King's Research Portal

DOI:

[10.1038/s41415-019-0203-0](https://doi.org/10.1038/s41415-019-0203-0)

Document Version

Peer reviewed version

[Link to publication record in King's Research Portal](#)

Citation for published version (APA):

Heidari, E., Newton, J. T., Andiappan, M., & Banerjee, A. (2019). The impact of dental phobia on care planning: a vignette study. *British Dental Journal*, 226(8), 581-587. <https://doi.org/10.1038/s41415-019-0203-0>

Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Article originally was submitted to the BDJ on 25 September 2018

Manuscript Number: MSS-2018-738

Title: The impact of dental phobia on care planning: A vignette study

Name: Dr Ellie Heidari

Address: Floor 26, Department of Sedation and Special Care Dentistry
Faculty of Dentistry, Oral & Craniofacial Sciences, King's College
London Guy's Dental Hospital, London Bridge, Great Maze Pond,
London. SE1 9RT. UK

Telephone: 0207 188 7361/86074

Fax: 0207188 1885

Email: ellie.heidari@kcl.ac.uk

Name: Professor Jonathon Timothy Newton

Address: Faculty of Dentistry, Oral & Craniofacial Sciences, King's College
London Guy's Dental Hospital, Centre for Oral Clinical and Translational
Research, London Bridge, Great Maze Pond, London. SE1 9RT. UK

Telephone: +44 (0) 207 346 3481

Fax: +44 (0) 207 346 3409

Email: tim.newton@kcl.ac.uk

Name: Dr Manoharan Andiappan

Address: Biostatistician

Biostatistics and Research Methods Centre

Division of Patient and Population Health

King's College London, London.

Name: Professor Avijit Banerjee

Address: Professor / Hon Consultant, Restorative Dentistry
Head/Chair of Dept, Conservative & MI Dentistry
Faculty of Dentistry, Oral & Craniofacial Sciences, King's College
London
Floor 25, Tower Wing
Guy's Dental Hospital, Great Maze Pond, London. SE1 9RT. UK

Telephone: 020 7188 1577 / 1594

Fax: N/A

Email: avijit.banerjee@kcl.ac.uk

Key points

- Dental care planning is related to treatment need, not the presence or absence of a dental phobia in patients.
- Complexity of treatment need predicts care planning for advanced periodontal treatment, restorations, root canal treatment, provision of crowns and extractions.
- The only differences in care planning between the practitioners' groups were

Abstract

~~People with dental phobia have poor oral health.~~ A high percentage of people with dental phobia have poor oral health. This may be the result of delayed treatment or differences in care planning by the oral healthcare team. This study sought to determine the effect, if any, of dental phobia and complexity of dental care on the proposed care plan devised by clinicians for patients.

Design: An experimental analogue study with independent variables of the presence of phobia and complexity of treatment need. Dependent variables included frequency of care planning elements including periodontal treatment, prevention, restorations, root canal treatment, extraction and provision of crowns, bridges and prostheses.

Participants: 79 dental UK-based practitioners.

Analysis: The association between the case status (phobic vs non-phobic, simple vs complex) and the outcome variables were assessed using chi-square test for association. Logistic regression analyses were also used to determine the predictors of care planning elements.

Findings: There were no differences in care planning for phobic vs non-phobic patients. Complexity of treatment need had significant effects on advanced periodontal treatment, restorations anterior and posterior, root canal treatment, provision of crowns and extractions.

Conclusions: Care planning is influenced by patients' dental needs and not their phobic status.

Keywords: dental phobia, restorative care plan, dental treatment, treatment plan, vignette study

Introduction:

Dental phobia affects approximately 11.6% of the adult population in England, Wales and Northern Ireland (Adult Dental Health Survey [ADHS], 2009) ¹. It has been reported that individuals with dental phobia experience poorer oral health and quality of life in comparison to their non-phobic counterparts. ^{2, 3} People with dental phobia besides facing the common 'universal' barriers (such as the cost / access of dental care), can face specific barriers, including unhealthy oral health related behaviours (OHRB), lack of motivation to access care ⁴ and avoidance of treatment, explaining, in part, why this group commonly report poorer oral health. ² This, in turn can limit certain care options (such as provision of complex restorative care) that requires optimal oral maintenance, patient commitment to attend multiple visits ⁵ and cooperation.

There might be other factors contributing to the differences in oral health status such as patient dental treatment preference ⁶ or differences in care planning when the patient with dental phobia manages to attend for a dental treatment. Indeed, Hill *et al.*, (2008) ⁷ found that dentists in their study mentioned that quality of care for anxious patients might be compromised because of their anxiety status. This fact to the authors' knowledge has not been investigated previously among people with dental phobia.

