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## HONEY AND TURMERIC ON ORAL MUCOSITIS AMONG CANCER PATIENTS

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### ABSTRACT

Inflammation of the mucosa, or mucous membranes lining in mouth and entire gastrointestinal tract, is known as mucositis. It is a typical side effect of radiation or chemotherapy. The aim of the research was to assess the effect of honey and turmeric on oral mucositis. The research design selected for the study was non randomized comparative research design. Non probability convenience sampling techniques was used to obtain sample of 60 oral mucositis patients who satisfied the inclusion criteria. The pre and post test was conducted using the WHO oral mucositis scale. Following the pre-test, experimental group I was advised to apply honey and experimental group II was instructed to apply turmeric. The average pre-test score was 2.32 (standard deviation 0.56), the average post-test score was 0.52 (standard deviation 0.38) and the paired "t" value was 5.3256 in experimental group I. The paired "t" value for the experimental group 2 was 4.2356, the post test mean was 0.83 (standard deviation 0.49) and pre test mean was 2.53 (standard deviation 0.64). This demonstrates that honey was more successful in lowering levels of oral mucositis among cancer samples. Chi square analysis showed that there was no significant association between cancer patients with oral mucositis in experimental group I and II with their demographic and clinical variables except duration of illness, frequency of mouth care.

**Keywords: Honey, Turmeric, Oral, Mucositis, Cancer, Patients**

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**INTRODUCTION:**

Cancer is a significant global health issue that is linked to chemotherapy therapies, the administration of which can result in side effects such as oral mucositis [1]. About 40% of cancer patients who get chemotherapy and radiation therapy develop oral mucositis, a common and crippling side effect. The patient's capacity to withstand radiation or chemotherapy may be limited by mucositis, and their nutritional status may be affected [2]. The condition known as oral mucositis is typified by ulcers in the oral mucosa that result in discomfort, bleeding, and trouble speaking or swallowing meals and liquids. Other parts of the digestive system can also be affected by mucositis; for instance, diarrhoea may be a symptom of gastrointestinal mucositis [3].

About all patients receiving radiation therapy and 40–80% of patients receiving chemotherapy develop oral mucositis. Chemical drugs used for oral mucositis are necessary to decrease the clinical aggression of the condition and enhance the nutritional status, quality of life and hydration of people affected, even they do not stop ulcers from developing. Additionally, the prognosis of cancer depends on the prevention and management of oral ulcers, as the development of serious lesions may result in

the need to stop therapy temporarily or permanently and jeopardise cancer control [4].

There is a large range of treatment medications available to lessen mucositis lesions. Because natural herbal medicines have fewer negative effects than synthetic pharmaceuticals, they are currently being used more often to treat this problem [5].

Turmeric, also known as curcumin, was used as a mouthwash or gel topically. Turmeric/curcumin-treated patients reported decreased discomfort, erythema intensity, ulcerative area, and mucositis grade. According to available data, oral mucositis signs and symptoms can be effectively managed by applying topical turmeric or curcumin. Therefore, more research activity is needed to validate the encouraging effect of curcumin and turmeric in oral inflammatory diseases [6].

Patients in the honey investigation group showed a significant reduction in related Candida infections, mucositis, and aerobic pathogenic bacterial infections. Along with a considerable rise in body weight, delayed start, and lower degree of discomfort linked to oral mucositis, all members of the therapy group also saw a significant decrease in the length of time they spent in the hospital.

Topical application of local honey can significantly minimise complications of oral mucositis; honey should be used as an integrative method in prevention and treatment of oral mucositis in tumor peoples caused by chemotherapy and radiation therapy. In order to clarify and comprehend the underlying mechanism better, more research is require [7].

Comparing the effects of alternative therapy on the healing process of radiation and chemotherapy-induced oral mucositis piqued my interest. As a result, I went with honey and turmeric because they are easily accessible, reasonably priced, and have positive health effects.

