Patients’ Perspectives of Grafting Materials in Implant Dentistry: A Qualitative Analysis

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Aims: The aim of this study was to evaluate the cultural, psychological, and religious influences on the choice of autografts, allografts, xenografts, and synthetic bone products for the grafting procedure and with implant placement.

Materials and Methods: A qualitative methodology was employed, using the principles of the constant comparative method of the grounded theory; to investigate how people perceive and understand their experiences regarding the graft materials in implant dentistry. The data were collected using detailed qualitative interviews, till saturation was achieved, from 10 patients.

Results: The three main themes that emerged in the analysis were: (a) grafting material preference, (b) religious and psychological influences, and (c) trust the doctor and cost influences. The three themes that emerged seemed to be interrelated. There were many statements of preference or rejection of choice based on religious, cultural, and psychological influences.

Conclusions: Within the limitations of this study, three themes emerged and they indicated that the influence on the grafting material’s choice is unique to every individual; it also shares similarities, based on common religious and cultural values.

Keywords: Bone graft material, Patients perceptions, Patients’ preference, qualitative research

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INTRODUCTION

Limited alveolar ridge height and width is a challenge in implant dentistry. Ridge augmentation is frequently considered before or simultaneously during implant placement. Grafting may entail harvesting bone from an extraoral or intraoral source and placing it on the jaw site, where an implant is later installed. Another possibility is through the foresight of socket preservation after the extraction of teeth.

The possible materials used for augmentation or grafting are autogenous bone, derived from humans, or an allograft harvested from another person, either cadaver sourced from a bone bank or bone from living human donors, typically from hospital patients who have undergone elective total hip replacement surgery.[1] Although autogenous bone grafts are believed to be the most ideal for bone regeneration procedures,[3] the donor site morbidity, the limit of donor sites’ availability, the need for another surgery, as well as the potential, unpredictable resorption are among the shortcomings.[1] Therefore, bone substitute materials as a replacement for autogenous bone grafts are being increasingly used,[4] such as grafts from another species (xenogenic grafts), or synthetically produced grafts (alloplastic materials).

Allogeneic grafts in their two formats, freeze-dried bone allografts (FDBA) and demineralized freeze-dried

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bone allografts (DFDBA), can be used with the advantage of the availability of sufficient amounts; these have predictable results with no additional donor site surgery. [9] Host incompatibility, potentially contaminated specimens, and possible disease transmission are the potential disadvantages. [5]

Xenograft materials have been used with great success. Bio-Oss® (Ed. Geistlich Soehne, Wolhusen, Switzerland), from Bovine, is heat-treated and chemically extracted to eliminate the organic components while maintaining the typical architecture of cancellous bone. [6] Porcine bone use has also been reported to be as efficient as bovine-derived bone, particularly in sinus lift procedures. [7,8] Synthetic bone graft materials have also been developing, mostly made from hydroxyapatite or other calcium phosphate minerals, with natural minerals similar to those in human bone.

With the increased use of dental implants by the profession, there is an increasing need for grafting, and there is consequently a need to understand patients’ attitudes and assess their decision-making process regarding the choice of grafting materials in implant dentistry.

An individual’s belief, choice, and accordingly related behaviors may be influenced by their ethnic background, social and religious beliefs. [9] It is well established that religious and cultural factors are known to impact health-care delivery. We, therefore, need to keep in mind that the patients we treat bring along their individual cultural, religious, and spiritual influences. In this regard, the impact of religious practices and adherence to religious and cultural traditions may directly impact choices and influence treatment decisions. [10] In 2013, Ericson et al. surveyed religious and spiritual leaders of the six largest religions worldwide on the issue of human- and animal-derived products, and they indicated that it is a necessity to obtain informed consent specifically for any animal- or human-derived products for several religions since they may oppose the treatment. However, some religious groups may find some acceptable materials tolerable if there are no alternatives. [11]

An investigation on the choices of grafting materials globally is important, since regions are becoming progressively multiethnic due to diversity, modern migration, and relocation flow. Accordingly, our understanding of such issues in health-care settings is becoming increasingly vital (WHO, Health of Migrants). [12] Consequently, our knowledge regarding multiculturalism, spirituality, and religion, regardless of what part of the world we are in, impacts our competence in providing an informed choice of the treatment options that we can provide and deliver.

