"THE EFFECTIVENESS OF NORMAL SALINE MOUTH WASH ON PREVENTION OF ORAL MUCOSITIS AMONG PATIENTS RECEIVING CHEMOTHERAPY"

Author: Dr. Dinesh Kumar Rai, Assistant Professor, Rawatpura College of Nursing, Shahdol

ABSTRACT

Introduction - The abnormal and uncontrolled division of cells causes cancer which invades and destroy the surrounding tissues. Cancer is often thought of an untreatable, unbearably painful disease with no cure. However, popular views of cancer may be exaggerated and over generalized. **Methods**: The research approach adopted for this study was quantitative evaluative approach. The research design adopted for this study was Quasi - experimental posttests only control group design. The Non-Probability purposive sampling technique was used in this study. **Result:** In experimental group after giving normal saline mouth wash. On 10th day one subject (3.33%) had developed moderate oral mucositis, and another one subject (3.33%) had developed mild oral mucositis. O n 10th day, 2 (6.67%) of the samples had developed severe oral mucositis, 27 (90%) of the samples had developed moderate oral mucositis and one subject (3.3%) had developed mild oral mucositis inthe control group. The mean difference between experimental and control group on 7th day was 1.667, 8 day was 2.1336, 9th day was 2.1 and 10th day was 2.4994. Calculated the 't' value on 7th day was 11.80035219 on 8th day t value was 3.78760275, on 9th day t value was 4.526250023, and on 10th day t value was 25.54773056. In control group the chi-square value for the occupation x^2=20.750, frequency of brushing x^2=11.737, stages of cancer x^2=30.646, chemotherapy x^2=15.124, and duration of illness x^2=17.716. In experimental group the chi square value of the frequency of mouth wash x^2=19.551, stages of cancer x^2=23.772, chemotherapy x^2 =19.362, and duration of illness x^2 =19.812. **Conclusion**: "A perfect stitch makes a perfect body". The research findings of the present study have proved that the normal saline mouth wash is effective in preventing the client from the occurrence of

oral mucositis among those who are receiving chemotherapy. Thus it is getting from the verb that, "prevention is better than cure". the nurse who is taking care of a client can prevent their clients from oral mucositis thus preserves the client self image and gives way to the client to be esteemed one.

Keywords: H: Hypothesis, df: degree of freedom

Introuction: Normally the rate at which an organ grow and when it should stop growing is under the control of body itself. The abnormal and uncontrolled division of cells causes cancer which invades and destroy the surrounding tissues. Cancer is often thought of an untreatable, unbearably painful disease with no cure. However, popular views of cancer may be exaggerated and over generalized. Nurse is a vital person in identifying and educating the patients who are at risk for developing chemotherapy (or) radiation therapy induced mucositis. Prompt identification and initiation of treatment will help the patient to control the mucositis and to improve the prognosis. So nursing care should include the oral hygiene assessment and management with normal saline mouth wash.

NEED FOR THE STUDY

During the investigator's clinical experience she noticed, patients who have postponed their treatment for the reason of mucositis and immune suppression which otherwise won't occur if they maintains regular oral hygiene practice and good nutrition. So, the researcher intended to do a study on effectiveness of normal saline gargle and oral hygiene practice in preventing   mucositis.

OBJECTIVES OF THE STUDY

1. To assess the degree of occurrence of oral mucositis among patients receiving chemotherapy who receive normal saline mouth wash.

2. To assess the degree of occurrence of oral mucositis among patients receiving chemotherapy who do not receive normal saline mouth wash

3. To evaluate the effectiveness of normal saline mouth wash by comparing the occurrence of oral mucositis among the patients of experimental group and control group.

4. To find out the association between the occurrence of oral mucositis among patients and their selected demographic variables.

HYPOTHESIS

The following hypotheses are formulated for the study.

H_1 - There will be significant reduction in the occurrence of oral mucositis forthose receiving normal saline mouth wash.

❖ Patient receiving chemotherapy will develop mucositis from 4-5 days oftreatment.

❖ Normal saline mouth wash will have a therapeutic effect in preventingchemotherapy induced oral mucositis.

OPERATIONAL DEFINITION

• **Chemotherapy** - refers to the use of cytotoxic drugs to treat patients diagnosed with cancer.