In order to investigate how dentists who work in various settings and treat people with different degrees of dental anxiety, would care plan for this group, a vignette study was designed. In this method, the complex decision-making process was simplified using only complexity of care and presence of dental phobia variables. Vignette studies '*are a valid measure of what physicians do during actual clinical encounters with patients*'.⁸ Patient-simulation vignettes have been used to evaluate health care professionals' ability to diagnose, treat specific medical conditions, choose specific treatments and give different treatment options. ⁹ Additionally, this method can explore '*various factors that influence clinicians' judgments and decisions*' by having an experimental control which otherwise would not have been '*feasible or ethical using real patients*'.¹⁰ In dentistry, a vignette study has been used for treatment decisions previously.¹¹

The aim of this study was to determine the effect of dental phobia and complexity of dental care need on the proposed plan of dental treatment for patients. Specifically, to test whether the presence of dental phobia modifies the proposed dental care plan for a patient compared to a similar non-phobic patient and whether any effect varies depending on the setting that a dentist is practising. A secondary objective was to determine whether the proposed care plans vary according to the degree of specialisation of the dentist participant.

Methods:

Ethical approval was obtained from Health Research Authority (HRA: 16/HRA/2261) for this experimental analogue study using patient vignettes to explore decision-making by dental practitioners in three groups. Vignettes describing the oral health of fictional patients (including radiographs and clinical information) were presented to three groups of dental practitioners. The four different vignettes combined presence or absence of anxiety as well as complexity of care ('simple' or 'complex'). The principal investigator (EH) chose radiographic images from two patients who had been referred to the Department of Sedation and Special Care Dentistry (SSCD) for dental treatment under conscious sedation at Guy's and St Thomas' Foundation Trust (GSTFT). The radiographic images for each patient comprised a dental panoramic tomogram (DPT), bitewing radiographs and/or a number of periapical views. The images were selected to reflect either a requirement for simple dental treatment, or 'complex' dental treatment. The 'complex' case presented with 2 molar teeth where decay was extending deeply into dentine and close to the pulp suggesting that root canal therapy (RCT) might be required and a seal of the coronal tissue was viable. The broken down upper left incisor in this case would require a crown after completion of RCT. The 'complex' care DPT also showed interproximal bone defects indicating a need for periodontal treatment. The images were anonymised before use in the study.

Together with the images, vignettes describing the case scenarios were devised which included the following information all of which was fictional and bore no relation to any real patient:

- An ID number,
- Address,
- Date of birth,
- Presenting complaint and history of complaint,
- Detailed medical, dental and social histories.

The questionnaire was piloted with four dentists who recommended minor changes to the wording of the vignette case scenarios. The vignettes cases can be requested from the authors.

Participants

The population for this study comprised three groups: general dental practitioners (GDP), special care dentists and clinical teachers from the Faculty of Dentistry, Oral & Craniofacial Sciences, King's College London. These groups were chosen because they differ in the degree to which they specialise in the management of patients suffering from dental phobia. Each practitioner produced a care plan for one case from the four vignettes. Vignettes were allocated to individual practitioners using a randomisation table devised by the study statistician. Practitioners were contacted by post in October 2016, with reminders sent at two timepoints (4 and 8 weeks after the initial mailing). The care plans were coded to ensure confidentiality and anonymity. In the first instance, 155 questionnaires were sent with 5 returned envelopes mentioning 'not known at this address'.

Sample size calculation

The sample size calculation was performed on the basis of using logistic regression analysis to determine the significant predictors of binary outcomes (extraction, filling, root canal treatment and prosthesis). Assuming an odds ratio of 5.2 (from the authors' previous data) with 80% power with an R^2 value of 0.5 a study would require a minimum sample of 79 to identify significant predictors at 5% level of significance. The power calculation was carried out using Gpower version 3.1.9.2, Universität Düsseldorf.

Statistical analysis

Descriptive statistics were used to summarise the sample characteristics and the responses. The association between the cases (phobic vs non-phobic or simple vs complex) with other category variables were assessed using chi-square test for association. The study variables phobic status, complexity of the case, participant category and work setting were considered as potential predictors of the choice of treatment. To determine the significant predictors of endodontic treatment (single-

rooted and multi-rooted), logistic regression analyses were carried out separately for each outcome measure. The outcome measures were dichotomised by answering 'yes' for a restoration and 'no' for no restoration and complexity of the case and the type of dentist were included as predictor variables. Separate logistic regression analyses were carried out for the significant predictors of basic periodontal treatment provided by different categories of dentists. Logistic regression analyses were also used to determine the significant predictors of different types of restorations. All the analyses were carried out using SPSS version 24.0 (IBM SPSS Inc., USA) and the significance was assumed at 5% level.

