Investigation

Financial, psychological, or cultural reasons for extracting healthy or restorable teeth

Dyonne Liesbeth Maria Broers, DDS; Leander Dubois, DDS, MD, PhD; Jan de Lange, DDS, MD, PhD; Jos Victor Marie Welie, MA, MMedS, JD, PhD; Wolter Gerrit Brands, DDS, JD, PhD; Jan Joseph Mathieu Bruers, PhD; Ad de Jongh, DDS, PhD



ABSTRACT

ethics.

Background. The purpose of this study was to determine how often dental patients request extraction for nondental reasons and how dentists handle such requests.

Methods. The authors conducted a survey among 800 Dutch dentists from November 17, 2019, through January 5, 2020. The questionnaire contained 17 items, including a hypothetical case vingette.

Results. A total of 242 dentists responded to the survey (response rate was 30.3%, 48.3% of respondents were women, and mean [standard deviation] age was 45.3 [11.8] years). Sixty-eight percent of respondents reported that they had been confronted with a request for extraction on nondental grounds in the past 3 years. One-half of these dentists received such a request 5 times or fewer, 21.3% received such a request 6 through 10 times, 11.3% received such a request 11 through 20 times, and 8.8% received such a request 21 through 30 times. Their most recent request concerned a financial reason (49.7%), a combination of psychological and financial reasons (27.7%), a psychological reason (18.2%), or another reason (4.4%). Most dentists (87.5%) evaluated the patient's competency to make health care decisions. Of all nondental extraction requests, 75.6% (n = 114) were granted. Only 4.0% (n = 6) of the dentists regretted the extraction. Most dentists (82.0%, n = 191) would have refused the extraction in the hypothetical case vignette.

Conclusions. Nondental requests for extraction are relatively common. Although dentists are reluctant in theory, they are likely to grant such requests in everyday practice, particularly if the patient cannot afford an indicated conservative treatment.

Practical Implications. Dentists should keep in mind that they cannot ethically or legally be required to perform an intervention deemed harmful, even if an autonomous patient made the request. **Key Words.** Extractions; tooth extraction; patient request; patient autonomy; nonmaleficence;

JADA 2022:**(.**):https://doi.org/10.1016/j.adaj.2022.01.008

he most common reasons for extraction of permanent teeth are caries (36.0%-55.3%), periodontitis (24.8%-38.1%), dental trauma (0.8%-4.4%), periapical disease (7.3%-19.1%), orthodontics (2.5%-7.2%), and other reasons (4.5%-9.2%). Most tooth extractions are performed for dental indications.

Occasionally, patients request the extraction of 1 or more teeth for nondental reasons. In a systematic review of cases reported in the literature, investigators found that rates for such a request are estimated to vary from 3.6% through 5.9%. The exact incidence and corresponding motives for patients to ask a dentist or oral surgeon for a tooth extraction are unknown. Cultural, psychological, or financial reasons have been reported as motivations for tooth extraction. For example, in South Africa, Sudan, Kenya, and Tanzania, teeth (mostly maxillary or mandibular incisors) are extracted for cultural reasons. It is conceivable that patients also asked for extractions to avoid indicated dental procedures owing to fear of dental treatment. Patients believe that they can avoid future terrifying dental treatments through total extraction, which is often performed under general anesthesia. The same applies to financial reasons; in the short

Copyright © 2022 American Dental Association. All rights reserved.

term, extraction is less expensive than restoring 1 or more teeth. However, this can change in the long run if, for example, dental implants are needed to anchor a loose full denture. An entirely different nondental reason for extraction is the presence of mental health conditions, such as body dysmorphic disorder or body integrity identity disorder. Body dysmorphic disorder involves perceived ugliness, and people with body dysmorphic disorder are obsessed with their appearance and disgusted by a certain part of their body. With body integrity identity disorder, the person has a feeling that a body part does not belong to him or her and has an intense desire to amputate that body part. Theoretically, both mental health conditions could lead to a request for tooth extraction.

Although it is understandable that extractions are performed because the patient cannot afford the treatment, to our knowledge, no information about this issue has ever been published, possibly due to its controversial nature (that is, the practice being at odds with professional standards of care, national laws, or ethical regulations). Indeed, to our knowledge, no study has ever been conducted to determine why patients request a tooth extraction when such an extraction is not medically indicated. This is remarkable because extraction of a permanent tooth is an irreversible and invasive intervention.

On the one hand, according to the professional standard of care, there is the principle of nonmaleficence, which is enshrined in legislation and professional regulations in many countries. On the other hand, there is the principle of patient autonomy or self-determination. Many dentists believe that the latter principle obliges them to provide nonindicated interventions when asked. To better understand this problem and its consequences, it is crucial to examine how often dental patients request extraction for nondental reasons and how dentists manage these requests.

