

Knowledge, Attitude and Practices of Dentists in Asir Region of Saudi Arabia regarding Replacement and Repair of Restorations in Dental Practice

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Abstract: The purpose of this study to assess the knowledge, attitude and practices of the dentists of Asir region regarding treatment options for an old defective restoration, to determine the factors which increase the susceptibility of old restorations to defects or failure. A questionnaire designed to investigate the objectives of the research were issued to both general dentist and specialists. Total 210 participants were included in the study. The data collected from the questionnaire was tabulated and analysed using Fisher's exact test and chi-square test. Out of 210 participants, 189 (90%) were general dental surgeons while 21(10%) were specialists. 70% of the practitioners preferred replacement of restoration over repair. A majority of practitioners reported that the preferred type of restoration depends on loss of tooth structure. According to 40% of dental practitioners secondary caries is the most common defect seen in restorations whereas composite was the most commonly affected material involved in defects. According to 70% of the dentists, out of all teeth, molars and out of all types of restorations, class II restoration have a high susceptibility to defects. Within the limitations of the study it can be concluded that Replacement of the restoration is the preferred treatment of choice for defects in an old restoration. Secondary caries and Partial loss of restoration are the most common defects seen in an old restoration. The factors which increase the susceptibility of an old restoration to defects or failures are 1. The tooth is Molar 2. Class ii restoration 3. Composite restorations 4. Poor oral hygiene and 5. Poor isolation of the tooth during the restorative procedure. This survey can analyze the common causes of defects in restorations and their management. It will improve our treatment procedures in the future, the choice of the materials, and Weather to repair the present old restoration or replace.

Keywords: Survey, Replacement of restoration, Repair of restoration, old defective restoration, Secondary Caries

INTRODUCTION

Restoration of the clinical tooth structure is an integral part of restorative dentistry[1]. Clinicians face some restored teeth to have defects like staining, fractured restorations, secondary carious lesions and marginal breakage of the restorations [1-3]. Failure and fracture of the restoration is a common complaint and often leads to long multiple appointments for the replacement of restorations [3-4]. There are multiple factors which could be a possible cause of failure of the restorations, like incorrect selection of restorative material, mechanical failure, trauma, inadequate isolation during restorative procedure, site of tooth and type of cavity classification [4-5]. Knowing the cause of failure will help us to improve the treatment procedure, the choice of the materials, and Weather to repair the

present old restoration or replace [3-5]. Repair of the existing restoration is a much conservative approach which requires less time and less removal of existing natural tooth structure. It also helps to reduce heat production and thereby chances of pulpal damage [5-7]. But for the repair of a fractured restoration there is no guide line available in the literature, neither it is being taught at under graduate level. It could be a better option to repair an existing restoration if it could be repaired [6]. It has been observed that large restoration fails more than smaller restorations [7]. But the restorations with multiple tooth surface involved could be repaired easily and it will not reduce the remaining natural tooth structure [8]. The decision for the type of restoration depends upon the factors discussed above [7-10].

The purpose of our present study is to assess the knowledge, attitude and practices of the dentists of Asir region regarding treatment options for an old defective restoration. The objectives of the study include:

- To compare the opinions of general dental surgeons and specialist regarding the common defects, restorative material, type of restoration and treatment options, while dealing with defective old restorations.
- To determine the factors which increase the susceptibility of an old restorations to defects or failure.
- To determine the suitable restoration for replacing an old defective restoration.

MATERIALS AND METHODS

This study is a cross sectional, questionnaire based survey. A one page questionnaire was used to investigate the objectives of the research as mentioned above. The general practitioners and specialists in the Asir region were requested to participate in the survey. A written consent was taken from the participants before the questionnaire, those unwilling to participate in the study were excluded from the study.

A total of 210 dentists participated in the survey. The questions included in the questionnaire are mentioned in the table no1. The data collected from the survey of 210 participants was tabulated and analysed using Fisher’s exact test and chi-square test.

RESULTS

A total of 210 dental practitioners were included in this study. 189 (90%) were general dental surgeons while 21(10%) were specialists. All the participants are practitioners in public and private health sector of Asir region.

Around 70% of the practitioners preferred replacement of the restoration over repair of the restoration. Similarly a majority of practitioners reported that the preferred type of restoration depends on the amount of tooth structure lost. According to 40% of dental practitioners secondary caries is the most common defect seen in restorations whereas composite is the most commonly affected material involved in the defects.

