

Barriers of Restorative Care among Dental Patients in Jeddah: A Cross-sectional Analytical Survey

Abstract

Introduction: The epidemiological data in the Kingdom of Saudi Arabia indicate that there has been increased prevalence of dental caries and increased treatment needs, with negligible rates of restorative care among the population. The restorative treatments done among the population are very limited. There are no published reports that systematically document the barriers of restorative care among the residents of Jeddah. **Aim:** This present paper is a humble attempt toward the study of barriers of restorative care and systematic documentation of the dental patients in a private dental school in Jeddah. **Materials and Methods:** The methodology adopted by the study is the preparation of a questionnaire after validation and analyzing the responses from the sample of the universe of dental patients in Jeddah. The questionnaire broadly included (1) fear of consulting a dentist, (2) dental anxiety/fear to receive dental care, (3) cost of dental treatment, (4) fee for restoration, (5) pain, and (6) experience of a dentist (fear that a student may treat them). The completed questionnaire of 22 questions was proofread by a group of general dentists to check for clarity and meaning of the statements. After the changes, the questionnaire was distributed to 275 patients. The analysis of the data in the study was done by the SPSS version 23. Chi-square was calculated for the analyses of all the independent variables. **Results:** 41.4% of people have fear to visit a dentist. Hence, this is one of the barriers of restoration. Nearly 50% have responded that restorative treatment is painful. In addition, the experience of the dentist has an impact on the respondents getting treatments in the dental clinic. 76% of the respondents have a fear when a student who has lesser experience will be treating them in the dental clinic. **Conclusion:** Dentists have to distinguish between perceived barriers and the real barriers to choosing restorative treatments.

Keywords: Barriers, cross-sectional analytical study, dental patients, Jeddah, restorative care

Introduction

Many studies have been conducted on the prevalence of caries among the populations in the Kingdom, and all the studies have a conclusion of an increased prevalence of dental caries among the various age groups.^[1-11] The study by Al-Shammery found that the prevalence of caries in the Kingdom was 74% in urban areas and 67% in rural areas, and there was a statistically significant difference between them ($P < 0.01$).^[12] The caries prevalence in the permanent dentition ranged from 59% to 80%, depending on the fluoride level of the area surveyed.^[13]

The number of patients visiting a dentist annually is very low among the Saudi population as detailed in the study by Farsi. Hence, there is a need to emphasize the importance of regular dental visits. This may be possible only when we identify the

various barriers that the patients are facing to come to the dentist.^[14] The restorative treatments done among the population are very limited. There are no published reports that systematically document the restorative treatment done and the barriers of restorative care among the residents of Jeddah. The study is based on high prevalence of dental caries among the population in the Kingdom, leading to an assumption that restorative treatment is very low among the people. Dental patients are expected to seek oral care they are the best people to express opinions about barriers that confront them during the process of seeking oral care.^[15] Hence, the present paper is a humble attempt toward the study of barriers of restorative care and systematic documentation of the same. The main source of information regarding perceptions on barriers to restorative care is the dental patients themselves. Hence, the authors have taken the response from a

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sample of dental patients in Jeddah. This study necessitates identifying the various barriers to restorative treatment to find a solution to them. This study is novel as there are no studies conducted in the population in Jeddah to identify the barriers faced by them about the restorative treatment.

The null hypothesis of the study is that the below factors are not barriers for restorative care among patients.

1. Fear of consulting a dentist
2. Dental anxiety/fear to receive dental care
3. Cost of dental treatment
4. Fee for restoration
5. Pain
6. Experience of a dentist (fear that a student may treat them).

Materials and Methods

Pilot survey and main survey

Questionnaire

The methodology adopted by the descriptive study is the preparation of a questionnaire after validation and analyzing the responses from the sample of the universe of dental patients in Jeddah.

