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Research Article

**ANALYSIS OF SALIVARY CHANGES WITH RELATION TO  
ORAL DRYNESS AMONG PATIENTS OF THYROID  
DYSFUNCTION IN PAKISTAN**<sup>1</sup>Dr. Shahzeb Ali, <sup>1</sup>Dr. Sidra Afzal, <sup>1</sup>Dr. Ghulam Jilani  
<sup>1</sup>Bahawal Victoria Hospital, Bahawalpur**Abstract:**

**Introduction:** Saliva is fundamental to keep up adequate oral capacities, for example, grease, biting and gulping, discourse, oral pH adjust, taste observation, and regulation. Quantitative and subjective changes in salivary stream can trade off these capacities. **Objectives of the study:** The main objective of the study is to assess the salivary changes with relation to oral dryness among patients of thyroid dysfunction in Pakistan. **Material and methods:** The study was conducted at Bahawal Victoria hospital, during 2018. Fifty thyroid dysfunction patients were enrolled in this study as cases along with 45 age-and sex-matched controls from the outpatient department (OPD) clinics of general medicine during the study of 2 months. Pregnant women and patients with a history of tobacco use and significant variations from normal body mass index were not included in the study. **Results:** Salivary parameters of control group and selected patients are represented in table 01. It shows that p value is significant in case of unstimulated salivary flow rate and stimulated flow rate. But in case of pH of saliva it's not significant. **Conclusion:** The current study indicates a basic relationship of thyroid dysfunction and salivary gland work in thyroid dysfunction patients. The investigation demonstrated a factually noteworthy diminishing.

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**INTRODUCTION:**

Saliva is fundamental to keep up adequate oral capacities, for example, grease, biting and gulping, discourse, oral pH adjust, taste observation, and regulation. Quantitative and subjective changes in salivary stream can trade off these capacities. Therefore, subjects with salivary gland dysfunction are more powerless to periodontal ailment, uncontrolled caries, and fungal and bacterial oral diseases [1]. Salivation is of rising significance in the medicinal and dental universes. It assumes a significant part in keeping up the soundness of the oral cavity by executing different host protection capacities, for example, homeostatic procedures, grease, antimicrobial movement, and control of demineralization of teeth. Subjective and objective useful misfortunes have been accounted for by different investigations that happen in individuals without the capacity to create adequate volumes of salivation. These useful misfortunes incorporate xerostomia, dysphagia, and an expanded weakness for crafty diseases. Unstimulated salivation is a pointer of the basal generation and gives generally assurance. It predominantly contains minor and submandibular glands' yield [2]. The variables influencing unstimulated salivary stream rate (USFR) are level of hydration, body position, and introduction to light, past incitement, circadian rhythms, circannual rhythms, and drugs. Empowered spit offers assurance amid rumination and aids deglutition. It is predominantly contained parotid gland yield [3]. The elements influencing the invigorated salivary stream rate (SSFR) are nature of boost, heaving, smoking, gland estimate, choke reflex, olfaction, one-sided incitement, and food intake. Any adjustment in the quality and amount of spit will prompt aggravations in the defensive elements of the salivation. Relationship of salivary gland work with different foundational issue has been set up [4]. Certain fundamental factors, for example, unending renal disappointment, menopausal and hormonal effects, and additionally side effects from solutions influence the arrangement, amount, and nature of salivation, straightforwardly or by implication [5].

**Objectives of the study**

The main objective of the study is:

- To assess the salivary changes with relation to oral dryness among patients of thyroid dysfunction in Pakistan

**MATERIAL AND METHODS:**

The study was conducted at Bahawal Victoria hospital, during 2018. Fifty thyroid dysfunction patients were enrolled in this study as cases along with 45 age-and sex-matched controls from the outpatient department (OPD) clinics of general medicine during the study of 2 months. Pregnant women and patients with a history of tobacco use and significant variations from normal body mass index were not included in the study.