Results:

There was a 56% questionnaire response rate (84 out of 150) with five questionnaires excluded because they had incomplete care planning data. The remaining 79 practitioners comprised 28 (36.4%) GDPs, 16 (20.8%) special care dentists (SCD) and 33 (42.9%) clinical teachers from a hospital setting that participated in this study. There were in total 40 (51%) returned batches with dental phobia and 39 (49%) complex vignette batches (table 1).

Table 1

Most of the participants were female (42, 53%) and not on a specialist list (48, 61%) (table 2). Fourteen (47%) of participants who were registered on the specialist list were on a Special Care Dentistry (SCD) list. Generally, the dentists were between the ages of 40 to 49 (26, 33%).

Table 2

There were no significance differences ($p > 0.05$) with regards to suggested care (treatment) planning between the vignette study with or without dental phobia (table 3).

Table 3

Table 4 shows the significant differences in suggested treatment for the simple and complex vignettes. There were significant differences ($p < 0.01$) in levels of for 'advanced periodontal treatment', 'direct tooth-coloured restorations (anterior) and (posterior)', 'root canal fillings (single-rooted) and (multiple-rooted)', provisions of 'crowns' and 'extractions'.

Table 4

Tables 5, 6 and 7 summarises the results of the regression analyses for all the outcome variables. There were no differences in care planning for phobic vs non-phobic patients. Complexity of treatment need had significant effects on advanced

periodontal treatment, direct tooth-coloured restorations anterior and posterior, amalgam fillings, provision of crowns and extractions.

Table 5, 6, 7

Discussion:

In this study, the practitioners from various care settings did not care plan differently on the basis of the patient vignette's phobia status. However, there were, understandably, differences between 'simple' and 'complex' vignette cases, where the complex case was care planned for advanced periodontal and restorative care. It has been argued that health care professionals in a secondary or tertiary care setting will '*have an ongoing transfer of research knowledge*' and a '*more conducive environment for consideration of the relevant and synthesized research.*'¹² This could explain why they might care plan differently. In this study, the only differences in care planning between the practitioners' groups were suggestion of provision of dental amalgam (commonly in CDS participants). The specialists less commonly care planned for 'root canal fillings'. This might simply be the reflection of patients who attend for treatment in their setting. Many patients seen in secondary care have either complex medical problems or psychological disorders and/or have moderate to severe dental anxiety with extensive dental needs.¹³ These factors may influence provision of more complex care.

Another explanation can be practitioners' commitment to the General Dental Council (GDC) principles outlined in '*Standards for the Dental Team*'.¹⁴ Dentists not only deliver appropriate care whilst considering patient's health and wellbeing (according to principle 1) but also '*maintain, develop and work within [your] professional knowledge and skills*' (principle 7).¹⁴ The participants working in a secondary care setting in this study despite the fact of additional stressors such as '*being the end point for referral, rather than able to refer on in difficult cases*'¹⁵ care planned accordingly. The reasons for introducing 'complex' care in this study was that people with dental phobia present with a significant amount of overdue dental treatments¹⁶,¹⁷ and disease management can be complicated. The reasons for differences between the 'simple' and 'complex' cases care planning in the following care elements ('*advanced periodontal treatment*'; '*direct tooth-coloured restorations [posterior]*'; '*crowns*'; '*root canal treatment*' and '*extractions*') reflected the nature of the case complexity. The 'complex' case was offered complex restorative care as the oral disease was extensive (the cases can be requested from the authors). This

contradicts a previous study, where dentists provided simple periodontal, restorative and extraction treatments routinely for patients with dental anxiety and phobia with conscious sedation¹⁸ and is in line with ADHS (2009) secondary analysis findings² where people with dental phobia presented with more missing teeth. This might suggest that if patients with dental phobia didn't require conscious sedation for dental treatment, they might be care planned for complex restorative care. Indeed, many patients with dental phobia who have undergone a course of cognitive behavioural therapy (CBT) have been able to have future dental treatment without sedation.¹⁹

