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Self-reported oral health perceptions of Somali adults in Minnesota: a pilot study

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Abstract: *Objective:* To assess self-reported oral health perceptions and associated factors in an adult Somali population living in Minnesota, USA. *Methods:* We analysed data from a cross-sectional study of Somali adults aged 18 to 65+ years attending a dental school clinic for care. A comprehensive oral examination was performed by the dental school outreach team on all patients who attended a 2-week designated Somali dental clinic. Adults who consented were given an oral health questionnaire to collect information on sociodemographics, marital status, language preference and self-rated oral and general health. We performed summary statistics and differences between proportions using Fisher's exact test and a comparison of means using one-way anova or a two-sample *t*-test. *Results:* The sample consisted of 53 adults, 75% of whom were females. About 49% of subjects reported poor/fair oral health and 38% reported poor/fair general health. Seventy-four percent rated their access to dental care as poor/fair and 83% reported that they did not have a regular source of dental care. Self-rated oral health was significantly associated with marital status ($P < 0.05$) and self-rated general health ($P < 0.01$) using Fisher's exact test. *Conclusion:* A substantial proportion of Somali adults rated their oral health and access to dental care as poor/fair. These findings suggest that this population would benefit from improved access to oral health care and culturally appropriate oral health education and promotion programs.

Key words: access to dental care; oral health; self-rated oral health; Somali

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Introduction

Somali immigrants began immigrating to the USA in the early to late 1990s (1, 2), and Minnesota is home to the largest

population of Somalis in the USA (3, 4). According to the 2000 US Census data, more than three-quarters of the Somali population in Minnesota lives in the Twin Cities and the majority live in Minneapolis (1). Like many other refugee groups, Somali refugees arrive in the USA in poor health following war, starvation, lack of safe water (5), and the need for appropriate health care. However, these immigrant refugee populations, like many minority groups in developed countries, are faced with lack of culturally sensitive general health and oral care services.

Barriers to utilization of health services by immigrant populations include poor knowledge of the structure and function of the healthcare system as well as differences in language and in their expectations about personal (6, 7) and oral health. Evidence suggests that examining adults' perception of oral health could provide important information that will lead to improvement in the public's oral health and use of healthcare services. Self-rating of oral health is an assessment of the functional, psychological, and social impact of oral disease and disorder (8) on overall well being. A single-item global self-rating is a valid, reliable measure of health and a good predictor of the use of health services (8, 9). It can be used to summarize a person's oral health status and as an oral health outcome measure (10). Cunny and Perri (9) report that in a survey where time, expertise, or funding is an issue, a single-item rating can be substituted for multi-item scales and instruments.

The National Health and Nutrition Examination Survey (NHANES III) found that about one-third of Americans aged 20 years and older rated their oral health as either poor or fair as did 46% of non-Hispanic blacks (11). Oral health care needs of the Somali community and in particular their self-rated oral health (SROH) and utilization of dental services are largely undocumented and poorly understood. To the best of our knowledge, there are no studies that have specifically examined oral health perceptions of the Somali adult population. This article presents findings from Somali adults attending a 2-week designated Somali outreach dental clinic conducted in the USA. This study grew out of a request from dental clinicians who were treating Somali patients, who wanted empirical oral health data on that population, and who wanted to provide culturally appropriate dental care to their Somali patients. The aim of this effort was to assess self-reported oral health perceptions, status and associated factors in Somali adults.

Study population and methods

This study was conducted in 2002 as part of community outreach service arrangement between the University of Minnesota Dental School (UMDS) and a Minnesota local health insurance and provider system to provide dental services to Somali residents. The project was implemented because of general health gaps among new immigrant groups in Minnesota and from anecdotal information about their perceived dental disease and difficulty accessing dental care services. Specifically, Somali residents had dental coverage, but they were still unable to secure dental appointments even after the local health insurer provided information about all registered dental providers in their community. To address this problem a 2-week designated Somali dental clinic was setup at UMDS as a venue for them to establish a dental home. Fliers, meetings with Somali community advocates, telephone calls to clients and radio announcements were made to inform the Somali residents about the clinic. Transportation was also provided for all clients who requested it.

The study employed a convenience sample as a result of financial and manpower constraints which precluded using a probability sampling method. A comprehensive oral health examination including dental X-rays was completed by the dental outreach team on each adult that attended the dental clinic. Dental caries diagnosis for the project was based on clinical and radiographic examination and recorded at the D3 level only, i.e., detectable softened floor, undermined enamel, or a softened occlusal wall, and on approximal surfaces, the explorer point must enter a lesion or the X-ray must show distinct dentin involvement. Caries experience was measured using the DMFT or DMFS index, (D) for the number of decayed teeth, (M) for missing because of caries, (F) for filled teeth because of caries, (S) for the number of decayed surfaces and (T) for teeth.