• **Oral mucositis** - refers to the soreness and erythema of oral mucosa occurring as a side effect of chemotherapy which can be assessed using WHO mucositis assessment scale and patient judged mucositis grading scale developed by

• **Normal saline mouth wash** – rinsing the oral cavity with 0.9% sodium chloride solution at room temperature.

• **Effectiveness** - Reduction in the occurrence of oral mucositis as assessedby using WHO scale for assessing oral mucositis and patient judged oral mucositis grading scale after the administration of saline mouth wash.

• **Prevention** - The management of those factors that could lead to oral mucositis so as to prevent the occurrence of the oral mucositis.

LIMITATIONS

❖ The study is limited to those who are receiving chemotherapy.

❖ The study is limited to 2 weeks period only.

❖ To those who are willing to participate.

❖ Limited to only those patients who are receiving chemotherapy during the data collection period.

METHODOLOGY

RESEARCH APPROACH: The research approach adopted for the study was quantitative (Evaluative) approach.

RESEARCH DESIGN: The research design adopted for the study was Quasi Experimental – Post test only control group design.

SAMPLE: The samples for this study included all cancer patients those who are receiving chemotherapy at Rawatpura Hospital, Shahol.

SAMPLE SIZE: Total sample is 60.

➢   **Experimental group:** 30 samples have been grouped as experimental group who received normal mouth wash.

➢   **Control group:** 30 samples have been grouped as control group, who have not received normal saline mouth wash.

SAMPLING TECHNIQUE: In this study non-probability sampling technique was used .

SITE OF THE STUDY: The site of this study was Rawatpura Hospital, Shahol.

SETTING OF THE STUDY: The setting of this study was General ward at Rawatpura Hospital, Shahol.

**CRITERIA FOR SELECTION OF SAMPLE:**

Inclusion criteria:

➢ Patients without oral cancer

➢ Patients who are willing to participate in this study.

➢ Patients who are able to follow instruction.

Exclusion criteria:

➢ Patients who have already have extensive severe mucositis.

➢ Patients who are receiving chemotherapy for more than 4 days.

➢ Patients with the habits of tobacco chewing.
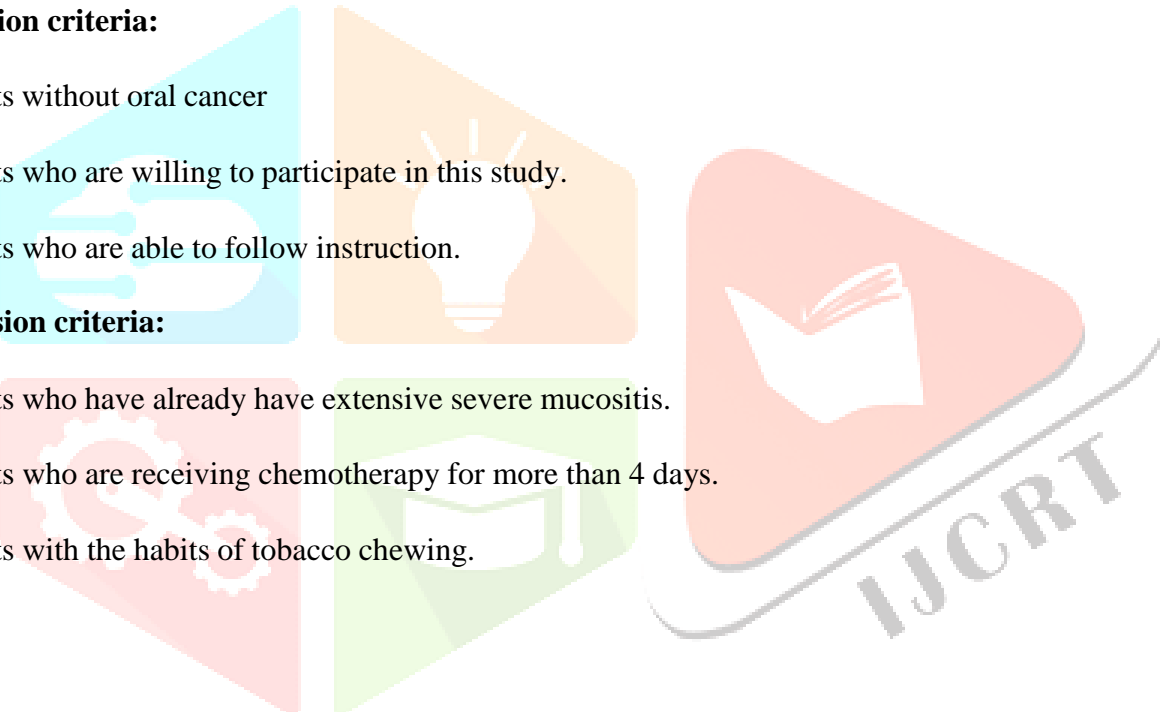
Result:

