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EFFECTIVENESS OF ORAL TOPICAL APPLICATION OF NATURAL HONEY IN THE MANAGEMENT OF CHEMOTHERAPY INDUCED ORAL MUCOSITIS AMONG CANCER CLIENTS AT SELECTED HCG MNR CANCER CENTRE, ONGOLE."

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***Abstract*:** Oral mucositis is a common and painful complication of chemotherapy, characterized by ulcers, inflammation, and an increased risk of infection, significantly affecting patient outcomes. This study aimed to assess the severity of oral mucositis in cancer patients undergoing chemotherapy, evaluate the effectiveness of topical honey in managing this condition, and examine the association between post-intervention scores and selected variables in both experimental and control groups. A true experimental pre-test post-test control group design was employed, with sixty cancer patients randomly assigned to either the experimental group (honey intervention) or the control group (no intervention). The severity of oral mucositis was assessed using the Common Terminology Criteria for Adverse Events (CTCAE) scale, with weekly post-tests conducted over four weeks. Chi-square analysis indicated no significant differences in demographic and clinical variables between groups. The experimental group's mean pre-test mucositis score was 62.60(SD=13.0), significantly reducing to 18.40(SD=7.1) post-test, while the control group's score increased from 57.33 (SD=15.22) to 77.93 (SD=11.2). A paired t-test revealed a highly significant reduction in mucositis severity in the experimental group ($t=6.81$, $p<0.01$), with a calculated t-value of 6.81 exceeding the critical value of 2.04, indicating a statistically significant difference at the 95% confidence level. The findings demonstrate that topical application of honey is an effective, cost-effective, and accessible treatment for chemotherapy-induced oral mucositis among cancer patients.

Keywords: Oral mucositis, Chemotherapy, honey application

I. INTRODUCTION: Oral mucositis is inflammation of the mucosal surfaces and manifest as erythema, inflammation, Ulceration, and hemorrhage in the mouth and throat. Despite that, mucositis is not a life-threatening condition but may increase sepsis rate and bleeding together with poor outcome, more hospital cost, antibiotic and analgesics over usage, chemotherapy-induced mucositis frequently occurs during treatment of patients with cancer who received immunosuppressive agents. Painful ulcers often necessitate administration of sedative or anti-inflammatory agents.[1]

Burden of Cancer in Indian 2022, the projected number of new cancer cases in India was 1,461,427, with a crude incidence rate of 100.4 per 100,000 individuals. Approximately one in nine people in India is expected to face a cancer diagnosis during their lifetime.

According to GLOBOCAN, in 2022, the estimated incidence rate for men was 14.7 per 100,000, while for women in India, it was 5.0. For men in India, oral cancer is the major cancer, while for women; oral cancer is the fourth major cancer after breast, cervix and ovary.

Between 20% to 40% of patients with solid tumors receiving chemotherapy, develop mucositis, usually within five to fourteen days of starting treatment. The incidence and severity of mucositis vary between chemotherapeutic agents, the number of chemotherapy cycles, the dose of chemotherapy, and from patient to patient. Patients who receive myeloablative preparations for hematopoietic stem cell transplant have a higher incidence of oral mucositis. One study reported that patients who receive high doses of chemotherapy or undergo bone marrow transplantation have a 76% risk of mucositis. Radiation-induced oral mucositis (RIOM) occurs in 100% of altered fractionation radiotherapy head and neck cancer patients the frequency of mucositis is higher in patients with poor nutritional status and inadequate oral care. Younger age patients may have a higher incidence of oral mucositis.

II. OBJECTIVES:

1. To assess the level of oral mucositis among cancer patients receiving chemotherapy.
2. To evaluate the effectiveness of topical application of honey in management of chemotherapy induced oral mucositis among cancer patients in experimental and control group.
3. To determine the association between post interventional score with their selected variables among experimental and control group.

III. METHODOLOGY:

a) Materials& Methods:

A true experimental pre-test post-test control group design was adopted in this study. Sixty sample were selected through simple random sampling technique (**30 Experimental and 30 Control group of cancer patients**). The data were collected before and after oral application of honey by using **C**ommon terminology criteria for adverse events (CTCAE). (World Health Organization (WHO) tool for measuring chemotherapy induced Oral mucositis.

Formal permission was obtained from the administrative authority of HCG MNR Cancer Centre, Ongole. Informed consent was obtained from the subjects verbally and written form after explained about purpose of the study and maintaining confidentiality of the collected data. In the present study, a sample of 60 cancer patients was selected using simple random technique by lottery method. Even numbers were allotted to experimental group and cancer patients with odd numbers were allotted to control group. The data were collected before and after oral application of honey by using**C**ommon terminology criteria for adverse events (CTCAE). (World Health Organization (WHO) tool for measuring chemotherapy induced Oral mucositis. We conducted only one pre-intervention test for both groups. Post-intervention tests are conducted on weekly basis i.e. every 07th day after intervention for 04 weeks. (P1, P2, P3, P4)

b) Intervention:

The procedure begins with the assessment of oral mucositis using the CECAT method. Patients are prepared by identifying them through their Name, Sex, and UHID number, and obtaining their consent. They are comfortably positioned and introduced to the procedure. The process is explained thoroughly, and their blood glucose levels are checked using GRBS. Patients are encouraged to perform a mouthwash, followed by a natural honey allergy test. Oral mucositis severity is then assessed using the CTCAE grading scale. Honey is provided and applied: patients are instructed to swallow it slowly. For the experimental group, all total of 30ml of honey (pre & post intervention for 1 single day) is administered 15 minutes before starting chemotherapy as a prophylactic measure, and again after chemotherapy, with subsequent doses every 6 hours for 7 days post-chemotherapy. No interventions are administered to the control group. Both groups are monitored every 24 hours for 7 days to assess outcomes.
Oral mucositis due to chemotherapy usually develops within five to fourteen days of treatment. It starts as erythema in the mucosa, which subsequently becomes eroded and ulcerated. A white fibrinous pseudo membrane may cover the ulcerations. The location of ulcers is usually limited to non-keratinized surfaces of the mouth (buccal mucosa, lateral tongue, ventral tongue, and soft palate).

Evaluation for oral mucositis is dependent upon clinical history and physical exam findings. The severity of mucositis is measured on a well-defined scale as mentioned below:

Common Terminology Criteria for Adverse Events (CTCAE)

The CTAE was developed by the National Cancer Institute (NCI) and is rated from 1 to 5. This scale is divided into two parts: a clinical exam and a functional/symptoms-based exam.

Functional/Symptoms-Based Exam

- Grade 1 = Asymptomatic or mild symptoms, and intervention is not indicated as well as the patient maintains a normal diet.
- Grade 2 = Moderate pain or ulcer that does not interfere with oral intake, and the patient requires a modified diet.
- Grade 3 = Severe pain which interferes with oral intake
- Grade 4 = Life-Threatening consequences that require urgent intervention

- Grade 5 = Death

Clinical Exam

- Grade 1 = mucosal erythema
- Grade 2 = patchy ulceration or pseudomembranous
- Grade 3 = Minor trauma resulting in bleeding, confluent ulcers, or pseudomembranous.
- Grade 4 = Tissue necrosis, spontaneous bleeding, life-threatening events.
- Grade 5 = Death.

IV. DATA ANALYSIS & INTERPRETATION:

Paired t-test was done to identify the effectiveness of Oral Topical Application Of natural Honey in the Management of Chemotherapy Induced Oral Mucositis among Cancer Patients' with selected demographic variables.