A pilot study was done on fifty patients seeking their response on their perceived barriers of restorative care. The patients were asked an open-ended question at the time of collecting information for the framing of a questionnaire of what could be the perceived barriers of restorative care as there is no questionnaire validated for the group of dental patients in Jeddah. Based on the various answers given by the patients and the study done by Kikwilo *et al.*,^[15] a close-ended questionnaire was constructed.

The completed questionnaire was proofread by a group of general dentists to check for clarity and meaning of the statements. The test–retest correlation coefficients for the questions ranged from 0.95 to 0.99. The Cronbach’s alpha value has ranged from 0.65 to 0.75. The completed questionnaire had 22 questions, which had details asked about patient satisfaction with oral health, their ignorance regarding restorative care, their dental history, beliefs of the patient, cost, pain, fear, and satisfaction of the patient about the dentist as barriers.

Sample size generation

There are two more private dental colleges associated with dental clinics with approximately the same number of patients approaching. Estimating that the rest of the hospitals/clinics to which the patients’ approach is double the number of patients. The universe of the patients approaching the dental clinics associated with dental colleges is approximately 900. We have considered that 275 patients approximately form 10% of the universe and may be considered as a sizable sample. The questionnaire was distributed to 275 patients. We have selected the sample of patients who have attended

our hospital over nearly 1 month. Our hospital is one of the large dental clinics attached to a dental college. Out of the 275 patients who visited our hospital, 251 patients have given consent. The number of patients we have requested consent is 275. We considered this as a considerable sizable sample. The criteria for the inclusion of patients in our study are as follows:

1. We have considered patients who visited us for restorative dental care
2. The patients who have given their consent to respond to our questionnaire.

Consent was attached to each questionnaire which explained the need for the study to be conducted and the importance of the views expressed by the patients on the various barriers they have to get restorative treatment. The response rate was 91%, i.e. 251 patients of the 275 patients. This good response was because of the personal vigorous follow-up with each patient.

The ethical clearance was obtained from the ethical committee of the Institute, and the protocol identification number of the approval of this project was 006DP20102016.

Statistical analysis

The analysis in the Statistical Analysis Systems SPSS program, version 23 (IBM). Chi-square test was calculated for the analyses of all the independent variables. The scoring criteria was a four-point Likert scale to measure the patient satisfaction on their oral health, and all the remaining questions on the barriers had a dichotomous choice for the patients with a yes or no response.

Results

From the responses received, it can be inferred that the following is perceived by the respondents as barriers to restorative care [Table 1]. The age group of the participants was divided as above and below 30 years. Generally, after a certain age, people become more conscious of their own health and also influence of environment of their health. Hence, an age has been chosen who show maturity toward the environmental influence on their health, so 30 years was chosen.

Fear

41.4% of people have fear to visit a dentist. Hence, this is one of the barriers of restoration. This fear can be out of:

- a. The perception of a patient about the capability of the dentist
- b. Patients’ own experience with a dentist
- c. Fear of further complications, such as possible infection, durability, and need for repeated visits to the specialist.

Dental anxiety and fear impact the desire to receive dental care of 40% of the respondents. This response was the same as the respondents answer to do you have fear of a dentist.

Table 1: Barriers to restorative care

Independent variables	Yes	No	Total
1. Do you have a fear of dentist?			
Below 30 years	77 44.0%	98 56.0%	175 100.0%
Above 30 years	27 35.5%	49 64.5%	76 100.0%
Total	104 41.4%	147 58.6%	251 100.0%
2. Does dental anxiety or fear impact your desire to receive dental care?			
Below 30 years	74 42.3%	101 57.7%	175 100.0%
Above 30 years	27 35.5%	49 64.5%	76 100.0%
Total	101 40.2%	150 59.8%	251 100.0%
3. Does cost of dental treatment impact your desire to receive dental care?			
Below 30 years	102 58.3%	73 41.7%	175 100.0%
Above 30 years	45 59.2%	31 40.8%	76 100.0%
Total	147 58.6%	104 41.4%	251 100.0%
4. If you have ever gone for restoration do you think the fee for restoration was high?			
Below 30 years	100 57.1%	75 42.9%	175 100.0%
Above 30 years	45 59.2%	31 40.8%	76 100.0%
Total	145 57.8%	106 42.2%	251 100.0%
5. Was your restorative treatment painful?			
Below 30 years	90 51.4%	85 48.6%	175 100.0%
Above 30 years	32 42.1%	44 57.9%	76 100.0%
Total	122 48.6%	129 51.4%	251 100.0%
6. Does fear that a student is treating you from coming to the clinic?			
	100.0%	100.0%	100.0%

