

# Evaluation of fear of injections and its association with avoidance of dental treatment

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## ABSTRACT

**Aim:** The aim of this study was to assess the intensity of needle phobia and to evaluate the different dimensions of fear of dental injections to help provide better care to the patients. **Materials and Methods:** A simple random technique was used and 250 adult patients above 18 years of age were selected who attended outpatients Department of Operative Dentistry, Baqai Dental College. A modified form of the structured questionnaire used by Milgrom *et al.* was generated. The items were scored based on the 5-point traditional Likert scale ranging from strongly disagree to strongly agree. Data were analyzed for descriptive analysis (mean, standard deviation) using the software SPSS version 19. Association of gender with fear of dental injections was evaluated using Chi-squared test ( $P = 0.05$ ). **Results:** There was a statistically significant difference in fear of dental injections among male and female subjects. The most fearful aspect of dental injection was found to be fear of cross-infection. Fears associated with local anesthesia, for example, inadequate numbness, adverse reaction, and trouble in breathing or swallowing were the least common fears reported by the patients. **Conclusion:** This study highlighted that understanding the nature and extent of patients' fear of injection is important for dentists to expand their knowledge of the association of fear of dental needles for the impact on the treatment outcome and reluctance of the patients intervene.

**Keywords:** Dental anxiety, dental fear, dental needles, fear of injections, local anesthesia

## INTRODUCTION

Fear of injections is one of the most common distressing aspect for the dental patients in healthcare settings.<sup>[1]</sup> The perspective of dental operator is to carry out the dental treatment without pain and discomfort.<sup>[2,3]</sup> The sensation of the needle being attached to a syringe and

then penetrating the oral mucosa is quite fearful, and it carries a negative impact on patients' psychology. Epidemiological studies have shown that most of the patients delay their dental visits primarily due to the fear of the dental needles, pain, and bodily harm from injection.<sup>[3-7]</sup> Needle phobia which is characterized by

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persistent fear of injections affects approximately 1.6% of individuals in the general population.<sup>[8]</sup> There are many aspects of going to a dentist that might elicit feelings of apprehension, concern, or anxiety in prospective patients.<sup>[9,10]</sup> Fear of needles and the treatment of injection fear has been an important focus of a research in the UK.<sup>[11]</sup> Fear of dental needle is a major concern of delivery of local anesthesia through injection is the central plank of pain relief techniques in dentistry<sup>[12]</sup> and dentists as well as patients often avoid difficult injections as a consequence, resulting in poor pain control.<sup>[13]</sup> One in four adults reports a clinically significant fear of dental injections, and 1 in 20 reports avoiding dental treatment because of a fear of dental injections.<sup>[5]</sup> A study done by Costello<sup>[14]</sup> reported that 21.2% experienced mild to intense fear, and 4.9% had a phobic level of fear of injections, doctors, dentists, and hospitals. General fear of dental injections including pain of injection and of bodily injury from injection is the two most common dimensions of dental injection fear.<sup>[5]</sup>

To correctly overcome this challenge the dentist must understand the exact nature of patients' fear of injections. The aim of this study was to assess the intensity of needle phobia and to evaluate the different dimensions of fear of dental injections to help provide better care to the patients.

## MATERIALS AND METHODS

### Participants and sampling

The present cross-sectional study was done for over a period of 5 months, i.e. August 2014 till December 2014 to evaluate different dimensions of fear of dental injections. The study was approved by the Ethical Committee of Baqai Medical University. A simple random technique was used and 250 adult patients above 18 years of age were selected who attended outpatients Department of Operative Dentistry, Baqai Dental College.

### Inclusion criteria

Adult patients above 18 years of age with a history of dental injection in last 3 years.

### Exclusion criteria

- Children were excluded from the study
- Patients who never had an experience of dental injection
- Patients who do not remember the experience of dental injection.

### Questionnaire

A modified form of the structured questionnaire used by Milgrom *et al.*<sup>[5]</sup> was generated. The questionnaire consists of 13 items. The questions inquired about the different fears associated with dental injections including

general fear of needles, fear of pain, fear of bodily injury, fear of cross-infection, and fears related to local anesthesia such as inadequate numbness or an adverse reaction. The items were scored based on the 5-point traditional Likert scale ranging from strongly disagree to strongly agree.

### Statistical analysis

Data were analyzed for descriptive analysis (mean, standard deviation) using the software SPSS version 19 (IBM). Association of gender with fear of dental injections was evaluated by using Chi-squared test ( $P = 0.05$ ).

