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The Use of Miswak among Muslim Immigrants Living in New Zealand

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Abstract

Background: Taken from the *Salvadora persica* tree, miswak is a twig that has been used as a natural toothbrush in parts of the world for thousands of years. Although miswak is still used by Muslims today, there has been little research investigating its use in New Zealand.

Objective: To gain insight into the nature and extent of the use of miswak in the Muslim immigrant population in New Zealand. *Method*: A qualitative study was used, with purposive sampling achieved through selecting participants who were known to have used miswak and/or expressed an interest in being interviewed about their miswak use. In total, eight in-depth semi-structured interviews were conducted, with those recorded for note-taking. Collected data were analysed to identify key themes using an inductive approach and an emergent framework.

Results: All participants reported religious reasons as their justification for miswak use. All felt that it was more effective than conventional toothbrushing in reducing plaque levels. Participants showed awareness of its antibacterial properties and justified their use based on scientific evidence. Limited accessibility and conforming to social norms were two of the main reasons for participants modifying their miswak use in New Zealand.

Conclusion: The use of miswak is a traditional practice that continues to be used by the Muslim immigrant population in New Zealand. Its perceived oral hygiene benefits and value suggests that further research would prove useful for oral health education purposes.

Introduction

Oral hygiene practices vary across the world, depending on cultural background, socioeconomic status, religious views and education level (Asadi & Asadi, 1997). One universal component of oral health care is manually dislodging the bacterial biofilm from the surface of the oral cavity using a toothbrush. The traditional toothbrush, chewing stick or "miswak" is thought to date back 7000 years, after being discovered in the Babylonian city of Ur (Almas & Al-Zeid, 2004). Today, the miswak is extensively used across Africa, Asia, South America, and the Islamic nations (Almas & Al-Zeid, 2004; Noumi et al., 2010).

There are more than one hundred different tree varieties which can be utilised as chewing sticks, and the popularity of the twigs, stems or roots is dependent on taste, texture, efficacy and availability (Dogan et al., 2005; Njoroge et al., 2010). The most common source of miswak is the Arak tree *(Salvadora persica).* The stems of this small shrub are tapered until frayed to make a brush at one end (Neiburger, 2009). This brush (Figure 1) is then used in circular motions in a similar manner to the conventional toothbrush. When the brush end becomes too frayed, it is trimmed to expose a fresh new end, allowing one stem to be used over several weeks (Bos, 1993; Wu et al., 2001).

Figure 1. A miswak twig prepared for oral hygiene use.

The effectiveness of miswak as an oral hygiene tool is through its mechanical cleansing action and the release of particular agents during use (Akpata and Akinrimisi, 1977). An *in vitro* study showed that *Salvadora persica* had an inhibitory effect on *Candida albicans* (al-Bagieh et al., 1994). Miswak also contains trimethylamine and salvadoreine which have known bactericidal properties against bacteria such as *Streptococcus mutans* (Akthar and Ajmal, 1981). A randomised control trial of a mouthwash containing *Salvadora persica* extract found that it reduced carriage of *S mutans* among young people (Khalessi et al, 2004).

The use of miswak has a religious element in the Islamic community (Al-Sadhan & Almas, 1999). It is associated with spiritual purity and holiness, and its use has been promoted by many Muslim commentators. It is thought that the Prophet Mohammad was an ardent user and promoter of miswak (Al-Sadhan & Almas, 1999; Bos, 1993). Since then, it has been enthusiastically incorporated into Islamic hygiene codes. New Zealand's Muslim population is growing, largely as a result of immigration over the past two decades, and dentists can expect to have growing proportions of Muslims among their patients. Many of those individuals will be miswak users, and it is therefore important that New Zealand dentists are familiar with miswak use and the opportunities and constraints associated with it.

Accordingly, this study aimed to investigate: (1) why individuals choose to use miswak; (2) how they use it; (3) how often they use it; (4) what they think the advantages are; (5) what they think the disadvantages are; (6) how they access it; and (7) whether their miswak use has changed since moving to New Zealand (and, if so, how).

Methods

Ethics approval for this study was obtained from the University of Otago Human Ethics Committee. The study sample included individuals from varying genders, age groups and ethnic backgrounds. A sample of eight participants was chosen from the immigrant population who had resided in New Zealand for at least two years and had used miswak at least once. A purposive sampling method was employed following identification of potential participants through word of mouth. Following informed consent, semi-structured in-depth interviews were carried out in person and via telephone, recorded using a laptop, and transcribed electronically. Participants were given the opportunity to review their interview transcript to allow for amendments and/or addition of further comments before data analysis. The majority of study questions were prepared prior to the interviews. The interviewer initially gathered information on the participant's demographic characteristics, such as their age, ethnicity, gender, and how long they had resided in New Zealand. The remaining line of questioning focused on the following: why they chose to use miswak; how they used miswak, how often and why; what they felt the advantages and disadvantages of using it were; where they procured miswak; and whether (and how) their use of miswak had changed after immigrating to New Zealand.