Newly diagnosed patients with hypo/hyperthyroidism, aged 18–45 years, and who were satisfying the selection criteria were included as cases in the study. The diagnosis of hypothyroidism was based on increased serum thyroid-stimulating hormone (TSH) >5 mIU/L and low serum free tetra iodo thyroxine (FT4) <0.61 ng/dL. Hyperthyroidism was diagnosed based on decreased serum TSH <0.3 mIU/L and high serum FT4 >2 ng/dL. Patient data were collected using a specifically designed form to record basic demographic data, complete history, thyroid profile, and salivary profile. We asked the patients not to eat, drink, smoke, or perform oral hygiene for 60 min before saliva collection. Saliva was collected at the same time of the day for each patient.

**Estimation of pH of saliva**

The stimulated whole saliva was then analyzed for its pH and buffering capacity. A handheld digital manual pH meter (Hanna) was used to measure the pH of saliva.

**Statistical analysis**

The collected data were analyzed using SPSS software (version 17). The results are presented as a mean with 95% confidence interval limits or standard deviations. The significant value for  $P < .05$  was accepted as statistically significant.

**RESULTS:**

Salivary parameters of control group and selected patients are represented in table 01. It shows that p value is significant in case of unstimulated salivary flow rate and stimulated flow rate. But in case of pH of saliva it's not significant (Table 01).

**Table 01:** Salivary parameters of patients and control group

Variables	Group	n	Mean $\pm$ SD	P-value
Un stimulated salivary flow rate	Case	50	0.245 $\pm$ 0.154	<0.001
	Control	50	0.564 $\pm$ 0.176	
Stimulated salivary flow rate	Case	50	1.461 $\pm$ 0.455	<0.001
	Control	50	1.982 $\pm$ 0.244	
pH of saliva	Case	50	6.978 $\pm$ 0.373	0.217
	Control	50	6.789 $\pm$ 0.374	

We develop a questionnaire for asking five questions to patients and control group. First of all we ask about some socio and demographic information about patients and control group. Then we ask five different questions for the assessment of oral dryness with relation to hyperthyroidism and hypothyroidism. The analysis of these five questions are statistically non-significant as compared to control group (table 02).

**Table 02:** Assessment of response of patients with respect to questionnaire

Questions	Hyperthyroid		Hypothyroid		P value
	Yes	No	Yes	No	
Mouth feels dry	5	15	11	15	0.214
Sip liquids to aid in swallowing dry food	5	25	17	25	0.334
Felt dryness in the mouth while eating a meal	7	14	7	20	0.1
Saliva in their mouth seemed to be too little	8	25	13	18	0.765
Feel more thirst	7	15	8	15	0.567

of foundational diseases, for example, hypertension,

## DISCUSSION:

The relationship of salivary capacity with different fundamental ailments has been cited by various creators. There is a settled relationship of salivary capacity with regular sicknesses, for example, diabetes, oral sub mucous fibrosis, and asthma [6]. Thyroid issue are a standout amongst the most well-known endocrine issue all inclusive and broadly, yet at the same time there is a critical deficiency of value prove that can build up its association with salivary capacity. Prior examinations in human subjects either evaluated just hypothyroid members or utilized scintigraphy or parotid gland stream rates [7].

The perceptions of our examination propose that thyroid dysfunction is more normally found in females as opposed to guys and that hypothyroidism was the most ordinarily experienced thyroid dysfunction. These discoveries are as per the present writing. Our examination barred subjects producing medicine that have a results on salivary emission, subjects experiencing restorative head-and-neck illumination, and subjects with a history suggestive

rheumatoid joint inflammation, and diabetes mellitus as these components affect the salivary gland work and could influence the outcomes [8].

The subjective evaluation turns out to be progressively vital in surveying the adjustments in nature of salivation notwithstanding target measures of salivary hypofunction in these patients. It additionally evaluates their inspiration to look for treatment [9]. In any case, as the view of the patients is variable and isn't authoritatively corresponding to the natural ailment pointers, this ought to be utilized with alert. However, as the perception of the patients is variable and is not definitively proportional to the biological disease indicators, this should be used with caution [10].

## CONCLUSION:

The current study indicates a basic relationship of thyroid dysfunction and salivary gland work in thyroid dysfunction patients. The investigation

demonstrated a factually noteworthy diminishing.

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