Description of study subjects by socio-demographiccharacteristics

N = 60

S. No.	Demographic Variables	Experimental Group		Control Group	
		F	**%**	**F**	**%**
1	**Age (in years)**				
	a) 18-29	6	20%	6	20%
	b) 30-41	9	30%	8	26.6%
	c) 42-53	11	36.6%	11	36.6%
	d) 54-65	4	13.3%	5	16.6%
2	**Sex**				
	a) Male	11	36.6%	9	30%
	b) Female	19	63.3%	21	70%
3	**Occupation**				
	a) Cooly	17	56.66%	18	60%
	b) Business man	3	10%	3	10%
	c) Private employee	5	16.6%	5	16.6%
	d) Govt. employee	5	16.6%	4	13.3%
4	**Frequency of mouth wash**				
	a) Once a day	2	6.66%	7	23.3%
	b) Twice a day	4	13.3%	9	30%
	c) Every time after eating	24	80%	14	46.6%
	d) Any specific	-	-	-	-
5	**Frequency of Brushing**				
	a) Once a day	9	30%	24	80%
	b) Twice a day	17	56.66%	6	20%
	c) Every time after eating	4	13.3%	-	-
	d) Any specific	-	-	-	-
S. No.	Demographic Variables	Experimental Group		Control Group	
		F	**%**	**F**	**%**
6	**Personal habits**				
	a) Smoking	7	23.3%	6	20%
	b) Alcoholism	4	13.3%	1	3.33%
	c) Betal chewing	19	63.3%	23	76.6%
7	**Chemotherapy drugs**				
	a) Cisplatin	8	26.66%	13	43.3%
	b) Cyclophosphamide	7	23.3%	5	16.6%
	c) Docetaxel	6	20%	4	13.3%
	d) Vinblastine sulphate	9	30%	8	26.6%

8	Stages of cancer				
	a) I	7	23.3%	2	6.6%
	b) II	20	66.66%	9	30%
	c) III	3	10%	19	63.3%
	d) IV	0	0%	0	0%
9	Received chemotherapy				
	a) 1-5 times	11	36.66%	4	13.3%
	b) 5-10 times	17	56.66%	5	16.6%
	c) 10-15 times	2	6.66%	12	40%
	d) Above – 15 times	0	0%	9	30%
10	What is the duration of illness?				
	a) Less than 1 yr	7	23.3%	2	6.6%
	b) 1-4 yrs	21	70%	13	43.3%
	c) 4-8 yrs	2	6.66%	11	36.6%
	d) Above 8 yrs	0	0%	4	13.3%
11	Types of cancer				
	a) Thyroid cancer	10	33.33%	9	30%
	b) Breast cancer	7	23.3%	5	16.6%
	c) Cancer of cervix	9	30%	14	46.6%
	d) Lung cancer	4	13.33%	2	6.6%

SECTION – II

Day-by day scores of oral mucositis of control group

Day	Minimumscore	Maximumscore	Mean	Mean %	S.D
I	0	4	0	0	0
II	0	4	0.2	5	0.4068
III	0	4	0.3666	2.29	0.6296
IV	0	4	0.5666	14.165	0.6260
V	0	4	1	25	0.7877
VI	0	4	1.3333	33.3325	0.6607
VII	0	4	1.7	42.5	0.7943
VIII	0	4	2.1666	54.165	0.5085
IX	0	4	2.4	60	2.8342
X	0	4	2.6666	66.65	0.6608

Day-by day scores of oral mucositis of experimental group

Day	Minimumscore	Maximumscore	Mean	Mean %	S.D
I	0	4	0	0	0
II	0	4	0	0	0
III	0	4	0	0	0
IV	0	4	0	0	0
V	0	4	0	0	0
VI	0	4	0	0	0
VII	0	4	0.033	0.8325	0.1795
VIII	0	4	0.033	0.8325	0.1795
IX	0	4	0.0666	1.665	0.2451
X	0	4	0.1666	4.165	0.3865