This discrepancy between what care is routinely provided and care planned for, could also be explained by the fact that many practitioners may not (or perceive to) have a full control over the provided dental care. Factors such as individuals' beliefs, perceptions of external factors, social norms, patient preferences or organizational barriers and facilitators may have an impact on dentists' behaviours.^{20, 21} Another argument can be that investigating dental practitioners' intentions to treat using self-report and vignette methodology might not reflect the 'real life' scenario^{22,23} and practitioners might overestimate their '*adherence to recommended norms*'.²⁴ However, these arguments have been dismissed by several authors who have found vignettes methods being a valid tool for measuring quality of care and assessing clinicians' judgment and decisions making.^{8, 9} Another possibility is that clinicians are facing barrier's (such as funding, local policies and lack of training) that might have an impact on the care provided within their setting.¹⁸

Other influencing patients' factors are treatment preference.²² This needs to be considered especially in the current patient care centred environment. Chapple *et al.*, (2003)²⁵ suggest that responsibility for care planning decision should be shared equally between the dentists and their patients. But they found that lack of knowledge about dentistry and having trust in the care provider, can lead to patients taking a passive role on in the decision making processes.²⁵ Indeed, over 80% of people with dental phobia reported a feeling of involvement in their decisions about their dental care and mentioned that they have confidence and trust in their dentist.² It is worth investigating how people with dental phobia would interact with dental team to improve their oral health.

Several limitations of the present study were identified. Despite using reminders to decrease bias, there was only a 56% response rate; however, this is reasonable higher to general survey based research where the average response rate is 40% or lower. This is also similar to other studies where dentists participate²⁶ and a declining response rate are seen within health care professionals decade after decade.²⁷ Although following up the non-participating subjects is recommended, this wasn't possible in this study as participants were anonymised. The use of random sampling in the allocation of vignette factors can increase validity²³ and was used in this study. The study was cross-sectional therefore it was not possible to assess subjects' individual difference factors that may have influenced their decision-making. It might be argued that it is problematic to suggest a care plan without patients' involvement, as this involvement not only is essential for having a meaningful interaction with patients for establishing a good rapport for a successful care plan and eventually treatment outcome, but also to assess clinically the patients' level of anxiety and most importantly to have patients' input into their own care. This interpersonal interaction is highly complicated and multifaceted²⁶ but this patient-dentist interaction wasn't the aim of this current study. Decision-making is a complex process where studies are unable to capture all the influencing factors.¹¹ A multi-method study (including objective measures to complement the self-reported results) would have been difficult and costly to conduct with an unknown effect on the degree of bias.

The incidence and prevalence of dental phobia has been constant in the past decades.^{28, 29, 30, 31} Therefore, it is encouraging to notice in this study that practicing dentists' attitudes toward patients with dental phobia are not a barrier for patients receiving the best possible dental care. A future study could investigate the role of improving oral health related behaviours (OHRB) by practising minimum intervention dentistry (MID)^{32, 33} on oral health outcome (oral health status, quality of life and improve oral health prevention knowledge) and addressing phobia in this group of patients.

Conclusion

After being mindful of all the influencing factors, it seems that care planning is influenced by patients' dental needs and not their phobic status. The provision of oral health care prevention and adapting the MID principle can be beneficial for this group. The availability of Cognitive Behavioural Therapy (CBT) which addresses patients' dental phobia might improve patients' oral health and quality of life as it may improve their access to care. However, the important role of offering pharmacological therapies with complementary appropriate behavioural management techniques must not be underestimated.

Declaration of interest

The authors have no special interest and did not receive any funding for this study.

Acknowledgment

The authors would like to thank all the participants in this study.

