are working in Dhiraj General Hospital

**Sample size:** The samples for this study are 150 staff nurses.

**Sampling technique:** Probability Simple random sampling technique was used for this study.

## CRITERIA FOR SELECTION OF THE SAMPLE

### a) Inclusion criteria.

- Staff nurses who are working in Dhiraj General Hospital.
- Staff nurses who are willing to participate in the study.
- Staff nurses available during data collection

### b) Exclusion criteria

- Staff nurses who are working in OT for more than one year.

## DEVELOPMENT OF THE TOOL

Tools were prepared on the basis of objectives of the study. A structured

**Table 1** Representation of study design

| Pre-test   | Intervention                             | Post-test   |
|--|--|---|
| Nursing staff Knowledge regarding hand washing technique before demonstration. | Demonstration on hand washing technique. | Knowledge regarding hand washing technique after demonstration. |

**Table 2** Demographic variables of nursing staff

| Characteristics           | Category          | Respondents |             |
|---------------------------|-------------------|-------------|-------------|
|                           |                   | Frequency   | Percentage% |
| Age group (years)         | 20-25 year        | 111         | 74          |
|                           | 26-30 year        | 24          | 16          |
|                           | 31-35 year        | 4           | 2.67        |
|                           | 35-40 year        | 2           | 1.33        |
|                           | 41 year and above | 9           | 6           |
|                           | <b>Total</b>      |             | <b>150</b>  |
| Gender                    | Male              | 24          | 16          |
|                           | Female            | 126         | 84          |
|                           | <b>Total</b>      | <b>150</b>  | <b>100</b>  |
| Educational qualification | Health Assistants | 28          | 18.66       |
|                           | ANM               | 31          | 20.66       |
|                           | GNM               | 30          | 20          |
|                           | BSc Nursing       | 61          | 40.66       |
|                           | <b>Total</b>      | <b>150</b>  | <b>100</b>  |
| Clinical experience       | 0-4 years         | 114         | 76          |
|                           | 5-9 years         | 18          | 12          |
|                           | 10-14 years       | 11          | 7.33        |
|                           | 15-19 years       | 1           | 0.66        |
|                           | 20 year and above | 6           | 4           |
| <b>Total</b>              | <b>150</b>        | <b>100</b>  |             |
| Name of working ward      | OPD               | 10          | 6.66        |
|                           | General           | 70          | 46.66       |
|                           | Critical          | 70          | 46.66       |
|                           | O.T.              | 0           | 0           |
| <b>Total</b>              | <b>150</b>        | <b>100</b>  |             |

knowledge questionnaire and practice check list was used to assess the knowledge and practice of nursing staff on hand washing technique.

#### The following steps carried out in preparing the tools are:

- Literature review -Preparation of blue print
- Expert's opinion from guide.

#### DESCRIPTION OF THE TOOL

The tool consisted of two sections

##### Section –A: Socio-demographic data

It consist of 5 items seeking information related to age, gender, qualification, year of experience and name of working ward will be administered.

**Section –B:** Structured knowledge questionnaire and practice check list on Hand washing technique.

#### SCORING PROCEDURE

It consists of 15 knowledge questionnaire and 18 check list points

- For each correct response score “one” will be assigned.



- For each response score “zero” will be assigned.
- The total minimum and maximum score of knowledge assessment and practice found to be “0” and “33”.

### SCORING INTERPRITATION

The total knowledge score obtained will be classified as follows,

- Inadequate:  $\leq 50\%$
- Moderate: 51-75%
- Adequate:  $>76\%$

## RESULTS AND DISCUSSION

### Section I: Description of demographic variables of the Nursing staff.

Despite the majority 111(74%) responds belongs to the age group of 20-25 years of age while in the age group of 25-30 years 24(16%) responds belongs to this category and 31-35 years 04(2.67%) responds and above 35-40 years 2(1.33%) respondent sand above 41 years and above age group respondents 9(6%) observed in this particular study. (Table 3, Figure 3)

