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ORIGINAL ARTICLE

Quality of communication between dentists and dental laboratory technicians for fixed prosthodontics in Riyadh, Saudi Arabia

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Abstract The fabrication of a clinically acceptable dental prosthesis requires proper communication between the dentist and the dental technician. Prosthodontic educators have been concerned with this interaction and communication. Fixed prosthodontics laboratories revealed that the technicians are often dissatisfied with the information provided in work authorizations.

Objective: To evaluate the quality of communication between dentists and laboratory technicians via work authorizations for fixed prosthodontics in both governmental and private dental laboratories in Riyadh area from the technician's perspective.

Methods: A sample of 66 dental laboratories, including all government dental laboratories and a selected number of randomly chosen private dental laboratories from each district of Riyadh (40%), participated in the survey.

A questionnaire was developed to include questions related to the following areas of work authorization: clarity and accuracy of instructions, patient information, type of prosthesis, choice of materials, design and shade of the prosthesis and type of porcelain glaze. The questionnaire was answered in a face-to-face interview by technicians who were qualified in fixed prosthetic work. Data were analyzed through parametric tests (*T*-test and one-way ANOVA) to identify significant values ($P < 0.05$).

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Results: This survey showed a lack of communication between dentists and dental laboratories regarding the following: marginal design, pontic design, staining diagram, type of porcelain and glaze needed for the prosthesis. Significant differences were observed between the government and private dental laboratories. There was a greater lack of communication between the dentists and government laboratory technicians in Riyadh.

There was no statistically significant difference between private laboratories of different areas in Riyadh city ($P < 0.05$).

Conclusion: The quality of communication between dentists and dental technicians in Riyadh can sometimes be inadequate, and governmental laboratories have a lower level of communication.

1. Introduction

With improvements in the public awareness and attitude toward dentistry, patients are requiring more complex and extensive treatments than before. Dental teams are facing extreme challenges in trying to satisfy the requirements of today's society (Douglass et al., 1993; Jenkins et al., 2009; Kelly et al., 2000).

The fabrication of high quality, durable dental prosthesis is considered a reflection of the skills of both the dental practitioner and dental technician, and it also requires effective communication between them through the work authorizations (Afsharzand et al., 2006a,b; Basker et al., 1988; Jenkins et al., 2009; Leeper, 1979; Lynch et al., 2005; Lynch and Allen, 2005a; Shillingburg et al., 1997). Inadequate communication of design information results in a prosthesis that has been fabricated with little reference to the important clinical or biological information, and the potential for a poorly designed prosthesis to cause tissue damage is evident (Owall et al., 2002).

An ethical obligation on the part of the dental practitioner to provide adequate design instructions to dental laboratories when fabricating any form of prosthesis has been affirmed by the EC Medical Devices Directive (1997), which requires dental practitioners to provide adequate written instructions when a prosthesis is being manufactured, as well as that dental laboratories manufacture the prosthesis according to the written specifications. Furthermore, the 'Guidelines for Crown and Bridge', published by the British Society for Restorative Dentistry (1999), clearly state that the purpose of written instructions is to communicate the precise details of all required aspects of the crown and bridgework.

Many studies have demonstrated concerns about the quality of dentist-technician communication. A survey of fixed prosthodontic laboratories revealed that technicians were often dissatisfied with the information provided in work authorizations (Aquilino and Taylor, 1984). A 2006a survey performed by Afsharzand et al. suggested that there is lack of communication about the choice of the metal alloy, type of porcelain, and choice of the margin and pontic design for the prosthesis.

Poor communication between dental practitioners and dental technicians for fixed prosthodontics was also cited in Ireland and Wales (Jenkins et al., 2009; Lynch and Allen, 2005a,b). Prosthodontic educators have been concerned with the interaction between dentists and the dental laboratory (Farah et al., 1991; Leeper, 1979). In a study conducted in the UK, dental technicians responded that newly qualified dentists do not have an appropriate understanding of the techniques. Dental schools are still not preparing new graduates to effectively communicate with dental laboratories (Juszczyk et al., 2009). In 1990, Goodacre offered specific recommendations for dental educators to address the ramifications and responsibilities of future dental practitioners with respect to the dental laboratory. In 1994, a program was developed to improve the quality of laboratory submissions and the returned product, facilitating laboratory communication (Maxson and Nimmo, 1997). Recently, the American Dental Association (2011) issued updated guidelines to improve the relationship between the dentist and laboratory technician.

The communication between the dentist and dental laboratory through work authorizations is crucial to a properly executed prosthesis. The dental laboratories are able to observe, via work authorization forms, whether the communication is effective in allowing them to proceed with prosthesis fabrication.

The purpose of this study is to evaluate the communication between dentists and laboratory technicians through work authorizations for fabricating fixed partial dentures (FPDs) in both government and private dental laboratories in Riyadh area.

2. Materials and methods

A questionnaire on specific areas of work authorization forms was used. The questionnaire is written in both English and Arabic, and the front page explains the purpose of the study.

The questionnaire included the type of laboratory (governmental or private), years of experience and the laboratory's location in Riyadh. The survey covered specific areas of the work authorization concerned with fixed restoration fabrication and included the following questions: the patient's age and gender, return date, type of prosthesis, choice of metal alloy, preferred marginal design, shade guide, and type of porcelain glaze. Approval to conduct the study was sought from the Ministry of Health.

Questionnaires were completed in a face-to-face interview by certified dental technicians working on fixed prosthesis fabrication in governmental and private laboratories of Riyadh area. All 13 governmental laboratories were involved in the study; a total of 30 questionnaires were collected from them ($n = 30$), and a stratified random sampling method was applied to draw a sample from the private laboratories (40% from each area). The private laboratory sample was $n = 36$

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