

ORIGINAL ARTICLE

Socio-cultural aspects of oral health among the Fulani in Ferlo (Senegal): A qualitative study

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Abstract

Objectives. Health is a subjective concept that considers the social, cultural, environmental and behavioural problems of the individual. This study was conducted with the objective of better understanding the sociocultural aspects related to the oral health of the Fulani populations of Ferlo, Senegal. **Methods.** The study was qualitative and based in the area of the Great Green Wall (GGW) in the region known as Ferlo, northern Senegal. Data were collected by semi-structured interviews in a sample of the population and through discussions with a focus group. It concerned health and aesthetics of the teeth, care and traditional herbal recipes, teeth and superstitions. **Results.** It appears that people were using the toothpick, the chewing stick and/or charcoal to clean their teeth. Confusion persisted with respect to the types of food consumed that were implicated in the occurrence of dental caries: tea, rice, 'jumbo' (a seasoning spice) and tobacco. 'Borom bop', which means 'master of the head', was the most commonly reported cause of caries. Healthy, beautiful teeth were attributes of beauty and elegance, enhanced by tattoos and crafted crowns in the Fulani. Their health problems were generally managed by healers or traditional practitioners who based their practices on empirical and 'handed down' knowledge. Socio-anthropological meanings were given to children with neonatal teeth. **Conclusions.** It is therefore important to consider the sociocultural aspects in oral health projects and programmes; the place of herbal medicine in dentistry should be recognized and maybe researched in the region of the Great Green Wall.

Key Words: *sociocultural aspects, oral health, Fulani, Senegal*

Introduction

Diseases and their causes are often the direct expression of social norms and representations. Health is a complex concept, a collective goal, an individual experience and a subjective concept that considers the social, cultural, environmental and behavioural problems of the individual. Living and environmental conditions, level of education, traditions and cultural beliefs play a major role in oral health [1–3]. These factors are associated with risk of oral disease, which can be divided into three main groups: dental caries, periodontal diseases and pathologies of the oral mucosa. They are described as major public health problems because of their prevalence and their high impact on an individual's quality-of-life and mainly because they tend to cluster among the poor and the socially marginalized [4].

In Senegal, despite the policies and programmes for oral disease prevention and treatment, such as various strategic plans to improve the health of populations, these diseases are increasing. Cisse et al. [5], in 1993, found a prevalence of dental caries around 37.5% in 6–12 year old Senegalese children. Later, Lo et al. [6], in 2001, showed that the prevalence had increased to 82.09% in the same age group. Other studies on specific groups showed a prevalence of dental caries from 60–78% among students in university housing in Dakar [7] and 81.3% among prisoners [8].

The failure of these policies, particularly in prevention and the lack of structures for dental care, mainly explained by the population's limited financial capacity, provides arguments to promote a new strategy. Because individuals are responsible for seeking help to solve their oral health problem, it is

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important to know the burden of oral disease, their oral health behaviours and the motivations of their therapeutic pathway. The modern dental profession, relatively young, is often surrounded by social beliefs related to ethnic groups, race and even the season of the year. These cultural practices, often with unrevealed functional or utilitarian purposes, are specific to an ethnic group or a segment of society. Gingival tattooing, for example, is a very common practice in Senegal [9]. It is practised by the Fulani, who do both tattooing of the lips and around the mouth. The Fulani are a traditionally pastoral people, whose historical origin is controversial [10]; they may have come from the Nile and Ethiopia to West Africa in search of pasture [11]. This ethnic group possesses a strong sense of conservation of tradition and values which they consider to be the basis of their identity and their nobility. For more or less well known historical circumstances, the Fulani were scattered throughout the grassy areas around the south Sahara. The second largest ethnic group in Senegal, the Fulani migrate in bushland in the landlocked Ferlo area in the Central East. They often do not have easy access to oral health services and this could explain their persistence in using religious and superstitious beliefs to solve their oral problems. Qualitative studies on oral health conducted in these populations are almost inexistent. The aim of this study was to investigate the social and cultural aspects of oral health among Fulani populations in Ferlo, Senegal.