The purpose of our study was to estimate how often patients ask to have a tooth extracted without dental necessity and determine the patients' reasons for the requests. The second aim was to assess how dentists respond to (that is, accept or deny) such requests, the rationale for the dentists' decisions, their decision-making process, and whether they checked the patients' competency (that is, decisional capacity) to fully understand the impact of the requested extraction. Finally, the third aim was to investigate how dentists evaluated their decision to grant or refuse the extraction afterward.

METHODS

Study design

Our study was conducted as a survey that was sent to a random sample of dentists drawn from a database of qualified dentists that was made available via the Royal Dutch Society of Dentistry (KNMT). In addition to contact details, this sample also included some general background characteristics (that is, sex, age, and region of residence).

Research instrument

The questionnaire was developed for our study and was based on the gap found when investigating nondental reasons for extraction in the literature.⁵ The questionnaire consisted of 17 items divided into 4 main topics (Appendix, available online at the end of this article). Three questions inquired whether the dentist had ever been faced with a request for extraction on nondental grounds since January 2016; if so, how often such a request had been made; and what was the patient's motivation for the extraction. If the dentist had been faced with such a request, 10 other questions were asked regarding the most recent patient request for extraction on nondental grounds. Three questions pertained to a hypothetical case vignette with a patient requesting an extraction on nondental grounds. One question, which consisted of 8 Likert scale—type items, concerned the respondent's personal opinions about extraction on nondental grounds. Mostly structured response categories were used, with possibilities to provide additional written information. Extraction on nondental grounds was defined as extraction when the dentist did not consider the extraction indicated (that is, there was no necessity according to prevailing scientific and clinical standards of care to consider extraction). If the patient had a nondental reason for wanting to have a tooth that could be restored extracted, what was the reason? Examples of nondental reasons were dental fear, unexplained pain, body dysmorphic disorder, and financial and cultural reasons.

Data collection and sample selection

On November 17, 2019, an independent research bureau ("third party") sent a letter and a paper version of the questionnaire via mail to a random sample of 800 dentists 64 years or younger with an available home or work address in the Netherlands. The letter contained a personalized link to the web-based version of the questionnaire. The dentists could choose to answer either the paper or the electronic version of the questionnaire. Two reminder letters were sent with an interval of 3 and 4 weeks. Data collection closed on January 5, 2020.

Data processing

The research bureau processed the data from both versions of the questionnaire in an encrypted data file after adding some general characteristics of the respondents from the sample obtained. This coded data file in which dentists were fully anonymized was passed on to the researchers.

Statistical analysis

The collected data were analyzed using statistical software (SPSS, Version 25.0; IBM), beginning with a descriptive analysis (frequencies, mean [standard deviations {SD}]). The responses to the hypothetical request for extraction on nondental grounds were dichotomized to 1 ("did comply") and 0 ("did not comply" or "did not know whether to comply"). Analysis of variance was used to determine bivariate correlations between responses to the hypothetical request of some general and professional characteristics. After inspection of the relationship among the 8 Likert-type items regarding opinions about extraction on nondental grounds using principal factor analysis and an internal consistency test, a (weak) scale could be compiled by means of adding the results of 6 of the 8 items (Cronbach $\alpha=0.64$). Bivariate relations with this ordinal scale, which expressed reluctance to extract on nondental grounds, and general and professional characteristics were investigated using the nonparametric Kruskal-Wallis and Mann-Whitney tests. P values less than .05 were considered statistically significant.

Ethical accountability

The Medical Ethical Review Committee of the Academic Centre for Dentistry stated that this research was exempt from the regulations of the Dutch Medical Research Involving Human Subjects Act (protocol 201935).

RESULTS

Response and representativeness

Of the 800 dentists approached, 242 completed the survey (response rate was 30.3%, 48.3% of respondents were women, and mean [SD] age was 45.3 [11.8] years). Median year of graduation as a dentist was 2000 (range, 1978-2018).

Reasons for extraction on nondental grounds

From January 1, 2016, through November 1, 2019, 68.0% (n = 164) of the responding dentists had received 1 or more requests for extraction of 1 or more teeth on nondental grounds. One-half of these respondents reported 6 or more such requests. Figure 1 illustrates the distribution of the estimated number of requests for extraction on nondental grounds that dentists received from January 1, 2016, through November 1, 2019. Dentists received a mean (SD) of 14.3 (27.8) requests for extraction on nondental grounds. The different types of requests for extraction on nondental grounds and how often these occurred are shown in Figure 2.

