ECRONICON OPEN ACCESS

EC DENTAL SCIENCE
Research Article

Knowledge of Yemeni Dental Practitioners Towards Resin Bonded Prosthesis

Mohsen A Al-Hamzi[1,2], Ahmed Abdullah Madfa[1,2]*, Fadhel A Al Sanabani[1], Waled A Al-Anesi[2]

[1]Department of Conservative Dentistry, Faculty of Dentistry, Thamar University, Yemen

[2]Restorative and Prosthodontic Department, College of Dentistry, University of Science and Technology, Yemen

***Corresponding Author:** Ahmed Abdullah Madfa, Assistant Professor, Department of Conservative Dentistry, Faculty of Dentistry, Thamar University, Dhamar, Yemen.

Received: April 08, 2017; **Published:** May 02, 2017

Abstract

Objective: The aim of this study was to assess the knowledge and attitude of general dental practitioners in Yemen toward resin bonded bridges.

Methods: In this cross-sectional study, questionnaires designed to survey knowledge and attitude about resin bonded bridge were distributed to general dental practitioners (n = 304). Specifically, opinions of general dental practitioners regarding knowledge, clinical application were obtained. The position (maxilla or/and mandible), location (anterior or/and posterior), frequency of cases were also considered. The questionnaire also concerned about the agreement for applying in their practice, hindrances and the demand for continuation education programmes. Cross-tabulations were used to determine of percentages of tested groups.

Results: A majority (82.2%) of the dentists had knowledge about resin bonded prostheses. Amongst them, 84.0% acquired the knowledge from Faculty where (8.6%) were obtained the information theoretically and practically. A majority (76.8%) of the participants were no used resin bonded bridges in any prosthodontic case. Most of dentists were chosen the resin bonded bridge for anterior region (58.6%) and both maxillary and mandibular missing teeth (69.0%). Apparently, the most dentists (85.5%) were supported to use resin bonded prosthesis in their clinics. A majority of respondents agreed that are needs for continues education programmers (99.3%).

Conclusion: The lack of skill and training on the resin bonded bridge is consistent with a low level for applying this prosthesis in Yemeni dental clinics. Therefore, continuing education opportunities are needed for practicing dentists, and undergraduate students need to receive greater exposure to the clinical application of this prosthesis.

Keywords: *Knowledge; Clinical Application; Resin Bonded Bridges; Dental Practitioner*

Introduction

The aim of every dental surgeon is to replace the lost teeth thereby preventing other deleterious effects associated with tooth loss. Treatment options for missing teeth can include the absence of treatment and acceptance of the resulting space, orthodontic therapy to redistribute the space, or prosthetic tooth replacement [1,2]. Most frequently the patient may ask, "Is it really necessary to cutaway all that good tooth?" this question has troubled dentist in prescribing the replacement of missing tooth as they have tried to balance the periodontal, occlusal and esthetic benefits of prosthesis against the damage to the abutment teeth [3].

However, replacement of missing teeth with conventional metal-ceramic fixed partial denture prosthesis requires the removal of substantial amount of tooth structure so that the resulting restorations are strong, appropriately contoured, and esthetically acceptable. If coverage is necessary for cosmetic purposes, because of caries or preexisting restorations this removal of structure is acceptable but when the abutment teeth are sound that is they are intact and caries free the conventional metal-ceramic fixed prosthesis seems to be quite ridiculous [4].

A single-tooth implant is an alternative for patients with adequate bone dimensions and who are willing to undergo a minor surgical procedure. However, oral implants are not the treatment of choice for many patients and the Resin bonded bridges offers a possible solution.

