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Fear of Dental Pain among Patients with Toothache

Mst. Mahmuda Khatun[1*], Shelina Fatema Binte Shahid[2], Mizanur Rahman Mamun[3], Md. Nizam Uddin[4]

[1]Ex Lecturer, Department of Dental Anatomy, Pioneer Dental College, Dhaka, Bangladesh
[2]Assistant Professor of Clinical Psychology, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
[3]PhD Fellow, Institute of Biological Sciences, University of Rajshahi. Lecturer, MH Samorita Medical College & Dental Unit, Dhaka, Bangladesh
[4]Honorary Medical Officer, Department of Medicine, Shaheed Suhrawardy Medical College, Dhaka, Bangladesh

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***Corresponding author**: Mst. Mahmuda Khatun
Ex Lecturer, Department of Dental Anatomy, Pioneer Dental College, Dhaka, Bangladesh

Abstract **Original Research Article**

Background: The sensation of pain, typically understood to result from diseases of the human body's organs or systems, is a serious public health issue. From the standpoint of oral health, untreated dental caries frequently cause a particular type of pain, dental pain. ***Objective:*** This study aims to determine how patients' perceptions of pain are linked to dental fear. Additionally, it evaluates how differences in pain perception are related to gender and age socioeconomic status. ***Methods:*** This study was a prospective cross-sectional investigation carried out at the Dental Chamber Smile N Shine, Dhaka, and *Kalachandpur Govt. Primary School*. The study was carried out between July 2021 and July 2022 and included 510 patients between the ages of 5 and 50. ***Result:*** The socio-demographic characteristics of the participants were 272(53.3%) patients who were less than or equal to 15 years old, and 238(46.7%) were older. 242(47.5%) were male and 268(52.5%) were female. 180(35.3%) patients came from low income families, 210(41.2%) from middle income and 120(23.3%) from high income families. 69 (35.9%) patients with previous experience of dental pain had very fear of dental pain, followed by 66(34.4%) had quite fear, 27(14.1%) had a little fear, and 30(15.6%) had no fear. There was a strong association between experience of dental pain and dental fear (p=0.001). ***Conclusion:*** The causes of dental fear are multifaceted and include age, socioeconomic level, oral health, and initial tooth discomfort. Patients with dental fear may require more anesthesia or different anesthetic procedures. Dental anxiety was related to an experience of dental pain, which suggests that fear of pain is a factor that should be considered, investigated, and controlled in dental practice, particularly in pediatric dentistry, since it represents the patient's first experience with oral healthcare.

Keywords: Dental Fear, Dental Pain, Toothache, Oral Health, Dental Anxiety.

INTRODUCTION

The sensation of pain, typically understood to result from diseases of the human body's organs or systems, is a severe public health issue. From oral health standpoint, untreated dental caries frequently cause a particular type of pain, dental pain [1]. The International Association for the Study of Pain (IASP) subcommittee on taxonomy defines pain as "an unpleasant sensory and emotional experience connected with existing or potential tissue damage, or defined in terms of such damage"[2]. A more detailed definition of pain can be found in Stedman's Medical Dictionary, which describes it as "an unpleasant sensation related to actual or potential tissue damage and transmitted through particular nerve fibers to the brain, where its conscious perception may be altered by various factors"[3]. This definition acknowledges that pain may have three components: a psychological component, a crucial modulatory component, and a noxious transmission component. The degree of nociceptive stimulation does not only determine how much pain there are [4]. Pain is a psychological and cognitive construct and a physical sensation [5]. Rhudy and Meagher examined how fear and anxiety affected people's reactions to pain. The study's findings confirmed that human pain reactivity is modulated by emotional states [6]. Managing a patient's dental fear-related behaviors might be one of the most challenging tasks. Because of their pain-related genesis, invasive medical or dental procedures are the most frequent sources of immediately anticipated fear [7]. Children's

dental anxiety has a complex cause. Higher general worries, painful dental experiences in the past, and the detrimental effects of the mother's dental phobia have all been linked to increased dental anxiety [8]. According to Klingberg *et al.*, child dental fear was also associated with general phobias, the mother's dental phobia and the child's age, prior painful dental experiences, social anxiety, and dental fear in the family [9]. Dental treatment fear is rather prevalent. It could make patients less compliant, worsening their oral and periodontal health [10]. In periodontal therapy, there appears to be a connection bet**w**een dental fear, pain felt during scaling procedures, and the discomfort felt following periodontal surgery [11]. Varying periodontal procedures result in different patient perceptions of pain and dental anxiety [12]. The most popular method for treating gingivitis and periodontitis is mechanical non-surgical therapy, often known as scaling and root planing (SRP). These procedures could seem uncomfortable [13]. Patients without periodontitis may become discouraged if they encounter pain during preventive procedures like probing and scaling. The excision of supragingival calculi is also said to be painful for patients [14]. Dental anxiety is also strongly connected with the female gender, suggesting that it is a particular syndrome in women [15].