	Table 1 : Frequency and Percentage Distribution of baseline Characteristics of cancer survivors Experimental& Control groups					
S.NO	**DEMOGRAPHIC DETAILS**	**Experimental Group(n=30)**		**Control Group (n=30)**		**Chi-square & P value**
1	**AGE in years**	Frequency	Percentage	Frequency	Percentage	
	a.21-30	0	0	0	0	
	b. 31-40	9	30	13	43.3	
	c) 41-50	11	36.7	10	33.3	
	d) 51 & above	10	33.3	7	23.3	*X2=10.37;P=0.269(NS)*
2	**Gender**					
	a) Male	13	43.3	18	60	
	b) Female	17	56.7	12	40	X2=2.54;P=0.28(NS)
3	**Educational Status**					
	a)Formal Education	13	43.3	16	53.3	
	b) No formal education	17	56.7	14	46.7	X2=3.29;P=0.19(NS)
4	**Marital Status**					
	a)Married	30	100	30	100	
	b)Unmarried	0	0	0	0	X2=30;P=NA
5	**Dietary pattern**					
	a) Vegetarian	5	16.7	6	20	
	b) Non-Vegetarian	25	83.3	24	80	X2=1.31;P=0.52(NS)
6	**Habits// Addiction**					
	a)Alcohol	0	0	0	0	
	b)Chewing tobacco	0	0	0	0	
	c)Smoking	0	0	0	0	
	d)None of the above	30	100	30	100	X2=30;P=NA
7	**Area of living**					
	a)Rural	10	33.3	8	26.7	
	b)Urban	20	66.7	22	73.3	X2=0.39;P=0.82(NS)
8	**Occupancy**					
	a)Self employee	7	23.3	5	16.7	
	b)Govt. Employed	0	0	10	33.3	
	c)Labourer	6	20	0	0	
	d)Others	17	56.7	15	50	X2=4.41;P=0.35(NS)

Table-1: Participants were mostly aged 41-50 years (36.7% experimental, 33.3% control). Females comprised 56.7% of the experimental group, while males were 60% of the control group. All were married, with a predominantly non-vegetarian diet (83.3% experimental, 80% control). A large proportion lacked formal education (56.7% experimental, 46.7% control). Urban residency was common (66.7% experimental, 73.3% control), with many employed in various occupations, notably "Others" (56.7% experimental, 50% control).

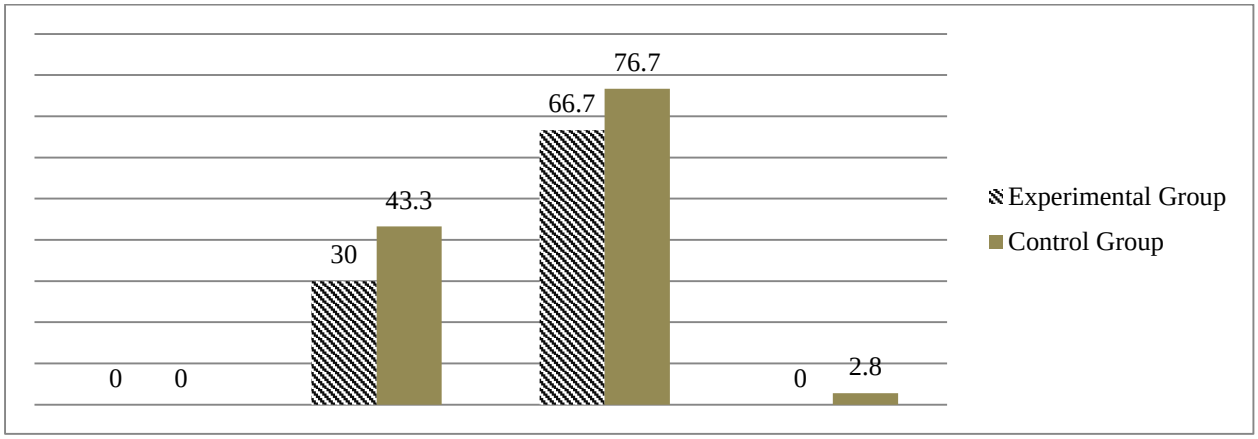


Figure-1: The majority of participants are aged 41-50 years, representing 36.7% of the experimental group and 43.3% of the control group. A significant portion is also in the 51 and above age group (33.3% experimental, 23.3% control), while the youngest age group (21-30 years) has no representation in either group.

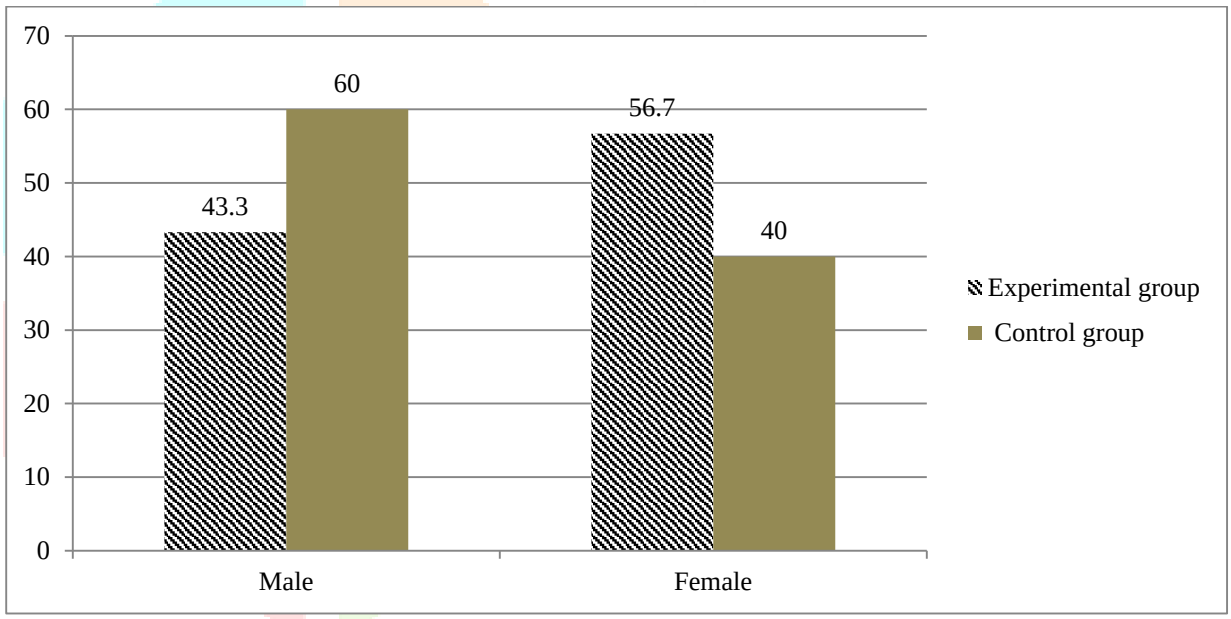


Figure-2: The gender distribution shows that males make up 43.3% of the experimental group and 60% of the control group. Females constitute 56.7% of the experimental group and 40% of the control group.