Resin bonded bridges offer a conservative and cost-effective approach to the restoration of space compared to conventional bridge [5]. Specifically, they allow for the preservation of tooth structure, treatment reversibility, minimal catastrophic failure and loss of abutment, preservation of pulp vitality, minimal soft tissue interaction, and ease of retrievability [6-10]. Moreover, with an increasing emphasis on conservation of oral tissues in recent years, awareness of resin bonded bridges as a definitive treatment option has also increased. However, since their introduction, the main concern regarding resin bonded bridges has been the potential for higher de-bonding rates and decreased longevity [11]. Despite this, accumulating scientific evidence indicates that they are effective alternatives to conventional bridges, and have been used to achieve long-term success and patient satisfaction [12-16].

Appropriate training of doctoral students will be reflected in the future attitude of dentists toward clinical applications of these prostheses. Dentists are less likely to prescribe resin bonded prostheses, due to the concern over the reliability of them [17,18]. On the other hand, improper selection of patients and the design of the pros-thesis result in treatment failure [18].

At the present time, no published data are available on the current status of resin bonded prostheses in Yemen. Therefore, the purpose of the present study is the survey of the knowledge of Yemeni dental practitioners toward resin bonded prostheses.

Materials and Methods

This cross-sectional study was conducted among the general dental practitioners in Yemen. The ethics committee of the Faculty of Dentistry, Thamar University approved the study protocol.

The survey was designed in a form of questionnaire containing 4-option multiple choice questions, and its purpose was to evaluate the knowledge of responders. A total of 9 well- structured questions accompanied with complete description of the study were distributed among 304 dental practitioners who attended a dental update continuing education course at the Yemeni Dental Association. The survey was distributed in both Arabic and English languages in order to facilitate filling by the language that is easiest for the dental practitioners. Course participants included mostly general dental practitioners from all parts and governorates of the country. In addition, some dental students as well as few specialists attended this course. However, general dental practitioners were included in this study.

The questionnaire included 10 items regarding participants' knowledge and participants' practice profile about resin bonded bridges. Specifically, opinions of general dental practitioners regarding knowledge, clinical application were obtained. The position (maxilla or/and mandible), location (anterior or/and posterior), frequency of cases were also considered. The questionnaire also concerned about the support for applying their practice, hindrances and the demand for continuation education programmes.

A total of 304 survey questionnaires were distributed and attendees received the surveys in their course registration materials. Completion of the survey signified the individuals' voluntary consent to participate in the study. Participants also received instructions to complete the surveys and return them to a designated area. Survey questionnaires were anonymous.

All returned forms were coded by a single operator and the data were checked and entered twice into a personal computer. Data has been collected and entered to the computer were analyzed using SPSS (Statistical Package for Social Science) program (version 21; Inc., Chicago. IL). Cross-tabulations were used to determine of percentages of tested groups.

Results

The questionnaire and responses are summarized in Table 1. Of the participants, 82.2% had knowledge about resin bonded bridge. Amongst them, 84.0% acquired the knowledge from Faculty, whereas the rest (16.0%) were picked up from other resources. Most participants, which acquired the information from Faculty, were theoretically (86.7%), whereas only 4.8% were picked up the information from practices. The rest of the participants (8.6%) claimed that the knowledge were both theoretically and practically.

Questionnaires	Response	N (%)
Knowledge about resin bonded prostheses (RBPs)	Yes	250 (82.2%)
	No	54 (17.8%)
If yes, from where you hear about RBPs	Faculty	210 (84.00%)
	Other	40 (16.00%)
If from Faculty, how you get the knowledge	Theoretical	182 (86.7%)
	Practical	10 (4.8%)
	Both	18 (8.6%)
Do you apply RBPs in your clinic	Always	6 (2.4%)
	Sometimes	24 (9.6%)
	Rarely	28 (11.2%)
	Never	192 (76.8%)
In which jaws do you practice RBPs	Maxilla	18 (31.0%)
	Mandible	0 (0%)
	both	40 (69.0%)
In which region do you practice RBPs	Anterior	34 (58.6%)
	Posterior	4 (6.9%)
	Both	20 (34.5%)
How many case you did RBPs	Never	192 (76.8%)
	One case	30 (12.0%)
	More than one	28 (11.2%)
Do you support using RBPs	Yes	260 (85.5%)
	No	2 (0.7%)
	Don't know	42 (13.8%)
Hindrances	Knowledge	106 (34.9%)
	Technician	152 (50.0%)
	Other	46 (15.1%)
Demand for continuation education programmes	Yes	302 (99.3%)
	No	2 (0.7%)

