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Dentistry in a multicultural society: the impact of animal-based products on person-centred care

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Key points

Cultural competence needs to be reinforced in dental curricula to provide person-centred care to an increasingly diverse society in the UK.

Dental professionals should recognise patient choices regarding animal products based on their religious, spiritual, cultural and ethnic backgrounds. Patient choices must be respected and alternative products should be offered whenever appropriate.

The dental profession needs to work with the industry to enforce more transparent labelling of dental products and materials based on animal sources.

Abstract

Cultural competence of healthcare professionals requires a combination of awareness, knowledge and skills to provide healthcare services to culturally and linguistically diverse populations. The aim of this paper is to raise awareness regarding animal-based constituents in dental products which may not be acceptable to patients from different cultural, spiritual, or religious backgrounds. Animal-based products are used widely in medicine and dentistry. However, patients and sometimes even dental professionals may not be aware of this. This paper identifies some common products used in clinical dentistry which are derived from animal-based sources and discusses the implications of their use in a multicultural society.

Introduction

Cultural competence of healthcare professionals requires a combination of awareness, knowledge and skills to provide healthcare services to culturally and linguistically diverse (CALD) populations. Healthcare inequalities and disparities among minority ethnic populations have been reported widely in English-speaking countries, including the UK and the USA.^{1,2} Sociocultural barriers to care are multifaceted and may be organisational (leadership/workforce), structural (process of care) or clinical (clinician-patient encounter) level.³ This has prompted the healthcare professionals, educators and policymakers in high-income, English-speaking countries to consider cultural competence as one of the strategies to address healthcare inequalities in CALD populations.⁴

Several frameworks have been developed for improving cultural competence in healthcare, including language services, recruitment of staff from minority ethnic groups, educational materials for healthcare staff and patients and providing cross-cultural education to healthcare professionals.^{5,6,7} Embedding cultural competence in educational curricula can equip the healthcare professionals to address cultural and social barriers and prepare them appropriately to provide healthcare services to CALD patients with health-related beliefs, values and behaviours. The importance of cultural competence is being increasingly recognised by dental educators in English-speaking countries.^{8,9}

The learning outcomes for undergraduate dental programmes in the UK require the dental graduates to 'recognise and respect the patient's perspective and expectations of dental care and the role of the dental team, taking into account current equality and diversity legislation'.¹⁰ Dental professionals in the UK recognise the need to provide patient-centred care. Closely aligned to this is the concept of person-centred care. Although both terms are used interchangeably, patient-centred care focuses on the patient and disease management based on existing evidence, while

person-centred care considers the relationship of the patient with the healthcare provider over a period of time and focuses on disease management in the context of social, religious and cultural factors.¹¹ Given the culturally diverse demographics of the populations in the UK, dental professionals must consider the varying needs, choices and social determinants to provide holistic care.

Dental professionals in the UK routinely provide care to people from a wide range of ethnicities and religions. Based on the data from the Office for National Statistics in England and Wales, most people identify themselves as being Christian, followed by being Atheist, Muslim, Hindu, Sikh, Jewish and Buddhist, in decreasing order.¹² Notwithstanding variations in individual choices, people from certain religious, cultural and social backgrounds may have reservations regarding animal-based products which may be against their beliefs.

Animal-based products are used widely in multiple fields including anaesthesiology, surgical specialities and dentistry. However, information regarding presence of animal-based products in medicines, implants and surgical dressings is not usually available for healthcare professionals or patients. Use of drugs and products containing porcine

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content may not be permissible for those who are Muslim, except for life-saving treatments. Similarly, people who are Hindu or Sikh may not approve the use of drugs or products from porcine or bovine sources except in life-saving situations or where no suitable alternatives are available. However, Christian (including Jehovah's Witnesses), Jewish and Buddhist people do not have any established reservations regarding animal-based products.¹³ Nevertheless, even people who do not identify themselves as religious may follow certain spiritual and social values and may have reservations regarding animal-based products.¹⁴ Given that clinicians are expected to inform patients regarding each component within a treatment plan as part of gaining a valid consent, it is not unreasonable for patients to expect that the use of animal-based products by healthcare professionals is discussed explicitly too. This element is already enshrined in law in Denmark.¹⁵

Dental professionals should have an awareness and understanding of patient choices when providing clinical care to establish the preferences of individual patients. The aim of this paper is to raise awareness regarding animal-based constituents in dental products which may not be acceptable to patients from different cultural, spiritual or religious backgrounds.