Line diagram showing the comparison of mean percentage scoreobtained oral mucositis scale
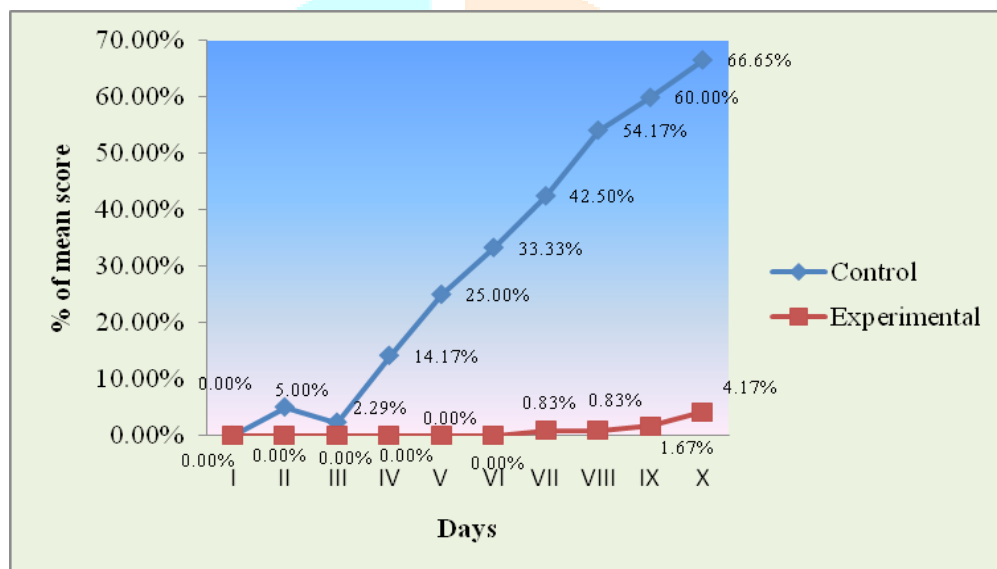
The above diagram shows that, in experimental group the mean score on1 day to VII day 0, on the VII-day 0.033, on the VIII-day 0.033, on the IX day 0.06666 and on the X day 0.1666. In control group the mean score on the II day0.2, on the III day 0.3666, on the IV day 0.5666, on the V day 1, on the VI day 1.3333, on the VII day 1.7 on the VIII day, on the IX day 2.4 and on the X day 2.666.

Grading of oral mucositis on the 10th day among control group

Grade	Number of sample	%
None (0)	0	0%
Mild (0-1)	1	3.3%
Moderate (2-3)	27	90%
Severe (4)	2	6.67%

Cylindrical diagram shows the level of mucositis on control group
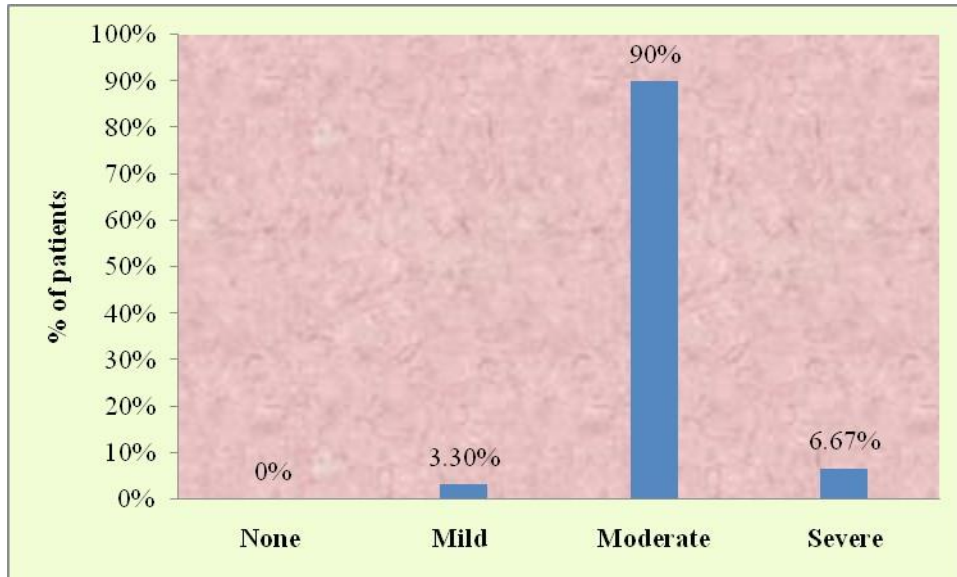
The above diagram shows that, in control group on 10th day none of patients are without oral mucositis, 3.30% of patients have developed mild grade, of oral mucositis, 90% of patients have developed moderate grade of oral mucositis, 90% of patients have developed moderate grade of oral mucositis and 6.67% of patients have developed severe grade of oral mucositis.