Method

Study design

This was a qualitative descriptive study that took place in the area of the Great Green Wall (GGW) in the Ferlo, Senegal among the Tessékéré and Widou communities. The GGW is an international environmental project that involves the integrated development of plant species and extends from Dakar to Djibouti. The GGW portion in Senegal is 500 km long and 15 km wide [12]. This region is mainly inhabited by the Fulani population, whose main occupations are nomadic herding and trading.

Selection criteria and sampling

Data were collected by two methods. Initially, a panel of 50 persons was recruited using a random sampling procedure. The inclusion criteria stipulated that participants be over 15 years of age, be born in the area or have lived there for at least 10 years, have no medical conditions that would prohibit an oral examination and be available and willing to participate in the study. These people provided information through semi-structured interviews. The number of people interviewed was limited to 50 because it was

felt that this number would be sufficient to get a good picture of community beliefs and feelings in a qualitative study. The number seemed sufficient to reach the saturation level (i.e. the information provided by these 50 persons would be representative of the views of the population).

Then, two separate focus groups were created, at Tessékéré and Widou. Each group was of 10 persons by site, chosen for their experience, knowledge and responsibility within the family or the community (father, mother, healer, imam, etc.). Through group discussions, the focus groups were used to provide ideas for relevant topics, background information and to cross-check things that were mentioned in the semi-structured interviews. In this way, information learnt from the interviews could be validated.

Collection procedures and variable

The data collection in semi-structured interviews was undertaken by a dentist, assisted by a social anthropologist, and both were assisted by an interpreter speaking French and local language. Before the investigation commenced, co-ordinating sessions were organized to achieve uniformity and fidelity in translation of the questions. Data on health and dental aesthetics, oral health care and use of traditional herbal recipes and on superstitions related to teeth were collected. Data collection took place during a week in July 2010. In addition to materials to note the questions and answers, a digital camera was used to record discussion sessions and certain practices were photographed and recorded.

Data analyses

Data from the qualitative survey were processed manually. The data were transcribed and organized, using linguistic or numerical codes, into relevant themes. Using the data from the transcripts and our notes, we were able to analyse the results. Cross-checking of information from the interview and focus group was carried out for validation.

Ethical considerations

Participants were provided with detailed information about the study purpose and objectives before signing a free and informed consent form. Oral health behaviour recommendations were provided and, if needed, dental cleaning or scaling were undertaken.

Results

The results presented here summarize the information obtained after triangulation (cross-checking) of the two data collection procedures (semi-structured interview and focus group).



Figure 1. Mouth of a habitual smoker.

Dental health and aesthetic

Tooth decay is considered the principal and the most common oral disease, but little is known about the Fulani population's methods and utensils used to keep teeth white. Both residents of Widou and Tessékéré reported using toothpicks or chewing sticks or charcoal to clean teeth. Chewing sticks were by far the most widely used implement.

The causes of tooth decay, commonly known as 'tooth with a hole', were not fully understood by the populations. Much confusion persisted over cariogenic food. They mentioned tea, rice, 'jumbo' (a seasoning), tobacco and fish (Figure 1) as possible causal factors.

The most commonly reported cause of tooth decay was the 'borom bop'. This term means 'master of the head'. In popular belief, these 'borom bop' are exogenous substances that penetrate the body between the base of the skull and the top of the head and, through the blood, enter the oro-facial region. In addition to the above-mentioned causes, breastfeeding, heredity and Moorish practices to extract sound teeth for aesthetic reasons were also mentioned as actions that can lead to tooth decay. These people were aware of the danger of a bad tooth. For this 41 year-old man: 'a bad tooth reduces strength and sexual potency in men; generally, in the long-term, it causes digestive problems and blurred vision'.



Figure 2. Artisan-made dental gold crown.

According to these people, to ensure that children have good teeth during adulthood, you must 'remove their (baby) teeth before the age of five'.

Because of the interest attached by individuals to body image in social relations, aesthetics has always been one of the main reasons for dental practices in the Fulani ethnic group.

For the vast majority of the study participants, beautiful teeth were not only perceived as a sign of good health, but also as an attribute of beauty, especially in women. One woman, 26 years old, considered that: 'Tidy and white teeth are used in situations of charm and in battles of will between Fulani co-wives'.

Other methods are used by these people to beautify their smile or even increase their beauty; according to this tattooist and her two clients:

Dental gold crowns (Figure 2) are popular among both men and women Fulani, and others have started to copy. They also represent beauty and elegance.