## RESULTS

There was a statistically significant difference in fear of dental injections among male and female subjects [Table 1]. The most fearful aspect of dental injection was found to be fear of cross-infection. Thirty-five (13.8%) of the respondents showed fear of getting diseases due to infected needle followed by 30 (11.8%) of the respondents getting bodily harm with the dental needle. Twenty-eight (11%) of the respondents reported that just seeing the needle is fearful. Fears associated with local anesthesia, for example, inadequate numbness, adverse reaction, and trouble in breathing or swallowing were the least common fears reported by the patients [Table 2].

Twenty-nine (19.2%) of the female respondents reported fear of getting disease with infected needle followed by 6 (6.1%) of the male respondents. Table 3 showed the comparison of fear of dental injections with gender. Regardless of the fear of injections 85.9% of females and 80% of males reported that they never

**Table 1: Descriptive statistics of fear of dental injections**

Questionnaire	Mean	SD	P
Seeing the needle is terrifying	2.86	1.14	0.000
Nothing is as painful as a needle in the mouth	3.13	2.80	0.001
Idea of needle penetrating the body is fearful	2.72	1.11	0.004
You won't get numb enough	3.18	1.02	0.205
You won't be able to breath properly	3.47	0.94	0.111
You won't be able to swallow	3.47	0.94	0.008
You are sensitive and it might harm you	3.04	1.07	0.319
The numbness will not go away	3.32	0.931	0.711
Needle isn't clean, you might get a disease	2.79	1.15	0.014
The dentist might slip and injure you	2.85	1.13	0.401
You might move and cause the dentist to injure you	2.79	1.13	0.770
You might bleed as a result of injection	2.88	1.01	0.464
You ever skipped appointment due to fear of injection	3.62	0.789	0.006

SD=Standard deviation

**Table 2: Evaluation of fear of dental injections**

Questionnaire	Responses (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Seeing the needle is terrifying	28 (11)	85 (33.5)	47 (18.5)	75 (29.5)	15 (5.9)
Nothing is as painful as a needle in the mouth	20 (7.9)	78 (30.7)	49 (19.3)	95 (37.4)	7 (2.8)
Idea of needle penetrating the body is fearful	30 (11.8)	99 (39)	44 (17.3)	66 (26)	11 (4.3)
You won't get numb enough	11 (4.3)	66 (26)	50 (19.7)	110 (43.3)	12 (4.7)
You won't be able to breath properly	6 (2.4)	44 (17.3)	45 (17.7)	137 (53.9)	18 (7.1)
You won't be able to swallow	9 (3.5)	36 (14.2)	50 (19.7)	138 (54.3)	17 (6.7)
You are sensitive and it might harm you	17 (6.7)	77 (30.3)	47 (18.5)	98 (38.6)	11 (4.3)
The numbness will not go away	8 (3.1)	47 (18.5)	63 (24.8)	122 (48)	10 (3.9)
Needle isn't clean, you might get a disease	35 (13.8)	82 (32.3)	45 (17.7)	77 (30.3)	11 (4.3)
The dentist might slip and injure you	28 (11)	89 (35)	35 (13.8)	89 (35)	9 (3.5)
You might move and cause the dentist to injure you	35 (13.8)	82 (32.3)	39 (15.4)	88 (34.6)	6 (2.4)
You might bleed as a result of injection	15 (5.9)	93 (36.6)	54 (21.3)	82 (32.3)	6 (2.4)