Reference

1. Chenery, V., O 'sullivan, I. & Lader, D. 1: Adult Dental Health Survey 2009 – England Key Findings. (2009).
2. Heidari, E., Banerjee, A. & Newton, J. T. Oral health status of non-phobic and dentally phobic individuals; A secondary analysis of the 2009 Adult Dental Health Survey. *Br. Dent. J.* 2015;**219**, E9.
3. Heidari, E., Andiappan, M., Banerjee, A. & Newton, J. T. The oral health of individuals with dental phobia: A multivariate analysis of the Adult Dental Health Survey, 2009. *Br. Dent. J.* 2017;**222**, 595–604 .
4. Weinstein, P., Milgrom, P., Ratener, P. & Morrison, K. Patient dental values and their relationship to oral health status, dentist perceptions and quality of care. *Community Dent. Oral Epidemiol.* 1979;7(3):121-7.
5. O'Toole, S., Pennington, M., Varma, S. & Bartlett, D. W. The treatment need and associated cost of erosive tooth wear rehabilitation – a service evaluation within an NHS dental hospital. *Br. Dent. J.* 2018; **224**, 957–961.
6. Schuller, A. A., Willumsen, T. & Holst, D. Are there differences in oral health and oral health behavior between individuals with high and low dental fear? *Community Dent Oral Epidemiol* 2003;**31**, 116–121.
7. Hill, K. B., Hainsworth, J. M., Burke, F. J. T. & Fairbrother, K. J. Evaluation of dentists' perceived needs regarding treatment of the anxious patient. *Br Dent J.* 2008; 26;204(8):E13.
8. Peabody, J. W. *et al.* Measuring the Quality of Physician Practice by Using Clinical Vignettes: A Prospective Validation Study. *Ann Intern Med.* 2004;**141**, 771-78.
9. Bachmann, L. M. *et al.* Vignette studies of medical choice and judgement to study caregivers' medical decision behaviour: Systematic review. *BMC Med. Res. Methodol.* 2008; **8**, 1–8.
10. Evans, S. C. *et al.* Vignette methodologies for studying clinicians' decision-making: Validity, utility, and application in ICD-11 field studies. *Int. J. Clin. Heal. Psychol.* 2015; **15**, 160–170.
11. Bader, J. D. & Shugars, D. A. What do we know about how dentists make caries-related treatment decisions? *Community Dent. Oral Epidemiol.* 1997; **25**, 97–103.
12. Grilli, R. & Lomas, J. Evaluating the message: The relationship between compliance rate and the subject of a practice guideline. *Med. Care* 1994; **32**, 202–213.
13. Akbarali N., Boyle C., Newton, J. T. Appropriate referrals to Special Care Dentistry: a retrospective study. *J. Disabil. Oral Heal.*(2009; **104**, 142–150.
14. General Dental Council. Standards for the Dental Team.. *Stand. Dent. Team* (2013). Accessed April 2017 www.gdc-uk.org.
15. Chipchase, S. Y., Chapman, H. R. & Bretherton, R. A study to explore if dentists' anxiety affects their clinical decision-making. *Br. Dent. J.* 2017;**222**, 277–290.
16. Goumans, C., Veerkamp, J. S. J. & Aartman, I. H. a. Dental anxiety and behavioural problems: what is their influence on the treatment plan? *Eur. J. Paediatr. Dent.* 2004; **5**, 15–18.
17. De Jongh, A., Adair, P. & Meijerink-Anderson, M. *Clinical management of*

- dental anxiety: what works for whom? Int Dent J.* 2005;**55**(2):73-80.
18. Heidari, E., Banerjee, A. & Newton, T. Survey of treatment policies under conscious sedation at centres dealing with people with high levels of dental anxiety across the United Kingdom. *Br Dent J.* 2018; **224**, 632–6.
 19. Kani, E. Asimakopoulou, K., Daly, B *et al.* *Characteristics of patients attending for cognitive behavioural therapy at one UK specialist unit for dental phobia and outcomes of treatment. Br. Dent. J.* 2015;**219**, 501–506.
 20. Eccles, M., Grimshaw, J., Walker, A., Johnston, M. & Pitts, N. Changing the behavior of healthcare professionals: The use of theory in promoting the uptake of research findings. *J Clin Epidemiol.* 2005; **58**, 107–112.
 21. Grol, R. & Grimshaw, J. From best evidence to best practice: Effective implementation of change in patients' care. *Lancet* 2003;**362**(9391):1225-30.
 22. Godin, G., Bélanger-Gravel, A., Eccles, M. & Grimshaw, J. Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implement Sci.* 2008;**16**;3:36.
 23. Taylor, B. J. Factorial surveys: Using vignettes to study professional judgement. *Br. J. Soc. Work* 2006; **36**, 1187–1207.
 24. Adams, A. S., Soumerai, S. B., Lomas, J. & Ross-Degnan, D. Evidence of self-report bias in assessing adherence to guidelines. *Int. J. Qual. Heal. Care* 1999; **11**, 187–192.
 25. Chapple, H., Shah, S., Caress, A. L. & Kay, E. J. Exploring dental patients' preferred roles in treatment decision-making - A novel approach. *Br. Dent. J.* 2003; **194**, 321–327.
 26. Rouse, R. A. & Hamilton, M. A. Dentists evaluate their patients: An empirical investigation of preferences. *J. Behav. Med.* 1991; **14**, 637–648.
 27. Cook, J. V., Dickinson, H. O. & Eccles, M. P. Response rates in postal surveys of healthcare professionals between 1996 and 2005: An observational study. *BMC Health Serv. Res.* 2009; **14**, 9:160.
 28. Hakeberg M., Berggren U., Carlsson S.G. Prevalence of dental anxiety in an adult population in a major urban area in Sweden. *Community Dent Oral Epidemiol.* 1992;**20**(2):97-101.
 29. Poulton, R., Waldie, K. E., Thomson, W. M. & Locker, D. Determinants of early- vs late-onset dental fear in a longitudinal-epidemiological study. *Behav. Res. Ther.* 2001;**39**(7):777-85.
 30. Moore R, Birn H, Kiregaard E, Brodsgaard I SF. Prevalence and characteristics of dental anxiety in danish adults. *Community Dent Oral Epidemiol.* 1993;**21**:292–6.
 31. Hill, K. B., Chadwick, B., Freeman, R., O'Sullivan, I. & Murray, J. J. Adult Dental Health Survey 2009: relationships between dental attendance patterns, oral health behaviour and the current barriers to dental care. *Br Dent J.* 2013 Jan;**214**(1):25-32.
 32. Banerjee A. "MI" inspiring future oral healthcare? *Br Dent J.* 2017;**223**:133-135.
 33. Banerjee A. Implementing minimum intervention (MI) oral healthcare delivery – overcoming the hurdles. *Primary Dent J.* 2017;**6**(3):28-32.