According to 70% of the dentists, out of all teeth, molars and out of all types of restorations, class II restoration have a high susceptibility to defects. Table 1 and Figures 1-4 shows the comparison of trends between general dental surgeons and specialists.

Table-1: Distribution of preferences among general dental surgeons and specialists regarding repair or restoration of teeth

Preferences and practices		General Dentistn (%)	Specialist n (%)	P-value
What is your preferred treatment for a defective restoration?	Repair of restoration	59 (31)	2 (9)	0.11
	Replacement of restoration	130 (69)	19 (91)	
Which type of restoration do you prefer for replacement of a defective Anterior tooth restoration?	Depend on severity of loss of tooth structure	62 (63)	13 (62)	0.96
	Direct restoration	30 (30)	6 (29)	
	Indirect restoration	7 (7)	2 (9)	
Why do you select Indirect restoration for replacement of a defective anterior tooth restoration?	Not applicable	137 (73)	17 (81)	0.28
	For esthetic reason	13 (7)	4 (19)	
	Long-term success of indirect restoration	18 (9)	0 (0)	
	Tooth structure will be weak after you remove the old restoration	21 (11)	0 (0)	
What is the most common defect you see in an old restoration?	Adjacent loss of dental hard substance	2 (1)	0 (0)	0.65
	Color or shape adjustment (esthetic defect)	15 (8)	5 (24)	
	Partial loss of the restoration	34 (18)	4 (19)	
	Secondary caries	83 (44)	0 (0)	
	the margin of the restoration has caries	26 (14)	4 (19)	
	the margin of the restoration is ditched	16 (9)	4 (19)	
	the margin of the restoration is stained	13 (6)	4 (19)	
Which of the following restorations is more susceptible to defects or failures?	amalgam	21 (11)	4 (19)	0.61
	composite	85 (45)	6 (29)	
	Crown	4 (2)	0 (0)	
	GIC	79 (42)	11 (52)	
What is the most common reason for defects or failures	defective contact points leading to food impaction	23 (12)	0 (0)	0.004

in a restoration?	Gap between tooth and restoration	44 (23)	4 (19)	
	Poor isolation during previous restoration	28 (15)	13 (61)	
	Poor oral hygiene	87 (47)	4 (19)	
	Trauma	7 (3)	0 (0)	
Do you use the rubber dam during restorative procedure?	No	119 (63)	10 (48)	0.21
	Yes	70 (37)	11 (52)	
Which of the following restored teeth have more defects?	Canine	2 (1)	0 (0)	0.95
	Incisors	26 (14)	2 (9)	
	Molar	130 (69)	15 (72)	
	Premolar	31 (16)	4 (19)	
Which class of restoration is more susceptible to defects?	Class I	19 (10)	0 (0)	0.25
	Class II	107 (57)	17 (81)	
	Class III	32 (17)	0 (0)	
	Class IV	19 (10)	4 (19)	
	Class V	12 (6)	0 (0)	
*p-values were calculated using Fisher's Exact test due to violation of chi-squared assumptions, all other p-values were calculated using chi-squared test.				



Fig-1:

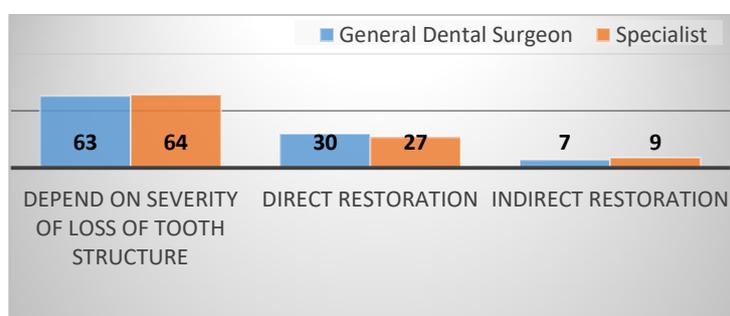


Fig-2:



Fig-3:

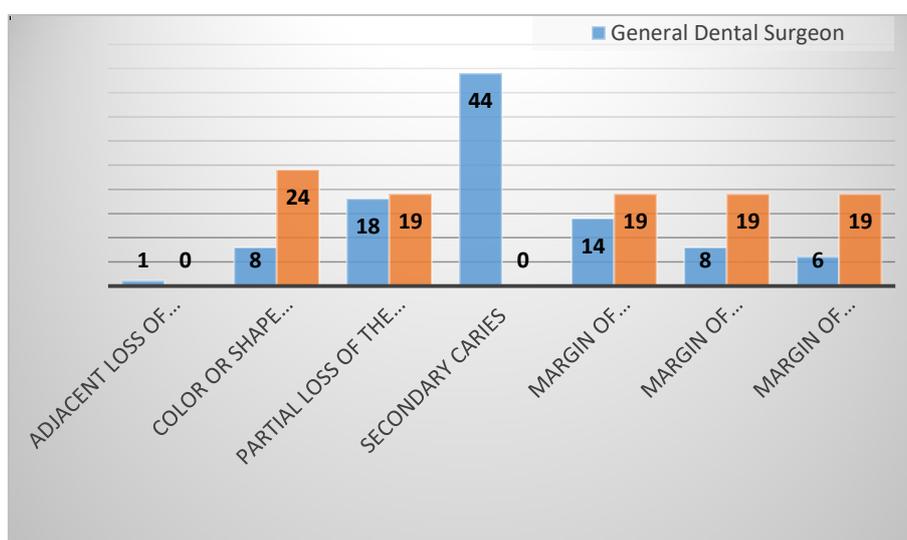


Fig-4:

Fig-(1-4): shows the comparison of trends between general dental surgeons and specialists

DISCUSSIONS

Old restorations can be seen with defects like fracture, over contour, unacceptable aesthetic. Such restorations may need repair or replacement. Unfortunately, there are no guide lines available to which defective restorations should be replaced or repaired [1-2]. It usually depends on the clinical judgment of the operator rather than evidence based analysis [3]. According to the mechanical point of view the replacement of the restoration involves first removal of the old existing restoration, which has mechanical and chemical bond with the natural tooth structure depending upon the type of the restoration used previously [3-4]. When we remove the existing restoration especially the large and deep restoration there are chances of pulpal damage and intact natural tooth structure is also removed to design the cavity again [4]. Due to the advancements in the mechanical properties of aesthetically pleasing materials older amalgam restorations are now replaced with composite resins specially [5] despite the fact that amalgam has

been proven safe and nontoxic as restorative material [4-5].

Based on the findings of the present study the majority of the participants (70%), preferred the replacement of the restoration. The subject of repair of restoration is taught at undergraduate level but more stress should be given to the topic as it's a more conservative and less expensive approach compared to replacement [5-6]. The preference of the restorative material was dependent on the amount of the tooth structure lost. Secondary caries was found to be the major cause of the failure of the restorations, although there are multiple reasons for the secondary caries which may include faulty restorations done or misdiagnosis of an active carious lesion present underneath restoration [5,6]. Clinical diagnosis must be given a prime importance before formulation of treatment [6-7]. Composite was found to be the material of choice both in anterior and posterior restorations by majority of the participants due to better esthetics and comparative mechanical properties [7-8]. As amalgam

restorations are usually being replaced due to esthetic reasons [9]. Class II restoration was found to be having majority of failures, reason being less natural tooth structure present to support the restorative material [10]. Composite and GIC were found to be the materials having highest defects or restorative failures. The primary reason was found to be secondary carious lesion. On the bases of the results and the limitations of the study, it could be formulated that there should be a guideline for the replacement or repair of the restoration and this topic should be emphasized at under and post graduate level. Clinical diagnosis of carious lesion should be emphasized more as it was found to be the major culprit for the failure of restorations.

CONCLUSION

Within the limitations of the study the following conclusions can be made.

- There are no statistically significant differences in opinion between the general dental surgeons and specialist regarding the common defects, restorative material, type of restoration and treatment options, while dealing with defective old restorations.
- Replacement of the restoration is the preferred treatment of choice for defects in an old restoration.
- Secondary caries and Partial loss of restoration are the most common defects seen in an old restoration.
- The factors which increase the susceptibility of an old restoration to defects or failures are 1. The tooth is a Molar 2. Class ii restoration 3. Composite restorations 4. Poor isolation of the tooth during the restorative procedure and 5. Poor oral hygiene.

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