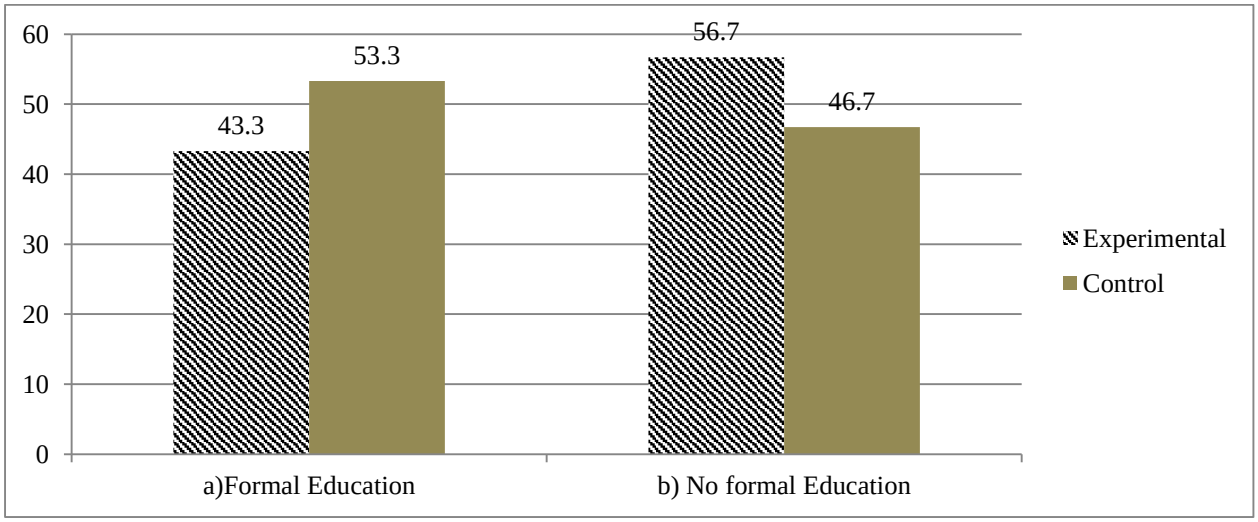


Figure-3: A larger percentage of participants in the experimental group (56.7%) have no formal education compared to the control group (46.7%). Conversely, formal education is more prevalent in the control group (53.3%) than in the experimental group (43.3%).

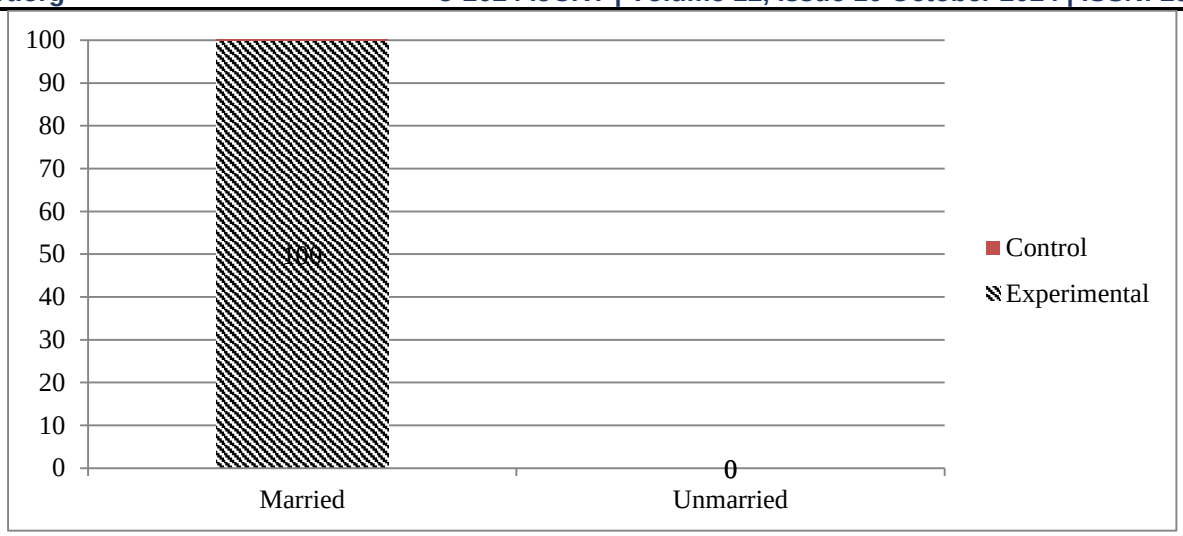


Figure-4: All participants in both the experimental and control groups are married, indicating 100% marital status in both groups.

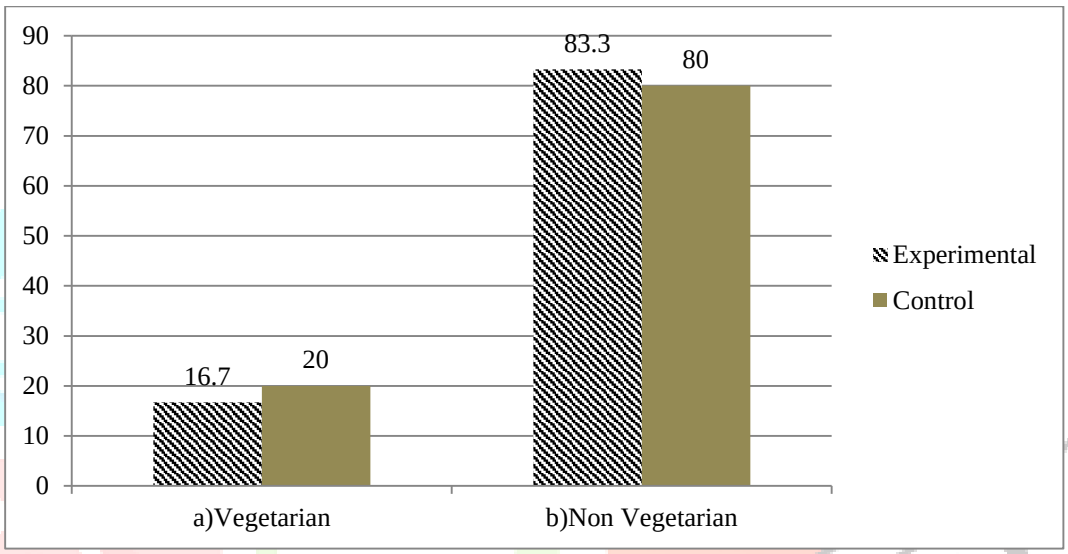


Figure-5: The majority of participants in both groups follow a non-vegetarian diet, with 83.3% in the experimental group and 80% in the control group. Only 16.7% of the experimental group and 20% of the control group are vegetarians.

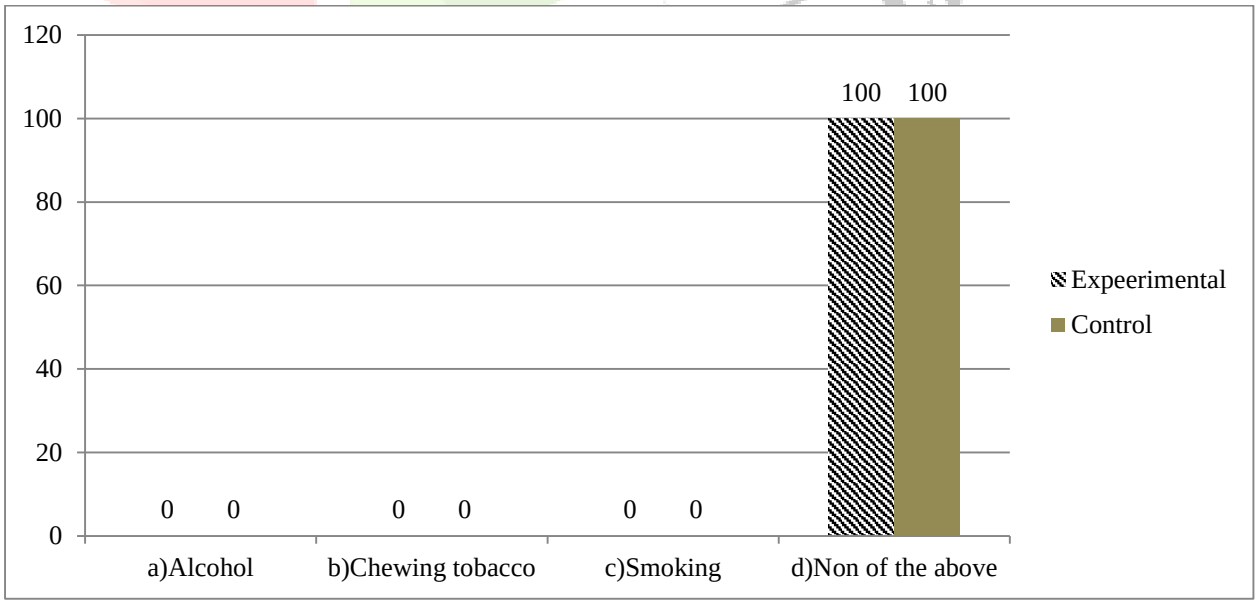


Figure-6: None of the participants in either group engaged in habits such as alcohol consumption, 0% tobacco chewing 0%, smoking. All participants (100%) fall under the category of "None of the above" for these habits.