Table1: Shows the breakdown and nature of the returned batches.

Vignette type	Number (%)
Complex case without dental Phobia	21 (27)
Complex case with dental Phobia	21 (27)
Simple case without dental phobia	18 (23)
Simple case with dental phobia	19 (24)
Total	79 (100)

Table 2: Demographic characteristics of study participants (N=79).

Remove comments this has been done now

Variable	Number (%)
Gender	
Male	35 (44)
Female	42 (53)
Missing	2 (3)
GDC specialist	
Yes	30 (38)
No	48 (61)
Missing	1 (1)
State specialist	39 (48%)
SPC	14
Periodontist	6
Prostodontics	5
SPC+Paediatric	1
Paediatric	2
Orthodontics	2
Age	
20-29	3 (4)
30-39	18 (23)
40-49	26 (33)
50-59	21 (26)
60+	10 (13)
Missing	1 (1)
Year of qualification	
Before 1980	8 (10)
1980-1984	14 (18)
1985-1989	11 (14)
1990-1994	14 (18)
1995-1999	7 (9)
2000-2004	13 (16)
2005-2009	8 (10)
2009-2015	1 (1)
2016	2 (3)
Missing	1(1)

Table 3: Care planning suggestions group detailing different treatment options grouped on the basis of phobic and non-phobic vignette cases

Study no	Treatment Options	Participants offered treatment (Yes), Did not offer (No)	Non-phobic % (n=30)	Phobic % (n=40)	Chi-square, df and P value
1.	Basic Periodontal Treatment provided by Hygienist	Yes: 45 (57.0) No: 34 (43.0)	24 (61.5) 15 (38.5)	21 (52.5) 19 (47.5)	0.66 1 0.42
2.	Basic Periodontal Treatment provided by dentists	Yes: 28 (35.4) No: 51 (64.6)	14 (35.9) 25 (64.1)	14 (35.0) 26 (65.0)	0.007 1 0.93
3.	Advanced Periodontal Treatment	Yes: 26 (32.9) No: 53 (67.1)	11 (28.2) 28 (71.8)	15 (37.5) 25 (62.5)	0.773 1 0.38
4.	Non-Operative Care (Prevention)	Yes: 59 (74.7) No: 20 (25.3)	27 (69.2) 12 (30.8)	32 (80.0) 8 (20.0)	1.211 1 0.27
5.	Direct tooth-coloured Restorations	Yes: 24 (30.4) No: 55	9 (23.1) 30 (76.9)	15 (37.5) 25 (62.5)	1.942 1 0.16

Study no	Treatment Options	Participants offered treatment (Yes), Did not offer (No)	Non-phobic % (n=30)	Phobic % (n=40)	Chi-square, df and P value
	(anterior)	(69.6)			
6.	Direct tooth-coloured Restorations (posterior)	Yes: 27 (34.2) No: 52 (65.8)	13 (33.3) 26 (66.7)	14 (35.0) 26 (65.0)	0.024 1 0.88
7.	Amalgam fillings	Yes: 28 (35.4) No: 51 (64.6)	11 (28.2) 28 (71.8)	17 (42.5) 23 (57.5)	0.024 1 0.18
8.	Root Canal Fillings (Single-rooted)	Yes: 34 (43.0) No: 45 (57.0) Total:	18 (46.2) 21 (53.8)	16 (40.0) 24 (60.0)	0.305 1 0.58
9.	Root Canal Fillings (Multiple-rooted)	Yes: 28 (35.4) No: 51 (64.6)	15 (38.5) 24 (61.5)	13 (32.5) 27 (67.5)	0.307 1 0.58
10.	Crowns	Yes: 31 (39.2) No: 48 (60.8)	15 (38.5) 24 (61.5)	16 (40.0) 24 (60.0)	0.020 1 0.89