#### **MATERIALS AND METHODS:**

An assessment was conducted utilizing a quasi-experimental, non-randomized comparative research method to determine the effect of honey and turmeric on oral mucositis in cancer patients. The inclusion criteria were met by 60 oral mucositis samples that were collected using a non-probability convenience sampling technique. After verbal research information and their assent, they were chosen at random. Using a systematic interview schedule, demographic information was obtained about age, education, sex, religion, occupation, income, eating habits, and family history. The

pre-test was conducted using the WHO oral mucositis scale, which is used to evaluate oral mucositis in cancer patients. Following the pre-test, experimental group I was advised to apply three ml of honey four times a day for five days, while experimental group II was instructed to apply turmeric four times a day for five days. Using the same WHO oral mucositis scale, the degree of oral mucositis was assessed after five days. By hand, the researcher used descriptive and inferential statistics to calculate the analysis from the data.

#### **RESULTS AND DISCUSSION:**

"A process of organising and synthesising data in such a way that research questions can be answered and hypotheses can be tested" is how Polite and Hungler (1999) defined analysis. Interpretation is the process of interpreting the data and considering the findings' implications in a larger perspective.

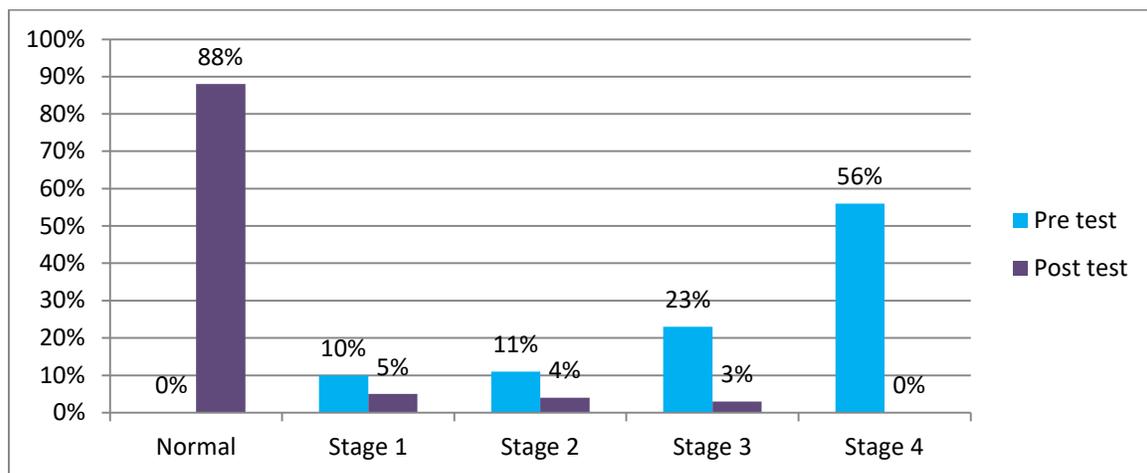
According to **Figure 1**, which displays the frequency and percentage distribution of oral mucositis in Experimental Group 1, the majority of participants in the pretest were in Stage 4 (56%), followed by Stage 3 (23%), Stage 2 (11%), and Stage 1 (10%). In contrast, the majority of post-test results showed that 88% were in normal, 5% were in stage 1, 4% were in stage 2, 3% were in stage 3 and 0% were in stage 4.

As can be seen in **Figure 2**, which displays the frequency and percentage distribution of oral mucositis in experimental group 2, the majority of participants in the pretest were 64% in stage 4, 16% in stage 3, 15% in stage 2, and 5% in stage 1. In contrast, the majority of post-test results showed that 79% were in normal, 9% were in stage 1, 6% were in stage 2, 6% were in stage 3.

The average pre-test score was 2.32 (standard deviation 0.56), and the average post-test score was 0.52 (standard deviation 0.38). The paired "t" value of 5.3256 indicates that there is a significant difference between the oral mucositis pre- and post-test scores

among cancer patients in experimental group 1. It demonstrates that using turmeric can effectively lower the degree of oral mucositis in cancer patients. The paired "t" value for the experimental group 2 was 4.2356, the post test mean 0.83 (standard deviation 0.49) and pre test mean was 2.53 (standard deviation 0.64) according to **Table 1**. This demonstrates that honey was more successful in lowering levels of oral mucositis among cancer samples.

**Table 2** shows that there was no association between post test level of oral mucositis with selected demographic and clinical variable except duration of illness and frequency of mouth care.