Response to the most recent request for extraction on nondental grounds

The most recent request reported by 159 dentists concerned a financial reason (49.7%, n=79), a combination of a psychological and a financial reasons (27.7%, n=44), a psychological reason (18.2%, n=29), or another reason (4.4%, n=7). Five dentists did not answer this question. Of all requests dentists received, 75.6% (n=114) were granted. Few dentists (4%, n=6) regretted that they had performed the extraction.

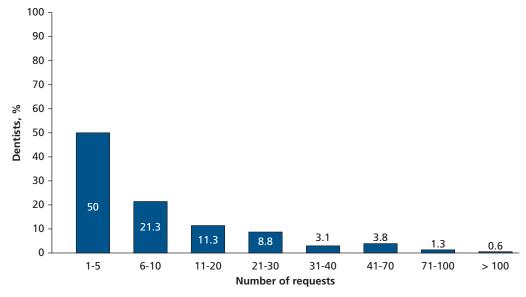


Figure 1. Estimated number of requests for extraction on nondental grounds dentists received from January 1, 2016, through November 1, 2019 (n = 160).

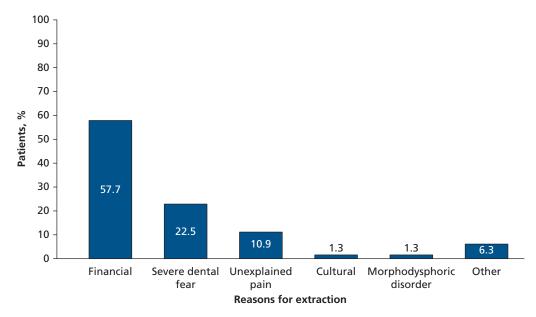


Figure 2. The different types of requests for extraction on nondental grounds related to how often (that is, percentage of patients) they occurred from January 1, 2016, through November 1, 2019 (n = 158).

Checking for decisional capacity

Most dentists (87.5%, n=140) indicated that they had examined whether the patient was competent to make decisions about his or her oral health care. In almost all cases, the decisional capacity of the patient was assessed by means of asking open test questions (91.9%, n=125); in consultation with the patient's spouse or family (30.1%, n=41); after discussion with a colleague (22.1%, n=30), physician (5.9%, n=8), psychologist or psychiatrist (1.5%, n=2); or in another way (5.1%, n=7).

Evaluation of a decision about whether to extract

Approximately one-half (51.7%) of the 116 dentists who granted the most recent request for extraction on nondental grounds expressed that they had doubts at the time of the extraction request. These doubts pertained to whether the patient would later regret the extraction (42.2%, n = 49), whether there were no alternatives (28.4%, n = 33), whether he or she was allowed to

Table 1. Responses of dentists regarding 8 statements about whether to grant a patient's request for tooth extraction on nondental grounds (n = 229-231).

STATEMENT*	FULLY DISAGREE, %	MOSTLY DISAGREE, %	NOT DISAGREE, NOT AGREE, %	MOSTLY AGREE, %	FULLY AGREE, %	NO OPINION, %
A: Over the Years, I Have Become Less Reluctant to Grant an Extraction Request on Nondental Grounds	33.0	16.5	23.9	16.1	2.2	8.3
B: With Extraction on a Nondental Basis, I Do Not Provide a Patient With Good Care	12.1	22.1	22.1	22.1	19.5	2.2
C: In My Experience, Patients With Nondental Requests for Extraction Usually Do Not Regret the Extraction Afterward	7.0	11.8	23.6	32.8	6.6	18.3
D: I Have Learned Better Which Alternatives I Can Offer to Patients Who Request an Extraction on Nondental Grounds	5.7	7.0	27.8	36.1	12.6	10.9
E: I Think It Is a Bad Thing That One Colleague Does Accept an Extraction Request From a Patient on Nondental Grounds and the Other Colleague Does Not	12.6	15.7	41.7	20.0	7.4	2.6
F: If It Concerns an Extraction Request From a Patient on Nondental Grounds, I Consider Myself Bound by the Idea That the Patient May Make His Own Decision in the Context of Personal Autonomy	14.0	22.7	21.4	30.6	10.5	0.9
G: There Should Be Clearer Guidelines on Whether to Grant Patient Requests for Extraction on Nondental Grounds	15.2	17.8	24.8	27.0	12.2	3.0
H: A Patient's Request for Extraction on a Nondental Basis Is, by Definition, a Complex Care Issue	3.0	5.2	8.3	43.0	39.6	0.9

^{*} Statements A, B, D, E, F, and G were compiled into an additive scale expressing reluctance to grant requests for the extraction of ≥ 1 teeth on nondental grounds (Cronbach $\alpha = 0.64$). This scale has a mean (standard deviation) score of 19.1 (4.1), with a minimum of 9 (not reluctant) and a maximum of 30 (reluctant).

perform the extraction (6.9%, n=8), or still other aspects (6.0%, n=7). According to the 116 dentists who fulfilled the most recent request, only 6.9% (n=8) of the patients regretted the extraction afterward; most (75.9%, n=88) did not. In 17.2% (n=20) of cases, the dentist did not know whether the patient had regrets, as there was no more contact with the patient. Patients who, according to the dentist, later regretted the extraction of 1 or more teeth (n=8) had experienced discomfort as a result of missing teeth (87.5%, n=7) or now had problems in the mouth that they had not expected (62.5%, n=5).

