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CORRESPONDING AUTHOR:

Gopal Gurung

Assistant professor, Department of Dental Surgery, Birat Medical College and Teaching Hospital, Nepal.

Email: drgopalomfs@gmail.com

Orcid: <https://orcid.org/0000-0002-7884-7899>

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Fear of Tooth Extraction among Patients Visiting a Tertiary Care Center

Gopal Gurung¹, Mona Pokharel², Sabana Thapa³, Asmita Parajuli³¹ Assistant professor, Department of Dental Surgery, Birat Medical College and Teaching Hospital, Nepal.² Lecturer, Department of Dental surgery, Birat Medical College and Teaching Hospital Nepal³ Dental Surgeon, Department of Dental surgery, Birat Medical College and Teaching Hospital Nepal

ABSTRACT

Introduction: Extraction of teeth is the most commonly performed procedure in dentistry. Extraction of teeth is known to be in the top five most frightening procedures in dental practice.

Objectives: To find out the prevalence of fear of tooth extraction, its association with gender, age, education, and previous extraction experience, and ranking of the fear of tooth extraction.

Methodology: A descriptive cross-sectional study was conducted among the patients visiting the Department of Dental Surgery at Birat Medical College and Teaching Hospital for the extraction of teeth from 1st March 2023 to 31st August 2023.

Results: Out of 278 patients, 219 (78.70%) patients had a fear of tooth extraction. Gender wise 153 (85%) females and 66 (67.3%) males had a fear of tooth extraction. Fear of tooth extraction was highest in the age group of 18-27 years (n= 67; 87.01%). The prevalence of fear of extraction among previous extraction patients was 106 (69%) and 113 (90.4%) in non-extraction patients. The association of fear of tooth extraction with gender, age, and experience of previous extraction was found to be significant (p<0.05) using the Chi-square test. The association of fear of extraction of a tooth with the level of education was found to be not significant (p>0.05). While ranking the fear of extraction by patients, the first (most feared) was pain during extraction (n=134; 61.20%).

Conclusion: The fear of extraction of teeth was seen in the majority of patients and was more prevalent in females, younger patients, and previous non-extraction patients.

INTRODUCTION

Fear refers to an activated response to an unpleasant emotion caused by the threat of danger, pain, or harm.¹ Dental fear is fear of dentistry-related objects and treatment procedures. Dental fear-related behaviours have long been recognized as the most difficult aspect of patient management and can be a barrier to good care.² Fear of dental treatment was seen in 24.3% of the individuals, which was fourth after fear of snakes (34.8%), heights (30.8%), and physical injuries (27.2%) according to a study done in the Netherlands.³ Among dental treatments slow speed drilling(42%) was most feared followed by high speed drilling(33%), preparation of anaesthetic (33%), and extraction of tooth(25%) according to Berggren et al.⁴ Extraction of teeth is one of the most commonly performed procedures in dentistry both by general dentists and oral and maxillofacial surgeons. Extraction of teeth is meant to be painless and this can

be achieved by giving adequate amounts of local anaesthesia to the patient. Studies have shown that patients undergoing dental treatment have a great fear of injection of local anesthesia.^{2,5} Extraction of teeth is known to be in the top five most frightening procedures in dental practice.⁵ Although extraction of teeth is one of the most performed surgical procedures and is feared by patients, there is a lack of data to show its prevalence. Reasons for fear of extraction of teeth are certain to be multifactorial, pain has been hypothesised to be a central component.⁶ Anxiety is used to describe the emotional state and fear to describe an activated response to unpleasant stimuli. However, the two terms are usually used synonymously.⁷ These two terms are used together in this study for comparison of the study findings.

The objective of this study was to find out the prevalence of fear of tooth extraction, its association with gender, age, education, and previous extraction experience, and the ranking of the fear of tooth extraction among patients visiting Birat medical college and teaching hospital, in Nepal.

