

## The Influence of Dental Fear on Oral Health - An Observational Study

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### Abstract

The purpose of this study was to identify the impact of fears from dental interventions because the fears lead to the suspension of therapeutic treatment and deterioration of oral health. The present study was conducted from February 2019 to February 2022 in Albania. The sample is composed of 180 participants, of which 40% were males and 60% were females. The participants' age range varied from 15 to 55 years old.

Many of the patients 70% of them had high dental fear to receive orthodontic treatments and dental fillings, 59% of them had high dental fear to receive dental implants, and most respondents 74% of them had an extreme fear of the tooth extractions.

64% of participants surveyed stated that had gingivitis and 61% of them declared that had dental caries, compared to 53% of patients who had tooth extractions. On the basis of the data analysis, tooth extractions and dental caries had a significant impact on the high blood pressure with a P-value < .0001.

The results suggest improving the dental service in Albania because providing an appropriate dental treatment reduces fear and serves as an instrument for solving oral problems.

**Clinical article (J Int Dent Med Res 2022; 15(3): 1101-1106)**

**Keywords:** Dental fear, dental implants, hypertension, orthodontic appliances, tooth extraction.

**Received date:** 05 June 2022

**Accept date:** 04 July 2022

### Introduction

Dental fear<sup>1</sup> is responsible for poor oral health. Hill et al<sup>2</sup> found that about 36% of the adult population is affected by dental fear.

The findings of recent studies have shown that the fear of dental interventions has bad consequences for oral health, and dental fear of approximately 24% is considered high.<sup>3,4</sup>

Published research has shown that the most serious risk for high dental fear was previous bad experiences and other findings indicated that the high presence of caries was associated with dental fear.<sup>5,6</sup>

Several surveys have indicated that patients with dental fear tend to postpone the appointment with the dentist<sup>7</sup> and go to the doctor only when they are in pain.<sup>8</sup>

Moreover, considerable studies, conducted by Zinke et al<sup>9</sup> and Mustafa et al<sup>10</sup> showed strong correlations between the large number of missing teeth and the avoidance of visits to the dentist because of the fear.

A recent cross-sectional study, conducted in Bangalore city, with regard to the correlation between dental fear and gingivitis has proved that a significant relationship exists.<sup>11</sup> Van Wijk et al<sup>12</sup> in their study, found a positive association between pain and dental fears. Further, a study by Zhang et al<sup>13</sup> showed that the prevalence of moderate and high dental fear was 66.6% and 11.9% in Chinese patients with oral implant surgery.

The dental fear was also positively related to orthodontic treatment, and this fact is widely demonstrated in an important scientific research.<sup>14</sup> A kidney infection can permanently damage the kidneys and cause a life-threatening infection. According to Gupta et al<sup>15</sup> the symptoms of kidney infections can be evaluated by observing the oral cavity and the dentist may play an important role in the diagnosis of the patients.

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This present study aimed to evaluate the importance of identifying the risk factors regarding dental fear in order to reveal the association between dental interventions and fear.

We believe that patients should be aware that avoiding the dentist is not a solution for coping with dental fear as this leads to deterioration of oral health and dental aesthetics.

### Materials and methods

The current study was conducted during the period of February 2019 to February 2022 in Albania. This is an observational study.

The sample is composed of 180 participants, of which 72 (40%) were males and 108 (60%) were females. The participants' age range varied from 15 to 55 years old.

The study is part of the program for the recognition of dental fears, as a source of oral health problems. The participants for the study are randomly selected. We divided the participants into four age groups: 15-25, 26-35, 36-45, and 46-55 years old.

The examination of dental caries, gingivitis, and tooth extraction was performed through intraoral control for each participant. The intraoral inspection was performed with a dental mirror and exploration probe. Three doctors participated in our study.

In our questionnaire we assessed the concerns of the patients about the application of local anesthetics, bleeding, fear related to whether the dentist would work on a healthy or infected tooth, if the dentist would perform a bad job or if they would ask for a large amount of money, if the dentist would not respect the amount of time required to complete the procedure, if the dentist would not respect hygiene habits and other matters such as the uncertainty of the patient about the duration of the dental filling, etc, as it is shown in Table 2.

Completion of the questionnaire took almost twenty minutes. All the participants agreed to provide their informed consent. The study had no dropouts.

The exclusion criterion was that the present study is not focused on the evaluation of the dental fear caused by maxillofacial deformities, because these interventions are performed only in the maxillofacial surgery ward and the number of patients is relatively low

compared with other interventions in the field of dental medicine. Exclusion criterion was also the educational level of participants. Another limitation was that patients who had less than 15 years old and more than 55 years old were not taken into consideration.