Table 1 provides several statements about patients' requests to extract 1 or more teeth on nondental grounds with which the responding dentists were asked to agree or disagree. Most responses point to a reluctance among dentists to grant such a request. This was also expressed in an additive scale that could be compiled from 6 of these 8 statements. This scale (Cronbach $\alpha = 0.64$) had a mean (SD) score of 19.1 (4.1), with a minimum score of 9 ("not reluctant") and a maximum score of 30 ("reluctant"). When we examined to what extent this score was related to dentists' general and professional characteristics, it became clear that dentists who were educated abroad were more reluctant to grant requests to extract 1 or more teeth on nondental grounds than their colleagues educated in the Netherlands (P = .018). The same applied to dentists who had no requests for extraction in the period from January 1, 2016, through November 1, 2019, compared with dentists who received 1 or more of those requests (P = .023) and dentists who did not grant the most recent request for extraction compared with dentists who granted this request (P < .001).

Case vignette

In response to the hypothetical case vignette of the patient who requested extraction of all of his teeth due to dental fear, almost all dentists (82.0%, n = 191) reported that they would refuse the

Table 2. Reasons for dentists to refuse extraction (n = 191).

REASON*	%
There Is a Good Alternative Using a Treatment Aimed to Reduce Fear of Dental Treatment	75.9
I Am Ethically Bound to Not Cause Unnecessary Damage to a Patient's Teeth	73.3
The Patient Is Insufficiently Aware of the Situation Because of His Dental Fear	72.8
It Is an Irreversible Treatment	68.6
The Teeth Can Still Be Saved	58.6
Other Reasons	2.6
* More than 1 answer is possible.	

request for extraction. The dentists' reasons for refusing extraction are shown in Table 2. Only 7 of the dentists indicated that they would honor the request, arguing that they thought that the patient should be able to decide on this (n = 5), that they thought there was no other way to help the patient (n = 3), that they were convinced that the patient had thought about it well and long (n = 2), and that if they did not perform the extraction or extractions, another practitioner would do so (n = 2).

DISCUSSION

The results of our study showed that most responding dentists had been confronted with nondental extraction requests in the past 3 years. Regarding the most recent request for extraction, approximately one-half of the dentists reported a financial reason. Furthermore, nearly one-third of the dentists reported a combination of psychological and financial reasons, and almost one-fifth indicated psychological reasons. In response to a hypothetical case vignette about a patient with a request for extraction of all of his teeth due to dental fear, most dentists said that they would refuse extraction. Yet, almost three-quarters of all of the dentists mentioned that they had granted a nondental request in the past 3 years. This difference may have to do with the fact that the hypothetical case vignette involved total extraction and the most recent nondental request for extraction involved only 1 or a few teeth.

To our knowledge, this is the first study that aimed to derive an estimate of how often patients had a nondental motive for extraction and how dentists managed such a request. Almost one-fifth of the dentists appeared to have received such a request more than 10 times during the past 3 years. These results are at odds with the results of a 2022 systematic review in which investigators found that a nondental request for extraction was estimated to vary from 3.6% through 5.9% of all extraction requests. However, it was difficult to compare these results with our study results because in the systematic review the researchers reported the ratios between dental and nondental reasons. In addition, in previous studies, the category "nondental reasons" was not specified. It is possible that because of the ethical and legal concerns about extracting teeth on a nondental basis, the dentists may have chosen to record in the patients' files that the extractions were done for a dental reason.

The dentists in our study indicated that the main reasons for not complying with the extraction request in the hypothetical case vignette were that no unnecessary and irreversible damage should be done, that suitable alternative treatments are possible, and that patients may not always make a carefully considered decision due to fear or pain. These reasons are consistent with prevailing ethical and legal standards of care. That is why it is remarkable that nearly 80% of the same dentists in our sample indicated that they had granted a nondental request during the past 3 years.

One explanation for the difference between the hypothetical case vignette and clinical practice is that it is relatively easy to make the right ethical and legal decision on paper, whereas in practice, when the patient is sitting in the dental chair and pleading to have his or her tooth extracted, it is difficult to stand firm. In many cases, the patient will pressure the practitioner to carry out the extraction by means of indicating that he or she had thought long about the request and saw no other option. But this duality could also be explained by the fact that it was a financial reason in the

clinical cases and in the hypothetical case vignette it was dental fear, and that dentists consider about these reasons differently.

