

# Factors causing Dental Fear in Adult Patients during and after Dental Treatment: A Cross Sectional Study in Punjab Dental Hospital Lahore

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## ABSTRACT

Prevalence of dental fear among the adult population in Punjab Dental Hospital (PDH) was estimated 46.9%. The study aim was to find out factors associated with dental fear and its prevalence in adult population. A cross-sectional study was conducted on consecutively visiting 160 outdoor patients in PDH. Descriptive statistical analysis (frequencies and crosstabs) and bivariate correlate analysis was done to find fear relation with other factors by using SPSS. No significant correlation of dental fear was found with gender, educational status, and age. Study showed slight predominance of dental fear in females, educated and patient's whose age ranged from 30-45 years. There was a significant correlation found between fear and factors like poor general and oral health, and patients who were found dissatisfied with their lives. Fear was also found in those who went through invasive procedures like extraction. Significant correlation was also indicated between fear and bad past experience, first dental visit age and frequency of visit to dental clinic. Other factors causing fear were dentist's white coat, needle/injection and other instrumentation, injury to lip and past traumatic dental history.

**Keywords:** Dental fear, Adult population, Punjab Dental Hospital (PDH).

## INTRODUCTION

The terms like dental phobia, fear and anxiety are used in dentistry interchangeably. Despite advancement in dental treatments fear has been diagnosed in many patients. Past traumatic experiences have major influence on dental treatment<sup>1</sup>. For this reason a large number of people do not seek dental treatment. This avoidance behavior can be attributed to dental fear or it can be due to poor awareness<sup>2</sup>. Socioeconomic status, fear, health status are factors that directly determine visits to dental clinic. Among them dental fear is a major determinant for visit<sup>3</sup>. A previous study showed that children with high fear were more prone to untreated caries in comparison with those who were less fearful<sup>4</sup>. Dental fear may vary among different groups of people. Patients having high degree of fear reported a significantly higher degree of psychological distress, and showed stronger negative social consequences from their dental anxiety<sup>5</sup>. The previous research has shown that dental fear is related more with decayed and missing teeth than filled teeth. People with dental fear have more caries. This emphasizes the importance to decrease dental fear as a cardinal step in improving oral health<sup>6</sup>. Dental fear is a worldwide phenomenon. Out of every six, one adult is suffering from severe forms of dental fear.

Adult females from age 30-45 years showed predilection for dental fear. Fear is a main hurdle in seeking professional dental care that results in deterioration of oral health. The treatment of such patients should include both complementary and pharmacological means. Helping patients who are highly fearful to control their fear of dental treatment is a challenge, however if it is controlled properly it will result in good oral health and casts positive influence in overall quality of life and wellbeing<sup>7</sup>.

The objectives of the study were dental fears prevents from seeking dental treatment, dental fears associated to

different factors and to find factors, their prevalence and extent to which it influence dental fear in a sample of the adult population visiting a Punjab dental hospital, Lahore.

## MATERIALS AND METHODS

One hundred and sixty consecutive outdoor patients, visiting the Punjab dental hospital in Lahore, Pakistan, were included in study sample. Any patient aged 15 and above was considered for this study. A structured custom-made questionnaire was asked to assess the factors influencing dental fear. The level of fear was assessed by considering various factors that included age, gender, educational status, socioeconomic status, frequency of their dental visits, reason for visit, past traumatic dental experiences, and nature of the dental procedure they undergo. Variables are then compared with each other to find out which dental fear is the most common cause for dental fear.

The study criterion was structured to make the study simple and clear. The sample was selected based on the exclusion and inclusion criteria. Patients at or above 15 years of age willing to take part in the study were included.

### Exclusion criteria

1. Patients have no tooth in mouth (edentulous patient).
2. Patients those are unwilling to take part in the study.
3. Physically and mentally disable patients.
4. Patients with psychiatric illness (using psychotropic medication such as antidepressants, antipsychotics, benzodiazepines).
5. Terminally ill patients.
6. Patients with alcohol or drug dependency.
7. Patients below the age of 15.