Grading of oral mucositis on the 10th day amongExperimental group

Grade	Number of sample	%
None (0)	26	86.67%
Mild (0-1)	3	10%
Moderate (2-3)	1	3.33%
Severe (4)	0	0%

Conical diagram shows the level of mucositis onExperimental group
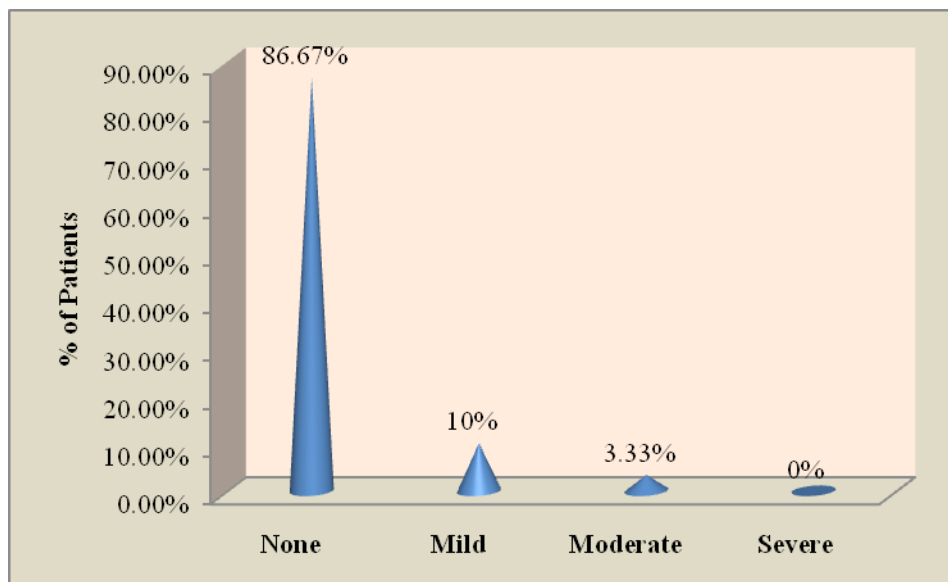
The above diagram shows that, in experimental group on 10th day 10% of patients have developed mild grade of oral mucositis and 3.33% of patients have developed moderates grade of oral mucositis.

SECTION - III

Day – by – day comparison of grading of oral mucositis betweencontrol group and experimental group

Day	Group	Mean	Mean Difference	S.D	't' value	Significance
I	Experimental		-	-	-	-
	Control					
II	Experimental		-	-	-	-
	Control					
III	Experimental		-	-	-	-
	Control					
IV	Experimental		-	-		-
	Control					
V	Experimental		-	-	-	-
	Control					
VI	Experimental		-		-	-
	Control					
VII	Experimental	0.033	1.667	0.5758179	11.212345	Significant
	Control	1.7				
VIII	Experimental	0.033	2.1336	0.3813085	3.34416858	Significant
	Control	2.1666				
IX	Experimental	0.0666	2.1	2.0116112	4.4928805	Significant
	Control	2.1666				
X	Experimental	0.1666	2.4994	0.5413126	17.887014	Significant
	Control	2.666				

Association between grading of oral mucositis on 10th day ofcontrol group and demographic variables

S. No.	Demographic Variables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
1.	Age (in years)									$\chi^2 = 8.743$ Df=6	Not Significant P>0.05
	a) 18-29	0	0	1	16.67	5	83.33	0	0		
	b) 30-41	0	0	0	0	8	100	0	0		
	c) 42-53	0	0	0	0	9	81.81	2	18.19		
	d) 54-65	0	0	0	0	5	100	0	0		
2.	Sex									$\chi^2 = 2.928$ Df=2	Not Significant P>0.05
	a) Male	0	0	1	11.11	8	88.89	0	0		
	b) Female	0	0	0	0	19	90.48	2	9.52		
3.	Occupation									$\chi^2 = 20.750$ Df=6	gnificant P<0.05
	a) Cooly	0	0	0	0	17	94.44	1	1.55		
	b) Business man	0	0	0	0	3	100	0	0		
	c) Private employee	0	0	1	20	3	60	1	20		
	d) Govt. employee	0	0	0	0	4	100	0	0		
4.	Frequency of mouth wash									$\chi^2 = 4.726$ Df=6	Not Significant P>0.05
	a) Once a day	0	0	0	0	7	100	0	0		
	b) Twice a day	0	0	1	11.11	8	88.88	0	0		
	c) Every time after eating	0	0	0	0	12	85.71	2	14.28		
	d) Any specific	0	0	0	0	0	0	0	0		