OBJECTIVE OF THE STUDY

This study aimed to determine how patients' perceptions of pain are linked to dental fear. Additionally, it evaluates how differences in pain perception are related to gender and age.

MATERIALS AND METHODOLOGY

This study was a prospective cross-sectional investigation carried out at the Dental Chamber Smile N Shine, Dhaka, and *Kalachandpur Govt. Primary School*. The study was carried out between July 2021 to July 2022 and included 510 patients between the ages of 5 and 50 years. Permission for student participation was given by the school authority, and parents' written concern was taken through a written consent form. The Dental Fear Question (DFQ), which has the single-item measure of dental fear "Are you fearful of going to the dentist?" and four alternative answers: "no," "a little," "yes, quite," and "yes, very," corresponding to the scores 1-4, was used in this study to collect data on dental fear. The parent or legal guardian of the child was questioned regarding the child's oral health, whether there had been any prior dental pain since birth, and whether the youngster had ever visited a dentist. The following were listed as exclusion criteria: refusal to provide informed consent; a physical or mental condition that may affect one's ability to tolerate pain; use of painkillers or anxiety medications; dependence on alcohol or tobacco; the presence of acute periodontal pain, pulpitis, abscesses, or other acute infections. The data were statistically analyzed using SPSS version 25.

RESULT

Table 1: Socio-demographic characteristics of the participants

Age (Years)	Frequency (N=510)	Percentage
Sample 1(≤15 years)	272	53.3
Sample 2(>15 years)	238	46.7
Gender		
Male	242	47.5
Female	268	52.5
Total	**510**	**100.0**
Socio-economic status		
Low income	180	35.3
Middle income	210	41.2
High income	120	23.5

This table shows the socio-demographic characteristics of the participants. 272(53.3%) patients were less than or equal to 15 years old, and 238(46.7%) were older. 242(47.5%) were male and 268(52.5%) were female. 180(35.3%) patients came from low income families, 210(41.2%) from middle income and 120(23.3%) from high income families.

Table 2: Distribution of participants according to fear of dental pain related to age, gender and socio economic status

Variable	Fear of Dental Pain										P Value
Age(Years)	No Fear (n)	(%)	A Little Fear (n)	(%)	Quite Fear (n)	(%)	Very Fear (n)	(%)	Total	%	
Sample 1(<15)	76	27.9	62	22.8	68	25	66	24.3	272	100.0	0.002
Sample 2(>15)	98	41.2	82	34.5	50	21.0	8	3.4	238	100.0	
Gender											
Male	104	43.0	84	34.7	32	13.2	22	9.1	242	100.0	0.0021
Female	70	26.1	60	22.4	86	32.1	52	19.4	268	100.0	
Socio-economic status											
Low income	34	18.9	36	20.0	54	30.0	56	31.1	180	100	0.003
Middle income	78	37.14	76	36.19	44	20.95	12	5.71	210	100	
High income	62	51.7	32	26.7	20	16.6	6	5.0	120	100	

Table 2 explains the distribution of participants according to fear of dental pain related to age, gender, and socio-economic status. In sample 1(≤15 Years), 76(27.9%) patients had no fear, 62(22.8%) had a little

fear, 68(25%) had quite fear and 66(24.3%) had very fear and followed by 98(41.2%), 82(34.5%), 50(21.0%) and 8(3.4%) in sample 2(>15 Years), whereas gender distribution 104(43.0%), 84(34.7%), 32(13.2%) and 22(9.1%) were male and 70(16.1%), 60(22.4%), 86(32.1%) and 52(19.4%) were female. In low income socio economic status, 34(18.9%) patients had no fear, 36(20.0%) had a little, 54(30.0%) had quite and 56(31.1%) had very fear and followed by 78(37.14%), 76(36.19%), 44(20.95%) and 12(5.71%) from middle income families, 62(51.7%) 32(26.7%), 20(16.6%) and 6(5.0%) from high income families. There was a significant difference in terms of fear of dental pain between the aged groups' (p=0.002); females had more fear of dental pain than males (p=0.0021), and low-income socio-economic patients had more significant dental fear (p=0.003).