The data was recorded and statistical analysis was performed by using SPSS Vr 22. Initial analysis was done to find out frequencies and percentages of different variables including those factors that are responsible for causing fear i.e. descriptive statistical analysis and arranged in tabulated form. Bivariate correlate analysis was applied by using SPSS to find significant correlation between fear and factors influencing dental fear. To find frequencies of variables among fearful population we used crosstabs of descriptive analysis by the help of SPSS.

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**RESULTS**

The study was conducted on consecutively visiting 160 subjects in outdoor of PDH, Lahore. Only 75(46.9%) subjects were reported fearful. Out of 160 participants, 72 were males and 88 were females. Among them 33(45.83%) males and 42(47.72%) females were found to have dental fear. The data showed slightly more dental fear in females. Participant's age was ranged from 15 to above 60. Statistical analysis showed maximum fear of about 68.05% in the age group ranged from 30-45 years followed by 45-60 years with 41.66%. Subjects with higher education up to university level were reported more fearful with 53.125%.

Bivariate correlate analysis by using SPSS has shown no significant relation of Dental fear with gender, educational status, and age. In this cross sectional study subjects with low socioeconomic status and family income <10,000 were reported with high dental fear with 53.125%. Upper class and family income >50,000 were reported least fearful having 28.125%. Bivariate correlate analysis showed a significant correlation between income or socioeconomic status and dental fear (p<0.05). Subjects dissatisfied with their lives; had poor friend's support and with poor oral health were found with more dental fear of 63.63%. Poor general health also reported with greater dental fear nearly 64.77%. There has been found a significant relationship between satisfaction with life; friend's support; general health status&dental fear (p<0.01).

Subjects who had visited dental clinic at the age less than 10 were found less fearful (31.25%) as compared to those who visited dentist at the age more than 10 years (62.5%). Bivariate correlate analysis has shown significant relation between dental fear and first visit age to dentist. Patients with bad experience at their first dental visit were reported fearful with 97.40%. Participants visiting dental clinic regularly were reported with least dental fear 22.50%. Those who never went dental clinic were among the most

fearful reported cases 100%. Among different types of dental treatment, extraction was associated with the most dental fear (58.82%) followed by filling and root canal treatments (48.97%). 53.125% participants has reported their fear in the form of tremors/lightheadedness followed by palpitation (50%) and sweating (25%). A significant correlation is found between past dental experience; subjects frequency to visit dental hospital and fear (p<0.01). There was no significant correlation found between dental fear and its physical manifestation. A significant correlation is also found between type dental treatments obtained versus dental fear (p<0.01.)

Factors that were commonly associated and considered responsible in past for causing fear among subjects tabulated in Table 2. Descriptive statistical analysis showed that 45 % subjects were fearful of doctor's white coat, needle injury (injection or instrumentation fear), injury to lip during treatment and previous injurious incident during treatment, wrongly placed injections to gum, and past traumatic dental experience.30% subjects reported dental fear that prevented them from seeking treatment. Only 25% were fearful of rude and impolite dentist, delay in treatment, work done by assistant and treating too many patients at same time. Bleeding in mouth caused fear for only 20.6% patients.

A significant relation is found between dental fear and factors like doctor's white coat; needle, injection, and instrumentation fear; injury at previous dental treatment, past traumatic dental experience, fear preventing from seeking dental treatment, fear of placing wrong injection by mistake, injection into gums, delay in dental treatment; injury to lips with p value less than 0.01 (p<0.01). Factors such as work done by assistant, treating patients at same time, impolite and rude dentist; dentist with bad breath, bleeding in mouth, use of retractor has shown no significant correlation with dental fear.

Table 1: Distribution of Socioeconomic and demographic data of all participants

(\*) Correlation is significant at the 0.05level. (\*\*) Correlation is significant at the 0.01level. (----) correlation is not significant.