**Figure 1: Frequency and percentage distribution of oral mucositis in experimental group 1**

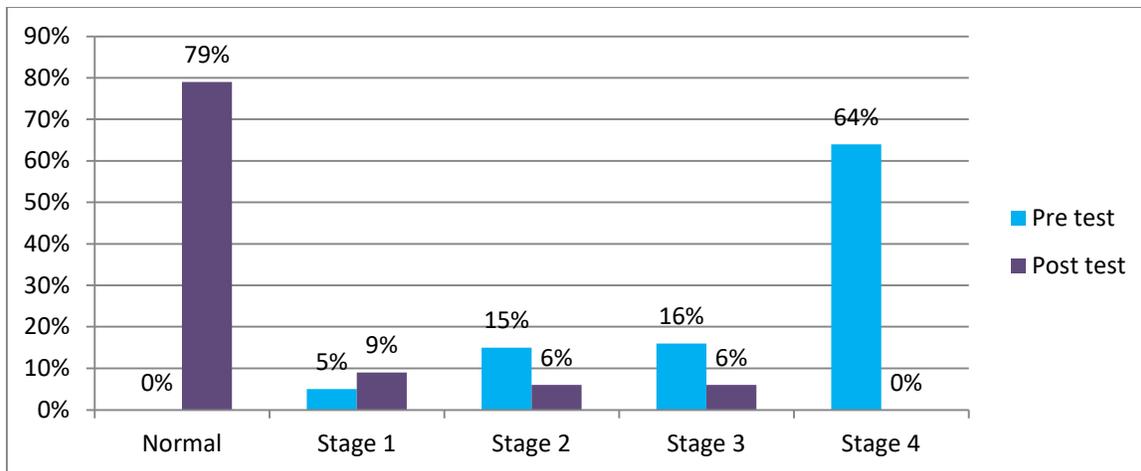


Figure 2: Frequency and percentage distribution of oral mucositis in experimental group 2

Table 1: Comparison of the pre and post test scores of level of oral mucositis among cancer patients

Group	test	Mean	SD	't' value	Table value	Inference
Experimental group 1	Pre test	2.32	0.56	5.3256	2.045	Significant
	Post test	0.52	0.38			
Experimental group 2	Pre test	2.53	0.64	4.2356	2.045	significant
	Post test	0.83	0.49			

Table 2: Association between post test levels of oral mucositis with their selected demographic variables in experimental group 1

S. No	Demographic variables		Frequency				Chi Square Value	Table value	Inference
			Normal	Stage I	Stage II	Stage III			
1	Age	25-30	1	0	2	0	1.8120	2.262	NS
		30-35	2	1	3	1			
		35-40	2	6	2	2			
		Above 40	0	2	3	3			
2	Education	No-formal education	0	2	1	1	1.2609	2.262	NS
		Primary to high school	2	3	3	3			
		Higher secondary school	1	2	3	2			
		Graduate	0	4	2	1			
3	Duration of illness	7 days	0	1	2	1	4.993	2.262	S
		8-14 days	2	7	3	2			
		15-21 days	2	3	1	0			
		More than 21 days	1	2	1	2			
4	Religion	Hindu	7	6	8	6	2.136	2.262	NS
		Muslim	0	1	1	1			
		Christian	0	0	0	0			
		Others	0	0	0	0			
5	Dietary habit	Vegetarian	6	7	6	8	2.0732	3.182	NS
		Mixed vegetarian	1	0	1	1			
6	Smoking habit	Yes	4	3	3	4	2.5265	3.182	NS
		No	3	10	3	10			
7	Habit of alcoholism	Yes	1	1	1	1	2.296	3.182	NS
		No	3	10	3	10			
8	Family history	History	5	10	3	4	1.2669	3.182	NS
		No history	2	3	1	2			
9	Frequency of mouth care	2 times a day	3	10	8	5	9.125	3.182	S
		1 time a day	3	1	0	0			

S-Significant NS-Non significant

Table 3: Association between post test levels of blood glucose level with their selected demographic variables in experimental group 2