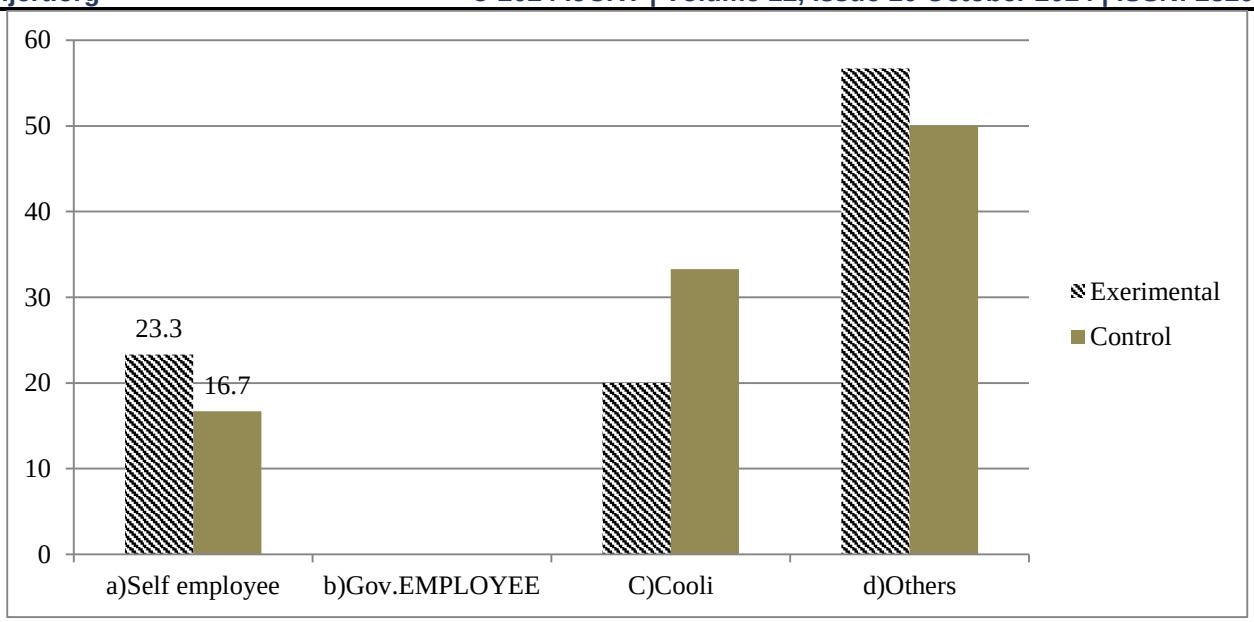


Figure-7: Represents that the most common employment category in both groups is labeled "Others," with 56.7% in the experimental group and 50% in the control group. The second most common occupation is self-employed in the experimental group (23.3%), while government employment is notable in the control group (33.3%). Laborers are present only in the experimental group, representing 20%.

Area of Residence:

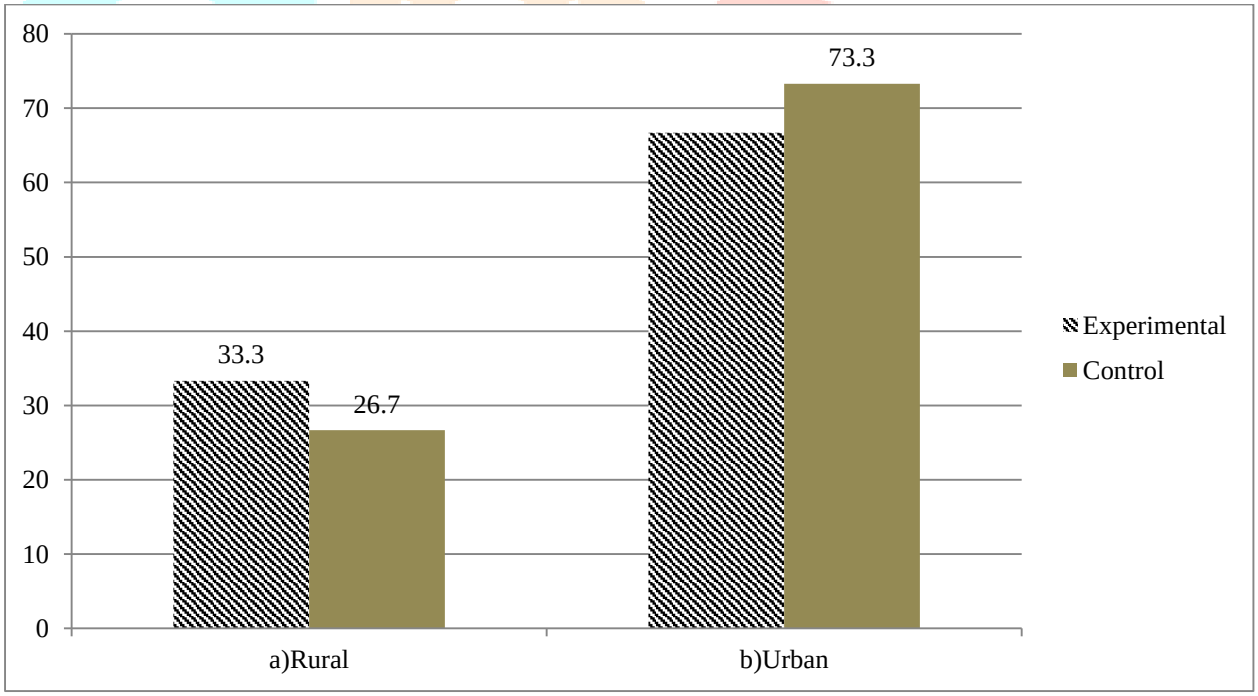


Figure-8: Depicts greater proportion of participants reside in urban areas, accounting for 66.7% of the experimental group and 73.3% of the control group. Those living in rural areas make up 33.3% of the experimental group and 26.7% of the control group.

Table 2: CLINICAL DEMOGRAPHIC DATA

		experimental group(n=30)		Control Group (n=30)		Chi-square & P value
9	**Drug regimen**					
	a) DDAC Dose-dense doxorubicin and cyclophosphamide	5	16.7	10	33.3	
	b) TAF (Tenofovir alafenamide)	0	0	1	3.3	
	c)Palliative chemo	5	16.7	9	30	
	d) others	20	66.7	10	33.3	X2=12.90;P=0.54(NS)
10	**Since how many years are you under chemotherapy treatment?**					
	a) 1-2 years	24	80	26	86.7	
	b)3-4 years	3	10	2	6.7	
	c)5-6 years	3	10	2	6.7	
	d)Above 06 years	0	0	0	0	X2=3.09;P=0.54(NS)
11	**Diagnosis**					
	a) Breast Cancer	10	33.3	12	40	
	b)Ovary Cancer	5	16.7	3	10	
	c)Lung Cancer	5	16.7	5	16.7	
	d)Other	10	33.3	10	33.3	X2=7.16;P=0.30(NS)
12	**Do you have any signs and symptoms of oral mucositis?**					
	a)None G0	0	0	0	0	
	b)Oral G1- soreness, Erythema(mild)	7	23.3	13	43.3	
	c)G2-Oral Erythema, ulcers, solid diet tolerated (moderate)	11	36.7	9	30	
	d) G-3Oral ulcers, liquid diet only (severe)	12	40	8	26.7	
	e) G4- Oral alimentation impossible(life threatening)	0	0	0	0	X2=10.69;P=0.03(S)
13	**What is the duration of chemotherapy treatment?**					
	a) Every 14 days	10	33.3	11	36.7	
	b) Every 28 days	10	33.3	13	43.3	
	c)Every 30 days	10	33.3	6	20	
	d)Other	0	0	0	0	X2=9.65;P=0.25(NS)

Table-2: The table depicts that most patients have been under chemotherapy for 1-2 years, primarily with "Other" drug regimens. Breast cancer is the most common diagnosis. Symptoms of oral mucositis are prevalent, with severe cases reported by 40% in the first group and 26.7% in the second group. Chemotherapy is administered every 14, 28, or 30 days, with no patients undergoing treatment for more than 6 years.