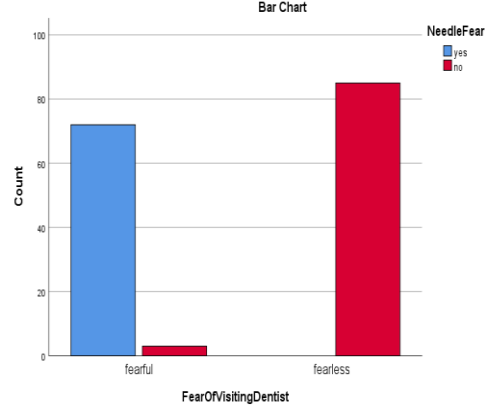
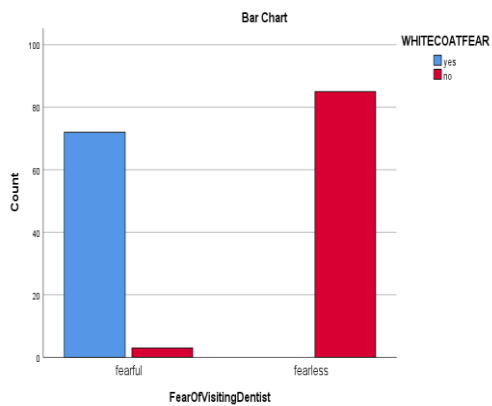
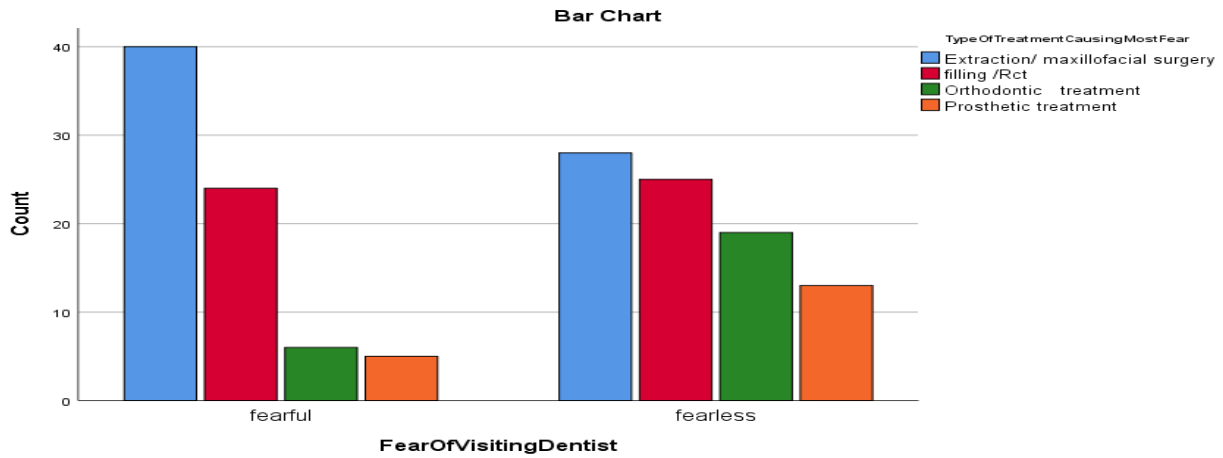
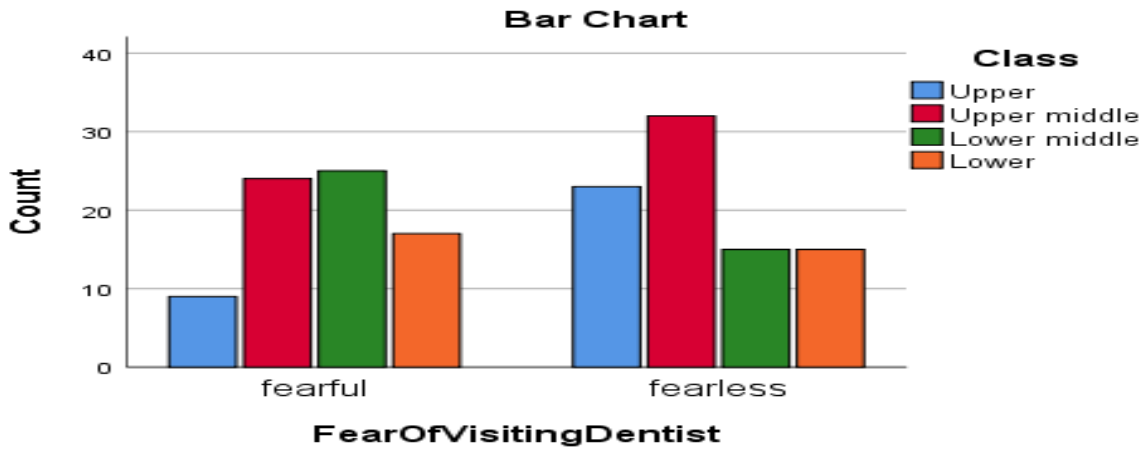
Fear of visiting dentist	Frequency(n=160)	%age	Fearful Frequency=75	Fearful(%)	Bivariate correlation=p
fearful (yes)	75	46.875			
fearless (no)	85	53.125			
<b>Gender</b>					0.813
Male	72	45	33	45.8333	
Female	88	55	42	47.7272	
<b>Educational status</b>					0.177
Uneducated	24	15	9	37.50	
Elementary school	40	25	17	42.50	
High school	64	40	32	50.00	
University/ Post-graduation	32	20	17	53.125	
<b>Age in years</b>					0.680
15-30	32	20	8	25.00	
30-45	72	45	49	68.056	
45-60	24	20	10	41.667	
> 60	32	15	8	25.00	
<b>Class(socioeconomic status)</b>					*0.012
Upper	32	20	9	28.125	
Upper middle	56	35	24	42.857	
Lower middle	40	25	25	62.50	
Lower	32	20	17	53.125	
<b>Family income</b>					*0.012
< 10,000	32	20	17	53.125	
10,000 to 25,000	40	25	25	62.50	
25,000-50,000	56	35	24	42.85	
> 50,000	32	20	9	28.125	