Table 1: *The questionnaire and responses of the study.*

Only 23.2% of the participants applied the resin bonded bridge for treating missing teeth, in which 11.2% were rarely applied, while 9.6% were sometimes used. Only 2.4% were frequently applied the resin bonded bridge in their clinics. The frequency of using these prostheses either on one case or more than once was 12.7% or 11.2%, respectively.

The majority of the participants 58.6% were chosen the resin bonded bridge for anterior region, however (6.9%) were selected this prosthesis for posterior region. The rest of the studied sample (34.5%) was chosen for both anterior and posterior regions. Regarding the use of resin bonded bridge in maxilla or mandible, the majority of the participants 69.0% were chosen resin bonded bridge for both maxillary and mandibular missing teeth, whereas 31.0% were preferred resin bonded bridge for only maxillary missing teeth. However, resin bonded bridge was no used in any mandibular missing teeth.

Apparently, the most general dental practitioners (85.5%) in this study were supported to use resin bonded prosthesis in their clinics. However, there are many hindrances for using the resin-bonded prosthesis such as lack of information (84.9%) for both dentists or technicians and other factors (15.1%) as patients' awareness. Therefore, it is not surprising that most the respondents in this study agreed that there are a needs for continues education programmes in resin bonded prostheses (99.3%).

Discussion

Many treatment modalities are available for replacing a single missing tooth; removable partial denture, fixed partial denture or dental implant. Each modality is a possible treatment option and has its own advantages and disadvantages. Patient awareness of the advantages and disadvantages of different treatment modalities is very important for decision making, therefore there are many factors make single-tooth replacement one of the most challenging restorations in dentistry [19]. Satisfaction with removable partial denture has multifactorial dimensions involving technical and patient-related variables. Comfort, masticatory ability, aesthetics, and retention seem to be the most important factors for prosthesis acceptance. Personality, attitude towards removable partial denture and motivation are dependent on the patient and may influence general satisfaction and that seems to make it a difficult option for paediatric patients.

The traditional treatment for a single edentulous space is a conventional fixed partial denture. A major shortcoming of this alternative is the significant tooth reduction of the abutments [20]. The use of fixed partial denture should be avoided in young actively growing patients this is because the rigid fixed partial denture could interfere with jaw growth [21]. The three most common complications associated with resin bonded prosthesis are deboning (21%), tooth discoloration (18%) and. caries (7%) [22]. The implication of interim prosthesis for paediatric patients with proper treatment plan can serve as a shelter from ill effects related to edentulous space and invasive replacement procedure like fixed partial denture and implants in growing patients.

This first study provides published information on forum of practicing the resin bonded prostheses in Yemen. The current study presents a data designed to evaluate the knowledge and perception of factors related to the obscuring for clinical application of resin bonded prostheses by Yemeni general practitioners. The overall response rate for the questionnaire distributed was 100%. In comparison, the response rate for paper surveys was previously reported to be 50 - 55% [23]. The higher than average response observed in the present study is attributed to the multiple reminders that were distributed to participants, a method previously reported to improve response rates [24].

In the present study, 82.24% of the participants had knowledge about resin bonded prosthesis.

Amongst them, 84.0% acquired the knowledge from Faculty where few participants (8.57%) claimed to get the knowledge from Faculty were both theoretical and practical. Apparently, the most general dental practitioners in Yemen were not utilized the resin bonded prosthesis in their clinics. This might be attributed to the lack of skill and training. In the Profile and Competences for the graduating dentist released by the Association for Dental Education in Europe [25], the competences, at the graduation, have been defined as the

basic level of professional behavior, knowledge, and skills necessary for a graduating dentist to respond to the full range of circumstances encountered in general professional practice. Consequently, the contemporary educational philosophy shows a competence fulfillment approach encompassing a wide spectrum of professional skills which is not limited to manipulative skills only. For dentists to reach such level of skill they must be exposed to enough number of cases of variable difficulty during their study. The dental practitioners, therefore, should be equipped with knowledge as well as experience in various modalities are available for replacing a single missing tooth prior to working independently.