METHODOLOGY

This descriptive cross-sectional study was conducted among the patients visiting the Department of Dental Surgery at Birat Medical College and Teaching Hospital, Tankisinwari, Morang, Nepal for extraction of teeth from 1st March 2023 to 31st August 2023. Ethical approval was taken from the Institutional Review Committee (Reference number: IRC-PA-284/2078-79). Written informed consent was taken from the patients. Patients with age \geq 18 years whose permanent teeth were to be extracted were included in the study. Patients with deciduous tooth extraction, surgical extraction, and extraction that had been attempted outside and referred were excluded. A convenience sampling method was used. The sample size of 278 patients was calculated based on the previous study.⁴

Demographic data of the patients were entered in the designed proforma. Patients were seated in the dental chair and asked about their education level, fear of extraction, and previous extraction experience after the patients were planned for extraction of a tooth. Education level of the patient was categorised into three as illiterate, \leq higher education level and \geq bachelor level. Fear of extraction of tooth was asked in 'yes' and 'no' form only. Previous extraction experience of the patient was also asked in 'yes' and 'no' form; patients were not asked in detail about their past experience of tooth extraction. Fear of the extraction of tooth was evaluated based on the pain perceived by the patients and it included pain from injection of local anaesthesia, pain during extraction, and pain after extraction in the postoperative period. Patients were asked to rank the pain which they feared most according to the order before the extraction of tooth. All extractions were performed in the out patient department of Dental surgery under local anaesthesia by multiple practitioners.

Data were entered in Microsoft Excel 2013 and analysed using Statistical Package for Social Sciences version 22. Frequencies and percentages were used to represent data. The Chi-square test was applied to evaluate the association between the

variables.

RESULTS

Among 278 patients, there were 180 (64.7%) females and 98 (35.3%) males. The age of patients ranged from 18 years to 90 years with a median age of 39 years. There were 96 (34.5%) illiterate, 146 (52.5%) with \leq higher secondary school education, and 36 (12.5%) with \geq bachelor level education. Out of 278 patients, 219 (78.70%) patients had a fear of tooth extraction. Gender wise 153 (85%) females and 66 (67.3%) males had a fear of tooth extraction. Fear of tooth extraction was highest in the age group of 18-27 years (n= 67; 87.01%). Education level wise proportion of fear was highest in \geq bachelor level (n=30; 83.33%) (Table1).

Table 1: Demographic variables of the study population (n=278)

Variables	Fear-Yes(%)	Fear-No(%)	Total(%)
Gender			
Male	66(67.34)	32(32.66)	98(35.25)
Female	153(85)	27(15)	180(64.75)
Age group (years)			
18-27	67(87.01)	10(12.99)	77(27.70)
28-37	45(86.53)	7(13.47)	52(18.70)
38-47	30(85.71)	5(14.29)	35(12.59)
47-57	28(73.61)	10(26.39)	38(13.67)
>57	49(64.47)	27(35.53)	76(27.34)
Education level			
Illiterate	71(73.95)	25(26.05)	96(34.53)
\leq Higher school level	118(80.82)	28(19.18)	146(52.52)
\geq Bachelor level	30(83.33)	6(16.67)	36(12.95)

Patients with previous extraction experience were 153 (55%). The prevalence of fear of extraction among previously experienced extraction patients was 106 (69%) (Figure 1).

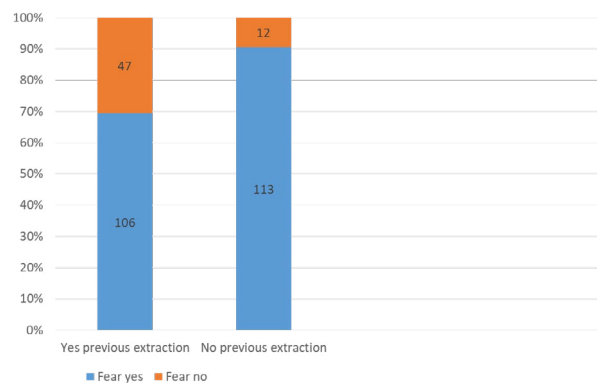


Fig 1: Fear of extraction in patients with previous extraction and non-extraction experience

The association of fear of tooth extraction with gender, age, and experience of previous extraction was found to be significant ($p < 0.05$) using the chi-square test. (Table 2) Females had significantly more fear compared to males and similarly the 18-27 years of age group had more fear compared to other age groups. Fear of tooth extraction decreased as the age of the patient advanced. Fear was significantly more in previous non-extraction patients compared to experienced patients. The association of fear of extraction of tooth with level of education was found to be not significant ($p > 0.05$).

Table 2: Association of fear of tooth extraction with gender, age, education level, and previous extraction

Variables	Fear-Yes	Fear-No	P-values
Gender			0.001*
Male	66	32	
Female	153	27	
Age group (years)			0.000*
18-27	67	10	
28-37	45	7	
38-47	30	5	
47-57	28	10	
>57	49	27	
Education level			0.342
Illiterate	71	25	
≤Higher school level	118	28	
≥ Bachelor level	30	6	
Previous extraction			0.000*
Yes	106	47	
No	113	12	

*Statistically significant, Chi-square test applied

While ranking the fear of extraction by patients, the first (most feared) was pain during extraction ($n=134$; 61.20%). Less than half of the patients ($n=77$; 35.15%) ranked pain during injecting local anaesthesia in the first order. Very few, only eight (3.65%) ranked pain in the post-extraction period in the first order (Table 3).