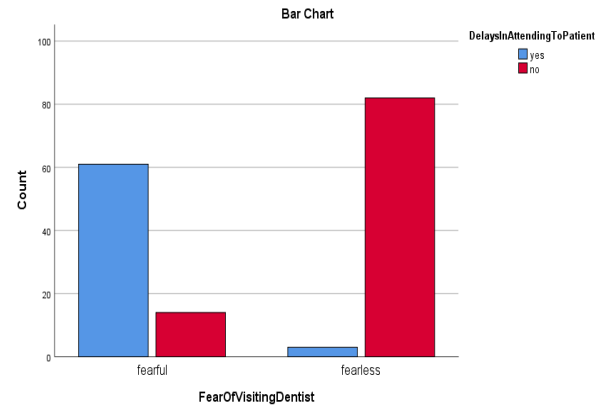
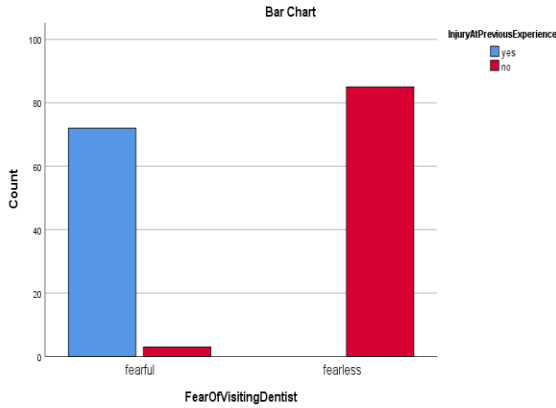
<b>Satisfaction with life</b>					**p<0.01
Dissatisfied	88	55	56	63.636	
Fully satisfied	72	45	19	26.389	
<b>Friend's support rating</b>					**p<0.01
Poor	88	55	56	63.636	
Good	72	45	19	26.38	
<b>General health status</b>					**p<0.01
Poor	88	55	57	64.773	
Good	72	45	18	25.00	
<b>Oral health status</b>					**p<0.01
Poor	88	55	56	63.636	
Good	72	45	19	26.389	
<b>First dental visit age</b>					**p<0.01
At More than 10 years	80	50	50	62.50	
At less than 10 year	80	50	25	31.25	
<b>Experience at first dental visit</b>					**0.000
Bad	77	48.1	75	97.4026	
Good	83	51.9	0	00.00	
<b>Frequency of visits to the dentist</b>					**0.000
On Regular basis after 3 months	40	25	9	22.50	
When there is a feeling of discomfort	88	55	42	47.727	
On and off	16	10	16	100.00	
None	16	10	8	50.00	
<b>Type of Dental treatment causing most fear</b>					**0.001
Extraction	68	42.5	40	58.824	
Filling /RCT	49	30.6	24	48.979	
Ortho	25	15.6	6	24.00	
Prosthesis	18	11.3	5	27.778	
<b>Physical manifestation of fear</b>					----
Tremors/ light headedness	32	20	17	53.125	
Sweating	40	25	10	25.00	
Palpitations	80	50	40	50.00	
None	8	5	8	100.00	