Study no	Treatment Options	Participants offered treatment (Yes), Did not offer (No)	Non-phobic % (n=30)	Phobic % (n=40)	Chi-square, df and P value
11.	Bridges	Yes: 5 (6.3) No: 74 (93.7)	3(7.7) 36(92.3))	2(5.0) 38 (95.0)	0.24 1 0.68
12.	Extractions	Yes: 63 (79.7) No: 16 (20.3)	30 (76.9) 9 (23.1)	33 (82.5) 7 (17.5)	0.38 1 0.54
13.	Prostheses	Yes: 8 (10.1) No: 71 (89.9)	4 (10.3) 35 (89.7)	4 (10.0) 36 (90.0)	0.001 1 0.97

Table 4: Care planning suggestions group detailing different treatment options grouped on the basis of simple and complex vignette cases

		Participants offered treatment (Yes), Did not offer (No)	Complex % (n=42)	Simple % (n=37)	Chi- square, df and P value
1.	Basic Periodontal Treatment provided by Hygienist	Yes: 45 (57.0) No: 34 (43.0)	27 (64.3) 15 (35.7)	18 (48.6) 19 (51.4)	1.962 1 0.16
2.	Basic Periodontal Treatment provided by dentists	Yes: 28 (35.4) No: 51 (64.6)	18 (42.9) 24 (57.1)	10 (27.0) 27 (73.0)	2.154 1 0.14
3.	Advanced Periodontal Treatment	Yes: 26 (32.9) No: 53	1 (7.1) 39 (92.9)	23 (62.2) 14 (37.8)	26.969* 1

		Participants offered treatment (Yes), Did not offer (No)	Complex % (n=42)	Simple % (n=37)	Chi-square, df and P value
		(67.1)			<0.0001
4.	Non-Operative Care (Prevention)	Yes: 59 (74.7) No: 20 (25.3)	34 (81.0) 8 (19.0)	25 (67.6) 12 (32.4)	1.864 1 0.17
5.	Direct tooth-coloured Restorations (anterior)	Yes: 24 (30.4) No: 55 (69.6)	22 (52.4) 20 (47.6)	2 (5.4) 35 (94.6)	20.523* 1 <0.0001
6.	Direct tooth-coloured Restorations	Yes: 27 (34.2) No: 52	21(50.0) 21 (50.0)	6 (16.2) 31 (83.8)	9.980* 1 0.002

		Participants offered treatment (Yes), Did not offer (No)	Complex % (n=42)	Simple % (n=37)	Chi-square, df and P value
	(posterior)	(65.8)			
7.	Amalgam fillings	Yes:28 (35.4) No: 51 (64.6)	16 (38.1) 26 (61.9)	12 (32.4) 25 (67.6)	0.276 1 0.6
8.	Root Canal Fillings (Single-rooted)	Yes: 34 (43.0) No: 45 (57.0)	34 (81.0) 8 (19.0)	0 (0.0) 37 (100)	52.583* 1 <0.0001
9.	Root Canal Fillings (Multiple-rooted)	Yes: 28 (35.4) No:51 (64.6)	28 (66.7) 14 (33.3)	0 (0.0) 37 (100)	38.209* 1 <0.0001

		Participants offered treatment (Yes), Did not offer (No)	Complex % (n=42)	Simple % (n=37)	Chi-square, df and P value
10.	Crowns	Yes: 31 (39.2) No: 48 (60.8)	30 (71.4) 12 (28.6)	1 (2.7) 36 (97.3)	38.969* 1 <0.0001
11.	Bridges	Yes: 5 (6.3) No: 74 (93.7)	4 (9.5) 38 (90.5)	1 (2.7) 36 (97.3)	1.544 1 0.36
12.	Extractions	Yes: 63 (79.7) No: 16 (20.3)	29 (69.0) 13 (31.0)	34 (91.9) 3 (8.1)	6.356* 1 0.01
13.	Prostheses	Yes: 8	3 (9.5)	4	0.036

		Participants offered treatment (Yes), Did not offer (No)	Complex % (n=42)	Simple % (n=37)	Chi- square, df and P value
		(10.1) No: 71 (89.9) Total:	38 (90.5)	(10.8) 33 (89.2)	1 1.00

* indicates statistically significant at level 0.05

Table 5. Results of the logistic regression analyses for *periodontal treatment and prevention* outcome variables.