Methods

A literature review was conducted to identify and collate information on dental products with animal-based constituents which are available for clinical use in the UK. Multiple databases were searched using the search strategy. Table 1 shows the subject headings and free text search terms. Truncation was used to allow for variation in spelling or use of each free text term. The Boolean operators (AND/OR) used to combine the individual search terms are also shown.

Inclusion criteria

Dental materials or xenografts containing animal products (bovine, porcine, blood etc) alone or in combination.

Exclusion criteria

- Materials and products not approved for use in clinical dentistry
- Materials and products not approved for use in the UK
- Papers in languages other than English.

Table 1 Search strategy

Search strategy			
Dentistry terms combined with OR		Material terms combined with OR	Animal-derived terms combined with OR
<ul style="list-style-type: none"> • Dental • Dentistry • Oral surgery • Periodontics • Implants 	A N D	<ul style="list-style-type: none"> • Products • Xenograft 	A N D <ul style="list-style-type: none"> • Animal • Bovine • Porcine • Cow* • Pig* • *Equine • Sheep*

Table 2 Constituents in animal-based products used in dentistry

Name of product	Clinical use	Composition	Alternative options
Gelfoam	Haemostatic agent	Porcine skin and gelatin USP granules	<ul style="list-style-type: none"> • Surgicel • ActCel
Helistat	Haemostatic agent	Bovine tendon	
Catgut	Suture material	Sheep or horse gut	Synthetic suture materials such as nylon or Vicryl
Emdogain	Periodontal regeneration	Porcine enamel proteins	Recombinant human platelet-derived growth factor-BB plus β -tricalcium phosphate
Mucoderm	Soft tissue augmentation for implants	Porcine-derived acellular dermal matrix	Autogenous connective tissue graft
Bio-Oss	Bone grafting	Contains bovine products	Alloplast – synthetic source <ul style="list-style-type: none"> • Hydroxyapatite • Biphasic calcium phosphate • Tricalcium phosphate • Bioglass
Cerabone	Bone grafting	Bovine bone	
The Graft	Bone grafting	Porcine bone	
OsteoBiol	Bone grafting	Porcine and equine bone substitutes/membranes – multiple products	
PepGen P-15	Bone grafting	Bovine bone	
Bio-Gide	Guided tissue regeneration	Porcine collagen membrane	Autograft – requires additional surgical procedures
Osteoplast osteoXenon	Bone grafting/regeneration	Equine origin collagenated bone conductors/promoters	
Endobon	Bone grafting	Bovine-derived hydroxyapatite	
Unilab Surgibone	Bone grafting	Bovine bone hydroxyapatite and collagen	

Searches were conducted using Medline via Ovid interface and Embase via Ovid interface. The search of databases was supplemented with Google searches for the relevant dental products and materials available in the UK based on the inclusion and exclusion criteria. This involved screening of commercial product literature approved for use in the UK.

Results

Following initial data searches, removal of duplicates and screening of abstracts, 78 articles were identified for full text screening. Several dental products were identified as containing constituents that may not be

acceptable to patients from certain religious, spiritual or sociocultural backgrounds. These include animal-based products mainly from bovine and porcine sources, as well as equine and sheep. These products are summarised in Table 2 along with their clinical use. Suitable alternate options are also included for use in patients who may have any reservations regarding their use.

Discussion

Providing patient-centred dental care in a multicultural society warrants due consideration to the religious, cultural and ethical beliefs of patients. These beliefs may

influence perceptions about disease causation, interpretation of symptoms and appropriate treatment and prevention, as well as values attached to interventions, including medical products.¹⁶ Moreover, religious, spiritual and cultural beliefs may be influenced by education, socioeconomic status and acculturational factors. Therefore, it is important to avoid stereotyping and focus on providing individualised dental care. Dental professionals need to gain a better understanding of these issues to provide culturally sensitive care in clinical practice.¹⁷