**Table 3: Correlation of fear of dental injections with gender**

Questionnaire	Male (%)					Female (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Seeing the needle is terrifying	10 (10.1)	19 (19.2)	20 (20.2)	40 (40.4)	10 (10.1)	18 (11.9)	66 (43.7)	27 (17.9)	35 (23.2)	5 (3.3)
Nothing is as painful as a needle in the mouth	7 (7.1)	17 (17.2)	20 (20.2)	50 (50.6)	5 (5.1)	13 (8.6)	61 (40.4)	29 (19.2)	45 (29.8)	2 (1.3)
Idea of needle penetrating the body is fearful	11 (11.1)	27 (27.3)	18 (18.2)	36 (36.4)	7 (7.1)	19 (12.6)	72 (47.7)	26 (17.2)	30 (19.9)	4 (2.6)
You won't get numb enough	5 (5.1)	20 (20.2)	7 (7.1)	52 (52.5)	5 (5.1)	6 (4)	46 (30.7)	33 (22)	58 (38.7)	7 (4.7)
You won't be able to breath properly	1 (1)	20 (20.2)	11 (11.1)	58 (58.6)	9 (9.1)	5 (3.3)	24 (15.9)	34 (22.5)	79 (52.3)	9 (6)
You won't be able to swallow	2 (2)	16 (16.2)	13 (13.1)	58 (58.6)	10 (10.1)	7 (4.6)	20 (13.2)	37 (24.5)	80 (53)	7 (4.6)
You are sensitive and it might harm you	4 (4)	27 (27.3)	18 (18.2)	44 (44.4)	6 (6.1)	13 (8.6)	50 (33.1)	29 (19.2)	54 (35.8)	5 (3.3)
The numbness will not go away	2 (2)	16 (16.2)	24 (24.2)	53 (53.5)	4 (4)	6 (4)	31 (20.5)	39 (25.8)	69 (45.7)	6 (4)
Needle isn't clean, you might get a disease	6 (6.1)	36 (36.4)	15 (15.2)	35 (35.4)	7 (7.1)	29 (19.2)	46 (30.5)	30 (19.9)	42 (27.8)	4 (2.6)
The dentist might slip and injure you	7 (7.1)	33 (33.3)	15 (15.2)	40 (40.4)	4 (4)	21 (13.9)	56 (37.1)	20 (13.2)	49 (32.5)	5 (3.3)
You might move and cause the dentist to injure you	13 (13.1)	29 (29.3)	15 (15.2)	39 (39.4)	3 (3)	22 (14.6)	53 (35.1)	24 (15.9)	49 (32.5)	3 (2)
You might bleed as a result of injection	4 (4)	35 (35.4)	22 (22.2)	37 (37.4)	1 (1)	11 (7.3)	58 (38.4)	32 (21.2)	45 (29.8)	5 (3.3)

avoided or put off a dental appointment due to fear of injections.

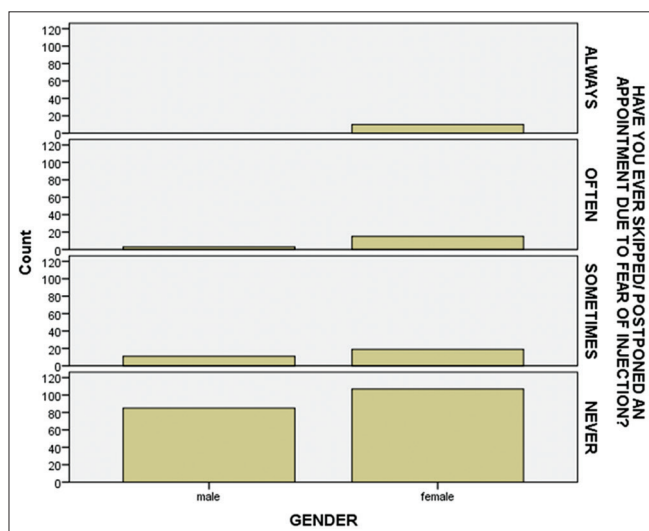
Figure 1 shows the response of the patients in answer to this item.

## DISCUSSION

This study presents information regarding the extent and nature of fear of dental needles among Pakistani adult population. A fear of needles was seen more common in females in the present study. Eighteen (11.9%) of the females strongly agreed that seeing the dental needle is fearful.

Wright *et al.*<sup>[15]</sup> in his study reported that 28 (71.8%) of the females showed fear of dental needles. This study

results were statistically significant that showed the highest mean score was 3.13 when strongly agreed that nothing is as painful as a needle in the mouth followed by the mean score of 2.86 when strongly agreed that seeing the needle is terrifying and a mean score of 2.72 when strongly agreed that idea of needle penetrating the body is fearful. Milgrom *et al.*<sup>[5]</sup> in his study reported that highest mean score of 4.1 was observed when seeing the needle is terrifying which is followed by a mean score of 4.0 for nothing is as painful as a needle in the mouth and a mean score of 3.5 for the idea that needle penetrating the body is terrifying.<sup>[16]</sup> Eighteen (11.9%) of the females and 10 (10.1%) of the males strongly agreed to that nothing is as painful as needle in your mouth. Nineteen (12.6%) of the females and 11 (11.1%) of the males strongly agreed that is the idea of needle penetrating the body is fearful.



