



ORIGINAL ARTICLE

# Attitude and awareness of dentist towards resin bonded bridges in Saudi Arabia



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## KEYWORDS

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Dental practitioner;  
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**Abstract** *Statement of the problem:* Resin bonded bridges (RBBs) offer a conservative approach to tooth replacement. However, the use of this treatment option has been limited. Therefore, the aim of this study was to assess the knowledge and attitude of dentists in Saudi Arabia, including general dental practitioners (GDPs) and prosthodontic and restorative specialists (SPs), toward RBBs.

*Methods:* In this cross-sectional study, questionnaires designed to survey knowledge of RBB performance factors were distributed to GDPs and SPs ( $n = 400$ ). Specifically, opinions of GDPs and SPs regarding clinical, mechanical, technique- and patient-dependent performance factors of RBBs were obtained. Average significance and Chi-square tests were used to identify the frequency, pattern, and significance of the response variables identified.

*Results:* A majority (65.3%) of the subjects reported using RBBs in less than 10% of their prosthodontic cases. The most common reason for the limited clinical application of RBBs was perceived poor retention (23.45%). In addition, SPs regarded the influence of enamel structure, number of pontics, cement type, RBB design, and surface treatment as “very significant” factors with respect to RBB survival. Overall, a statistically significant difference was observed between the responses of GDPs and SPs regarding their knowledge of performance factors for RBBs.

*Conclusion:* In comparison to SPs, GDPs reported greater disagreement with current standards for RBB success factors. Moreover, 60% of SPs and 71% of GDPs used RBBs for less than 10% of their prosthodontic cases. Therefore, continuing education opportunities are needed for practicing dentists, and undergraduate students need to receive greater exposure to the clinical application of RBBs.

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## 1. Introduction

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 (Robertsson and Mohlin, 2000; Jepson et al., 2003). Resin bonded bridges (RBBs) offer a conservative and cost-effective approach to the restoration of space compared to conventional bridgework (Cheung et al., 2005). Specifically,

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RBBs allow for the preservation of tooth structure, treatment reversibility (when RBBs are used as a provisional restoration), minimal catastrophic failure and loss of abutment, preservation of pulp vitality, minimal soft tissue interaction, ease of retrievability (Djemal et al., 1999; Ibbetson, 2004; Pjetursson et al., 2008; Howard-bowles et al., 2011; Miettinen and Millar, 2013). Moreover, with an increasing emphasis on conservation of oral tissues in recent years, awareness of RBBs as a definitive treatment option has also increased. However, since their introduction, the main concern regarding RBBs has been the potential for higher debonding rates and decreased longevity (Creugers et al., 1997). 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 (Boyer et al., 1993; Wood et al., 1996; Creugers and De Kanter, 2000; Ketabi et al., 2004; Botelho et al., 2006).

In a systematic review of survival and complication rates for RBBs over a five-year period that was conducted by Pjetursson et al. (2008), an estimated survival rate of 87.7% was reported. Clinical success rates ranging from seven to nine years have also been reported, provided that vital success factors are respected (Djemal et al., 1999; Garnett et al., 2006; Pjetursson et al., 2008). Specifically, the clinical performance of RBBs has been found to depend on factors that can be classified as: patient-related (e.g., saddle span, location, remaining enamel, and parafunction), design-related (e.g., retainer type, thickness, connector height), and technique-related (e.g., cement, retainer treatment, and isolation method) (Djemal et al., 1999).

Established standards (Garnett et al., 2006; Miettinen and Millar, 2013) related to the design and retainers of RBBs for clinical success include: increased longevity for cantilever designs (van Dalen et al., 2004; Kern, 2005), maximum enamel coverage by retainers, sandblasted and non-perforated retainers, and nickel chromium alloy framework (Djemal et al., 1999). Furthermore, a minimum retainer thickness of 0.7 mm and a minimum connector height of 2 mm have been recommended (Smyd, 1961; Ibrahim et al., 1997). In addition, none or minimal tooth preparation with preservation of enamel thickness has been associated with respectable survival rates (Botelho, 2000; Ibbetson, 2004). While the use of resin-based cements (RBC) with rubber dam isolation is also a well-recognized method, the particular type of RBC that should be used has been difficult to establish (Djemal et al., 1999). Thus, knowledge and application of vital performance factors for RBBs are key to the successful application of RBBs as a definitive treatment option.