Several studies have used surveys and questionnaires to evaluate patients’ preference for grafting materials used in dentistry, but a qualitative analysis of patients’ choices of grafting materials in dentistry, to our knowledge, has not been conducted.

This study’s primary objective was to evaluate the cultural, psychological, and religious influences on the choice of autografts, allografts, xenografts, and synthetic bone products for grafting procedures, in individuals with alveolar bone ridge deficiency who received implants as part of their treatment plan. In this study, using a qualitative methodology, we aim at evaluating the influences on the choice of grafting materials of individuals with similar cultural and religious beliefs. The research question is: Are there influences or factors that affect grafting material choices in implant dentistry?

MATERIALS AND METHODS

The qualitative methodology used in this study should increase our understanding of how patients perceive and understand their experiences; in this context, the choice of graft materials in implant dentistry. The interaction with a purposively chosen sample may also increase our understanding of the factors that influence the choice of grafting materials.

The study was conducted at the Faculty of Dentistry, Kuwait University. The data were collected using detailed qualitative interviews; these interviews encouraged interviewees to freely converse in their own style and speed, while using the principles of the constant comparative method of the grounded theory (G.T.). [10] This is a systematic collection method of analyzing qualitative data to construct models or theories to suit people’s actions and reactions.

The study protocol was approved by the Health Science Center Ethical Committee at Kuwait University. After informed verbal and written consent had been obtained, the interviews were conducted. The participants were assured anonymity of the interview data. To eliminate potential influences and bias, the interviewers were not involved, at any stage, in the clinical management of the interviewed patients.

The interviews were conducted in an open conversational style, focusing on an individual’s feelings, perceptions, and thoughts about using the main available types of grafting materials, namely autografts, allografts,
xenographs, and synthetic grafts. Interviewees were given explicit feedback, which helped in providing the kind of information needed to answer the research question.

The interviewees were made up of a purposeful sample from patients who received grafts as part of their implant treatment. The individuals were explicitly (purposeful sample) recruited, because they had had the experience of receiving an implant and grafting. Patients’ willingness to participate in the study formed part of the inclusion criteria. The participants comprised a heterogenic group of males and females of different ages, educational backgrounds, and occupational status. The patients not requiring grafting or known to have a psychological disorder were excluded.

Similar prompt questions were asked using an interview guide designed and agreed by all authors; additional questions were triggered by responses, and these were permitted as the interview’s policy. The in-depth interviews also encouraged participants to communicate freely in their style and tempo.

The interview questions focused on the graft implant materials received during the process of implant installation. The interviews were audiotaped and transcribed verbatim. The transcriptions and analyses were made in a parallel process and terminated when saturation was reached. In this regard, the topic was not broad in scope; the data were rich, firsthand, obvious, clear, and easily obtained, and, hence, saturation was confirmed by the tenth interview. Also, given that the unit of analysis was the grounded theory, which studies thoughts and actions, the number of participants would be of lower significance, and instead it is the content and quality of the data that is significant.

Verbatim transcripts were carefully read several times to understand the accurate meaning of the text. All interviews were conducted in Arabic and transcripted with forward–backward translation for linguistic validity. A descriptive and explorative approach was used.

The thematic analysis described by Braun and Clarke in 2006 was used to identify themes regarding spirituality. Braun and Clarke’s (2006) six-stage approach was used to manage and evaluate data to understand the role of choice and influences related to the research questions.