		Basic Periodontal Treatment provided by Hygienist			Basic Periodontal Treatment provided by dentists			Advanced Periodontal Treatment			Non-Operative Care (Prevention)		
Predictors	Comparison (reference) group	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value
The case mentioned phobia	The case did not mention phobia	0.63	0.25 to 1.60	0.33	0.98	0.37 to 2.59	0.97	1.87	0.56 to 6.29	0.31	1.93	0.67 to 5.53	0.22
The case is considered a Complex case	Is a Simple case	1.99	0.79 to 5.03	0.15	2.0	0.76 to 5.32	0.16	0.046	0.012 to 0.18	<0.0001 *	1.92	0.67 to 5.47	0.23
The participant works in CDS	The participant is a General Dental Practitioner	0.54	0.15 to 1.91	0.34	0.31	0.07 to 1.34	0.12	1.48	0.29 to 7.41	0.64	0.80	0.20 to 3.26	0.76
The participant works in a hospital setting	The participant is a General Dental Practitioner	0.64	0.22 to 1.84	0.40	0.77	0.27 to 2.19	0.62	1.10	0.29 to 4.26	0.89	1.13	0.34 to 3.74	0.84

* Indicates statistically significant at level 0.05

CI= confidence interval

Table 6. Results of the logistic regression analyses for *restorative care* outcome variables.

		Direct tooth-coloured Restorations (anterior)			Direct tooth-coloured Restorations (posterior)			Amalgam fillings			Extractions		
Predictors	Comparison (reference) group	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value
The case mentioned phobia	The case did not mention phobia	3.7	1.05 to 12.99	0.04*	1.28	0.45 to 3.62	0.64	2.23	0.76 to 6.58	0.15	1.46	0.44 to 4.82	0.53
The case is considered a Complex case	Is a Simple case	21.4	4.20 to 109.11	<0.0001*	4.86	1.62 To 14.54	0.005*	1.58	0.55 to 4.57	0.40	0.18	0.05 to 0.71	0.015*
The participant works in CDS	The participant is a General Dental Practitioner	0.67	0.12 to 3.68	0.64	0.42	0.10 to 1.78	0.24	16.90	3.52 to 81.01	<0.0001*	5.03	0.53 to 47.69	0.16
The participant works in a hospital setting	The participant is a General Dental Practitioner	1.24	0.33 to 4.66	0.75	0.48	0.15 to 1.50	0.21	2.54	0.74 to 8.72	0.14	1.03	0.30 to 3.57	0.96

* Indicates statistically significant at level 0.05

CI= confidence interval

Table 7. Results of the logistic regression analyses for *complex care* outcome variables

		Root Canal Fillings (Single- rooted)			Root Canal Fillings (Multiple- rooted)			Crowns			Bridges			Prostheses		
Predictors	Comparison (reference) group	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value	Odds ratio	95% CI	P value
The case mentioned phobia	The case did not mention phobia	0.63	0.12 to 3.23	0.58	0.99	0.21 to 4.57	0.99	1.79	0.44 to 7.31	0.42	0.77	0.09 to 6.37	0.81	0.87	0.20 to 3.81	0.85
The case is considered a Complex case	Is a Simple case	X	X	0.99	X	X	0.99	113.6 3	12.31 to 1048.96	<0.0001 *	3.27	0.299 to 35.78	0.33	0.91	0.21 to 3.98	0.90
The participant works in CDS	The participant is a General Dental Practitioner	0.52	0.06 to 4.85	0.57	0.043	0.003 to 0.53	0.014 *	0.17	0.025 to 1.17	0.071	4.22	0.34 to 53.06	0.27	0.84	0.14 to 5.25	0.86
The participant works in a hospital setting	The participant is a General Dental Practitioner	0.50	0.08 to 3.23	0.47	0.08	0.009 to 0.76	0.027 *	0.46	0.095 to 2.21	0.33	0.85	0.05 to 14.50	0.91	0.38	0.064 to 2.27	0.29

X – values could not be calculated due to fewer cases in that category.

* Indicates statistically significant at level 0.05

CI= confidence interval