Creugers., *et al*. [11] reported that anterior resin bonded prostheses have higher durability. This may be explained why, in the present study, the anterior region of the jaws (58.6%) was considered the most appropriate location for resin bonded prosthesis. Even though many researchers remarked that resin bonded prostheses placed in the maxilla are more likely to fail than those placed in the mandible [26-28]. However, most participants in this study (69.0%) were chosen fixed resin bonded prostheses for both maxillary and mandibular missing teeth. Low levels of knowledge, skill and training about fixed resin bonded prostheses may be explained this outcome.

In this study, the most general dental practitioners (85.5%) were supported to use resin bonded prosthesis in their clinics. However, they faced many hindrances for applying this prosthesis such as lack of information for either dentists or technicians (84.9%) and other factors as patients' awareness (15.1%). Therefore, it is not surprising that most the respondents in this study (99.3%) agreed that there are a need for continues education programmes.

General speaking, surveys bridge between both students/dentists and the educationist and allows an insight into the educational process, a feedback which is important to provide updated curricula that aim to develop and refine both knowledge and practical skills and overcome hindrances that practitioners face. Unfortunately, this received little attention in the educational planning of most dental schools [29,30]. The number of prosthodontic treatment modalities is obliged to complete to be eligible for graduation differs from school to school and various factors such as the proportion of patient frequency to the number of enrolled clinical students of the related dental school may have impacts on this difference. On the other hand, there are some requirements and established competencies advocated by dental authorities and organizations that describe the minimum number of cases required to be completed prior to being licensed as a dental practitioner.

Conclusion

Within the limitations of this study, the lack of skill and training on the using resin bonded prostheses is consistent with a low level for using this prosthesis in Yemeni dental clinics. Based on the data reported in this study, there appears to be a need to improve the undergraduate dental curriculum in order to improve the clinical skills of dental practitioners in restorative dentistry. Also, implementing continuing education programs among practicing dentists can improve the outcomes of treatment provided in public and private dental clinics.

Bibliography

1. Robertsson S and Mohlin B. "The congenitally missing upper lateral incisor: a retrospective study of orthodontic space closure versus restorative treatment". *European Journal of Orthodontics* 22.6 (2000): 697-709.

2. Jepson NJ., *et al*. "The interdisciplinary management of hypodontia: restorative dentistry". *British Dental Journal* 194.6 (2003): 299-304.

3. Schillinberg HT., *et al*. "Fundamental of fixed prosthodontics, ed 3rd" Chicago Quintessence Publication Co (1996): 537-561.

4. Rosenstiel SF., *et al*. "Contemporary fixed prosthodontics, ed 3rd". Mosby publication Co (2001): 673-692.

5. Cheung GSP., *et al*. "Fate of vital pulps beneath a metal-ceramic crown or a bridge retainer". *International Endodontic Journal* 38.8 (2005): 521-530.

6. Djemal S, *et al*. "Long-term survival characteristics of 832 resin retained bridges and splints provided in a post-graduate teaching hospital between 1978 and 1993". *Journal of Oral Rehabilitation* 26.4 (1999): 302-320.

7. Ibbetson R. "Clinical considerations for adhesive bridgework". *Dental Update* 31.5 (2004): 254-265.

8. Pjetursson BE., *et al*. "A systematic review of the survival and complication rates of resin-bonded bridges after an observation period of at least 5 years". *Clinical Oral Implants Research* 19.2 (2008): 131-141.

9. Howard-Bowles E, *et al*. "An evidence based approach for the provision of resin-bonded bridgework". *European Journal of Prosthodontics and Restorative Dentistry* 19.3 (2011): 99-104.