The themes were based on their importance in capturing essential aspects regarding the research question rather than quantifying measures. This involves familiarization with data, generating preliminary codes, searching for broad themes, reviewing themes, and ultimately identifying the themes and then reporting. To ensure trustworthiness of the data, the investigators, who are all bilingual (English and Arabic), thoroughly and systematically read and analyzed the data, in consideration of the research question. For rigor and validity, a code book was developed, which went through many iterations in an inductive process before the final version was agreed upon by the researchers. The consistency of codes and themes was confirmed by independently reviewing the responses to ensure parallelism, reliability, and accuracy in identifying the themes. Two researchers trained in qualitative thematic analysis met several times to discuss and review codes and themes (investigator triangulation) until a consensus was reached.

Reliability was tested using the formula reported by Miles and Huberman (1994), and 84.6% reliability was attained.

A qualitative research characteristic is that the investigation and analysis are not reliant on statistical power or quantification. The reliance is on the words and narrative and not the statistical data.

**RESULTS**

The three themes that emerged were:

- Grafting material preference
- Religious and psychological influences
- Trust the doctor and cost influences

The respondents were aged 25 to 60 years; the choices of grafting materials in implant dentistry data did not show significant disparities, and the three emerged themes seemed to correlate. It is customary for qualitative data presentation to include direct quotations (in italic) from the participants to exemplify themes.

**Theme 1: Grafting Material Preference**

There was a general preference for autografts; however, the allografts’ choice was met with reluctance in some instances and it was deeply felt in other instances. There was a belief that autografts would have more enhanced performance and outcomes than other types of bone substitute: “I assume the one that is grafted from your own body would work better in your own body.” “It’s native to your body, so it was already part of your body, and it worked there, so when moved to another part of your body, it seems it would work there better than it would with something that’s foreign such as the animal" (Participant 2). Also, from another participant, “Okay, I think for me based on nothing, but I think, you know,
my own bone from another place makes more sense to me” (Participant 1).

The familiarity of human-to-human body parts transportation was the rationale for the acceptance of allografts. It was narrated in an analogy “The best bone graft that can be transplanted is from a human being to a human being, the same thing can be found in heart or kidney transplantations, if the organs are taken from a human being donor to a human being recipient, it will be biocompatible, which means the body will not refuse it” (Participant 8).

There were comparisons in preference in choice between xenografts and allografts, and the latter seemed to be more favored: “I personally prefer allograft bone-grafting materials over other types of bone-grafting materials; because it is derived from human natural bone or tissue” (Participant 6). There were choices based on the potential comorbidity of autografts over any other bone substitute material: “You are doubling the risk by grafting it from your body because it becomes two procedures’ (Participant 10).

There was a narrative from those who had no issues with xenografts and allografts, in both its cadaveric and live donated formats. The assumption and rationale was, that since it is human, it must be better and/or more biocompatible: “I think that the human being's bone-grafting materials can integrate well with the surrounding bone tissue more than the other two types of bone-grafting materials” (Participant 6). Also, “I believe that the best bone grafting material that can be transplanted is from a human being or from a deceased person, because it will be biocompatible, which means the body will not reject it” (Participant 9).

A clear preference for cadaveric bone was evident in this participant’s response: “I don’t prefer to take the bone-graft from my own body . . . I’d prefer it from a deceased human being’s body” (Participant 4). The participant’s rationale for allograft choice is that it has the potential integration than other bone substitutes and is accordingly more likely to be successful: “I feel that the human being’s bone-grafting materials will be well integrated with my jawbone.” (Participant 4) Also, “I think that the human being's bone-grafting materials can integrate well with the surrounding bone tissue and then the animals' bone-grafting materials, which comes in the second place, as the animals’ tissues are similar to humans.” (Participant 6)

Nevertheless, there was some degree of rejection of cadaveric bone: “I’ll also be frightened from using a bone graft transplanted from a deceased human being’s body” (Participant 10). There was total rejection for both cadaveric and animal bone material substitutes: “I can’t accept it from a deceased body or from an animal” (Participant 8).

