

Association of Dental Treatment Related Anxiety with Sterilization Concerns Among Patients

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Abstract

Objective: To assess the anxiety related to dental treatment and its association with sterilization concerns in dental patients

Methodology: A descriptive cross-sectional study was conducted on 400 patients visiting the dental OPD of Sharif Medical and Dental College, Lahore from June 2019 to June 2020. A questionnaire regarding level of dental anxiety was given to the patients. Data was collected using a pre-validated scale with a Cronbach alpha value of 0.89; Modified Dental Anxiety Scale (MDAS). Levels of anxiety was categorized as high level of anxiety (score ≥ 19) and moderate to low anxiety (score ≤ 18).

Results: There was no statistically significant association between the level of dental anxiety due to sterilization concerns ($p=0.250$). Gender had a non-significant association while age ($p=0.001$) and marital status ($p=0.002$) and level of education ($p=0.020$) had a significant association with dental anxiety due to sterilization concerns.

Conclusion: Most of the patients reported to feel anxious moderately before dental treatment because of sterilization concerns. A higher percentage of females, the age group 18 to 29 years and patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment.

Keywords: Dental anxiety, dental patients, sterilization concerns, sociodemographic factors.

Introduction:

Cross infection control is defined as the prevention of the spreading of infectious diseases from staff to patient, patient to staff, and from one patient to another.¹⁻³ Transmission may occur through direct or indirect routes i.e., through person-to-person contact or via contaminated surfaces and objects, respectively.^{4,5} Bleeding exposure to infected saliva droplets, and tissue debris are frequently caused during dental treatment and may serve as a means of transmission of infectious agents.⁶

Dental treatment poses a threat to many diseases, both symptomatic and asymptomatic if cross-infection control protocol is breached.⁷ A recent study revealed the diseases most likely to be transmitted during dental treatment as follows: hepatitis B, hepatitis C, AIDS, tuberculosis, and Hepatitis A.^{8,9} Dental personnel are expected to wear personal protective equipment (PPE) which includes gloves, face masks, and eyewear; ensure disinfection of surfaces after attending a patient and sterilization of instruments after each patient.¹⁰

With the emergence of dangerous diseases like AIDS and Covid-19, a heightened awareness regarding cross-infection control is seen among the public and dental patients and many have started to voice their concerns regarding the safety measures adopted by the dentists.¹¹ Factors that affect the attitude and understanding of patients regarding this matter include gender, education level, and socioeconomic status. Females' patients show greater anxiety associated with risk of infection as compared to men. Similarly, the education level also affects the willingness of a patient to be involved in their well-being.⁸

Patients want to be involved in their health care; they want the dentist to use barrier techniques like gloves, face masks, and eyewear and growing awareness is seen regarding sterilization concerns amongst them.¹² It was observed in that the risk of infection was greater in dental practice than in medical practice as evidenced by a recent study.¹¹ Most patients acknowledge the fact that barrier techniques and sterilization procedures effectively decrease the risk of infection transmission.¹² The changing perception of patients regarding cross-infection risks has had a major part to play in compelling the dentists to abide by the infection control protocols.¹ Failure to do so will lead to a loss of trust of the patient towards the dental team.

Nowadays, patients appreciate a brief follow-up of the safety protocols from the doctor. Effective communication between the two leads to better cooperation and hence quality dental

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care. This study aims to assess the anxiety related to dental treatment and its association with sterilization concerns in dental patients.

Methodology:

A descriptive cross-sectional study was conducted on 400 patients visiting the dental OPD of Sharif Medical and Dental College, Lahore from June 2019 to June 2020 after ethical approval from Sharif Medical Research Centre (SMRC). Demographics like name, age, gender, marital status, and educational status were noted. Keeping the confidence level 95 %, anticipated population proportion 50%, margin of error 0.05, the sample size was calculated to be 385 but a sample of 400 was used to avoid data wastage.¹³

Patients of both the genders were included in the study irrespective of their age, marital status, and level of education. Patients who had not undergone past dental treatment or were not willing to participate in the study were excluded. Informed written consent was taken from the participants before the study. A questionnaire regarding level of dental anxiety was given to the patients.

Data was collected using a pre-validated scale with a Cronbach alpha value of 0.89; Modified Dental Anxiety Scale (MDAS) 14 to assess levels of dental anxiety. The questionnaire comprised of 5 questions. Questions 1 to 5 had five options. Non anxious response was given a score 1 and corresponded to option "a" and the extremely anxious response corresponded to option "e" and was given a score of 5 i.e. a = 1, b = 2, c = 3, d = 4, e = 5 (Total possible = 25). 14 Levels of anxiety was categorized as high level of anxiety (score > 19) and moderate to low anxiety (score < 18).¹⁴

Recorded data was coded and entered using SPSS statistical package version 23.0. Quantitative variables like age and MDAS score was presented as mean and standard deviation. Frequency and percentages were calculated for qualitative variables. Chi square test was applied to see the association of level of dental anxiety and sterilization concerns of patients. Chi square test was used to find the association between dental anxiety due to sterilization concerns and gender and marital status. Fisher's exact test was used to find the association between age and level of education with the dental anxiety due to sterilization concerns. P value < 0.05 was taken as significant.

Results:

This study included a total of 400 patients visiting the dental OPD of College of Dentistry, Sharif Medical and Dental College, Lahore to assess the dental anxiety due to sterilization concerns in patients. There were 143 males (35.7%) and 257 females (64.3%). Mean age of the patients was 27.61 ± 11.87 years. There was no statistically significant association between the level of dental anxiety due to sterilization concerns ($p=0.250$) found and was observed that most of the patients reported to feel anxious moderately before dental treatment because they were concerned about the inadequacy of sterilization in the dental setting as shown in table 1.