Table 3: Distribution of participants according to experience of dental pain related to age and gender

Variable	Experience of Dental Pain						
Age(Years)	**Yes**	**(%)**	**No**	**(%)**	**Total**	**(%)**	**P Value**
Sample 1(≤15)	58	24.4	180	75.6	238	100.0	
Sample 2(>15)	134	49.3	138	50.7	272	100.0	0.001
Gender							
Male	54	22.3	188	77.7	242	100.0	0.003
Female	138	51.5	130	48.5	268	100.0	

Table 3 shows the distribution of participants according to the experience of dental pain related to age and gender. Experience of dental Pain, there was a significant difference according to age (p=0.001). In sample 1 (≤15 Years), 58(24.4%) experienced dental pain, and 180 (75.6%) had no pain, whereas, in sample 2 (>15 Years), 134(49.3%) experienced dental pain and 138(50.7%) had no pain. In gender distribution 54(22.3%) male patients experienced dental pain 188(77.7%) were not, whereas 138(51.5%) female patients experienced dental pain and 130(48.5%) were not. This result defines that females experienced dental pain more than males (p=0.003).

Table 4: Distribution of participants according to the association between fear of dental pain and experience of dental pain

Experience of Dental Pain	Fear of Dental Pain										P Value
	No Fear (n)	(%)	A Little Fear (n)	(%)	Quite Fear (n)	(%)	Very Fear (n)	(%)	Total	(%)	
Yes	30	15.6	27	14.1	66	34.4	69	35.9	192	100.0	0.001
No	144	45.3	117	36.8	52	16.4	5	1.6	318	100.0	

Table 4 describes the distribution of participants according to the association between fear of dental pain and experience of dental pain. 69 (35.9%) patients with previous experience of dental pain had very much fear of dental pain, followed by 66(34.4%) had quite fear, 27(14.1%) had a little fear, and 30(15.6%) had no fear. There was a strong association between experience of dental pain and dental fear (p=0.001).

DISCOUSSION

In our study, there was a significant difference in terms of fear of dental pain between the aged groups, whereas student patients (sample 1) were more fear of dental pain than older (sample 2) (p=0.002). That is similar to A.J. van Wijk and J. Hoogstraten, who found that the student sample scored significantly higher on mean FDP scores than the periodontal patients. Age was mainly related to the FDP score but not to the S-DAI [16]. Klingberg *et al.*, also found that age was strongly associated with dental fear [9]. In this study, females had a more significant fear of dental pain than males (p=0.0021) which is similar to the study of A.J. Van Wijk and J. Hoogstraten, where they found in a multivariate main effect for gender was F (2, 361) = 4.85, p < 0.008, resulting from a higher mean score for women on the FDP and S-DAI [16]. Some other studies showed significant differences in dental anxiety scores between the genders. As shown in previous studies, women reported more dental anxiety than men [17, 18]. It could be attributed to men refusing to report symptoms they consider weak or unmasculine and tend to cope with anxiety silently. Some other studies' results contradict our study, where M. M. T. Oliveira, Caraciolo & Colares found that dental anxiety and gender were not associated [19, 20]. It may have been that their study sample was significantly younger than ours. Socioeconomic status was shown to be an essential factor related to dental fear since the higher the family income, the lower the dental fear rating, and low-income patients had more significant dental fear (p=0.003). This association has been described by other authors such as Majstorovic & Veerkamp 2 and Caraciolo & Colares [7, 20]. Armfield *et al.*, found that people from poor socioeconomic backgrounds have a higher prevalence of dental fear [21]. A significant correlation existed between the fear of dental pain and the experience of dental pain (p=0.001). 69 (35.9%) patients with previous experience of dental pain had very fear of dental pain, followed by 66(34.4%) had

quite fear, 27(14.1%) had a little fear, and 30(15.6%) had no fear. According to studies by Klages *et al.*, subjects predicted more pain than they experienced. This effect was more noticeable in people with greater dental-fear scores [22]. Furthermore, it was claimed that fear only influences anticipated pain and not actual pain [23]. The idea that dental fear is closely associated with intrusive procedures may help to explain the correlation between dental fear and the experience of dental pain [3]. Other authors have linked previous painful dental experiences or prior bad dental treatment experiences to dental anxiety or fear [4, 5].

CONCLUSION

The causes of dental fear are multifaceted and include age, socioeconomic level, oral health, and initial tooth discomfort. Patients with dental fear may require more anesthesia or different anesthetic procedures. Dental anxiety was related to an experience of dental pain, which suggests that fear of pain is a factor that should be considered, investigated, and controlled in dental practice, particularly in pediatric dentistry, since it represents the patient's first experience with oral healthcare.

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