Frequency (%)		
<b>Gender</b>	Female	108(60%)
	Male	72(40%)
<b>Residence</b>	City	108(60%)
	Countryside	72(40%)
<b>Age Group</b>	15-25 years old	45(25%)
	26-35 years old	80(45%)
	36-45 years old	25(14%)
	46-55 years old	30(16%)

**Table 1.** Sociodemographic data of the 180 participants.

The Declaration of Helsinki<sup>16</sup> is respected in order to carry out the present study. The questionnaire is designed based on the resolution of the Albanian National Committee no. 9, date 11.11.2011. The present study was approved by the institutional board of the University of Vlora, Albania.

The data were entered and subsequently analyzed using (IBM, New York, USA), SPSS Statistics 23.0. Data were scrutinized by the Post Hoc LSD test in analysis of variance (ANOVA). The  $P \leq 0.05$  values were considered significant and the data analysis included the 95% Confidence Interval (CI).

Various dental interventions	Low	High	Extreme
Tooth extraction	11(6%)	36(20%)	133(74%)
Dental filling	36(20%)	126(70%)	18(10%)
Dental implant procedure placed in the oral cavity	33(18%)	105(59%)	42(23%)
Dental orthodontic interventions in the oral cavity	34(19%)	126(70%)	20(11%)
Questions about risk factors	Low	High	Extreme
Application of local anesthetics	97(54%)	65(36%)	18(10%)
Bleeding	54(30%)	108(60%)	18(10%)
The patient suffers from hypertension	36(20%)	106(59%)	38(21%)
The fear if the dentist will work on a healthy or infected tooth	17(9%)	140(78%)	23(13%)
The dentist performs a bad job and asks for large sums of money	21(12%)	34(19%)	125(69%)
The dentist does not respect the amount of time required to complete the procedure	54(30%)	100(56%)	26(14%)
The patient is not sure about the duration of the dental filling	21(12%)	80(45%)	79(43%)
The dentist does not respect hygiene habits	36(20%)	40(22%)	104(58%)
The dentist has an inappropriate behavior	90(50%)	22(13%)	68(37%)
Fear related to local anesthetic that can have side effects	100(55%)	76(42%)	4(3%)
The patient had past dreadful experiences with various dentists	16(9%)	54(30%)	110(61%)
Dental fear caused by an infected tooth	Low	High	Extreme
An infected tooth can cause brain infections	21(12%)	55(30%)	104 (58%)
An infected tooth can cause kidneys infection	25(14%)	51(28%)	104 (58%)
An infected tooth can cause throat infections	37(20%)	63(35%)	80 (45%)
An infected tooth can cause urinary tract infections	31(17%)	90(50%)	59 (33%)

**Table 2.** Patients' responses about dental fears regarding dental interventions.

### Results

The questionnaire included demographic data such as gender, age- range, and residence. The participants came from different areas. 72(40%) of the participants stated that they live in the countryside, whereas 108(60%) of them said that they were residents in the city. The prevailing age range in the sample was mostly from 26 to 35 years old, respectively 45% of the participants. [Table 1]

Many of the respondents 70% of them had high dental fear to receive orthodontic treatments and dental fillings, 59% of them had high dental fear to receive dental implants, and most respondents 74% of them had an extreme fear of the tooth extractions. The most feared item was extreme fear from past dreadful experiences with various dentists, 61% of the participants. However, data collected from the current study indicated that a large proportion of respondents 58% of them had extreme fears about the fact that infected teeth can cause brain infections and kidney infections.

Approximately 45% of the participants had extreme fear related to the fact that an infected tooth can cause throat infections. Fewer participants, 33% of them reported that they had an extreme fear of the reason that an infected tooth can cause urinary tract infections. [Table 2] 64% of participants surveyed stated that had gingivitis and 61% of them declared that had dental caries, compared to more than half of the participants (53%) who had tooth extractions. [Table 3]

Variables	Frequency (%)	
Dental caries	Yes	110 (61%)
	No	70 (39%)
Gingivitis	Yes	115 (64%)
	No	65 (36%)
Tooth extraction	Yes	95 (53%)
	No	85 (47%)

**Table 3.** Oral health status of the patients with dental fears.

On the basis of our statistical data analysis, tooth extractions and dental caries had a significant impact on the high blood pressure with a P-value < .0001. Similarly, the analysis of variance in the present study demonstrated that there was a statistically significant correlation between dental caries and tooth extractions with dental fear based on the fact that the dentist does not respect the amount of time required to complete the procedure with P- values < .0001 in both cases. [Table 4]

### Discussion

Oral diseases<sup>17</sup> are a public health problem. The previous study conducted by Kazeminia et al<sup>18</sup> showed that the prevalence of dental caries in permanent teeth was 53.8% (95% CI: 50-57.5%). Albanian people, despite

dentists' recommendations to have consultations twice a year, still continue to neglect their oral health and the present study shows that the prevalence of dental caries is 61%.