There was also a rejection of anything other than autografts and allografts due to the belief of their superior healing abilities: “I feel that both synthetic and animals’ bone-grafting materials will not be well integrated with my jawbone, I think the reasons might be the differences in healing quality and strength of the bone-grafting materials in each type” (Participant 4).

Some participants made their choice based on a list order of preferences. Although with these participants, all possible grafting materials were acceptable, however, the preference order had similarities and variations between participants. This particular participant’s preference was more toward animals than synthetic bone substitute materials: “Okay, synthetic versus animal, I think the animal being an organic structure would be more similar to human organic structure. I think the animal being an organic structure would be more similar to human organic structure” (Participant 2). The other variant of preference was seen in this order of choice: “I’ll choose to take the graft from a deceased person if it is available . . . if it’s not available, I’ll choose to take the graft from a synthetic material” (Participant 9). However, there was still some preference for xenografts: “I prefer animals' bone-grafting material over human being’s one, because animals’ bones are stronger than the human body’s bones” (Participant 3).

An order of preference between the three was “my first choice will be the bone graft from my own body, my second choice will be the bone graft from an animal’s bone tissue, and my third choice will be the synthetic graft materials” (Participant 10).

The rationale for the choice was sometimes not clear, as in this participant’s preference statement, “I think both allograft and Xenograft are better than synthetic” (Participant 4)

**Theme 2: Religious and Psychological Influences**

Cultural, religious, and spiritual beliefs are personal, which may or may not be linked to formal religious practices. There were many statements that relate to choice, based on religious, cultural, and psychological influences: “I prefer using animals’ bone-grafting materials, except from pigs, or any religiously-prohibited materials” (Participant 3). The response, as expected, was unequivocal: “Given the choice of the cow or pig if I had to, I think I’ll definitely take the cow if someone says to me you have to do the cow” (Participant 1). Another participant stated: “I can’t accept the idea of having a part of an animal inside me” (Participant...
10. However, this participant’s preference was toward grafting material derived from animals with specific rejection of porcine products: “I don’t accept using bone graft derived from a deceased human being’s body, but I can accept using a graft of tissue that is derived from animals, such as cows but not pigs” (Participant 5). This was specified further by another participant: “I’ve no problems using the cow’s bone graft tissue, but I totally exclude the pig’s bone graft tissue because of religious reasons” (Participant 10).

Uncertainty that the source might unknowingly be porcine was also voiced: “I exclude the animals’ bone-grafting materials . . . I’ve no doubt about the source of human bone graft, but there are doubts as to the source of animals’ bone-grafting materials, which might be derived from pigs’ tissues” (Participant 7).

The exclusion was unequivocal in the reflections of this participant who elaborated on how religion influences their decision: “I totally exclude pigs because of religious prohibition reasons, even if it was sterilized properly, I’ll not accept using it, because the religious aspects have a great influence on my choices” (Participant 5).

A similar sentiment was also described in this reflection: “It is impossible to even think about that, I can’t accept it from the pig’s tissue because of religious reasons, as it is prohibited in Islam” (Participant 9). It was also narrated in the context of preference of synthetic materials, if a porcine substitute was the only choice: “I exclude the pig’s tissue because of religious reasons . . . I prefer the synthetic option” (Participant 8). When in doubt about whether it was religiously prohibited or not, the thought was to seek advice from religious scholars: “If it’s necessary I’ll consult a religious advisory opinion (fatwa) about that” (Participant 7). This religious influence on choice was confirmed in a comparison between two animal products: “I can’t accept it from the pig’s tissue because of religious reasons, as it is prohibited in Islam, but I can accept to take the bone graft from a cow’s bone tissue” (Participant 9). Also, “Given the choice of the cow or pig, if I had to do, I think I’ll definitely will take the cow” (Participant 1).