Contd...

Table 1: Contd...

Independent variables	Yes	No	Total
Below 30 years	142	33	175
	81.1%	18.9%	100.0%
	74.0%	55.9%	69.7%
Above 30 years	50	26	76
	65.8%	34.2%	100.0%
	26.0%	44.1%	30.3%
Total	192	59	251
	76.5%	23.5%	100.0%
	100.0%	100.0%	100.0%

Cost

Responses to the questions on cost being a barrier indicate 58.6% for if cost of dental treatment will impact the desire to receive dental care and 57.8% for fee of the restoration is high.

Pain

Nearly 50% have responded that restorative treatment is painful.

Perception on experience and expertise of the dentist to solve the dental problem

The experience of the dentist has an impact on the respondents getting treatments in the dental clinic. 76% of the respondents have a fear when a student who has lesser experience will be treating them in the dental clinic.

Table 2 details all the knowledge about restorations that the respondents have on various aspects of restorations. The results are discussed the same.

Do you know about restorations/fillings?

Majority of the patients (84%) of the total respondents have knowledge about restorations and fillings. This assures that the responses are from the patients who know about the restoration. This gives authenticity of the responses.

Have you ever received any advice from your dentist about restoration?

Seventy-six percent have received advice from the dentist about restoration.

Have you ever received a restoration?

Seventy-six percent have received a restoration as a treatment to caries.

Do you think going for restoration is better?

With all the possible barriers, 87.3% of the people felt that restoration is good treatment of choice for dental problems.

Compared to tooth extraction, is restorative procedure a better treatment?

Overcoming all the barriers, 87% of the respondents categorically stated that restorative procedures are better

than tooth extraction. These respondents who replied restoration are better than extraction fall in the age group of below 30 years (this is obvious) because of cosmetic reasons.

If you have already undergone a restorative treatment, are you willing to go for the same treatment next time?

Nearly the same 83.7% of the respondents are willing to undergo restorative treatment again.

Are you satisfied with restorative treatment?

80% of the respondents are satisfied with the choice of restorative treatment.

Would you be willing to get any other future restorative work if needed?

Ninety-two percent of the participants are also willing to get further restorative treatment done if needed.

Eighty-five percent of the responses (214 out of 251) respondents have already visited a dentist [Table 3]. Out of the 214 who visited a dentist, 59% of the respondents have visited for pain, 34% for a regular check-up, and 6% for a swelling [Table 4]. The past experience of majority of the respondents was good which was 69.2% [Table 5].

The null hypothesis that the following are not barriers for patients has been tested through SPSS using one-sample binomial test. The binomial test is used here as there are two possible outcomes (i.e., barrier/no barrier) and we have an idea about what are our barriers. A binomial test is run to see if observed test results differ from what was expected. The analysis is given in Table 6; it can be seen that the following has been identified as barriers:

1. Fear of consulting a dentist
2. Dental anxiety/fear to receive dental care
3. Cost of dental treatment
4. Fee for restoration
5. Experience of a dentist (fear that a student may treat them).