Drug regimen

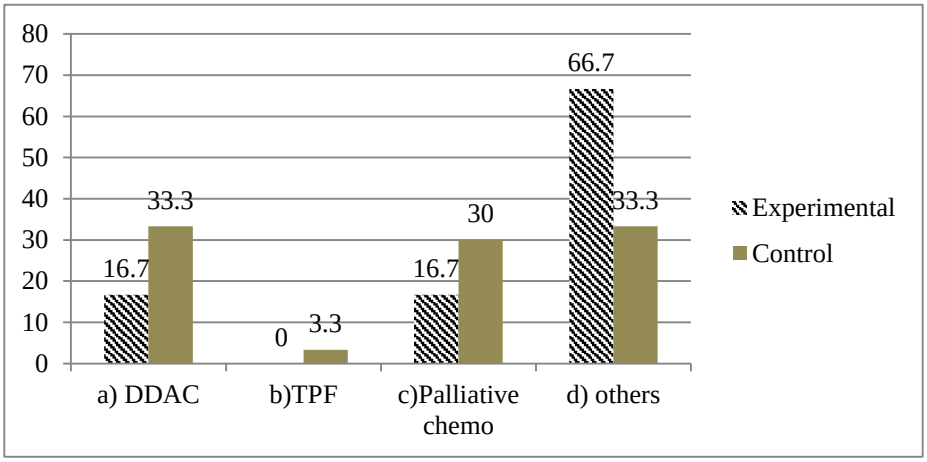


Figure-9: The data indicates that the majority of patients in the first group (66.7%) were on "Other" drug regimens, while in the second group, this decreased to 33.3%. The DDAC regimen was administered to 16.7% of patients in the first group and to a larger proportion (33.3%) in the second group, indicating a notable usage in both groups. Palliative chemotherapy was given to 16.7% of patients in the first group and 30% in the second group, showing its role in patient care, particularly in the second group. The TAF regimen was the least used, with only 3.3% of patients in the second group receiving it, and none in the first group.

Since how many years are you under chemotherapy treatment?

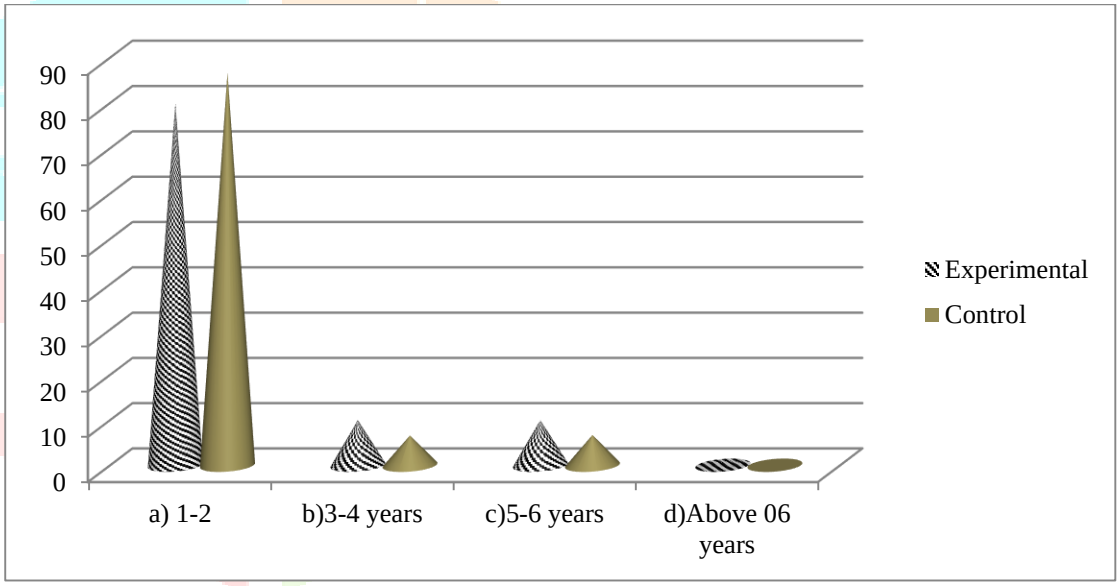


Figure-10: The data reveals that the majority of patients have been undergoing chemotherapy for 1-2 years, with 80% in the first group and 86.7% in the second group. A smaller percentage of patients have been in treatment for 3-6 years, with 10% in the first group and 6.7% in the second group for both 3-4 years and 5-6 years categories. Notably, no patients have been receiving chemotherapy for more than 6 years, indicating that long-term chemotherapy beyond this period is uncommon in the sample.