S. No	Demographic variables		Frequency				Chi Square Value	Table value	Inference
			Normal	Stage I	Stage II	Stage III			
1	Age	25-30	0	1	0	1	2.396	2.262	NS
		30-35	1	2	2	1			
		35-40	3	3	4	4			
		Above 40	1	2	3	2			
2	Education	No-formal education	0	1	1	1	2.1336	2.262	NS
		Primary to high school	2	3	3	4			
		Higher secondary school	1	3	4	2			
		Graduate	1	2	1	1			
3	Duration of illness	7 days	1	2	1	1	4.4347	2.262	S
		8-14 days	2	3	5	2			
		15-21 days	1	3	2	1			
		More than 21 days	1	1	2	2			
4	Religion	Hindu	7	5	8	7	1.2403	2.262	NS
		Muslim	0	1	1	1			
		Christian	0	0	0	0			
		Others	0	0	0	0			
5	Dietary habit	Vegetarian	7	10	6	4	2.693	3.182	NS
		Mixed vegetarian	0	2	0	1			
6	Smoking habit	Yes	0	8	2	2	2.52	3.182	NS
		No	6	2	5	5			
7	Habit of alcoholism	Yes	0	1	4	1	2.3712	3.182	NS
		No	10	4	7	3			
8	Family history	History	3	5	6	4	2.717	3.182	NS
		No history	7	1	2	2			
9	Frequency of mouth care	2 times a day	5	10	7	3	4.524	3.182	S
		1 time a day	0	2	2	1			

S-Significant NS-Non significant

Table 3 shows that there was no association between post test level of oral mucositis with selected demographic and clinical variable except duration of illness and frequency of mouth care.

According to current research study the average pre-test score was 2.32 and post-test score was 0.52. The paired "t" value of 5.3256 in experimental group 1. The paired "t" value for the experimental group 2 was 4.2356, and the post test mean score was 0.83, pre test mean was 2.53. This demonstrates that

turmeric and honey was more successful in lowering levels of oral mucositis among cancer patients.

According to a study done in Indonesia by Pranadwista ZF, natural products with the power to control oral mucositis include thyme honey, aloe vera, calendula, zataria multiflora, Plantago major L, and turmeric. These results validate my current research [8].

In a study conducted in Chhattisgarh, India, Nagi R found that natural remedies showed promise in treating oral mucositis

brought on by cancer [9]. Healthcare practitioners have an alternative in the form of Eubank PLC's supplementary therapy of oral mucositis in cancer patients, which has lower side effects and analgesic and anti-inflammatory properties [10].

According to a study by Turkish author Osmanoglu Yurdakul Z, most medical professionals were not aware that the parents were treating their children's oral mucositis using complementary and integrative health. Healthcare professionals should assess parents' perceptions of these treatments, as the adverse effects and possible combinations with chemotherapeutic medicines are unknown. Parents' use of these procedures for their children's oral mucositis should also be assessed [11].

A study conducted in Pakistan by Amanat A demonstrated the beneficial effects of oral honey consumption during radiation therapy on the severity of oral mucositis [12]. In a study, Rao S *et al.* discovered that patients with head and neck cancer receiving radiation therapy could significantly benefit from gargling with turmeric as it delayed and lessened the severity of mucositis. Turmeric is effective in the treatment of cancer since it is widely available, reasonably priced, and well-liked [13].

In a Chinese study, Zhang X found that mouthwashes containing chamomile, honey, curcumin, and benzydamine may be the most effective in preventing unbearable oral mucositis based on the analysis of rank probabilities [14]. Peng TR states that honey is beneficial for cancer patients enduring chemotherapy or oral mucositis brought on by radiation therapy [15].

According to Cho HK Dona's study, moderate-to-severe mucositis and the ensuing weight loss might be avoided by taking honey orally following radiation therapy. Nevertheless, additional trials are necessary to validate these findings, as our conclusions were derived from an examination of a limited number of trials [16]. When compared to benzydamine mouthwash, turmeric mouthwash was found to be more beneficial in lessening the severity of oral mucositis and related oral dysfunctions, according to Thomas PL. The conventional approach to treating oral mucositis may be substituted with the nontoxic and economical use of turmeric [17].

According to a study done by Soni TP, oral cancer patients' severe oral mucositis, dysphagia, mouth discomfort, and dermatitis can all be considerably reduced by using a bio-enhanced turmeric formulation [18].

**CONCLUSION:**

Turmeric and honey were administered topically. The degree of mucositis, discomfort, erythema intensity, and ulcerative area were all lessened in patients receiving honey and turmeric treatment. According to available data, applying honey topically was found to be more successful than using turmeric in managing oral mucositis symptoms. Therefore, more research is needed to validate the intriguing impact of turmeric and honey on inflammatory lesions of the mouth.

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