Whenever a dentist is faced with a request for extraction for financial reasons or dental fear, although restorative treatment is still possible, this is an ethically challenging situation for the dentist. In case of financial reasons, the dentist could carry out the treatment in phases or propose a less expensive, but still effective, treatment to reduce the risk of pain and inflammation. In case the reason is dental fear, the dentist could propose the application of an evidence-based treatment aimed specifically at reducing the patient's fear of dental treatment, possibly via referral to a specialized dentist or a psychologist. But if the patient persists in the demand for extraction, and extraction falls within the range of options encompassed in the standard of care, the extraction cannot ethically be refused.

Most of the patients did not appear to regret that their dentist complied with their extraction request. Almost 7% did, but in the remaining one-fifth of cases, the patient's level of regret was unknown because the dentist had not contacted the patient after the extraction. Patients were more likely to regret their decision to have their teeth extracted than dentists were to regret their decision to extract.

Like any research project, our study has strengths and limitations. The most important strength of our study was that for the first time, to our knowledge, nondental extractions were investigated. This topic has important ethical and legal components. A limitation of our study was that we did not investigate how often dentists checked the decisional capacity of the patient or whether any dentist granted the extraction despite the patient's lack of decisional capacity. Consequently, it remains unclear whether the patients' decision to extract for a nondental reason was based on informed consent. This is important because dental interventions can only take place if the patient understands all of the treatment options. Valid consent can only be given if the patient has the capacity to provide informed consent.

In our study, approximately 1 of 8 dentists mentioned that they ignored checking the patient's decisional capacity. Given that extraction is an irreversible treatment that can cause unnecessary damage, not assessing the patient's decisional capacity when there is doubt about that capacity is a legal risk. Even more severe legal risks occur when the extraction is performed after the patient is found to lack decisional capacity. Another limitation of our study was that we did not distinguish between requests for extraction from patients with a diagnosed oral health care problem who cannot afford any of the recommended treatments (scenario 1) from patients who feared the extended treatment that would be necessary to restore their dentition and opting for extraction instead (scenario 2) and from patients with no (substantial) oral pathology who requested extraction for completely nondental reasons (scenario 3). There are important ethical and legal differences among these different types of cases. In scenarios 1 and 2, the dentist is obligated, according to the ethical principle of beneficence, to offer the patient relief and respect the patient's autonomous nonconsent to the recommended treatments. In scenario 3, the principle of beneficence plays no role. Distinguishing clearly between these different scenarios can help the dentist who is faced with a request for extraction determine whether and when the principle of nonmaleficence invalidates the principle of respect for the patient's autonomy.

CONCLUSIONS

The results of our study suggest that requests for extraction on nondental grounds are relatively common. Furthermore, dentists are reluctant in theory, but in everyday practice they often agree to a request for extraction on nondental grounds, particularly if the patient cannot financially afford the conservative treatment that the dentist recommended. However, performing an extraction when there is no dental necessity will cause damage and is therefore not legally allowed. Even if a patient has made a well-considered decision and declares that he or she accepts responsibility for the decision, it is still not permitted. In the Netherlands (and in most other countries), it is not legally permitted to transfer the liability to the patient by means of having the patient sign a statement that he or she personally demands the extraction even though the extraction is against the standard of care. Some students and dentists think nearly every intervention is ethically and legally permissible if the dentist has the patient's permission. However, the patient's consent has ethical and legal force only when the planned treatment is within the

standard of care. These ethical and legal provisions must be part of the education of dental students, dentists, and oral and maxillofacial surgeons.

SUPPLEMENTAL DATA

Supplemental data related to this article can be found at: https://doi.org/10.1016/j.adaj.2022.01.008.

Dr. Broers is a chief dental officer, Academic Centre for Dentistry Amsterdam, University of Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands. Address correspondence to Dr. Broers, Academic Centre for Dentistry Amsterdam, PO Box 7822, 1008 AA, Amsterdam, the Netherlands, email d.l.m.broers@acta.nl.

Dr. Dubois is an oral and maxillofacial surgeon, Academic Centre for Dentistry Amsterdam, University of Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands, an oral and maxillofacial surgeon, Department of Oral and Maxillofacial Surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, the Netherlands, and an oral and maxillofacial surgeon, Department of Oral and Maxillofacial Surgery, St. Antonius Hospital, Nieuwegein, Utrecht, and Woerden, the Netherlands.

Dr. de Lange is a consultant, Maxillofacial Surgery, Academic Centre for Dentistry Amsterdam, University of Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands, a consultant, Maxillofacial Surgery, Department of Oral and Maxillofacial Surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, the Netherlands, and a consultant, Maxillofacial Surgery, Department of Oral and Maxillofacial Surgery, Isala Klinieken, Zwolle, the Netherlands.