Evidence from the literature suggests that religious, spiritual and social beliefs may conflict with evidence-based medical interventions and clinical decision making.¹⁸ Religious beliefs may raise conflicts with the provision of medical care, such as the use of blood transfusions (Jehovah's Witnesses), removing a patient from ventilator support (Orthodox Jews) and removing life support in brain-dead patients (Buddhists).¹⁹ Cultural and religious background may also influence health and beliefs about medical treatment. Such differences may impact on discussions about medications between patients and healthcare practitioners and warrant shared decision making. It has also been reported that there is a strong association between cultural background and beliefs about medicines in general, even when controlling for potentially confounding variables.²⁰ It also needs to be mentioned that although people may identify with a specific religious group, there are a range of opinions and interpretations of religious injunctions.²¹ Moreover, veganism is on the rise in society and may impact on patient choices regarding the use of animal-based dental products. The final decision to accept or decline a medical intervention rests with the individual or their carers and the treating healthcare professional.

Dental professionals may not routinely focus on religious and spiritual history of patients when providing clinical care. Several factors may be responsible for this, including lack of understanding, time constraints, or discomfort due to potential risk of overstepping their boundaries.²² However, clinicians need to recognise that cultural and religious barriers can impact adversely on holistic, person-centred care and can be addressed through education and training.²³ Structured education and training in cultural competence is increasingly being incorporated in undergraduate medical and dental

curricula.^{24,25} Dental schools in the UK need to re-evaluate and enhance undergraduate education in cultural competence. Future dental professionals must be equipped with relevant skills to provide dental care to a multicultural and diverse society.

Several studies involving participants who are Muslim found bone graft materials based on xenografts, especially from porcine sources, had high refusal rates due to religious reasons, while acceptance for autogenous bone grafting was high.^{26,27,28} There is paucity of published literature regarding the constituents of animal-based products used in dentistry. The dental industry has witnessed a rapid growth in the last two decades, especially in the field of implantology and a wide range of new materials and products are being introduced in dentistry. Several types of xenografts used routinely in implantology; periodontology and oral surgery are based on bovine and porcine products.²⁹ Recognising the religious, spiritual and cultural background of patients can help clinicians accomplish shared clinical decision making with their patients to provide person-centred care. The dental profession also needs to work closely with industries and businesses involved in the production and sales of dental materials and products to ensure there is more transparent labelling, especially when containing constituents based on animal sources. These considerations should also be factored in when recruiting and consenting participants for clinical trials that involve the use of animal-based products.³⁰

This paper has some limitations. It is acknowledged that not all dental products containing animal-based constituents are identified and additional materials continue to be introduced in the dental market regularly. Moreover, dental products such as toothpastes, mouthwashes etc, which are available over the counter, may also contain animal-based products or alcohol, which may not be acceptable to everyone. It is noteworthy that product labelling of over-the-counter dental products is often inadequate and may not allow recognition of sources of some constituents, especially those from animal sources. Nevertheless, this paper attempts to sensitise dental professionals to choices and preferences of patients from diverse backgrounds. By developing a better understanding of these issues, dental professionals may be able to advise alternate products and materials to patients who have reservations about a particular product.

Conclusion

Cultural competence of healthcare professionals is a multifaceted construct and requires structured education and training. Dental professionals need to be sensitive about the impact of the religious, spiritual, cultural and social backgrounds of patients to provide holistic and person-centred care. The present paper highlights how animal-based constituents in dental products may influence patient choices. Dental professionals need to recognise such reservations by patients and offer alternative options when appropriate.

Ethics declaration

The authors declare no conflicts of interest.

Author contributions

Kamran Ali, corresponding author, was responsible for the drafting of the manuscript and editing. Pooja Gupta and Emma Turay contributed to the literature search. Lorna Burns contributed to developing the search strategy. Zoe Brookes contributed to the drafting of the methods and results sections. Mahwish Raja contributed to the drafting of the introduction and discussion sections of the manuscript.

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Correction to: Medical device legislation for custom-made devices after the UK has left the EU: answers to ten important questions

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Author's correction note:

General article *Br Dent J* 2021; **231**: 513–521.

When this article was initially published, it did not take into account the further amendments made to the Medical Devices (Amendment etc) (EU Exit) Regulations 2019. The article has since been updated and corrected to reflect this.

The authors apologise for any inconvenience caused.