They added:

For us, the gingival or labial tattoo (Figure 3) has a fundamental importance beyond its traditional aesthetic and therapeutic character; it symbolizes courage, elegance and, above all, nobility, and men will ensure that before choosing their joint.

Traditional treatments and herbal recipes

The Widou and Tessekéré Fulani populations are usually familiar with the use of traditional dentistry and herbal recipes to treat dental problems. This is mainly due to the geographical location of this remote and rugged area, characterized by limited access to oral health services. Health problems were managed by traditional healers or practitioners who base their practice on empirical knowledge transmitted by their forebears, developed and perfected by daily practice and experience. This knowledge is traditionally recognized. Religious and superstitious practices were adopted in cases of dental pain. Litanies and incantations are often performed and directed to the tooth or spittle is put on the cheek. Amulets or talismans are also used as collars around the neck and are believed to relieve pain or to exorcise evil (Figure 4).

Besides these types of practices among Fulani, some individuals attended traditional practitioners using specific processes, such as the following: An instrument the size of a knife is heated in the fire embers and is applied either

- to the tooth slightly out of place; one 49-year old healer explained that the hot knife would lead to 'the death of germs called *domou djangoro*'; or
- to the right or left wrist, depending on the position of the tooth. On the inner side of the wrist, the



Figure 3. Gingival and labial tattoo.

smallest vessel that has the fastest heart rate is identified and it will be seared slightly (Figure 5).

Other traditional healers use unconventional methods to extract some teeth. (incisors and molars). One man explains:

Personally and as a healer, I have an effective technique for removing teeth. I attach a wire around the tooth and on the other end, I hang a heavy weight and tilting the head of the patient sharply, the whole mass is thrown down. Five of my teeth were removed by this technique and it also works in other patients.

These techniques are supplemented by the use of herbal recipes, especially in Ferlo and in the area of the Great Green Wall. Phytotherapy is the essence of the therapeutic arsenal of traditional medicines. Medicinal plants used in traditional therapy in dentistry among Fulani were mostly used as decoctions (extraction of herbal or plant material by boiling),



Figure 5. Inflamed vessels after searing.

powder, ash, gum, rods, pellets, etc. They are used in inhalation, mouthwashes or with chewing stick rubs against toothache, gingivitis, mouth ulcers, thrush, periodontal disease, caries and stomatitis.

Teeth and superstitions

The teeth have always been associated with superstitions, from eruption until they are lost through their position on the arch. Among the Fulani of Ferlo, socio-anthropological meanings were given to children or infants with teeth. A child with natal or neonatal teeth is considered as a cannibal unless a healer converts the child's negative powers into learning and positive knowledge. For this 69 year-old grandmother, the message is simple: 'a baby born with a front tooth will be a scientist if treated, otherwise he becomes a cannibal'.

Moreover, an elderly man with all his teeth will shorten the life of his offspring, according to Fulani beliefs. The toothpick, tooth grinding and sucking of the lower lip, especially in the evening, are considered evil behaviours that could cause the death of the mother.

Consumption of certain foods such as meat was prohibited among girls in order to preserve the beauty of their teeth until adulthood.



Figure 4. Talismans and amulets worn to relieve dental pain.

Discussion

This qualitative study was based on semi-structured interviews and focus group discussions and helped in understanding of the socio-cultural context in which the oral health professional will work in Senegalese rural areas, particularly in the Ferlo. Populations, especially in rural areas, often hold traditional beliefs and engage in superstitious or religious practices to cope with oral diseases.

Although the causes of oral diseases, specifically tooth decay, are well known in general, this was not the case for the Fulani from Ferlo. The range of factors implicated in the cause of tooth decay suggests that the Fulani are far from mastering the aetiological factors of this disease. Banning foods such as tea and rice is understandable because these foods, rich in fermentable glucose, likewise tobacco, do not promote good hygiene. This shows that they seem to be aware of the role of food and carbohydrates in the occurrence of oral diseases. Nonetheless, the presence of other factors is necessary to cause the dental decay. The 'masters of the head' mentioned as a cause of dental problems demonstrates the population's use of socio-cultural beliefs and values to explain their illnesses.