**Table 3** Frequency and percentage distribution of nursing staff according to age group

| Characteristics   | Category         | Respondents |             |
|-------------------|------------------|-------------|-------------|
|                   |                  | Frequency   | Percentage% |
| Age group (years) | 20-25 year       | 111         | 74          |
|                   | 26-30 year       | 24          | 16          |
|                   | 31-35 year       | 4           | 2.67        |
|                   | 35-40 year       | 2           | 1.33        |
|                   | 41year and above | 9           | 6           |
|                   | <b>Total</b>     | <b>150</b>  | <b>100</b>  |

It is observed from the present study that majority 126 (84.00%) belonged to the Female, 24 (16.00%) were belonged to the Male. (Table 4, Figure 4)

The finding related to educational qualification of the staff nurse show that

higher response of the educational qualification ANM 31 is (20.66%), GNM were 30 (40.66%), and B.Sc. Nursing 61 (40.66%). (Table 5, Figure 5)

**Table 4** Frequency and percentage distribution of nursing staff according to gender

|        |              |            |            |
|--------|--------------|------------|------------|
| Gender | Male         | 24         | 16 %       |
|        | Female       | 126        | 84 %       |
|        | <b>Total</b> | <b>150</b> | <b>100</b> |

**Table 5** Frequency and percentage distribution of nursing staff according to educational qualification

|                           |                   |            |              |
|---------------------------|-------------------|------------|--------------|
| Educational Qualification | Health Assistants | 28         | 18.66 %      |
|                           | ANM               | 31         | 20.66 %      |
|                           | GNM               | 30         | 20 %         |
|                           | BSc Nursing       | 61         | 40.66 %      |
|                           | <b>Total</b>      | <b>150</b> | <b>100 %</b> |

The present study depicts that 18 (12.00%) have 5 to 9 years' experience, were 11 (7.33%) have 10 to 14 years' experience , 1 staff nurse have more 15-19 years'

experience 20 years and more 6 (4.00%). (Table 6, Figure 6)

It is found in the present study that 70 (46.66%) worked in Critical area, 70



(46.66%) worked in O.T, 150(100.00%) working in OPD and 10 (6.66%) worked in

general ward. (Table 7, Figure 7).

**Table 7**

**Table 6** Frequency and percentage distribution of nursing staff according to clinical experience

| Clinical Experience | 0-4 years         | 114        | 76 %        |
|---------------------|-------------------|------------|-------------|
|                     | 5-9 years         | 18         | 12%         |
|                     | 10-14 years       | 11         | 7.33%       |
|                     | 15-19 years       | 1          | 0.66%       |
|                     | 20 year and above | 6          | 4%          |
| <b>Total</b>        |                   | <b>150</b> | <b>100%</b> |

**Table 7** Frequency and percentage distribution of nursing staff according to working ward

| Name of working ward | OPD      | 150        | 100        |
|----------------------|----------|------------|------------|
|                      | General  | 10         | 6.66       |
|                      | Critical | 70         | 46.66      |
|                      | O.T.     | 70         | 46.66      |
| <b>Total</b>         |          | <b>100</b> | <b>100</b> |

## Section II: To assess the level of knowledge and practice of nursing staff regarding hand washing procedure.

The data about existing knowledge of staff nurses regarding hand washing shows that majority 98(65.33%) staff nurses have Inadequate knowledge, 48(32%) staff nurses have Moderate knowledge and 4(2.66%)staff nurse has adequate knowledge. (Table 8, Figure 8)

The data about post-test knowledge of staff nurses regarding Hand washing shows that majority 78(52.33%) staff nurses have adequate knowledge, 72(48%) staff nurses

have Moderate knowledge. (Table 9, Figure 9)

There is a comparison of pre test and post test level of knowledge of staff nurses regarding Hand washing in Table 10, figure 10.