Apart from the expected religious dominant influence, there was also the psychological influence or aversion to one type or another substitute: “I think there is a stigma that animals are not clean in one way or another, I can’t help but think to myself; because when you think of a pig, you don’t think of a part of that pig grown in a laboratory, the thing that comes into your imagination is pig rolling in mud” (Participant 2).

The reflections on psychological influence were also for allografts: “I can accept a donor’s bone tissue, but psychologically I can’t accept a deceased human being’s body bone graft” (Participant 5). One participant described the issue as the idea of an animal that gives them the creeps! “I think even if it’s not religion, I would just get creepy by the animal thing; I just would not want an animal part on me” (Participant 1). Religious and psychological influences were also described within the same context: “The religious prohibition against pigs and the cadaver bone graft is very disgusting in me.” “I don’t accept allograft bone grafting materials, taken from deceased human donors, because I’ve a psychological disgust against human cadaver bone graft” (Participant 3).

The fear of infection transfer was also described: “if I had some sort of assurance its tested as well safe and it performs well, because I have a negative feeling towards that; does that make sense.” Also, “With animals, we hear of the mad cow disease, well, there is a possibility that could be transferred from bone or not.” (Participant 1)

There was also the psychological-related influence for the synthetic products: “Like materials like plastic, well, I don’t know what happens to the plastic after some years, does it become poisonous, it reacts with something in our body” (Participant 1). The fear of synthetic products was also expressed, but without explanation of the reasons: “I’m afraid of the synthetic bone, and I’m not psychologically prepared for” (Participant 10).

Fear and anxiety related to donor sites in autografts were evident: “the biggest deterrent is the discomfort that comes with grafting during the procedure and post-operative pain” (Participant 2). Two issues were described, one of which is the psychological element of removing a bone from their body: “I think the difficulty from my point of view is that I don’t want any part of my body to be removed” (Participant 10). The second was pain and comorbidity related to the donor site: “I can’t accept to take the bone graft from any part of my own body, because I don’t want to feel any pain in another part of my body other than the implant surgery” (Participant 10). Also, “I don’t know if it will affect my body . . . it will not affect your body, but it will be painful . . . I don’t prefer this choice” (Participant 9).

**Theme 3: Trust the doctor and cost influences**

Trust is an indescribable concept, and in trusting health-care professionals, patients believe that their insight is related to the management, which is inferior to that of the professionals, who will beneficially use...
their knowledge: “I’ll take the suggestion of my doctor, whom I trust completely” (Participant 3).

The belief that the health professional’s insight was superior was reflected in this participant’s view: “The Doctor is more experienced in their specialty and I trust their opinion more than anyone else” (Participant 5). The trust was sometimes explicit and definite, since this participant was prepared to go with the professional suggestion even if it was against their preference: “I’ll have to use human being’s bone-grafting material, if the doctor suggests using it, as the most suitable option for my case” (Participant 5).

The trust in the professionals underpins the patients’ decision making in many cases: “I personally would go with the doctor’s suggestion if they tell me that the latest researches proved that a specific type of bone-grafting materials is the best, I don’t remember the type of bone-grafting material the doctor used, and I don’t even remember if the doctor has explained to me the types of bone-grafting materials before doing the bone grafting procedure” (Participant 7).

The patients should be given the choice of the grafting material that suits them culturally and religiously, which is the legal and ethical right of informed consent: “If the doctor gives me the choice, I’m going to choose what I feel would suit me . . . I feel that the synthetic is the best for me.” “Actually, I hadn’t any previous knowledge about that before doing this interview . . . just today, I’ve heard from you, that there are three types of bone-grafting materials” (Participant 8).

The choice for them was narrated as their doctor’s responsibility: “I think the doctor will do their best to achieve the best possible result for their patient and make sure that any type of bone-grafting materials will be completely analyzed and clinically sterilized before the dental implant treatment . . . That is the doctor’s responsibility” “the Doctor knows what is appropriate for the patient’s individual case” (Participant 10).