S. No.	Demographic Variables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
5	Frequency of Brushing									$\chi^2 = 11.737$ Df=3	gnificant P<0.05
	a) Once a day	0	0	0	0	22	91.67	2	8.33		
	b) Twice a day	0	0	0	0	5	83.33	0	0		
	c) Every time after eating	0	0	0	0	0	0	0	0		
	d) Any specific	0	0	0	0	0	0	0	0		
6	Personal habits										

	a) Smoking	0	0	1	16.66	5	83.33	0	0	$x^2 =$ 4.753 Df=4	Not Significant P>0.05
	b) Alcoholism	0	0	0	0	1	100.00	0	0		
	c) Betal chewing	0	0	0	0	21	91.30	2	8.69		
7	Chemotherapy drugs										
	a) Cisplatin	0	0	0	0	12	92.30	1	7.692	$x^2 =$ 5.017 Df=6	Not Significant P>0.05
	b) Cyclophosphamide	0	0	0	0	4	80	1	20		
	c) Docetaxel	0	0	0	0	4	100	0	0		
	d) Vinblastinesulphate	0	0	1	12.5	7	87.5	0	0		
8	Stages of cancer										
	a) I	0	0	1	50	1	50	0	0	$x^2 =$ **30.946** **Df=6**	**gnificant P<0.05**
	b) II	0	0	0	0	9	100	0	0		
	c) III	0	0	0	0	17	89.48	2	10.52		
	d) IV	0	0	0	0	0	0	0	0		
9	Received chemotherapy										
	a) 1-5 times	0	0	1	25	3	75	0	0	$x^2 =$ **15.124** **Df=6**	**gnificant P<0.05**
	b) 5-10 times	0	0	0	0	5	100	0	0		
	c) 10-15 times	0	0	0	0	10	83.3	2	16.66		

d) Above 15 times	0	0	0	0	9	100	0	0		

S. No.	DemographicVariables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
10	What is the duration of illness?										
	a) Less then 1 yr	0	0	1	50	1	50	0	0	χ^2 = 17.714 Df=6	gnificantP<0.05
	b) 1-4 yrs	0	0	0	0	13	100	0	0		
	c) 4-9 yrs	0	0	0	0	10	90.90	1	9.09		
	d) Above 8 yrs	0	0	0	0	3	75	1	25		
11	Types of cancer										
	a) Thyroid cancer	0	0	1	11.11	8	88.88	0	0	χ^2 = 4.726 Df=6	Significant P<0.05
	b) Breast cancer	0	0	0	0	5	100	0	0		
	c) Cancer ofcervix	0	0	0	0	12	85.71	2	14.28		
	d) Lung cancer	0	0	0	0	2	100	0	0		

The above table shows that in control group there is significant relationship between prevention of oral mucositis and demographic variables occupation, frequency of brushing, stages of cancer, chemotherapy and duration of illness. There is no significant relationship between prevention of oral mucositis and demographic variables age, sex, mouth wash, personal habits, chemotherapy drugs, and types of cancer.

ation between grading of oral mucositis on 10th day ofExperimental group and demographic variables

S. No.	DemographicVariables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
1.	Age (in years)										
	a) 18-29	5	83.3	1	16.7	0	0	0	0	χ^2 = 7.285 Df=6	Not Significant P>0.05
	b) 30-41	8	88.9	1	11.1	0	0	0	0		
	c) 42-53	10	90.9	1	9.1	0	0	0	0		
	d) 54-65	3	75	0	0	1	25	0	0		
2.	Sex									χ^2 = 1.786 Df=2	Not Significant P>0.05
	a) Male	9	81.8	2	18.2	0	0	0	0		
	b) Female	17	89.47	1	5.26	1	5.26	0	0		