Table 1: Association of Level of Dental Anxiety with Sterilization Concerns in Patients

Level Of Dental Anxiety	Sterilization Concerns		
	Yes n (%)	No n (%)	P Value
Moderate Dental Anxiety	108 (27%)	237 (59.3%)	0.250
High Dental Anxiety	13 (3.3%)	42 (10.5%)	

Furthermore, it was seen that among the sociodemographic factors, gender had non-significant association while age ($p=0.001$) and marital status ($p=0.002$) had a significant association with dental anxiety due to sterilization concerns as shown in table 2.

Table 2: Association of Age, Gender and Marital Status with the Dental Anxiety Related to Sterilization Concerns

Parameter		Dental Anxiety Due To Sterilization Concerns		
		Yes n (%)	No n (%)	P Value
Gender	Male	100 (25%)	43 (10.8%)	0.953
	Female	179 (44.8%)	78 (19.5%)	
Age	Below 18 Years	11 (2.8%)	2 (0.5%)	0.001
	18-29 Years	216 (54%)	73 (18.3%)	
	30-39 Years	24 (6%)	16 (4%)	
	40-49 Years	7 (1.8%)	10 (2.5%)	
	50-59 Years	13 (3.3%)	12 (3%)	
	60-69 Years	7 (1.8%)	8 (2%)	
	70 Years And Above	1 (0.3%)	0 (0%)	
Marital Status	Un-married	222 (55.5%)	79 (19.8%)	0.002
	Married	57 (14.3%)	42 (10.5%)	

It was also seen that level of education was significantly associated with the dental anxiety due to sterilization concerns of patients ($p=0.020$) with majority of the patients with tertiary level of education reporting it as a cause of dental anxiety as shown in table 3.

Table 3: Association between level of education and dental anxiety related to sterilization concerns.

Parameter		Dental Anxiety Due To Sterilization Concerns		
		Yes n (%)	No n (%)	P Value
Level Of Education	ILLITERATE	0 (0%)	4 (1%)	0.020
	PRIMARY	5 (1.3%)	4 (1%)	
	SECONDARY	48 (12%)	19 (4.8%)	
	TERTIARY	194 (48.5%)	75 (18.8%)	
	QUATERNARY	32 (8%)	19 (4.8%)	

Discussion:

Concerns regarding the sterilization of dental instruments have been reported by patients in the past as their biggest reservation for seeking dental treatment. The use of unsterilized dental instruments for treatment have been reported by patients as means of transmission of infection among patients.¹⁵ Barlean et al reported that the dental instruments that have the greatest probability of transmitting infections during dental treatment are endodontic needles (68,1%), the syringe needles (63,6%) and the dental burs

(61.8%).⁸ The same study also reported that 80% of the patients attributed the spread of infection among patients in dental clinic to the lack of sterilization while 54% said that it occurred due to inadequate disinfection of equipment and surfaces.⁸

Our study reported that 27% patients had moderate anxiety due to sterilization concerns during dental treatment while 3.3% reported feeling highly anxious. According to another study 35% patients reported feeling highly anxious while 38% said they did not feel anxious due to uncertainty of the cleanliness of the dental instruments.¹⁶

The same study reported that 40% patients reported feeling highly anxious before asking the dentist if the instruments were sterilized properly while 38% reported not being anxious in that situation.¹⁶ Regarding getting infected due to lack of sterilization in the dental clinic, it was reported that 31% patients felt highly anxious while 25% did not feel anxious regarding this matter.¹⁶

According to our study, 59.3% patients with moderate anxiety and 10.5% patients reported reasons other than sterilization concerns for their anxiety. Literature supports that the patient concerns regarding lack of sterilization and infection control are a matter of concern. Patients today are not only aware of the protocols for cross infection control but have been reported to ask the dentist to wear a face mask (13.3%) and gloves (16.4%) and also enquire about the sterilization of dental instruments (9.3%) before being treated.²

There does not exist a vast body of literature association of sociodemographic factors and sterilization concerns in patients undergoing dental treatment which makes our study unique. Our study reported that there is an influence of sociodemographic factors on the dental anxiety related to sterilization concerns in patients opting dental treatment. In our study it was seen that a higher percentage of females (19.5%) reported to feel anxious due to lack of sterilization in the dental clinic in comparison to 10.8% males. The age group that reported the greatest percentage of anxiety due to this problem was 18 to 29 years.

Level of education of the patient was also found to have an impact on the patient in this regard and it was seen that patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment. According to another study, patients with a low level of education were found to be highly afraid (65.1%) of catching infections in the dental clinic while 64.2% had been highly concerned about the standards of sterilization¹⁷ while some other studies reported contradictory results.¹⁸

With an increasing level of patient education and awareness, the concerns regarding their safety and protection during dental treatment are also on the rise. This is bringing about a change in their attitude regarding infection control protocols. The patient concerns in this regard should be addressed to help eliminate the anxiety experienced by them due to the fear of cross infection in the clinic. A multicenter study would have helped us unravel more findings on this topic.

Conclusion:

Most of the patients reported to feel anxious moderately before dental treatment because they were concerned about the inadequacy of sterilization in the dental setting. A higher percentage of females reported to feel anxious due to lack of sterilization in the dental clinic in comparison to males. The age group that reported the greatest percentage of anxiety due to this problem was 18 to 29 years. Level of education of the patient was also found to have an impact on the patient in this regard and it was seen that patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment.

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Author Contributions

1. Hira Butt- Concept, data collection, data analysis, manuscript writing and final approval.
2. Zainab Waheed- Concept and Data analysis
3. Nauman Rauf Khan- Concept and final approval
4. Dur E Shumyle- Data Collection
5. Hira Shekh- Data Collection
6. Tajawar Jafar- Critical review