Dr. Welie is a professor and the dean, University College Maastricht, Maastricht University, Maastricht, the Netherlands and a special professor of Health Care Ethics, Department of Medical Humanities, Creighton University, Omaha, NE.

Dr. Brands is the president, Royal Dutch Dental Association (KNMT), Utrecht, the Netherlands.

Dr. Bruers is a professor by special appointment, Academic Centre for Dentistry Amsterdam, University of Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands, and a research coordinator, Royal Dutch Dental Association (KNMT), Utrecht, the Netherlands.

Dr. de Jongh is a professor, Academic Centre for Dentistry Amsterdam, University of Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands, an honorary professor, Research Department PSYTREC, Bilthoven, the Netherlands, an honorary professor, School of Health Sciences, Salford University, Manchester, United Kingdom, an honorary professor, Institute of Health and Society, University of Worcester, United Kingdom, and an honorary professor, School of Psychology, Queen's University, Belfast, Northern Ireland.

Disclosure. None of the authors reported any disclosures.

ORCID Number. Ad de Jongh: https://orcid.org/0000-0001-6031-9708. For information regarding ORCID numbers, go to http://orcid.org.

- **1.** Broers DLM, Brands WG, Welie JVM, de Jongh A. Deciding about patients' requests for extraction: ethical and legal guidelines. *JADA*. 2010; 141(2):195-203.
- **2.** Chrysanthakopoulos NA. A survey of the reasons for dental extraction in adult population in Greece. Acta Stomatol Croat. 2011;45(2):110-
- **3.** Chrysanthakopoulos NA. Reasons for extraction of permanent teeth in Greece: a five-year follow-up study. *Int Dent J.* 2011;61(1):19-24.
- **4.** Plančak D, Špalj S, Bošnjak A, Perić D, Katanec D. Reasons for tooth extraction in military and civilian population during the war in Croatia. *Acta Clin Croat.* 2004;43(1):27-32.
- **5.** Broers DLM, Dubois L, de Lange J, Su N, de Jongh A. Reasons for tooth removal in adults: a systematic review. *Int Dent J.* 2022;72(1):52-57.
- **6.** Pinchi V, Barbieri P, Pradella F, Focardi M, Barolini VNG. Dental ritual mutilations and forensic odontologist practice: a review of the literature. *Acta Stomatol Croat.* 2015;49(1):3-13.
- **7.** Oosterink FMD, de Jongh A, Aartman IHA. What are people afraid of during dental treatment? Anxiety-provoking capacity of 67 stimuli characteristic of the dental setting. *Eur J Oral Sci.* 2008;116(1):44-51.
- **8.** de Jongh A, Schutjes M, Aartman IHA. A test of Berggren's model of dental fear and anxiety. *Eur J Oral Sci.* 2011;119(5):361-365.
- **9.** Witter DJ, Kole JJ, Brands WG, MacEntee MI, Creugers NHJ. Wish-fulfilling medicine and wish-fulfilling dentistry. *J Dent.* 2020;96:103302. https://doi.org/10.1016/j.jdent.2020.103302

QUESTIONNAIRE

Nondental reasons for tooth extraction

For most questions, you are expected to provide only 1 answer. However, more answers are possible for some questions. If this is the case, it will be stated within the relevant question. Read through all of the answer options before ticking the number next to the answer of your choice. If you make a mistake, cross out the wrong answer and give the intended answer. Finally, for some questions, no answer options are given, but you are requested to write down an answer or explanation.

1	Since January 2016, have y psychological, cultural, fina	ou ever received a request from patients for the extraction of 1 or more teeth on nonderncial, or other) grounds?	ental (for example	
	1	Yes		
	2	No	Go to question 14	
2	How many requests on nondental grounds do you estimate to have received in the period from January 2016 to now?			
		(please enter number)		
3	Listed below are several reasons patients made an extraction request on nondental grounds. For each reason, can you indicate by how many of patients who made an extraction request to you in the period from January 2016 to now that reason was mentioned? [more reasons possible per patient] Example: Suppose 3 patients made an extraction request, the first one because of phobic fear, the second one because of financial reasons, and the third one because of financial and also cultural reasons. Your response would then be: "1" at A, "2" at D, and "1" at E.			
	А	Severe dental fear	patients	
	В	Unexplained pain	patients	
	C	Morphodysphoric disorder*	patients	
	D	Financial reasons	patients	
	E	Cultural reasons	patients	
	F	Other reason, namely:	patients	

^{*} Morphodysphoric disorder is a body dysmorphic disorder in which certain parts of the body (for example, teeth) are perceived to be horrible, while the environment cannot discover anything special about it.