Type of Cancer

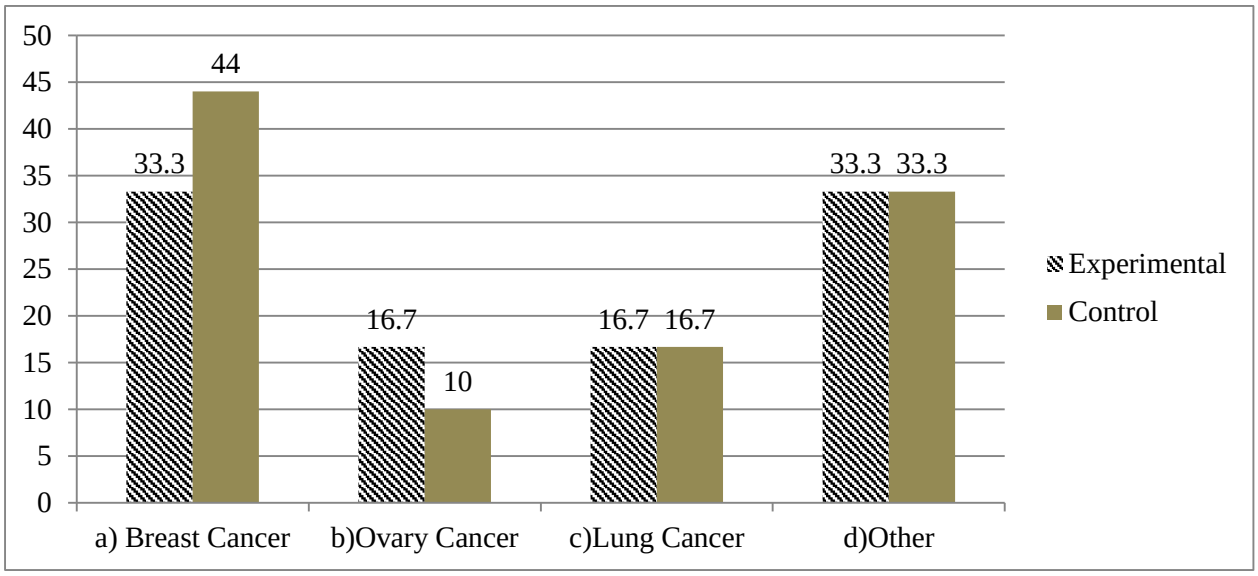
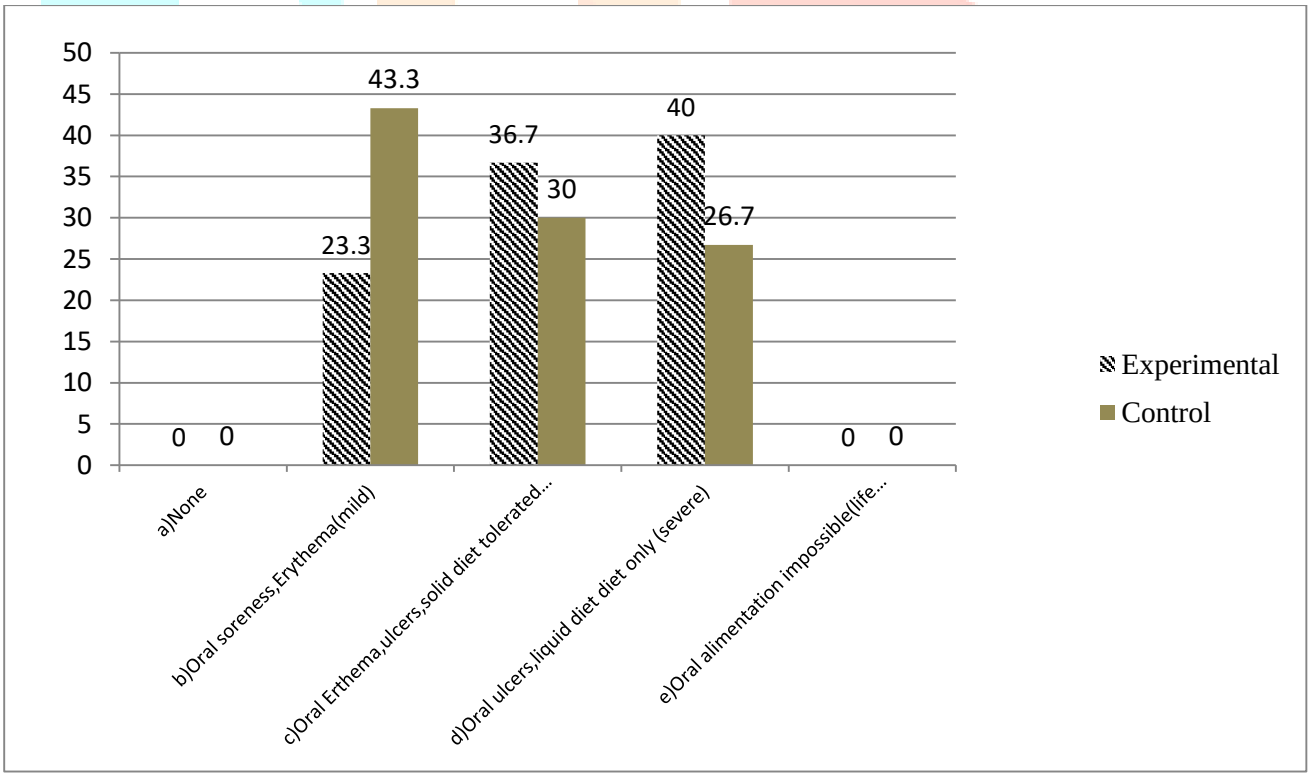


Figure-10: The data indicates that breast cancer is the most prevalent diagnosis among patients, affecting 33.3% in the first group and 40% in the second group. Ovarian cancer is less common, with 16.7% of patients in the first group and 10% in the second group. Lung cancer has an equal incidence in both groups, affecting 16.7% of patients. Additionally, 33.3% of patients in each group have been diagnosed with cancers other than breast, ovary, or lung, highlighting a diverse range of diagnoses within the sample.

Do you have any signs and symptoms of oral mucositis?



What is the duration of chemotherapy treatment?

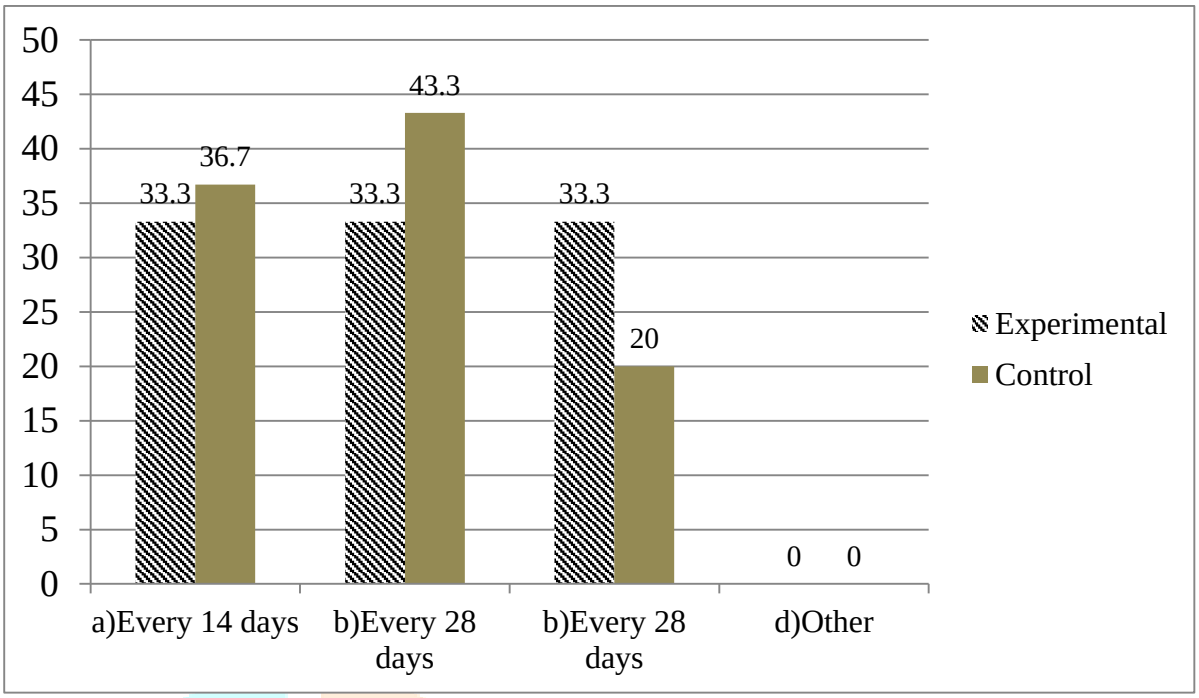
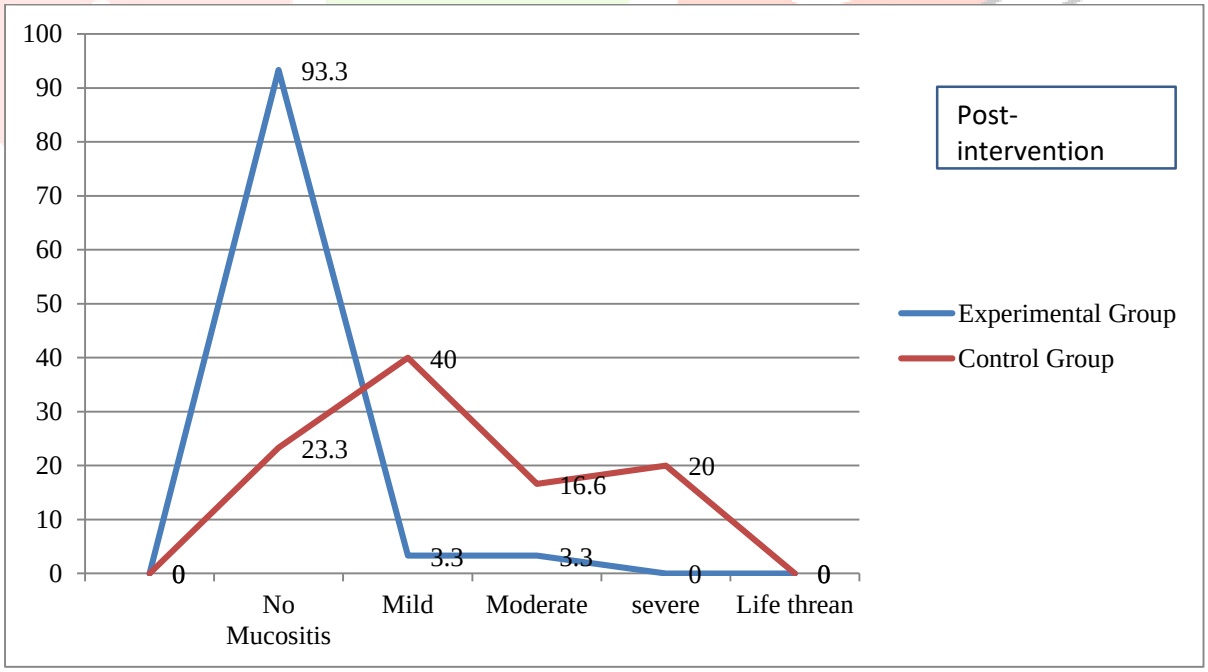