Table 2: Factors responsible for dental fear

<b>WHITE COAT FEAR</b>			** p<0.01
Yes	72	45	
No	88	55	
<b>NEEDLE / INJECTIONS / INSTRUMENTATION FEAR</b>			** p<0.01
Yes	72	45	
No	88	55	
<b>MOST OF WORK IS DONE BY DENTAL ASSISTANTS</b>			----0.055
Yes	40	25	
No	120	75	
<b>INJURY OF LIPS DURING TREATMENT</b>			**0.000
Yes	75	46.9	
No	85	53.1	
<b>DENTIST TREATS MANY PATIENTS AT THE SAME TIME</b>			----- 0.428
Yes	41	25.6	
No	119	74.4	
<b>IMPOLITE AND RUDE DENTIST</b>			-----
Yes	40	25	
No	120	75	
<b>INJURING OF MOUTH AT PREVIOUS EXPERIENCE</b>			** p<0.01
Yes	72	45	
No	88	55	
<b>DENTIST WITH BAD BREATH</b>			-----
Yes	16	10	
No	144	19	
<b>INJECTION INTO THE GUMS</b>			** p<0.01
Yes	72	45	
No	88	55	
<b>BLEEDING IN THE MOUTH</b>			----- 0.431
Yes	32	20	
No	128	80	
<b>USE OF THE ORAL RETRACTOR</b>			----- 0.198

Yes	64	42	
No	96	58	
<b>DELAYS IN ATTENDING TO PATIENT</b>			**0.000
Yes	64	42	
No	96	58	
<b>FEAR PREVENTING VISITING DENTIST</b>			** p<0.01
Yes	48	30	
No	112	70	
<b>PAST TRAUMATIC DENTAL EXPERIENCE</b>			** p<0.01
Yes	72	45	
No	88	55	





**DISCUSSION**

The study is conducted to evaluate the prevalence of dental fear in adult population. Among 160 subjects 75(46.9%) are reported as fearful of visiting dental hospital. While in the previous study the estimated prevalence of dental fear in adult population is 40%<sup>8</sup>. The study shows increase in prevalence of dental fear despite improvements in methods, technology, and materials used in dental treatments<sup>1</sup>. In another study the prevalence of dental fear among the studied population is reported 58.8%<sup>12</sup>. The decrease may be attributed to growing dental awareness.

Data analysis from past research has reported that factors like gender, educational status, financial stability, and previous traumatic incidents etc. are associated with fear<sup>10,11</sup>. Another study reveals that fear is not influenced by age, gender or educational status<sup>12</sup>. Present cross sectional study also finds no significant correlation of fear with factors such as gender, age, educational status and supports previous study<sup>12</sup>.

Dental fear is wide spread phenomenon involving both genders with slightly greater predominance reported in females<sup>11,12</sup>. In present study among participants 33(45.83%) males and 42(47.72%) females are reported fearful. The data analysis also shows that females have slightly more dental fear.