Table 3: Ranking of fear of tooth extraction ($n=219$)

Fear	LA injection	Extraction	Post extraction
Rank			
1	77(35.15%)	134(61.20%)	8(3.65%)
2	121(55.25%)	81(36.98%)	17(7.77%)
3	21(9.60%)	4(1.82%)	194(88.58%)

DISCUSSION

In this study, out of 278 patients who came for extraction of teeth, the prevalence of fear of tooth extraction was 219 (78.70%). This prevalence is high compared to other studies by Berggren et al (25%).⁴ The differences could be because of methodological issues as in our study patients who were seated in dental chair and were about to go under extraction of teeth were evaluated. However in the study by Berggren et al. patients were interviewed, an oral examination was done and no dental treatment was done. Also in the study by Berggren et al. 160 adult patients that had dental fear and avoidance of dental treatment that were referred for at a special clinic for dental fear treatment were investigated. Fear of tooth extraction was more in females ($n=153$;85%) compared to males ($n=66$;67.3%) in our study which is similar to other studies.^{5,8-15} In the study by Heft et al. fear of extraction of tooth was 29.7% in females and 20.2% in males.⁶ Reasons for gender differences in fear of extraction are not clear however studies have shown that females tend to remember more pain, report negative experience after extraction than males. In general, men and women differ in communication styles in the healthcare settings, with women being more expressive regarding their problems and feelings.¹⁶ According to Pierce et al. traditional male gender role may lead men to express less fear than what they really feel.¹⁷ Wabnegger et al. pointed out that the grey matter volume in the cognitive regions that are activated during emotional regulation were found to be greater in females than males that might influence behaviour.¹⁸

Fear of tooth extraction was highest in the age group of 18-27 years ($n=67$;87.01%) as the age advanced there was a decrease in the fear of extraction. Explanation for the decrease in fear in older age is that older adults tend to use emotional coping skills, have more prolonged exposure and greater tolerance acquired over their life span.^{19,20} Fear of tooth extraction being more common in younger patients is similar to other studies.^{5,13,21-23} This could be attributed to difficulty in adapting to the environment as well as accepting the treatment for younger patients¹³.

Education level wise proportion of fear was highest in ≥ bachelor level ($n=30$;83.33%) and least in illiterate patients($n=71$;73.95%) however it was not statistically significant similar to other studies.^{10,15,24} Another study by Ekanayake et al. have demonstrated that increased educational levels result in decreased dental fear however it was not so in our study.²⁵ This might be due to patient being more educated means they knew more about the procedure and its complications and were concerned leading to more fear.

The prevalence of fear of extraction among previously experienced extraction patients was 106 (69%) and 113 (90.4%) in non-experienced patients. It was statistically significant as in the other studies.^{10,12} The most likely reason for these differences might be that individuals may 'overestimate' the fear of pain of tooth extraction that they have not experienced, compared to those they have experienced in the past.²⁶ Previous good experience reduces the fear and bad experience increases

the fear.⁷

In this study, the most feared was pain during extraction (n=134;61.20%) which is in contrast to a study by Laskin et al. where postoperative pain was ranked the most feared.²⁷ In the study by Laskin et al. postoperative pain was ranked as most feared (n=31;31%) and 26% feared of pain during the procedure. In our study, most of the patients (n=194;88.58%) ranked pain in post-extraction period in the last order, this may be due to the patient being more concerned about that specific time rather than thinking about the future complications. Fear of pain during injecting local anaesthesia was ranked in first order by less than half of patients (n=77;35.15%) which is more than that in a study by Laskin et al (n=25;25%). Fear of extraction in patients can be removed by assuring them that there will be minimal discomfort only during injecting local anaesthesia. Patients should be assured that there will be no pain during extraction, and extraction would not be done without achieving adequate amount of anaesthesia, these will help to remove the fear in patients. Post-extraction fear can be removed by effective pain management by giving required medications and post-extraction instructions. Preoperatively understanding the issues faced by patients and planning effective management accordingly will be key to manage fear of extraction in the patients.

CONCLUSION

The fear of extraction of teeth was seen in the majority of patients and was more prevalent in females, younger patients, and previous non-extraction patients. On ranking the fear of extraction by patients, the most feared was pain during extraction and the least was pain in the post-extraction period.