The data about existing practice of staff nurses regarding Hand washing technique shows that majority 103(68.66%) staff nurses have inadequate practice, 43(28.66%) staff nurses have Moderate practice and 4(2.66%) staff nurse has adequate practice. (Table 11, Figure 11)

**Table 8** Frequency and percentage distribution of nursing staff's pre test level of knowledge

| Knowledge Level | Respondents |             |
|-----------------|-------------|-------------|
|                 | Number      | Percentage% |
| Inadequate      | 98          | 65.33%      |
| Moderate        | 48          | 32%         |
| Adequate        | 4           | 2.66%       |
| <b>Total</b>    | <b>150</b>  | <b>100%</b> |

**Table 9** Frequency and percentage distribution of nursing staff's post test level of knowledge

| Knowledge Level | Respondents |              |
|-----------------|-------------|--------------|
|                 | Number      | Percentage % |
| Inadequate      | 00          | 00%          |
| Moderate        | 72          | 48.00%       |
| Adequate        | 78          | 52%          |
| <b>Total</b>    | <b>150</b>  | <b>100%</b>  |

**Table 10** Frequency and percentage distribution in comparison of pre test and post test level of knowledge

| Knowledge Level | Respondents |             |            |             |
|-----------------|-------------|-------------|------------|-------------|
|                 | Number      | Percent%    | Number     | Percentage% |
| Inadequate      | 98          | 65.33%      | 00         | 00%         |
| Moderate        | 48          | 32%         | 72         | 48.00%      |
| Adequate        | 4           | 2.66%       | 78         | 52%         |
| <b>Total</b>    | <b>150</b>  | <b>100%</b> | <b>150</b> | <b>100%</b> |

**Table 11** Frequency and percentage distribution of nursing staff's pre test level of practice

| Practice Level | Respondents |              |
|----------------|-------------|--------------|
|                | Number      | Percentage % |
| Inadequate     | 103         | 68.66%       |
| Moderate       | 43          | 28.66%       |
| Adequate       | 04          | 2.66%        |
| <b>Total</b>   | <b>150</b>  | <b>100%</b>  |

The data about post-test practice of staff nurses regarding Hand washing technique shows that majority 134 (89.33%) staff nurses have adequate practice, 16(10.66%) staff nurses have Moderate practice. (Table 12, Figure 12)

There is a comparison of pre test and post test level of practice of staff nurses regarding Hand washing technique in Table 13, figure 13.

### **Section III: Outcome of demonstration program regarding knowledge and practice of hand washing on nursing staff.**

The data from the table 14 shows that in pretest, staff nurses were having on average 44.8 % knowledge regarding Hand Washing and mean score was  $6.72 \pm 1.81$  and in post-test, average 83.2% knowledge regarding Hand Washing and mean score was  $12.48 \pm 1.19$ .

T calculated value is 21.064 which is more than the tabulated value of 1.660 at 0.05 level of significance. So we accept  $H_1$  and

conclude that there is significant difference between pre-test and post- test knowledge score of staff nurses. It shows the very highly significant and association between pre-test and post-test knowledge score regarding Hand Washing . Hence research hypothesis  $H_1$  is accepted.

The data from the table 15 shows that in pretest, staff nurses were having on average 48.33 % practice regarding Hand Washing technique and mean score was  $8.72 \pm 1.81$  and in post-test, average 82.2% practice regarding Hand Washing technique and mean score was  $14.86 \pm 1.08$ .

T calculated value is 42.54 which is more than the tabulated value of 1.660 at 0.05 level of significance. So we accept  $H_1$  and conclude that there is significant difference between pre-test and post- test practice score of staff nurses. It shows the very highly significant and association between pre-test and post-test practice score regarding Hand Washing . Hence research hypothesis  $H_2$  is accepted.



#### **Section IV : To find out co-relation between knowledge and practice of staff nurse about hand washing technique.**

The correlation statistical analysis which revealed 99% correlation between pretest knowledge and skill. Hence found significant. (Table 16)

The correlation statistical analysis revealed 100% correlation between posttest knowledge and skill. Hence found significant. (Table 17)

Thus as pretest and posttest knowledge and skill were found to have high significant correlation so H<sub>3</sub> was accepted statistically. There is a pre test and post test knowledge and practice score comparison in figure 14.