Following transcription of the interviews and accounting for any amendments made subsequently by the participants (who were asked to read through their transcripts), the responses were coded and a grounded analysis technique was used to obtain key themes from the data.

Results

Ten individuals were originally recruited for the study, but two decided to withdraw due to other commitments. Of the eight participants who were interviewed, three were from Jordan, with two from Palestine and one from each of Pakistan, Saudi Arabia and Somalia. There were six females and two males, and participants' ages ranged from 22 to 60 years old.

All participants reported religious reasons for their use of miswak. They cited the "sunnah" (religious teachings of the Islamic prophet Muhammad) as justification for their miswak use: "I do use the miswak because it is advised by the prophet (Muhammad)". Although participants observed that the prophet Muhammad did not make the use of miswak compulsory or prescribe how many times it should be used, all justified their use based on his teachings. Several participants reported using miswak to "earn the pleasure of Allah" and receive "spiritual enlightenment". One participant noted that the prophet himself used miswak: "The prophet Muhammad used it (miswak) before every prayer."

Moreover, all participants justified their miswak use based on the perceived improvement of their oral hygiene. They asserted that miswak was more effective at reducing plaque levels than a conventional toothbrush: "Miswak actually cleans your teeth better (than a conventional toothbrush)". One participant said that, given the choice, she would choose miswak over a conventional toothbrush as her primary oral hygiene tool: "If I had to choose one, I'd use the miswak because of its convenience and positive oral hygiene effects." Three-quarters of participants attributed their use of miswak to its bactericidal properties: "There is some substance in it (miswak) that reacts with saliva and creates an antibacterial effect."

All participants used the same method to prepare miswak for use, removing the twig's bark at one end and then chewing the exposed stem to form bristles. The bristles were chewed until the desired softness was achieved: "I bite on it (miswak) to get it soft. Afterwards, when it's soft, you can continue to brush your teeth". Participants reported using miswak in a similar manner to a conventional toothbrush, with the miswak bristles used in circular motions and/or up-and-down against tooth surfaces. About half of the participants reported that they concentrated on brushing along the gingival margins of teeth: "I focus on the area that's between the tooth itself and the gum."

The frequency of miswak use varied, both among and within participants. Some utilised it at regular intervals throughout the day: "I usually use it at times of prayer, before sleeping and when I wake up in the morning", while others used it more sporadically, going through relatively long periods without using it: "sometimes I don't use it for a month." Use was also associated with religious occasions or specific days of the week. One participant primarily used miswak during the religious season of Ramadan as part of her devotion, while another reported that he always utilised miswak on Friday, a holy day in Islam: "(I use miswak) especially on Friday. We are recommended to use miswak on this day." One participant reported that his use of miswak was dependent on his oral hygiene needs and he would use it more frequently when he experienced pain from his dentition and/or periodontium: "Every time my gums get sore and my teeth get loose, I use it more often."

Several advantages of miswak were reported. All reported it to be convenient, owing to its ability to be used any time and anywhere, without water or toothpaste: "You can put it (miswak) in your pocket, purse, everywhere." Nearly two-thirds reported that miswak improved their periodontal health and was less traumatic to their gingiva than a conventional toothbrush: "I noticed miswak does not make the gums bleed but the toothbrush does sometimes." Half reported that miswak had a whitening and/or brightening effect on their dentition. Other perceived benefits of miswak included lower plaque levels, its low cost, and less halitosis.

The principal perceived disadvantages of miswak were the reported greater time required to achieve plaque-free tooth surfaces than with conventional toothbrushing, and its limited access to the posterior dentition. About one-quarter of participants reported that, with miswak,

it took more time to clean tooth surfaces to a hygienic standard: "The toothbrush gets teeth cleaner quicker." One participant conveyed that, despite its convenience, it is more difficult to navigate around tooth surfaces with miswak and "it is not as easy to use as a toothbrush". The nature of miswak means that its bristles are parallel to the handle, making it "hard to get it to reach (tooth surfaces) at the back". Other disadvantages outlined by participants included: lower social acceptability in New Zealand; possible contamination by micro-organisms if stored inappropriately; its distinctive taste (which can be perceived as unpleasant or "chemical-like"); and the tendency for fragments of the twig to flake off in the mouth.

Five of the eight participants obtained their miswak solely from overseas, such as from Saudi Arabia or Jordan. Only one participant obtained miswak exclusively from New Zealand, while the remaining two participants acquired it from a combination of overseas retailers and domestic stores. In addition to purchasing miswak for themselves, two participants reported that they were frequently given it by friends who had travelled overseas or by international visitors to New Zealand.

