Survey of Dental Materials Used by Dentists for Indirect Restorations in Saudi Arabia

Yousef Haider, BDS, MScD[1]/Mohiddin Dimashkieh, DDS, MSc[2]/Mohammad Rayyan, BDS, MDS[3]

The purpose of this study was to investigate the use and selection of materials for indirect restorations by dentists in Saudi Arabia. A structured 18-item questionnaire was designed and sent via email to all dentists with active memberships in the Saudi Dental Society. A total of 373 dentists (20.2%) out of the 1,846 contacted answered the questionnaire. The majority of the responding dentists (81.5%) prefer to use porcelain-fused-to-metal crowns for posterior teeth, while 77.5% use all-ceramic crowns for anterior teeth. Only 29.8% reported using computer-aided design/computer-assisted manufacture in their practice. There was inconsistency among dentists in material selection, and this was affected by the dentist's gender, years of experience, specialty, and service sector. *Int J Prosthodont 2017;30:83–85. doi: 10.11607/ijp.5019*

Not all dental practitioners will make the same treatment decision when presented with a given case history. This variation may be attributed to differences in clinical judgment, experience, and personal preference.[1]

While traditional materials are still in use today, recent advances in dental ceramics and adhesives have encouraged dentists to provide more indirect restorations such as veneers and crowns due to their superior esthetics and longevity.[2]

Few surveys have been conducted to investigate the types of indirect restorations and materials used by dental practitioners.[1,3–5] The purpose of this study was to investigate the use of materials for indirect restorations among dental practitioners in Saudi Arabia.

Materials and Methods

Study Design

This cross-sectional study was approved by the Review Board and Ethics Committee of Riyadh Colleges of Dentistry and Pharmacy (registration number: FPGRP/43332003/86). A questionnaire was designed that included demographic variables such as the dentist's gender, specialty, type of practice, and years of experience in addition to questions related to the choice of materials used for indirect restorations. A cover letter was included to explain the aims of the study, how the data would be used, and the voluntary and anonymous nature of the study participation.

The questionnaire was then sent by email to all dentists with active membership in the Saudi Dental Society (n = 1,846). Data from the completed questionnaires was entered into the statistical software SPSS version 20 to obtain descriptive statistics. Cross tabulation and chi-square tests were used to calculate inferential statistics. The study commenced on June 1, 2014 and ended on December 31, 2014.

Results

A total of 373 dentists completely answered the questionnaire, for a somewhat limited response rate of 20.2%. The general demographic characteristics of the study sample are given in Table 1.

The majority of the dentists preferred to use all-ceramic crowns for the anterior teeth (77.5%, n = 289) and porcelain-fused-to-metal (PFM) crowns for the posterior teeth (81.5%, n = 304). Ceramics were the most frequently used for inlays and onlays (46.1%, n = 172) and the use of computer-aided design/computer-assisted manufacture (CAD/CAM) technology was only reported by 29.8% of the dentists (n = 111). More female dentists used all-ceramic restorations for anterior teeth (89% for crowns and 63% for FPDs) compared with male dentists (74% for crowns and 50% for FPDs). A higher percentage of dentists

[1]*Prosthodontist, Prosthodontic Department, Dental Specialist Center, Ministry of Health, Najran, Saudi Arabia.*
[2]*Professor, Prosthodontic Department, Riyadh Colleges of Dentistry and Pharmacy, Riyadh, Saudi Arabia.*
[3]*Assistant Professor, Prosthodontic Department, Riyadh Colleges of Dentistry and Pharmacy, Riyadh, Saudi Arabia.*

Correspondence to: *Dr Mohammad Rayyan, Prosthodontic Department, Riyadh Colleges of Dentistry and Pharmacy, King Fahad Road, Riyadh 11681, Saudi Arabia. Email: mohammadrayyan1979@gmail.com*

Table 1 General Demographic Information Provided by the Questionnaire Respondents (N = 373)