The trust was rather specific, that it was not to all clinicians, but the clinician whom the patient was being treated by and the thought or culture of a second opinion did not seem to be present: “Not all doctors . . . I’m very conservative to whom should I give my trust . . . I’ll take the suggestion of my doctor, whom I trust completely” (Participant 3).

The predicament between doctors’ opinion and psychological influences seems to correlate, while trusting and accepting the doctor’s suggestion; however, it was also dependent on what they were comfortable with: “The first step is to consult my doctor on which is the best . . . if they recommend taking the bone graft from a human being bone tissue . . . I don’t prefer it . . . if they recommend taking the bone graft from an animal bone graft or from a from a synthetic material . . . I’ll discuss with them as to which one is the best for me” (Participant 9).

There was also a trust in the system that it will protect patients: “I’d assume that, if it’s being offered, then they have been tested that they would all work.” In a similar sentiment, the importance of knowing whether the material has been successfully used earlier: “I would like to know if it is a done thing or a new thing” (Participant 1).

The self-reliance and individuals’ own search and research were also described: “I definitely have to search and then decide which of the given types of bone-grafting materials is the best for me” (Participant 6).

On questioning whether the cost of the grafting material influences their choice; that did not rate high as an influence: “The financial aspects have no influence on my decisions” (Participant 10). Also, “The difference in cost doesn’t matter to me . . . The treatment’s final result is the most important issue to me, and my first priority is to be satisfied and comfortable with the treatment result” (Participant 5). However, there was some assumption that the more expensive the treatment, the better it is: “I think the best will be the most expensive one” (Participant 4). Also, “I would assume that the more expensive, the more valued and the less expensive, the less valued” (Participant 7). On the other hand, one participant was happy to find out more about the material once its cost was involved: “if there were cost involved, I would research more into what the differences between the options are” (Participant 2).

The priority, however, was mostly comfort and outcomes rather than cost. “The difference in cost doesn’t matter to me . . . The treatment’s final result is the most important issue to me, and my first priority is to be satisfied and comfortable with the treatment result” (Participant 5).

**DISCUSSION**

This qualitative study evaluated the choice of grafting materials in implant dentistry, with a research question of “Do religious, culture and psychological factors influence the choice of grafting material in implant dentistry?” To our knowledge, this is the first qualitative interview-based evaluation of this issue. The three themes that emerged indicate that there are preference and influences, which are of importance and which
should make us more cognizant of our patients’ cultural and religious beliefs, particularly when products are in conflict with a patient’s faith or culture.

The choice and preferences as well as the acceptance of autographs have been reported to be high. Positive influences on OHRQoL and satisfaction were reported after advanced reconstruction with iliac crest-derived grafts in orally compromised patients with subsequent placement with implants. Allogenic grafts were also acceptable; however, they were in agreement with the patient’s chosen allograft bone material to avoid donor site morbidity.

Regarding xenograft materials, there was a higher refusal compared with autogenous and allogenic grafts, and this was similar to what was reported by Bucchi, et al. 2019. An ethical aspect associated with xenografts’ use is the prohibition of several animal species by certain religions. Patients’ religious beliefs may conflict with what clinicians view as an appropriate grafting material, mainly if the grafting material is from a biologic product that is religiously prohibited. Most of the patients included in this study, which was conducted in Kuwait, a conservative Muslim country, indicated an unequivocal rejection of porcine products. It was similarly reported that most patients of Muslim faith are generally not comfortable with medical or dental products from animals. However, it has to be noted that religious and ethical concerns related to the use of bone materials (xenografts) have not only been raised in Muslim-majority countries. A study conducted in Chile, where most participants were self-reported to be Catholic, showed allograft and xenograft materials to elicit a high level of refusal.