**Figure 1:** Frequency of postponed appointments

Injection of local anesthetics is one of the most feared or anxiety-inducing stimuli in dental operator.<sup>[17]</sup> The fear of pain attributed to injection of anesthetic agents is cited as an obstacle to providing appropriate dental care.<sup>[5,18]</sup> Statistically significant results were reported with a mean score of 3.47 for will not be able to breathe and swallow properly by followed by a mean score of 3.32 for the numbness will not go away, with a mean score of 3.18 when will not get numb enough and a mean score of 3.04 for if sensitive or allergic and cause harm. Milgrom *et al.*<sup>[5]</sup> in his study also reported statistically significant results. A mean score of 2.8 was for its very hard to get numb followed by a mean score of 2.1 for will not be able to swallow properly, a mean score of 2.0 for if sensitive or allergic and cause harm, a mean score of 1.9 for numbness will not go away and a with a mean score of 1.8 for if will not be able breathe properly. Thirteen (8.6%) of the females and 4 (4%) of the males strongly agreed to the question that if sensitive or allergic and cause harm. 6 (4%) of the females and 5 (5.1%) of male subjects strongly agreed to the question that it is very hard to get numbed. Seven (4.6%) of the females and 2 (2%) of the male subjects strongly agreed that would not be able to breathe properly. Five (3.3%) of the females and 1 (1%) of the male subjects strongly agreed that will not be able to breathe properly. Six (4%) of the females and 2 (2%) of the male subjects strongly agreed that numbness will not go away.

Clinicians are recommended to follow safe injection practices as measures to perform injections optimally for patients, health care personnel, and others.<sup>[16]</sup> Although there have been no recent study reported transmission of infections in dentistry resulting from unsafe injection

practices, numerous outbreaks have been reported in other health care settings.<sup>[19]</sup> The present study showed clinically significant results with a mean score of 2.79. A study done by Milgrom *et al.*<sup>[5]</sup> reported similar mean score of 2.0. Twenty-nine (19.2%) of the females and 6 (6.1%) of the male subjects strongly agreed that if dental needle is not cleaned they might get an infectious disease.

Regarding fears of injury resulting from injections, clinically significant results were obtained from the present study. A mean score of 2.88 was reported for the question that it might bleed as a result of the injection followed by a mean score of 2.85 for the question that dentist might slip the needle which will cause injury and a mean score of 2.79 for the question that on moving the dentist might injure the subject. Milgrom *et al.*<sup>[5]</sup> in his study reported a mean score of 3.4 for the question that dentist might slip the needle which will cause injury, a mean score of 3.0 for the question that on moving the dentist might injure the subject and a mean score of 2.2 for the question that it might bleed as a result of the injection. Twenty-two (14.6%) of the females and 13 (13.1%) of the male subjects reported that on moving the dentist might injure the subject. Twenty-one (13.9%) and 7 (7.1%) of the male subjects reported that dentist might slip the needle which will cause injury and 11 (7.3%) of the females and 4 (4%) of the male subjects reported that it might bleed as a result of injection.

An individual's fear of the dentist can influence his or her satisfaction with the dental appointment and in turn, reflects the attendance at dental clinics<sup>[20]</sup> and have a general feeling that going to the dentist is a fear-provoking experience for specific procedures, such as site of an anesthetic needle, the feeling of an injection anesthesia or drilling, with more fear than persons reporting lower general fears of going to the dentist.<sup>[21]</sup> Results of several research studies have demonstrated that subjects of all ages reported of being afraid of going to the dentist.<sup>[22,23]</sup> Clinically significant results were obtained with a mean score of 3.62 for the question that if dental appointment was skipped due to fear of injection. One hundred and seven (80%) of the females and 85 (85.9%) of the male subjects never skipped/postponed their appointment due to fear of injections.

An interesting and consistent finding from the previous studies is that females generally have more dental visits and are more likely to be regular dental attenders and have better compliance with dental appointments and better oral hygiene practices than males.<sup>[24-27]</sup> Despite the fact that dental fear is more prevalent and severe among females.<sup>[28-30]</sup> It was suggested that gender difference in dental care utilization and oral health might be affected by factors other than the gender differences in dental fear.<sup>[31]</sup>

## CONCLUSION

This study highlighted that understanding the nature and extent of patients' fear of injection is important for dentists to expand their knowledge of the association of fear of dental needles for the impact on the treatment outcome and reluctance of the patients intervene.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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