Figure-11: The chemotherapy schedules show a fairly even distribution across different intervals, with a significant proportion of patients receiving treatment every 14, 28, or 30 days. Specifically, 33.3% of patients in both groups are on a 14-day chemotherapy cycle, suggesting consistency in treatment frequency. The 28-day schedule is more common in the second group, where 43.3% of patients follow this regimen compared to 33.3% in the first group. The 30-day schedule is followed by 33.3% of patients in the first group but is less common in the second group, with only 20% adhering to this interval. No patients are on a chemotherapy schedule outside of these intervals, indicating that these three schedules are standard practice within the sample.

Figure-12: Frequency and percentage distribution of effectiveness of honey application post-test level of chemotherapy induced oral mucositis among cancer patients in experimental and control group.



The above figure interprets that the post-intervention results for chemotherapy-induced oral mucositis show that in the experimental group, 93.3% of patients had no mucositis, 3.3% had mild mucositis, 3.3% had moderate mucositis, and 0% had severe or life-threatening mucositis, whereas In the control group, 23.3% had no mucositis, 40% had mild mucositis, 16.6% had moderate mucositis, 20% had severe mucositis, and none of them had life-threatening mucositis. These results highlight the effectiveness of honey in significantly reducing mucositis severity in the experimental group compared to the control group.

Effectiveness of Topical Application of Honey in the management of Chemo-Therapy Induced Oral Mucositis among experimental Group and Control Group (post intervention-P1,P2,P3,P4 tests)

Post-test -I

	Experimental Group	**Control Group**
Grade-0(Normal)	13.3	0
Grade I(Mild)	13.3	50
Grade II(Moderate)	30	16.6
Grade III(Severe)	43.3	33.3
Grade IV(Life-Threatening)	0	0

Post-Test-II		
	Experimental Group	**Control Group**
Grade-0(Normal)	26.6	0
Grade I(Mild)	6.6	40
Grade II(Moderate)	26.6	13.3
Grade III(Severe)	40	46.6
Grade IV(Life-Threatening)	0	0

Post-Test-III		
	Experimental Group	**Control Group**
Grade-0(Normal)	50	0
Grade I(Mild)	10	16.6
Grade II(Moderate)	16.6	23.3
Grade III(Severe)	23.3	60
Grade IV(Life-Threatening)	0	0
Post Test -IV		
	Experimental Group	**Control Group**
Grade-0(Normal)	93.3	23.3
Grade I(Mild)	3.3	40
Grade II(Moderate)	3	16.6
Grade III(Severe)	0	20
Grade IV(Life-Threatening)	0	0

Effectiveness of Topical Application of Honey in the management of Chemo-Therapy Induced Oral Mucositis among experimental Group and Control Group (post-**tests:** P1,P2,P3,P4 tests)

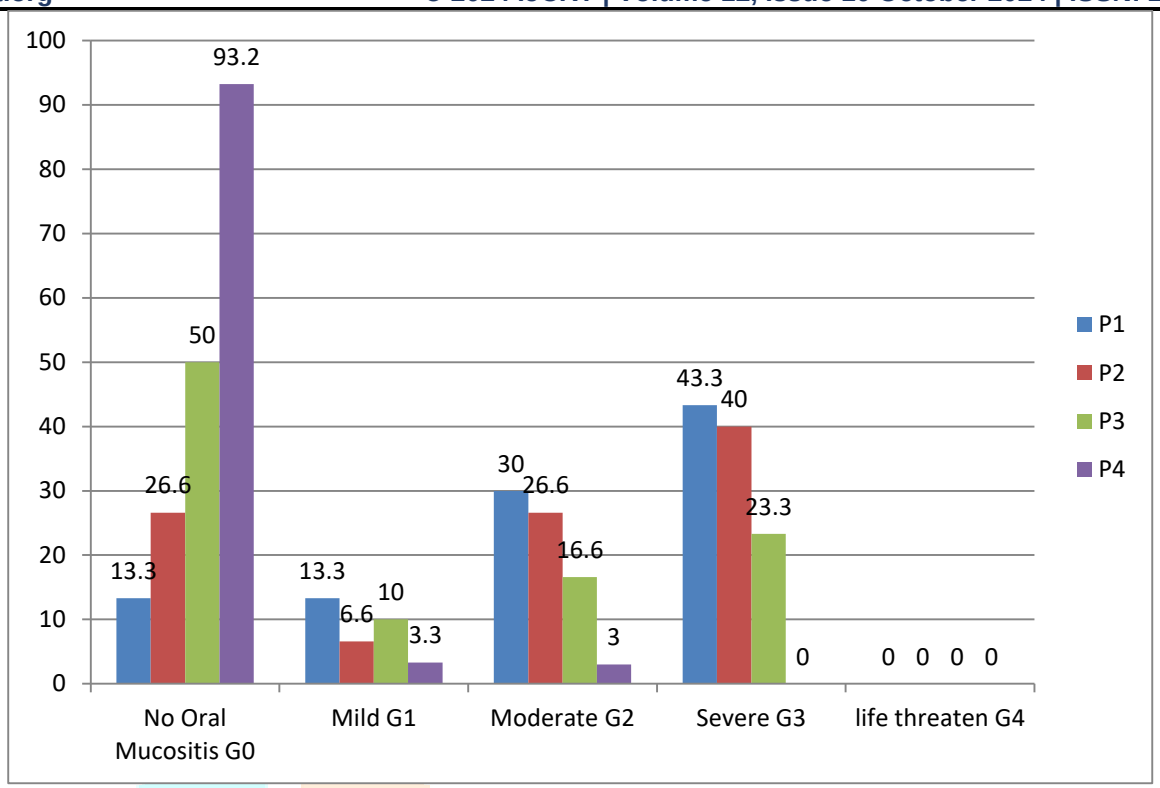


Figure-13: The topical application of honey significantly reduced the severity of chemotherapy-induced oral mucositis in the experimental group, with 93.3% achieving normal status (Grade 0) by Post-Test IV. In contrast, the control group showed limited improvement, with 20% still experiencing severe mucositis (Grade III). Honey proved highly effective in managing mucositis symptoms, especially in the experimental group.