Below are more questions about the most recent extraction request you received on nondental grounds.

4	What reasons did the patient have for the extraction request? (more than 1 answer possible)			
	1	Severe dental fear		
	2	Unexplained pain		
	3	Morphodysphoric disorder		
	4	Financial reasons		
	5	Cultural reasons		
	6	Other reasons, namely:		
5	In deciding wheth health care?	her or not to grant the extraction request, was it assessed whether the patient was competent to make decisions about his/he		
	1	Yes		
	2	No Go to quest		
6	If so, in what wa	sys did this happen at the time? (more than 1 answer possible)		
	1	By asking (open) test questions to the patient, such as "What could be the consequences if you have your tooth/teeth extracted?"		
	2	In consultation with the family/spouse		
	3	In consultation with a physician		

Continued

Continued			
	4	In consultation with a psychologist/psychiatrist	
	5	In consultation with a colleague (dentist/oral surgeon)	
	6	In another way, namely:	
7	If not, why did	In't this happen? (more than 1 answer possible)	
	1	I don't know how to do that	
	2	The time pressure does not allow that	
	3	If the patient was not mentally competent, someone would have accompanied him	
	4	The reference didn't say anything about incompetency	
	5	The patient does not live in an institution, so I have assumed that he is mentally competent	
	6	Other reasons, namely:	
8	Have you fulfil	led the extraction request?	
	1	Yes	
	2	No	Go to question 14
9	Have you had	any doubts about that decision?	
	1	Yes	
	2	No	Go to question 11
10	Which aspects	of the extraction request did you have doubts about at the time? (more than 1 answer possible)	
	1	If it was allowed to perform these extractions	
	2	If the patient would later regret the extraction	
	3	If there were no alternatives	
	4	Another aspect, namely:	
11		your decision to comply with the extraction request afterward?	
11	Did you regiet	Yes	
	2	No	
12		t regret the extractions afterward?	
	1	Yes	
	2	No	Go to question 14
			·
13	3 For what reason	I don't know. There was no contact with the patient anymore on did the patient regret his decision? (more than 1 answer possible)	Go to question 14
15		I don't know, because the patient didn't tell	
	2	The patient now experiences dental problems that he didn't expect	
	3	The patient knows that there are less drastic solutions for his problem	
	4	The patient's environment appeals to him about his decision	
	5	The patient servicement appears to min about his decision. The patient experiences disadvantages/discomfort from the lack of natural teeth	
	6	Other reason, namely:	
14	Below is a brie Johan has had dentist. Yet he treatment has	ef description of a case of a patient requesting an extraction on nondental grounds. Would you grant this a huge dental fear for years. He only visits the dentist when he is in pain. He is 35 years old. His teeth are prehas been wanting to have his teeth pulled out for years so that he never has to undergo scary dental trealready been offered to him, but he does not feel that he will get rid of his anxiety by this.	etty good, according to the
	1	Yes, I would grant the request	
	2	No, I would not grant the request	Go to question 16
	3	I don't know if I would grant the request	Go to question 17
15	Based on which	h considerations would you grant the request? (more than 1 answer possible)	
	1	I am convinced that he made a well-considered decision	
	2	I think the patient should be able to decide for themselves	
	3	In my opinion, there is no other way to help him properly	