RECOMMENDATIONS

Fear of extraction of teeth has a high prevalence that could lead to avoidance of extraction leading to delay in proper care required for patients. Further studies that could evaluate the impact of delay in extraction due to fear of extraction would be of great value.

LIMITATION OF STUDY

This study was done at a single centre, Birat Medical College and Teaching Hospital, so the findings of the study cannot be generalised to all the people of Nepal. Fear of extraction was evaluated based on the pain only and other relevant factors were not assessed. Previous extraction experience was evaluated as 'yes' or 'no', further detailed evaluation was not done.

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CONFLICT OF INTEREST None

FINANCIAL DISCLOSURE None

REFERENCES

1. Armfield JM, Heaton LJ. Management of fear and anxiety in the dental clinic: a review. *Aust Dent J.* 2013 Dec;58(4):390-407
DOI: [10.1111/adj.12118](https://doi.org/10.1111/adj.12118)
PMID:24320894
2. Milgrom P, Coldwell SE, Getz T, Weinstein P, Ramsay DS. Four dimensions of fear of dental injections. *J Am Dent Assoc.* 1997 Jun 1;128(6):756-62.
DOI: [10.14219/jada.archive.1997.0301](https://doi.org/10.14219/jada.archive.1997.0301)
PMID:9188235
3. Oosterink FM, De Jongh A, Hoogstraten J. Prevalence of dental fear and phobia relative to other fear and phobia subtypes. *Eur J Oral Sci.* 2009 Apr;117(2):135-43.
DOI: [10.1111/j.1600-0722.2008.00602.x](https://doi.org/10.1111/j.1600-0722.2008.00602.x)
PMID:19320722
4. Berggren U, Meynert G. Dental fear and avoidance: causes, symptoms, and consequences. *J Am Dent Assoc.* 1984 Aug 1;109(2):247-51.
DOI: [10.14219/jada.archive.1984.0328](https://doi.org/10.14219/jada.archive.1984.0328)
PMID:6590605
5. Oosterink FM, De Jongh A, Aartman IH. What are people afraid of during dental treatment? Anxiety-provoking capacity of 67 stimuli characteristic of the dental setting. *Eur J Oral Sci.* 2008 Feb;116(1):44-51.
DOI: [10.1111/j.1600-0722.2007.00500.x](https://doi.org/10.1111/j.1600-0722.2007.00500.x)
PMID:18186731
6. Heft MW, Meng X, Bradley MM, Lang PJ. Gender differences in reported dental fear and fear of dental pain. *Community dentistry and oral epidemiology.* 2007 Dec;35(6):421-8.
DOI: [10.1111/j.1600-0528.2006.00344.x](https://doi.org/10.1111/j.1600-0528.2006.00344.x)
PMID:18039283
7. Astramskaitė I, Poskevicius L, Juodzbaly G. Factors determining tooth extraction anxiety and fear in adult dental patients: a systematic review. *Int J Oral Maxillofac Surg.* 2016 Dec;45(12):1630-43.
DOI: [10.1016/j.ijom.2016.06.019](https://doi.org/10.1016/j.ijom.2016.06.019)
PMID:27436789
8. Lago-Mendez L, Diniz-Freitas M, Senra-Rivera C, Seoane-Pesqueira G, Gandara-Rey JM, Garcia-Garcia A. Dental anxiety before removal of a third molar and association with general trait anxiety. *J Oral Maxillofac Surg.* 2006 Sep;64(9):1404-8.
DOI: [10.1016/j.joms.2006.05.030](https://doi.org/10.1016/j.joms.2006.05.030)
PMID:16916676