The teaching and training of undergraduates and postgraduates regarding RBBs is reflected in the clinical attitudes and clinical application of this restoration method by general dental practitioners (GDPs) and prosthodontics and restorative specialists (SPs). It is hypothesized that RBBs are not widely performed in clinical practice due to concerns regarding the reliability of this treatment. While this uncertainty among clinicians may be multifactorial, if the reasons for this uncertainty can be identified and addressed, more effective use of RBBs can be achieved. Correspondingly, it is important to estimate the clinical use of RBBs in Saudi Arabia and to evaluate awareness of the factors needed to successfully perform RBBs. As a result, reasons for the limited application of these restorations may be ascertained. To date, there have been no reports to eval-

uate the attitudes and knowledge of RBB performance factors between GDPs and SPs. Hence, the aim of this study was to assess perceptions and knowledge of essential performance factors for RBBs by GDPs and SPs in Saudi Arabia.

## 2. Materials and methods

This cross-sectional study was conducted among GDPs and SPs in Saudi Arabia. The former graduated as dentists and had completed at least one-year of an internship. The SPs involved in this study had completed a postgraduate specialist program in prosthodontic and restorative dentistry. Participants also had to be currently engaged as a dental practitioner and/or have a teaching position. Contact details for the enrolled clinicians were obtained from the office of the Saudi Dental Society. Although a sample size of 350 was considered sufficient for statistical analysis, the potential for non-responding participants was anticipated, and the sample size enrolled was 400. Stratified random sampling was performed to select study participants, and GDPs and SPs were considered two distinct strata. The ethics committee of the College of Dentistry Research Centre (King Saud University) approved the study protocol (Ref No. FR 0023). A structured, self-administered questionnaire composed of twenty questions was attached to a study description and a consent for participation form. These packets were either emailed ( $n = 190$ ) or hand delivered ( $n = 210$ ). To maximize the responses obtained, participants were reminded to return their questionnaires three weeks and six weeks after the questionnaires were distributed.

The first part of the questionnaire consisted of questions related to a clinician's area of expertise, years of experience, and the percentage of RBBs performed in their clinical prosthodontic/restorative practice. The second part of the questionnaire comprised of fifteen close-ended, multiple-choice questions which were designed to extract the opinion and understanding of the respondent regarding performance factors for RBBs. In particular, the questions were related to clinical indications, prosthesis design, retainer type and dimensions, retainer surfaces, tooth preparation, desired cements, and clinical technique. The last part of the questionnaire contained a single table grid question that was designed to identify the participants' opinions regarding the significance level of vital factors related to the clinical success of RBB therapy. These factors included: remaining abutment enamel, area of the mouth where the RBB is placed, number of missing teeth to be replaced, RBB design, type of retainer, retainer surface treatment, connector height, retainer thickness, tooth preparation, cement type, and use of RD during cementation. The respondents could provide scores ranging from one to five, with a score of one indicating a factor is very insignificant, and a score of five indicating a factor was very significant. Factors designated as insignificant, neutral, and significant received scores 2–4, respectively.

A single investigator analyzed all of the returned questionnaires. Average significance was determined to identify the frequency, pattern, and significance of the response variables identified (e.g., performance factors for RBBs). Using the Statistical Package for Social Sciences (SPSS) version 17 (Chicago, Illinois, USA), Chi-square tests were used to compare the responses of GDPs and SPs for each question in regard to the response options. A  $p$ -value less than 0.05 was considered statistically significant.

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