The present statistical data analysis shows maximum fear of about 68.05% in the age group ranges from 30-45 years followed by 45- 60 years with 41.66% and least in >60 approximately 25.00% . Previous studies also supports this stance that fear is high in younger patients and low in older patients [22]. Many other studies also show that fear decreases with growing age, this is in agreement with other studies [23, 24, 25, 26], Suggesting that the age dependent reduction in fear may be because of generalized reduction in fear with increasing age and larger exposure to different treatments<sup>27</sup>.

Studies report educational status as a major factor that can influence dental fears [28]. Participants having higher educational status are generally conscious of existing medical treatments, and are therefore reported less fearful<sup>29,30</sup>. In contrast, differences in educational status does not affect the fear as reports the case in the studies<sup>12,31,32</sup>. Present study is supported by<sup>12,31,32</sup> shows high fear in more educated subjects. The difference can be explained on the account that not a single factor is associated with dental fear but multiple factors are responsible for causing dental fear among population.

A significant correlation is found between fear and socioeconomic status or income p=0.012 (correlation is significant at the 0.05). Among fearful patients the most fearful class is upper and lower middle class. The majority of fearful subjects have family income ranges from 10,000 to 25,000 followed by 25,000 to 50,000. Socioeconomic status is considered as an important component associated with dental fear. The higher the family income, fear will be low<sup>13,14,15</sup>. Armfield et al. found that participants belongs from poor socioeconomic backgrounds have a higher prevalence of dental fear<sup>16</sup>.

In this cross sectional study a significant correlation is found between satisfaction with life, friend's support, general health status, oral health status and dental fear (p<0.01). Armfield et al.'s data analysis also supports the relation between oral health and dental fear. According to Armfield et al.'s data analysis participants with fear are more prone to delay treatment that increases or exacerbate oral health problems<sup>17</sup>. The analysis identifies that the participants who are dissatisfied with their lives are reported more fearful 63.63% than those who are satisfied with their lives 26.38%. Similarly those who have poor oral and general health and lack friends and family support are reported more fear 63.63%, 64.77%, 63.63% respectively.

A significant correlation has reported between fear and first dental visit age, experience at first dental visit, frequency of visiting dentist and type of treatment causing most fear with p<0.01. Past traumatic dental experiences are associated with increased fear. There is also an inverse relationship found between frequency of visiting dentist and fear<sup>12</sup>. The idea is supported by numerous past studies that dental fear can result from previous traumatic or bad dental experience<sup>18,19,20,21</sup> Participants who visited dental hospital at the age more than 10 years are found more fearful 62.5%. Those who have bad experience at their first visit are 97.40% fear. Maximum fear is found in those who never visited dental hospital before. Among different kinds of dental treatments 58.82% reported fear for extraction followed by filling/ root canal treatment 48.97%.

No significant correlation is found between fear and physical manifestation of fear. 53.125% subjects reports their fear in the form of tremors and light headedness. Study describes fear's relation with multiple factors. Dental fear is closely associated with doctor's white coat (45%); previous dental injury, needle stick injury and other instrumentation fear (45%).

Participants are also found fearful of wrong placement of injection, injury to lips(46.9%), injection into the gum (45%) with ( $p<0.01$ ). Dental fear has a significant correlation found that prevents from seeking dental treatments ( $p<0.01$ ). Dental fear is also associated with delay in obtaining dental care with a significant  $p$  value  $<0.01$ .

Type of dental treatment has also a significant correlation with dental fear ( $p<0.05$ ). This study data shows that subjects are more fearful of those procedures which are invasive in nature and are related to soft tissue injury. Analysis also suggests that dental fear is multifactorial ranges from vague (white coat fear) to specific (needle fear). Other factors such as work done by assistant, treating patients at same time, impolite and rude dentist, dentist with bad breath, bleeding in mouth and use of retractor has not found significant correlation with dental fear.

## CONCLUSION

Dental fear is multifactorial. Fear is independent of age, gender, educational status and depends on past dental experience, socioeconomic status, oral and general health status etc. Among many factors, the most of dental fear is caused by those procedures which are invasive in nature like needle stick injury etc. There are many factors that influence dental fear ranges from vague to specific and obvious factors. Type of dental treatment also reports a great influence of dental treatment.

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