9. Van Wijk A, Lindeboom J. The effect of a separate consultation on anxiety levels before third molar surgery. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008 Mar;105(3):303-7. DOI:10.1016/j.tripleo.2007.07.028 PMID:18280963
10. Muglali M, Komerik N. Factors related to patients' anxiety before and after oral surgery. *J Oral Maxillofac Surg* 2008 May;66(5):870-7. DOI: 10.1016/j.joms.2007.06.662 PMID:18423273
11. Van Wijk AJ, de Jongh A, Lindeboom JA. Anxiety sensitivity as a predictor of anxiety and pain related to third molar removal. *J Oral Maxillofac Surg* 2010 Nov;68(11):2723-9. DOI: 10.1016/j.joms.2010.06.174 PMID:20833462
12. De Jongh A, van Wijk AJ, Lindeboom JA. Psychological impact of third molar surgery: a 1-month prospective study. *J Oral Maxillofac Surg* 2011 Jan;69(1):59-65. DOI: 10.1016/j.joms.2010.05.073 PMID:20950915
13. Egbor PE, Akpata O. An evaluation of the sociodemographic determinants of dental anxiety in patients scheduled for intra-alveolar extraction. *Libyan J Med* 2014 Sep;9(1):25433. DOI:10.3402/ljm.v9.25433 PMID:25249306 PMCID:PMC4172696
14. Tarazona B, Tarazona Alvarez P, Penarrocha- Oltra D, Rojo-Moreno J, Penarrocha Diago M. Anxiety before extraction of impacted lower third molars. *Med Oral Patol Oral Cir Bucal* 2015 Mar;20(2):246-50. DOI: 10.4317/medoral.20105 PMID:25662541 PMCID:PMC4393990
15. Kazancioglu HO, Tek M, Ezirganli S, Demirtas N. Does watching a video on third molar surgery increase patients' anxiety level? *Oral Surg Oral Med Oral Pathol Oral Radiol* 2015 Mar;119(3):272-7. DOI: 10.1016/j.oooo.2014.10.012 PMID:25561389
16. Street Jr RL. Gender differences in health care provider-patient communication: are they due to style, stereotypes, or accommodation?. *Patient education and counseling*. 2002 Dec; 48(3):201-6. DOI: 10.1016/S0738-3991(02)00171-4 PMID:12477604
17. Pierce KA, Kirkpatrick DR. Do men lie on fear surveys?. *Behaviour research and Therapy*. 1992 Jul ;30(4):415-8. DOI: 10.1016/0005-7967(92)90055-L PMID:1616477
18. Wabnegger A, Scharmuller W, Schienle A. Sex-specific associations between grey matter volume and phobic symptoms in dental phobia. *Neurosci Lett* 2014 Sep;19(580):83-7. DOI: 10.1016/j.neulet.2014.07.054 PMID:25107737
19. Gross JJ, Carstensen LL, Pasupathi M, Tsai J, Götestam Skorpen C, Hsu AY. Emotion and aging: experience, expression, and control. *Psychology and aging*. 1997 Dec;12(4):590-99. DOI: 10.1037/0882-7974.12.4.590 PMID:9416628
20. Locker D, Liddell A, Burman D. Dental fear and anxiety in an older adult population. *Community Dentistry and Oral Epidemiology*. 1991 Apr;19(2):120-4. DOI: 10.1111/j.1600-0528.1991.tb00125.x PMID:2049919
21. Appukuttan D, Subramanian S, Tadepalli A, Damodaran LK. Dental anxiety among adults: an epidemiological study in South India. *N Am J Med Sci* 2015 Jan;7(1):13-8. DOI: 10.4103/1947-2714.150082 PMID:25709973 PMCID:PMC4325391
22. Mohammed RB, Lalithamma T, Varma DM, Sudhakar KN, Srinivas B, Krishnamraju PV, et al. Prevalence of dental anxiety and its relation to age and gender in coastal Andhra (Visakhapatnam) population, India. *J Nat Sci Biol Med* 2014 Jul;5(2):409-14. DOI: 10.4103/0976-9668.136210 PMID:25097425 PMCID:PMC4121925
23. Locker D, Liddell AM. Correlates of dental anxiety among older adults. *J Dent Res* 1991 Mar;70(3):198-203. DOI: 10.1177/00220345910700030801 PMID:1999559
24. Kim YK, Kim SM, Myoung H. Independent predictors of satisfaction in impacted third molar surgery patients. *Community Dent Oral Epidemiol* 2010 Jun;38(3):274-86. DOI: 10.1111/j.1600-0528.2010.00532.x PMID:20353450
25. Ekanayake L, Dharmawardena D. Dental anxiety in patients seeking care at the University Dental Hospital in Sri Lanka. *Community dental health*. 2003 Jun;20(2):112-6. PMID: 12828272
26. Lin CS, Lee CY, Chen LL, Wu LT, Yang SF, Wang TF. Magnification of fear and intention of avoidance in non-experienced versus experienced dental treatment in adults. *BMC Oral Health*. 2021 Jul;21(1):1-9. DOI: 10.1186/s12903-021-01682-1 PMID:34210309 PMCID:PMC8252235
27. Laskin DM, Carrico CK. What do patients fear most about having oral surgery. *Quintessence Int*. 2019 Mar 1;50(3):204-7. DOI: 10.3290/j.qi.a41919.