Discussion

The restorative treatments done among the population in the Kingdom are very limited. There are no published reports

Table 2: Knowledge of respondents about restorations

Independent variables	Yes	No	Total
1. Do you know about restorations/fillings?			
Below 30 years	150 85.7%	25 14.3%	175 100.0%
Above 30 years	61 80.3%	15 19.7%	76 100.0%
Total	211 84.1%	40 15.9%	251 100.0%
2. Have you ever received any advice from your dentist about restoration?			
Below 30 years	132 75.4%	43 24.6%	175 100.0%
Above 30 years	60 78.9%	16 21.1%	76 100.0%
Total	192 76.5%	59 23.5%	251 100.0%
3. Have you ever received a restoration?			
Below 30 years	136 77.7%	39 22.3%	175 100.0%
Above 30 years	54 71.1%	22 28.9%	76 100.0%
Total	190 75.7%	61 24.3%	251 100.0%
4. Do you think going for restoration is better?			
Below 30 years	154 88.0%	21 12.0%	175 100.0%
Above 30 years	65 85.5%	11 14.5%	76 100.0%
Total	219 87.3%	32 12.7%	251 100.0%
5. Compared to tooth extraction, is restorative procedure a better treatment?			
Below 30 years	153 87.4%	22 12.6%	175 100.0%
Above 30 years	65 85.5%	11 14.5%	76 100.0%
Total	218 86.9%	33 13.1%	251 100.0%
6. If you have already undergone a restorative treatment, are you willing to go for the same treatment next time?			

Contd...

Table 2:Contd...

Independent variables	Yes	No	Total
Below 30 years	146	29	175
	83.4%	16.6%	100.0%
Above 30 years	64	12	76
	84.2%	15.8%	100.0%
Total	210	41	251
	83.7%	16.3%	100.0%
7. Are you satisfied with restorative treatment?			
Below 30 years	141	34	175
	80.6%	19.4%	100.0%
Above 30 years	59	17	76
	77.6%	22.4%	100.0%
Total	200	51	251
	79.7%	20.3%	100.0%
8. Would you be willing to get any other future restorative work if needed?			
Below 30 years	159	16	175
	90.9%	9.1%	100.0%
Above 30 years	73	3	76
	96.1%	3.9%	100.0%
Total	232	19	251
	92.4%	7.6%	100.0%
	100.0%	100.0%	100.0%

Table 3: Respondents visit to a dentist

Independent variables	Yes	No	Total
Have you ever visited a dentist?			
Age 1-30 years	154	21	175
	88.0%	12.0%	100.0%
Age 31 and above	60	16	76
	78.9%	21.1%	100.0%
Total	214	37	251
	85.3%	14.7%	100.0%
	100.0%	100.0%	100.0%

Table 4: The reasons for a visit to the dentist

	Frequency (%)
Pain	127 (59.3)
Swelling	14 (6.5)
Regular check-up	73 (34.2)
Total	214 (100.0)

that systematically document the barriers of restorative care among the residents of Jeddah, so this present study

was conducted to document the barriers of restorative care among dental patients in a private dental school in Jeddah.

Majority of the respondents are knowledgeable and have full awareness and experience about restorative procedures. This is evident from 76.5% of the respondents that they did receive advice from a dentist. In fact, 75.7% of the respondents received a restoration. Hence, the responses are from the patients having experienced restorative procedures. An overwhelming percentage of 87.3% think that going for restorative procedures is better. Nearly 87% felt that compared to extraction restorative procedure is better. Nearly 84% (83.7%) felt that if necessary, they are willing to go for restorative procedure once again since 79.9% expressed their satisfaction. Ninety-two percent that is almost all the respondents said that they will go for restorative procedures in the future.

Cost has been ranked as the highest barrier to seeking oral care in the study conducted by Kikwilu *et al.*^[15] that was aimed at relieving pain through tooth extraction among the villagers in Tanzania. The natives of West Indies have also said in their study that cost is a barrier for receiving care from a qualified dental professional.^[16] In a study by

Jaafar *et al.* in Malaysia, cost was rated as one of the lower barriers in seeking dental care.^[17] In the study by Cooper and Monson,^[18] no significant group values were found among the patients to pay unexpected bills. High cost is a factor in delaying dental treatment as per Bhat *et al.*^[19] and Verma *et al.*^[20] In the study by Kikwilu *et al.*,^[15] two most pronounced barriers were no advice received by the dentist and lack of knowledge about restorative care. Educational, institutional, and individual/personal barriers have been identified in the study.