#### **CONCLUSION**

The present study assessed the knowledge and practice among nursing staff regarding hand washing technique and found that nursing staff had inadequate knowledge and practice regarding hand washing technique. After the demonstration program was given on hand washing technique, there was significant improvement in knowledge and practice of nursing staff regarding hand washing technique. The study concluded that demonstration program was effective in improving the knowledge and practice of

nursing staff regarding hand washing technique.

T calculated value for knowledge score is 21.064 and for practice score is 42.54 which is more than the tabulated value of 1.660 at 0.05 level of significance. Hence the researchers accepted H<sub>1</sub> and concluded that there is significant difference between pre-test and post- test knowledge score of staff nurses regarding hand washing techniques.

The mean post test knowledge score (12.48) was higher than the mean pre test knowledge score (6.72). The mean post test practice score (14.86) was higher than the mean pre test practice score (8.70). Hence the researchers accepted H<sub>2</sub> and concluded that there is significant increase in knowledge and practice of staff nurse regarding hand washing techniques after demonstration program.

The correlation statistical analysis which revealed 99% correlation between pretest knowledge and skill and 100% correlation between posttest knowledge and skill. Hence the researchers accepted H<sub>3</sub> and concluded that there is significant correlation between knowledge and practice of staff nurses regarding hand washing techniques.





# ETHICAL COMMITTEE CERTIFICATE

## Sumandeep Vidyapeeth

### Institutional Ethics Committee (SVIEC)

Declared as deemed to be university u/s 3 of UGC act of 1956  
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Mr. Amul Joshi  
Social worker, The MNDS Foundation

Ms. Dhara Mehta  
Liaison

Date: 25<sup>th</sup> June 2016

SUMANDEEP VIDYAPEETH

INSTITUTIONAL ETHICS COMMITTEE

OUTWARD SVIEC/01/Nurs/SRP/16040

DATE: 05.06.16

SIGN: *Niraj*

**Ref:** Your study synopsis entitled "Outcome of demonstration program on hand washing technique among nursing staff in Dhiraj General Hospital." Submitted to the SV IEC for approval.

**Sub:** Approval for conducting the referenced study

Dear Mr. Ravindra,

The Sumandeep Vidyapeeth Institutional Ethics Committee (SV IEC) is in receipt of your above mentioned study document and as the research study classifies in the minimal risk category; as recommended by HRRP Nursing college. The SV IEC approves your study to be conducted in the presented form.

The approval remains valid for a period of 1 year. In case the study is not initiated within one year, the Ethics Committee expects to be informed about the reason for the same and a fresh approval will have to be obtained subsequently.

The Sumandeep Vidyapeeth Institutional Ethics Committee expects to be informed about the progress of the study (every 6 months), any Serious Adverse Event (SAE) occurring in the course of the study, and if any changes are made in the protocol or patient information/informed consent the SVIEC needs to be informed about this in advance and an additional permission is required to be taken. The SV IEC also requires you to submit a copy of the final study report.

The SVIEC has noted the following students of 3<sup>rd</sup> Year B.Sc Nursing would be conducting the study, under the guidance of Mr. Ravindra H.N

1. Mr. Anil Bhargav
2. Mr. Bhalendra Abhikumar
3. Ms. Chaudhari Urja
4. Ms. Chaudhari Krishna
5. Ms. Gondaliya Abhilesha

**Dr. Niraj Pandit**  
Sumandeep Vidyapeeth  
**MEMBER SECRETARY**  
Institutional Ethics Committee

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SVIEC is the ethics committee of Sumandeep Vidyapeeth. The constitutional colleges of SV are SBKS Medical Institute & Research Centre; K. M. Shah Dental College & Hospital, Sumandeep Nursing College, College of Physiotherapy, Department of Pharmacy and School of Management.



## REFERENCES

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