The current study agrees with Easterbrook and Maddern (2008), in that we need to understand worldwide religious views and be sensitive to religious beliefs, which is fundamental in respecting patients’ autonomy. In this regard, a patient’s religious belief should not be dismissed or assumed, and the degree of significance of these beliefs in a patient’s life should not be underestimated. A systematic review similarly indicated that clinicians should know the product’s source and be aware of the patient’s basic faith requirements. Therefore, to be culturally and religiously competent, the clinicians should be open-minded, objective, and without influences from their views and beliefs. Such competence and sensitivity require a dental health-care professional to respect the religious and cultural practices in health-care delivery to avoid violating beliefs and practices. However, this might not be due to a lack of respect but rather a lack of knowledge of the grafting material source. In

one study by Enoch et al. (2005), a highly significant number of surveyed health-care workers did not know all the products’ constituents correctly.

Most clinicians’ decisions are formulated by experience and expertise, and accordingly these clinicians may forget to consider the patient’s beliefs, or explain alternative bone substitute products that can be used.

Although the patients in this study have shown very positive trust in their clinicians to select the appropriate graft material for them, this trust may be due to a lack of awareness of their rights and autonomy, which is the primary ethical principle of autonomy, which dictates that patients should participate in decision making. For example, one patient was not aware of what grafting material was used in their case, and they did not even recall any discussion or explanation of the grafting material. This will eventually undermine trust and lead to distrust in the patient’s health-care relationship, particularly when this relationship is an intercultural and multiethnic one.

The principle of care is a central component in patient-centered delivery, which includes the process of shared decision making; this is essential in providing an adequate quality-of-care delivery. With that in mind, dental practitioners need to explain to the patients the possible grafting material options in a neutral manner. A critical part and to create a level of accord with patients is to ask them about their preferences in the options of treatment, including the cultural and religious preferences or refutations.

Finally, the treatment cost did not rate high as an influencer on choice in this study. This conflicts with other reports that show that cost has been a significant barrier in implant dentistry. However, this study explored the cost of grafting materials, which may, in the larger scheme of things, bear less weight on the patient who has already allocated funds for a costly dental implant procedure as a whole. This may also be attributed to the relatively affluent patient population studied here, which might have led to that, or as Hof et al. found, that patients’ expectations of implant success are high priority compared with treatment costs and duration.

This study, though it fulfilled investigator triangulation, is limited by the absence of method triangulation. Further, generalizability or globalization is also absent since it does not include patients from diverse cultural and religious backgrounds. To address these limitations, this preliminary study has set the grounds for a multicenter, multiethnic, with methodological triangulation of mixed-method analysis, which should lead to more insight into this issue.
**CONCLUSION**

Within this study’s limitations, the influence on a grafting material’s choice is unique to every individual with similarities based on shared religious and cultural values. Trust in the professionals to choose the grafting material was very high, and patients’ autonomy should be the primary consideration on choice.

**FUTURE SCOPE / CLINICAL SIGNIFICANCE**

This study provided an insight into the future planning of grafting and what materials should be invested in by dentists and clinics based on their patients’ cultural and spiritual background factors.

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Not applicable.

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Nil.

**CONFLICTS OF INTEREST**

There are no conflicts of interest.

**AUTHORS’ CONTRIBUTIONS**

Dr. Khalaf and Dr. Alenezi conducted and facilitated the interviews and collected the data. Dr. Ziada and Dr. Abubakr did the coding, reviewing the coding, validation, visualization, and software use and analysis. All authors conducted data interpretation and thematic analysis. All authors also contributed equally to the manuscript preparation.

**ETHICAL POLICY AND INSTITUTIONAL REVIEW BOARD STATEMENT**

A study protocol was submitted for ethical approval to the Joint Committee for the Protection of Human Subjects in Research of the Health Science Center, Kuwait University, and approval was granted.

**PATIENT DECLARATION OF CONSENT**

Patients provided consent to participate in the study. All participation was anonymous and confidential.

**DATA AVAILABILITY STATEMENT**

All data generated or analyzed in this study are included in this article.

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