3.	Occupation									$x^2 =$ 2.343 Df=6	Not Significant P>0.05
	a) Cooly	14	82.35	2	11.76	1	5.89	0	0		
	b) Business man	3	100	0	0	0	0	0	0		
	c) Private employee	5	100	0	0	0	0	0	0		
	d) Govt. employee	4	80	1	20	0	0	0	0		
4.	Frequency of mouth wash									$x^2 =$ **29.239 Df=6**	**gnificant P>0.05**
	a) Once a day	0	0	3	75	1	25	0	0		
	b) Twice a day	4	100	0	0	0	0	0	0		
	c) Every time after eating	22	91.7	0	0	0	0	0	0		
	d) Any specific	0	0	0	0	0	0	0	0		

S. No.	emographicVariables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
5	Frequency of Brushing									$x^2 =$ 4.259 Df=4	Not Significant P>0.05
	a) Once a day	8	88.9	0	0	1	11.11	0	0		
	b) Twice a day	15	88.23	2	11.77	0	0	0	0		
	c) Every time after eating	3	75	1	25	0	0	0	0		
	d) Any specific	0	0	0	0	0	0	0	0		
6	Personal habits									$x^2 =$ 2.114 Df=4	Not Significant P>0.05
	a) Smoking	6	85.71	1	14.29	0	0	0	0		
	b) Alcoholism	3	75	1	25	0	0	0	0		
	c) Betal chewing	17	89.48	1	5.26	1	5.26	0	0		
7	Chemotherapy drugs									$x^2 =$ 5.474 Df=6	Not Significant P>0.05
	a) Cisplatin	7	87.5	1	12.5	0	0	0	0		
	b) Cyclophosphamide	7	100	0	0	0	0	0	0		
	c) Docetaxel	4	66.6	1	16.7	1	16.7	0	0		
	d) Vinblastine sulphate	8	88.8	1	11.1	0	0	0	0		
8	Stages of cancer									x^2 **23.772 Df=4**	**gnificant P<0.05**
	a) I	6	85.71	1	14.29	0	0	0	0		
	b) II	20	100	0	0	0	0	0	0		
	c) III	0	0	2	66.7	1	33.3	0	0		
	d) IV	0	0	0	0	0	0	0	0		
9	Received chemotherapy									$x^2 =$ **19.362**	**gnificant**
	a) 1-5 times	10	90.91	1	9.09	0	0	0	0		
	b) 5-10 times	16	94.11	1	5.89	0	0	0	0		

c) 10-15 times	0	0	1	50	1	50	0	0 Df=4	P<0.05
d) Above 15 times	0	0	0	0	0	0	0	0	

S. No.	Demographic Variables	Grading of oral mucositis								Chi-Square Value	Significance
		No Mucositis		Mild Mucositis		Moderate Mucositis		Severe Mucositis			
		N	%	N	%	N	%	N	%		
10	What is the duration of illness?									$\chi^2 =$ 19.812 Df=4	gnificant P<0.05
	a) Less than 1 yr	6	85.7	1	14.3	0	0	0	0		
	b) 1-4 yrs	20	95.23	1	4.77	0	0	0	0		
	c) 4-9 yrs	0	0	1	50	1	50	0	0		
	d) Above 8 yrs	0	0	0	0	0	0	0	0		
11	Types of cancer									$\chi^2 =$ 4.409 Df=4	Not Significant P>0.05
	a) Thyroid cancer	9	90	1	10	0	0	0	0		
	b) Breast cancer	6	85.71	1	14.29	0	0	0	0		
	c) Cancer of cervix	8	88.8	0	0	1	11.2	0	0		
	d) Lung cancer	3	75	1	25	0	0	0	0		

The above table shows that in experimental group there is significant relationship between prevention of oral mucositis and demographic variables frequency of mouth wash, stages of cancer, chemotherapy and duration of illness. There is no significant relationship between prevention of oral mucositis and demographic variables age, sex, occupation, frequency of brushing, personal habits, chemotherapy drugs, and types of cancer.

CONCLUSION:

"A perfect stitch makes a perfect body". The research findings of the present study have proved that the normal saline mouth wash is effective in preventing the client from the occurrence of oral mucositis among those who are receiving chemotherapy. Thus it is getting from the verb that, "prevention is better than cure", the nurse who is taking care of a client can prevent their clients from oral mucositis thus preserves the client self image and gives way to the client to be esteemed one.

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