In the study by Cooper and Monson,^[18] the patients were very satisfied with the restorative care provided in the dental clinic and were very positive in referring patients to the clinic for any restorative treatments. In the present study, majority of the respondents are satisfied with restorative treatment. The study by Bhat *et al.*^[19] has shown to have a significant association between past dental visits and knowledge about restorative care. Approach to using minimal invasive dentistry procedures for restorative treatments may be employed for increasing the provision of restorative care, which may be useful in reducing the barrier of anxiety that a patient has during restorative treatment.^[21] In a study conducted on dentists in Nigeria,^[22] among attitude, knowledge, and belief of the patient, the most significant barrier was attitude of the patients. An attempt to modify the attitude of the patients toward dental treatment can be done by identifying the barriers of restorative treatment among patients. The most important reason for the patients visiting the dental clinic in our study was pain as also in the study conducted by Alhobeira *et al.*,^[23] which is not in line with a study conducted by Samorodnitzky-Naveh *et al.*^[24]

This survey indicates very clearly that most of the patients are concerned about the capability of the dentist

qualification and experience, including other important barriers such as cost, fee for restoration, fear, and pain.

It is necessary for the dental community and institutions imparting dental education to explain the identified barriers and means and action to be taken to remove these barriers from the minds of the patients.

Dentists have to distinguish between perceived barriers and the real barriers for choosing restorative treatments. Perceived barriers are the patient feelings and can be overcome by educating the patient about the methods with which they can be overcome. When fear is a barrier, it may be attributed to the fear of the unknown, so a thorough explanation and orientation of the patient of the various procedures and the possible methods to overcome it may be explained. Patients have to be educated that the pain during treatment is temporary and aimed at removing the pain due to dental problems they have been suffering from. To the patients who are concerned about fear of approaching a dentist as a barrier has to be explained that dentist is a problem solver, and by approaching the dentist, they can be relieved from the pain they have been suffering from.

To the patients concerned about the experience of a dentist in solving the dental problems, the patients have to be explained their experience in solving the problems. In case it is a junior dentist having no own experience independently, treating patients should explain their working with a senior dentist. They can clearly explain why the patients' perceptions about the perceived barriers are not real. About the real barriers, the dental community has to adopt solutions to solve the problems of barriers. For example, if cost is a barrier for majority of the patients, the dental community has to try to reduce the overall cost.

Table 5: Respondents past experience with a dentist

	Frequency (%)
Good	148 (69.2)
Bad	66 (30.8)
Total	214 (100.0)

Limitation of the study

The sample is restricted to the patients visiting our dental hospital, but there is no difference in the attitude of the patients to the subject under consideration, which is barriers of restorative care.

Table 6: Null hypothesis test for the barriers

Question	Null hypothesis	Significant	Decision
Do you have a fear of dentist?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.008	Reject the null hypothesis
Was your restorative treatment painful?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.705	Retain the null hypothesis
Does dental anxiety or fear impact your desire to receive dental care?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.002	Reject the null hypothesis
Does cost of dental treatment impact your desire to receive dental care?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.008	Reject the null hypothesis
If you have ever gone for restoration do you think the fee for restoration was high?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.016	Reject the null hypothesis
Does fear that a student is treating you from coming to the clinic?	The categories defined=1 and 2 occur with probabilities 0.5 and 0.5	0.000	Reject the null hypothesis

As a conclusion to the study, the education of the patient has a very key role to play in reducing the barriers for the restorative care that the patients may face.

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Conflicts of interest

There are no conflicts of interest.

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