If the causes and consequences of dental disease do not seem fully to be mastered, practices related to dental aesthetics are well known and practiced by many Fulani. This need for embellishment is expressed through various processes such as the craft of making crowns, especially in yellow gold, used by both men and women. These traditional crowns are cemented to the tooth. Their function is aesthetic, they are fabricated by craftsmen or traditional healers and they are also observed in other ethnic groups in Senegal, but more in women than men [13].

In addition, the gingival tattoo is also a current practice among these populations. This tattoo is an artificial pigmentation of the gums obtained by the introduction into the fibro-gingival mucosa of a dye using needles [9]. It is a phenomenon also seen in many other cultures [13, 14]. Principally women are involved in this practice, which is looked on not only as a sign of beauty, but also evidence of the courage of women. It is suggested that the gingival tattoo has therapeutic properties and may reduce the clinical manifestations of gingival inflammation, in particular, gingival bleeding [15]. The gingival labial tattoo is a very common practice in Ferlo. It would appear that aesthetics is one of the main reasons for consultation with female healers.

These populations also include nature in the principles of causation and treatment of dental diseases. In this respect, they use plants' beneficial properties to eradicate oral diseases. The leaves, bark, roots or other plant parts are used to relieve pain. The plant is almost regarded as a member of the community whose social role is to heal [16]. Admittedly, the use of these plants is often accompanied by litanies, incantations and

mystical words. This also reveals the place given to the word for healing. The power granted to incantation leaders in the Wolof, the Serere and the Fulani (the largest ethnic groups in Senegal) is a concrete example [17]. Sometimes, healers only use (mystical) words or charms and talismans to relieve dental pain. In his work on traditional dentistry and pharmacology published in 1982, Ndiaye and Moreau [18] mentioned the existence of two practices in Senegal: medical charlatanism and the traditional practice led by the healer. Both practices continue to be used as therapeutic methods and are considered effective by the people. Thus, it appears that the empirical and the symbolic are often associated. This may explain the incrimination of 'borom bop' in the aetiology of dental caries. These therapies convey a conception of disease that is not limited to a simple natural phenomenon. In many parts of Africa, the principle of dual causality of the disease sometimes leads the patient to follow two therapies, modern and traditional, or to choose between them. In the Ivory Coast [19], nearly 20% of the population in Abidjan use traditional dentistry in the first place. The choice does not often arise in the Ferlo area, because of the severe shortage of qualified personnel who cost twice as much as low-cost traditional therapies. In addition, the social dimension is crucial because therapeutic instructions intend to treat the patient as a whole, while some therapeutic procedures aim only to relieve the patient's toothache using unconventional methods.

In the Ferlo, oral health behaviours are often associated with beliefs and superstitions. Some individuals still do not brush their teeth, while others consider the use of the toothpick in the evening as evil. These people are often more susceptible to developing dental caries. If we add the socio-anthropological meanings given to newborn infants with neonatal teeth, it appears that these superstitions may be linked to other conditions besides dental pathologies. This explains why, in some societies, parents are fearful of their children being considered as cannibals. Yam et al. [20] found these evil interpretations in other ethnic groups in Senegal (Wolof, Serere) where children born with teeth are 'excluded from society'. It has been reported that these children were often killed in some parts of Africa [21]. However, other authors (Alexander Legrand, Louis XIV, Mirabeau and Africa Sourou Migan Apithy (a Dahomey statesman)) [22] have reported cases where a baby born with neonatal teeth was considered a positive phenomenon. According to these superstitions, these babies born with teeth could avoid dental disease or more serious problems like the death of a loved one.

Conclusion

The study has helped to further uncover the socio-cultural aspects of the Fulanis in the Ferlo area of

Senegal. It shows that, to solve the problems of dental care in Senegal, it is necessary to consider the images and traditional therapies applied to oral health. Thus, we consider that the therapeutic itineraries of patients are guided by the understanding of their disease and their subjective theories on the causes of diseases. Sociocultural aspects must be taken into account when implementing curative and/or preventive oral health programmes. It might also be beneficial to invest in herbal medicine for dentistry, especially in this area where a Great Green Wall is being built. It is also important to raise awareness of the study population concerning the influence of socio-cultural realities on their oral health.

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