V. RESULTS:

The major findings of the study were majority explains the comparison of level of oral mucositis between the experimental and the control groups during pre-test and post-test I, II, III & IV. Levels. Likewise we have conducted Post interventions I,II,III,and IV test for both experimental and control groups. In the post intervention IV test, results revealed the oral mucositis results as in the experimental group G0 (Level-0) oral mucositis was 93.3% were as in control group 23.3%. Grade 1 (level 1) oral mucositis in in experimental group 6.6% were in control group 40.0%. Grade2 (level 2) oral mucositis in experimental group 3.0% were as in control group 16.6% Grade 3 (Level3) oral mucositis in experimental group 0% were as in control group 20.0%Grade 4(level 4) 0% no life-threatening symptoms in both groups. In the pre intervention measure, most of them are under Grade 2 and Grade 3 level of oral mucositis. On post-intervention assessment, it revealed that the subjects showed reduction in level of oral mucositis from Grade 3 to Grade 2 and Grade 2 to Grade 1, and Grade 1 to Grade 0 level of oral mucositis. It was inferred that oral honey application was highly effective in healing of oral mucositis among clients with cancer.

The Chi-square analysis shows no significant differences between the experimental and control groups across all demographic variables, including age (X^2=10.37; P=0.269), gender (X^2=2.54; P=0.28), educational status (X^2=3.29; P=0.19), dietary patterns (X^2=1.31; P=0.52), area of living (X^2=0.39; P=0.82), occupation (X^2=4.41; P=0.35), drug regimen (X^2=12.90; P=0.54), duration under chemotherapy (X^2=3.09; P=0.54), diagnosis (X^2=7.16; P=0.30), and chemotherapy treatment duration (X^2=9.65; P=0.25). These results indicate that both groups are statistically comparable in these aspects. However, a significant difference was observed in the signs and symptoms of oral mucositis between the groups (X^2=10.69; P=0.03), suggesting that oral mucositis presents differently despite the similarities in other clinical and demographic characteristics.

The major findings of the study revealed in the experimental group the mean pre – intervention score of chemotherapy induced Oral mucositis was 62.60 with SD of 13.0 and it decreased in the post intervention score to 18.40 with SD of 7.1, which interpreted as decrease in the post intervention scores than the pre -intervention score chemotherapy induced Oral mucositis scores. Whereas in the control group the mean pre-intervention score test 57.33 with SD of 15.22 and it was slightly increased to 77.93 with SD of 11.2 in the post test. The paired 't' test was computed to find the effectiveness of natural honey in management of chemotherapy induced oral mucositis among cancer patients. The calculated value of 't' was 6.81 which was greater than the tabulated value of 't' 2.04 with 29 degree of freedom was found to be highly significant at 0.01 level of significance. The results indicate that the application of honey in the experimental group effectively reduced chemotherapy-induced oral mucositis among cancer patients. The calculated t-value of 4.87 exceeds the critical t-value of 2.04, allowing us to reject the null hypothesis at the 95% confidence level. This signifies a statistically significant difference between pre-test and post-test scores at the 0.05 level in the control group, where no honey intervention was administered.

Table-3: The Calculated Mean, Standard Deviation and paired T test of chemotherapy induced oral mucositis among cancer patients in both experimental and control group

Groups	Scores	Mean	SD	Paired 't' test		df	Inference
				Cal value	Tab value		
Experimental Group	Pre-test	62.6	13.4	6.81	2.04	29	S**
	Post-test	18.4	7.1				
Control Group	Pre-test	57.3	15.2	4.87	2.04	29	S*
	Post-test	77.9	11.2				

**** significant at 0.001 level** **S* significant at 0.05 level**

Howdler D Jicman et al 2022 · Conducted a study on Chemotherapy-induced oral mucositis. In a prospective, single blind, randomized control trial conducted in India. 40 patients were enrolled and divided into two groups, a study group, and a control group. Patients received two cycles of Taxol-based induction chemotherapy at 3-week intervals, then were radio treated concurrently with cisplatin-based chemotherapy 4 weeks after completion of induction chemotherapy. Patients from the study group slowly cleared their mouths with 20 mL of honey, after which they swallowed it slowly for 15 min, before and after treatment. In addition, they consumed a total of 100 mL of honey per day (1.2–1.5 mg/kgc/day) in divided doses, in order to maintain adequate serum antioxidant levels and to protect against oxidative stress. In terms of patient quality of life (QOL), there was a decrease in both groups ($p < 0.05$) up to 4 weeks, but post-therapy QOL increased significantly ($p = 0.0001$) and the mean improvement was better in the study group as compared to the control group. Thus, the study group (in comparison to the control group, who performed saline rinses) showed less impairment of swallowing function and less local pain, thus requiring less food restriction to liquid foods. The study concludes that honey is a simple, cheap, easy to administer, pleasant, and useful modality for the prevention and treatment of chemotherapy-induced OM

Karsten Münstedt et al. (2000 to 2018) Conducted a study on Chemotherapy-induced oral mucositis 17 randomized studies on the use of honey in chemo radiotherapy-induced OM; they compared the benefits of conventional honey against Manuka honey. The focus was on the high amount of methylglyoxal in Manuka honey, a cytotoxic substance that can alter proteins, including DNA, causing tissue dysfunction, aging, and disease, and can also delay the healing process of lesions. The study therefore recommends the use of conventional honey in the prevention of oral mucositis

Tzu-Ming Liu et al (**31 May 2022**) In a meta-analysis comprising 19 randomized controlled trials involving 1276 patients, observed that the application of honey reduces the extent of radio chemotherapy-induced oral mucositis. The action of honey was also observed in the prophylactic phase, where a group receiving honey had registered an RR of 0.18, with a 95% confidence interval, as follows: CI = 0.09 to 0.41; in the treatment phase, patients given honey registered a significant pain score in month 1 of treatment, having a weighted mean difference of WMD = −3.25, 95% CI = −4.41 to −2.09; at the end of treatment, the following values were recorded: WMD = −2.32, 95%, with CI = −4.47 to −0.18.

The outcome of the studies is also favorable in terms of decreased incidence of intolerable mucositis in the honey-treated group, with a RR of 0.48 (95% CI = 0.26 to 0.87).

VI. DISCUSSION

Honey is a natural product that has been widely used for its therapeutic effects. It has been reported to contain about 200 substances. Honey is composed primarily of fructose and glucose but also contains fructo-oligosaccharides and many amino acids, vitamins, minerals and enzymes. The best available evidence demonstrates that the topical honey treatment is effective in reducing and minimizing oral mucositis among cancer patients treated with chemotherapy and is cost-effective treatment. It also works in reducing painful mucositis, Oral mucositis can be very painful and can significantly affect nutritional intake, mouth care, and quality of life. honey helps to reducing the oral mucositis and increasing body weight. Based on the prevalence of cancer and availability of natural honey the investigator was motivated to conduct an evaluation study to observe the effectiveness of the natural in management of chemotherapy induced oral mucositis among cancer patients .There is an important role for nurses to help people to understand the risks and set realistic goals in improving goals[5] Current research suggests that management of chemotherapy-induced oral mucositis should focus on treating the symptoms before they occur rather than after they develop. This review highlights evidence-based interventions for the treatment of chemotherapy induced oral mucositis. Cancer patient's rate mucositis the most distressing side effect of chemotherapy. Despite the extensive use antibiotics, chemotherapy-induced oral mucositis continues is estimated that oral mucositis can occur in 40% of patients receiving standard dose chemotherapy in 75% patients receiving high dose of chemotherapy. The oral topical application of honey will help to reduce the chemotherapy induced oral mucositis. Adequate control of oral mucositis is an essential factor in a client's compliance with treatment.[15] Honey has a very long history of use in various forms of traditional/alternative medicine. It has been used to relieve gastrointestinal tract conditions such as diarrhoea associated with gastroenteritis.[15]

VII.CONCLUSION:

Pure natural honey can be an effective agent in managing chemotherapy induced oral mucositis. Honey could be a simple, potent and inexpensive agent, which is easily available, and it can be a better therapeutic agent in managing chemotherapy mucositis in developing countries like India for the management of this morbidity.

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