Variables	Dental fears	P-Value	95% CI Lower	Upper
<b>Dental procedures</b>				
Tooth extraction Dental caries	The transmission of infections related to the poor hygiene practices of the dentist	<.0001 <.0001	0.66 0.28	0.83 0.50
Tooth extraction Dental caries	Hypertension related to following dental interventions	<.0001 <.0001	0.88 0.64	1.07 0.85
Tooth extraction Dental caries	The dentist performs a bad job and asks for large sums of money	<.0001 <.0001	0.50 0.24	0.70 0.52
Tooth extraction Dental caries	The dentist does not respect the amount of time required to complete the procedure	<.0001 <.0001	1.08 0.57	1.28 0.86

**Table 4.** The correlation between dental procedure and dental fears.

\*P < 0.05, 95% CI, 95% confidence interval.

In the present survey, 74% of patients reported that they had extreme dental fear of tooth extractions. Different studies achieved the same conclusion.<sup>7, 19</sup>

Moreover, 69% of the patients had extreme dental fear about the fact that the dentist performs a bad job and asks for large sums of money.

According to a study conducted in Korea<sup>20</sup>, high dental fear was associated with gingivitis and the current study showed that 64% of participants suffer from gingivitis.

In the published work by Topcuoglu et al<sup>21</sup> has been reported that dental fear in orthodontic patients increased, the present study confirms that 70% of the patients had high fear about the application of dental orthodontic appliances. Moreover, our study shows that 59% of Albanian patients have high dental fear regarding the placement of a dental implant. A qualitative study conducted by Lalabonova<sup>22</sup> arrived at the same conclusions.

It was confirmed that 61% of the patients have extreme fear from past dreadful experiences with various dentists and the study conducted by Dou et al<sup>23</sup> supports our results.

36% of Albanian patients had high dental fear from the application of local anesthesia. Dental fear of local anesthesia was also related to the fact that the dentist may not respect the right procedure of injection and as a consequence, the local anesthesia may not have the necessary duration to ensure the smooth running of the procedures. The result of our

study is analogous to the outcome of research conducted by Lopez-Jornet et al<sup>24</sup>.

Our study's results showed that 45% of the patients had high dental fear and were worried about how long dental fillings last in the oral cavity which is confirmed by the previous Israeli study<sup>25</sup>. Our findings showed that 70% of the patients had high fear in relation to a dental filling, unlike the study presented by Cappelli et al<sup>26</sup> which found that the correlation between dental filling and fear was not significant.

According to the Institute of Public Health, 23% of Albanian children have had emotional distress from the bad behavior of the dentist. Overall, the results showed that 37% of the patients had an extreme dental fear of the bad behavior of the dentist. In their study, Brunton et al<sup>27</sup> had the same conclusions, as we achieved.

According to Maraki et al<sup>28</sup>, brain abscesses can be caused by dental infections, too, this study showed that 58% of the patients had an extreme fear of brain abscesses. According to the data found on the official website of the Institute of Public Health in Albania, in 2018, the prevalence of urinary tract infections was 33.0%. This study showed that 50% of Albanian patients had high dental fear about the fact that infected teeth can cause urinary tract infections. The study conducted by Gautam et al<sup>29</sup> supports our results.

45% of the Albanian participants had extreme dental fear about the fact that an infected tooth can cause throat infections. The results were analog to the data of a previous study in France.<sup>30</sup> In our study, we revealed that 60% of participants had high fear due to oral bleeding. Bleeding gums is indicative of poor oral health. Yildirim<sup>31</sup> has reported similar data.

Similar to the work of Balasubramaniyan et al<sup>32</sup> one of the findings of this study is the strong correlation between tooth extractions with high blood pressure with a P-value of < .0001.

The present study is the first from Albania to indicate the correlation between dental fear and oral health. As a limitation of the current study, it can be mentioned the small sample size that was taken under consideration. Also, the age range can be seen as a limitation because patients younger than 15 years and older than 55 years were excluded from the study.

Our study suggests that finding a hospitable specialist, skillful in giving

interpretations and demonstrating step by step the dental procedures he will perform will allow the patients to overcome much more easily dental fears. The results of the study are significant because showed noteworthy risk factors for dental fears and reported high rates of gingivitis in 64% of the patients, 61% had dental caries, compared to 53% of the participants who had tooth extractions.

The strengths of this study are that it correlated dental fears with the transmission of infections, high blood pressure, the bad job of the dentist, and the amount of time required to complete the procedure. In our opinion, patients may be required to overcome dental fears, but patients with a fragile nature may be subject to dental fears.

### Conclusions

This study highlights the importance to improve the dental service in Albania because providing an appropriate dental treatment reduces fear and serves as an instrument for solving oral problems.

### Acknowledgements

I would like to express my deep gratitude to Dr. Alketa Qafmolla, Dr. Irene Malagnino, Dr. Gresa Baboci, and Prof. Vito Antonio Malagnino for the assistance and the support throughout the research.

### Declaration of Interest

The authors report no conflict of interest.

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