Continued

4 If I don't perform the extraction, another dentist or oral surgeon will do it 5 Other consideration, namely: 16 Based on which considerations would you not grant the request? (more than 1 answer possible) 1 There is a good alternative using a treatment aimed to reduce fear of dental treatment 2 It is an inversible treatment 3 I am ethically bound to not cause unnecessary damage to a patient's teeth 4 The teeth can still be saved 5 The patient is insufficiently aware of the situation because of his dental fear 6 Another reason, namely 17 Below are some statements regarding extraction requests from patients on nondental grounds. Please tick the extent to which you agree or disagree with each of them. Fully disagree Mostly disagree Not green, agree agree applicable applicable and applicable								
Below are some statements regarding extraction requests from patients on nondental grounds. 1		4	If I don't perform	the extraction, another d	entist or oral surge	eon will do it		
1 There is a good alternative using a treatment aimed to reduce fear of dental treatment 2 It is an irreversible treatment 3 I am ethically bound to not cause unnecessary damage to a patient's teeth 4 The teeth can still be saved 5 The patient is insufficiently aware of the situation because of his dental fear 6 Another reason, namely 17 Below are some statements regarding extraction requests from patients on nondental grounds. Please tick the extent to which you agree or disagree with each of them. Fully disagree Mostly disagree Not agree not agree not agree not agree not agree not agree A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds and the other colleague does not. 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6		5	Other consideration	on, namely:				
2 It is an irreversible treatment 3 I am ethically bound to not cause unnecessary damage to a patient's teeth 4 The teeth can still be saved 5 The patient is insufficiently aware of the situation because of his dental fear 6 Another reason, namely 17 Below are some statements regarding extraction requests from patients on nondental grounds. Please tick the extent to which you agree or disagree with each of them. Fully disagree Mostly disagree Not Mostly Fully agree No opinion/ disagree, agree not agree agree not agree applicable not agree. A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6	16	Based on which considerations would you not grant the request? (more than 1 answer possible)						
17 Below are some statements regarding extraction requests from patients on nondental grounds. Fully disagree Mostly disagree not agree not nondental grounds. 1 1 2 3 4 5 6 6 1 1 In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 1 1 In my experience not nondental grounds not nondental grounds not nondental grounds not		1 There is a good alternative using a treatment aimed to reduce fear of dental treatment						
The teeth can still be saved The patient is insufficiently aware of the situation because of his dental fear Another reason, namely Below are some statements regarding extraction requests from patients on nondental grounds. Please tick the extent to which you agree or disagree with each of them. Fully disagree Mostly disagree Not Mostly Gisagree, agree not agree A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		2	It is an irreversible	treatment				
5 The patient is insufficiently aware of the situation because of his dental fear 6 Another reason, namely 17 Below are some statements regarding extraction requests from patients on nondental grounds. Please tick the extent to which you agree or disagree with each of them. Fully disagree Mostly disagree Mostly disagree, not agree Not Mostly agree Alo Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6		3	I am ethically bou	nd to not cause unnecess	sary damage to a p	patient's teeth		
Below are some statements regarding extraction requests from patients on nondental grounds. Fully disagree Mostly disagree Not disagree, agree not agree Mostly disagree A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 If it concerns an extraction request from a patient on nondental grounds by the idea that the patient may make his own decision in context of personal autonomy. 2 3 4 5 6 Fully agree No opinion/disagree No opinion/disagree No opinion/disagree No opinion/disagree Not opinion/disagree No opinion/disagree No opinion/disagree No opinion/disagree No opinion/applicable No opinion/disagree No opinion/disagree No opinion/applicable No opinion/disagree No opinion/disagree No opinion/applicable No opinion/disagree No opinion/disagree No opinion/disagree No opinion/disagree No opinion/disagree No opinion/applicable No opinion/disagree Not opinion/disagree Not opinion/disagree Not opinion/disagree No opinion/disagree Not opinion/disagree No opinion/disagree No opinion/disagree Not opinion/disagre		4	The teeth can still	be saved				
Below are some statements regarding extraction requests from patients on nondental grounds. Fully disagree Mostly disagree Mostly disagree Not disagree, agree not agree A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		5	The patient is insu	ufficiently aware of the sit	tuation because of	his dental fear		
Below are some statements regarding extraction requests from patients on nondental grounds. Fully disagree Mostly disagree Mostly disagree Not disagree, agree not agree A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 2 3 4 5 6 There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		6	Another reason, n	amely				
A Over the years, I have become less reluctant to grant an extraction request on nondental grounds. 1 2 3 4 5 6 B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	17	Below are some statements regarding extraction requests from patients on nondental grounds.						
B With extraction on a nondental basis, I do not provide a patient with good care. 1 2 3 4 5 6 C In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		Fully disagree		Mostly disagree	disagree,	•	Fully agree	No opinion/not applicable
In my experience, patients with nondental requests for extraction usually do no regret the extraction afterward. 1 2 3 4 5 6 D I have learned better which alternatives I can offer to patients who request an extraction on nondental grounds 1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	А	Over the years, I have becom	ne less reluctant to gr	· ·	9		5	6
1	В		tal basis, I do not pro			4	5	6
1 2 3 4 5 6 E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	С		ith nondental reques	•	2		5	6
E I think it is a bad thing that one colleague does accept an extraction request from a patient on nondental grounds and the other colleague does not. 1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	D	I have learned better which a	alternatives I can offe	r to patients who request	t an extraction on	nondental grounds		
1 2 3 4 5 6 F If it concerns an extraction request from a patient on nondental grounds, I consider myself bound by the idea that the patient may make his own decision in context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		1		2	3	4	5	6
context of personal autonomy. 1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	E	I think it is a bad thing that o	one colleague does a			=	-	
1 2 3 4 5 6 G There should be clearer guidelines on whether or not to grant patient requests for extraction on nondental grounds. 1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.	F			on nondental grounds, I co	onsider myself bou	nd by the idea that the	patient may make his	own decision in the
1 2 3 4 5 6 H A patient's request for extraction on a nondental basis is, by definition, a complex care issue.		·	y.	2	3	4	5	6
	G	_	elines on whether or	5 '				6
	Н	A patient's request for extract	ction on a nondental				5	6