Almost two-thirds of participants reported that their miswak use had changed notably since immigrating to New Zealand. Most noticed a decrease in use, while the remainder had an increase in use. The principal reasons for a decrease in miswak use included its limited accessibility in New Zealand and the perceived lack of social acceptability, with some participants considering miswak use (particularly in public settings) to oppose social norms in New Zealand: "I sometimes am shy to use it (miswak) in New Zealand, especially when I go outside." Another participant opined: "It (miswak) is socially unacceptable so I use it less in public." Moreover, two participants said that limited access to miswak in New Zealand meant that their use of it had decreased following immigration. Only one participant reported a post-immigration increase, attributing this to perceived increase in Islamic religiosity: "I use it more, maybe because I got closer to my religion here (in New Zealand)." Of those who had noticed no (or little) change in their miswak use after immigrating, two attributed this to their continued access to it from overseas: "I've been lucky to have access to it (miswak) and not miss it." One observed that regular use would be challenging for those with limited access to miswak in New Zealand.

Discussion

This study set out to explore the use of miswak by Muslim immigrants to New Zealand, in order to raise dentists' awareness and understanding of its use. All participants justified their use of miswak based on their religious beliefs. It is evident that, through religious motivation, the oral hygiene of these individuals was maintained, to some extent. The entire sample also reported greater efficacy of plaque removal with miswak than with conventional toothbrushing, and most reported improvements in periodontal health following miswak use.

Despite miswak being cost-effective, convenient and effective, it had several limitations. The most frequently reported disadvantages were the difficulty in using it to cleanse the surfaces of posterior teeth, and the greater time required to achieve a plaque-free surface. A major barrier to ongoing use of miswak was the perceived low social acceptability of this practice and its reported limited accessibility.

Before examining the findings, it is useful to consider the study's limitations and strengths. Participant recruitment was problematic: although there was a potentially large population of miswak users in New Zealand, identifying them proved challenging, and participants were primarily recruited through word-of-mouth. Additionally, five of the study participants were acquainted with the interviewer (HA) prior to the interview, and there may have been an effect on data validity, with some participants giving socially favourable responses. The study had several strengths. Heterogeneous purposive sampling was carried out to ensure that the participants would provide detailed and comprehensive answers, and were of diverse ethnic background and age. Six of the eight interviews were transcribed by the interviewer, thereby introducing less interpretation bias, and greater insight into each participant's body language and the atmosphere of the interview setting. Those interviews that were not transcribed by the interviewer were verified by her following transcription to ensure that interpretation errors had not been made. Participants who conversed in Arabic had been given the option of being interviewed in their native language and/or English to ensure they had good understanding of the interview questions and could articulate their opinions with ease. Answers given in Arabic were translated by the interviewer—who spoke fluent Arabic—to minimise interpretation errors. Finally, participants were given the option to review their interview transcript and make any amendments or further comments they wished. This allowed correction of any interpretation errors made by the transcriber and gave participants the opportunity to deliberate on their responses without the interviewer present, thereby helping to reduce interviewer bias.

Miswak users will be among the growing proportion of Muslims among New Zealand dentists' patients. This makes it important that those dentists are familiar with the reasons for miswak use: advice to replace it with more conventional New Zealand approaches to oral self-care are likely to be met with resistance and could possibly alienate the patient. Arguably, miswak should be considered to be a suitable and culturally appropriate adjunct to the conventional toothbrush, rather than as a replacement for it. Wise practitioners will not only enquire about its use by patients but also ensure that they accept and accommodate that use, so that the dentist-patient partnership continues to work in the best interests of both.

An additional benefit of greater awareness of miswak in westernised countries such as New Zealand would be to increase the demand for it, with the inevitable market response to that greater demand also increasing its accessibility and social acceptability. Through this, many individuals, both within the New Zealand Islamic community and outside it, could benefit from the oral hygiene effects of miswak.

It would be beneficial to conduct further research on miswak using quantitative studies to determine whether the perceptions of a reduction in plaque levels and halitosis—and an increase in tooth whitening and improved periodontal health—are accurate and, if so, to what extent. If miswak is found to be an effective oral hygiene tool, further research may establish how it can be used to improve oral hygiene and thereby reduce dental disease in New Zealand.

Conclusion

The use of miswak is a traditional practice that continues to be used by the Muslim immigrant population in New Zealand. Its perceived oral hygiene benefits and value to its users suggests that further research would prove useful for oral health education purposes. If miswak is found to have a positive impact on oral hygiene, it could be a cost-effective and convenient method of improving oral health in New Zealand.

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