10. Miettinen M and illar BJ. "A review of the success and failure characteristics of resin-bonded bridges". *British Dental Journal* 215.2 (2013): E3.

11. Creugers NH., *et al*. "Long-term survival data from a clinical trial on resin-bonded bridges". *Journal of Dentistry* 25.3-4 (1997): 239-242.

12. Boyer DB., *et al*. "Analysis of debond rates of resin-bonded prostheses". *Journal of Dental Research* 72.8 (1993): 1244-1248.

13. Wood M., *et al*. "Ten-year clinical and microscopic evaluation of resin-bonded restorations". *Quintessence International* 27.12 (1996): 803-807.

14. Creugers NH and De Kanter RJ. "Patients' satisfaction in two long-term clinical studies on resin-bonded bridges". *Journal of Oral Rehabilitation* 27.7 (2000): 602-607.

15. Ketabi AR., *et al*. "Thirteen-year follow-up study of resin-bonded fixed partial dentures". *Quintessence International* 35.5 (2004): 407-410.

16. Botelho MG., *et al*. "A retrospective clinical evaluation of two-unit cantilevered resin-bonded fixed partial dentures". *Journal of the American Dental Association* 137.6 (2006): 783-788.

17. Gratton DR., *et al*. "Resin-bonded bridges: The state of the art". *Ontario Dentist* 60.5 (1983): 9-19.

18. Vohra FA and Al-Qahtani MA. "Attitude and Awareness of Dentist towards Resin Bonded Bridges in Saudi Arabia". *Saudi Dental Journal* 26 (2014): 96-102.

19. Al-Quran A., *et al*. "Single tooth replacement: factors affecting different prosthetic treatment modalities". *BMC Oral Health* 11 (2011): 34.

20. Pratyusha P., *et al*. "Maryland Bridge: An interim prosthesis for tooth replacement in adolescents". *International Journal of Clinical Pediatric Dentistry* 4.2 (2011): 135-138.

21. Shigli A., *et al*. "Hypohidrotic ectodermal dysplasia: A unique approach to esthetic and prosthetic management: A case report". *Journal of Indian Society of Pedodontics and Preventive Dentistry* 23.1 (2005): 31-34.

22. Goodacre CJ., *et al*. "Clinical complications in fixed prosthodontics". *Journal of Prosthetic Dentistry* 90.1 (2003): 31-41.

23. Baruch Y and Brooks H. "Survey response rate levels and trends in organizational research". *Human Relations* 61 (2008): 1139-1160.

24. Dommeyer CJ., *et al*. "Gathering faculty teaching evaluations by in-class and online surveys: their effects on response rates and evaluations". *Assessment and Evaluation in Higher Education* 29.5 (2004): 611-623.

25. Cowpe J., *et al*. "Profile and competences for the graduating European dentist-update 2009". *European Journal of Dental Education* 14.4 (2010): 193-202.

26. De Kanter RJ., *et al*. "A Five-Year multi-practice clinical study on posterior res-in-bonded bridges". *Journal of Dental Research* 77.4 (1998): 609-614.

27. Verzijden WG., *et al*. "A Multi-Practice Clinical Study on Posterior Resin-Bonded Bridges: A 2.5-Year Interim Report". *Journal of Dental Research* 73.2 (1994): 529-535.

28. Zalkind M., *et al*. "Resin-Bonded Fixed Partial Denture Retention: A Retrospective 13-Year Follow-Up". *Journal of Oral Rehabilitation* 30.10 (2003): 971-977.

29. Oliver R., *et al*. "Curriculum structure: Principles and strategy". *European Journal of Dental Education* 12.1 (2008): 74-84.

30. Lanning SK., *et al*. "Evaluation of a revised curriculum: A four-year qualitative study of student perceptions". *Journal of Dental Education* 76.10 (2012): 1323-1333.

Volume 10 Issue 2 May 2017