	Respondents (n [%])
Gender	
Male	275 (73.7)
Female	98 (26.3)
Years of practice	
< 5	194 (52.0)
5–10	75 (20.1)
> 10	104 (27.9)
Type of practice	
General practitioner	205 (55.0)
Specialized in prosthetic or restorative dentistry	115 (30.8)
Other specialty dentist	53 (14.2)
Service sector	
Governmental	193 (51.7)
Private	84 (22.5)
Academic	56 (25.7)

Table 2 Use of Indirect Restorations by the Dentists (N = 373)

	Respondents (n [%])
Permanent crowns for anterior teeth	
Porcelain-fused-to-metal	84 (22.5)
All-ceramic	289 (77.5)
Permanent crowns for posterior teeth	
Porcelain-fused-to-metal	304 (81.5)
All-ceramic	59 (15.8)
Full metal crowns	10 (2.7)
Fixed partial dentures for anterior teeth	
Porcelain-fused-to-metal	172 (46.1)
All-ceramic	201 (53.9)
Fixed partial dentures for posterior teeth	
Porcelain-fused-to-metal	324 (86.9)
All-ceramic	35 (9.4)
Full metal	14 (3.8)
Permanent facial veneers	
Direct composite	67 (18.0)
Indirect composite	16 (4.3)
Porcelain	206 (55.2)
Not used	84 (22.5)
Materials used for inlays and onlays	
Indirect composite	27 (7.2)
Metal	22 (5.9)
Ceramic	172 (46.1)
Not used	152 (40.8)
Metal alloys for indirect restorations	
Precious	74 (19.8)
Semiprecious	92 (24.7)
Nonprecious	120 (32.2)
Not used	87 (23.3)
Use of CAD/CAM technology	
Yes	111 (29.8)
No	262 (70.2)
Endodontic posts for anterior teeth	
Prefabricated metal posts	41 (11.0)
Fiber resin posts	253 (67.8)
Zirconia posts	21 (5.6)
Cast post and core	58 (15.5)
Endodontic posts for posterior teeth	
Prefabricated metal posts	123 (33.0)
Fiber resin posts	98 (26.3)
Zirconia posts	8 (2.1)
Cast post and core	144 (38.6)

with < 5 years of practice experience (80.4%) did not use CAD/CAM technology in comparison with dentists with 5–10 years of experience (56%) and those with > 10 years of experience (60%) ($P < .001$). The endodontic posts most commonly used for anterior teeth were fiber resin posts (67.8%, n = 253), and for posterior teeth, cast post and cores (38.6%, n = 144) (Table 2).

Discussion

The data collected in this investigation might be of value in providing information and baseline data for similar future investigations, although the response rate for this preliminary study was not robust. An understanding of the factors dentists currently incorporate in their decision-making process is needed to identify inappropriate decision-making behaviors.[1]

The increased demand for metal-free restorations to achieve more esthetic results and eliminate the metal shadow was evident. However, dentists seemed to be reluctant to use all-ceramic restorations routinely for posterior teeth. This could be due to the increased cost of all-ceramic restorations in comparison with PFM and the long history of confidence in the performance of PFM restorations in the posterior region.

Approximately 30% of dentists in this study reported using CAD/CAM, which is a good percentage when compared with previous studies. This reflects the increased interest in this technology among dentists.[1,4] Exposure to CAD/CAM technology usually requires advanced courses, and this technology still has not been incorporated in dental schools in most parts of the world.[2]

To date, there are no conclusive evidence-based recommendations regarding the choice of endodontic post system.[3,5] In this study, an increased trend to use fiber posts was reported, especially in anterior teeth and among dentists with < 5 years of experience. This trend could be due to the favorable clinical and laboratory reports on fiber posts, the straightforward nature of the procedure, and the increased use of composite as a core material.[1]

Despite the valuable insights obtained with the current study, the low response rate is a limitation that has to be acknowledged and considered. While it is recognized that online surveys facilitate the distribution of questionnaires to a larger population, they do not automatically guarantee a good response rate.

Conclusions

Most dentists in the limited respondent sample appeared to use up-to-date available dental materials. Their decisions were affected by their gender, years of experience, specialty, and service sector.

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