In addition, an oral health questionnaire was administered to consenting adults to collect sociodemographic information, marital status, dental visits, self-rated general health (SRGH), and SROH. Trained interpreters were available to help patients with little or no English proficiency. On average it took about 5–10 min for each patient to complete the oral health questionnaire. Statistical comparison between proportions used Fisher's exact test and comparison of means used one-way ANOVA or a two-sample *t*-test. The Institutional Review Board of the University of Minnesota approved the study.

Results

The study sample consisted of 53 adults that consented to participate (Table 1), of whom 75% were female. Patients were at least 18 years old with the oldest being over 65 years. Among these adults, 66% had 0–11 years of education and 8% had

Table 1. **Characteristics of study population**

Characteristics	Percentage of Somali adults (n = 53)
Age (years)	
18–34	59
35–49	25
50–64	7
65+	9
Sex	
Male	25
Female	75
Education (number of years in school)	
0–11 years	66
12 years	26
>12 years	8
Income	
$0–$9999	79
>$10 000	21
Self-rated general health	
Fair/poor	38
Good/excellent	62
Self-rated oral health	
Fair/poor	49
Good/excellent	51
Marital status	
Married	64
Single	25
Separated	11
Last dental visits	
≤1 year	43
2–3 years	21
Never been	36
Regular sources of dental care	
No	83
Rate access to dental care	
Fair/poor	74
Good/excellent	26
Language preference	
Speak in Somali	91
Write in Somali	90
Read in Somali	87

Table 2. **Bivariate analyses between self-rated oral health and selected predictor variables**

Characteristics	Poor/fair n (%)	Good/excellent n (%)	P
Age (years)			
18–34	12 (46)	19 (70)	NS
35–49	8 (31)	5 (19)	
50–64	2 (8)	2 (7)	
65+	4 (15)	1 (4)	
Sex			
Male	4 (15)	9 (33)	NS
Female	22 (85)	18 (67)	
Education			
0–11 years	20 (77)	15 (56)	NS
12 years	5 (19)	9 (33)	
>12 years	1 (4)	3 (11)	
Last dental visits			
<1 year	12 (46)	11 (41)	NS
2–3 years	5 (19)	6 (22)	
Never been	9 (35)	10 (37)	
Self-reported general health			
Fair/poor	15 (58)	5 (19)	<0.01
Good/excellent	11 (42)	22 (81)	
Marital status			
Married	13 (50)	21 (78)	0.05
Single	10 (38)	3 (11)	
Separated	3 (12)	3 (11)	
Income			
$0–$9999	19 (70)	23 (85)	NS
>$10 000	7 (30)	4 (15)	

NS, not significant.

over 12 years. Most patients reported that they preferred to speak (91%), write (90%) and read (87%) in Somali. Forty-nine percent reported fair/poor oral health, 38% reported poor/fair general health and 83% reported not having a regular source of dental care. When asked to rate their access to dental services, 74% rated it as poor/fair and only 43% had seen a dentist in the previous 12 months.

Table 2 presents results of the bivariate analysis testing associations between SROH and selected patient characteristics. SROH was associated with marital status (P = 0.05) and SRGH (P = 0.01) using Fisher's exact test. Persons with good or excellent SROH were more likely to be married than people with fair or poor SROH (77.8% versus 50.0%; P = 0.05).

Table 3 presents caries experience and treatment need measured by mean DMFS, DMFT, DT and FT scores by selected patient characteristics. The mean DMFS ranged from 11.4 to 27.2 and mean DMFT ranged from 8.3 to 12.2 in 18–34 year olds to the over 65 s. Females and those who reported that they earn <$9999 had higher dental caries experience and treatment need. Patients with >12 years of education had lower caries experience and treatment need except in the mean number of FT. Those who had never been to the dentist had slightly lower mean DMFS, mean DMFT and mean FT. Persons rating their general health as good/excellent had lower mean DMFT, DMFS, DT and FT compared with those rating their general health as poor/fair. However none of the differences were statistically significant.

Discussion

For a variety of reasons, the USA has become home for many immigrant populations, notwithstanding the challenge of becoming acculturated to the American lifestyle. However, there is the need to understand how these immigrant groups rate their health and oral health and their access to appropriate health and oral health care services. To the best of our knowledge, this study is the first to describe SROH status and dental caries experience of a Somali adult population in either the USA or Somalia. Although the study used a convenience

Table 3. **DMFS, DMFT, DT, and FT by patient characteristics**

Characteristic	Number (%)	Mean DMFS (SE)	Mean DMFT (SE)	Mean DT (SE)	Mean FT (SE)
Age (years)					
18–34	31 (59)	11.4 (2.7)	8.3 (1.4)	5.2 (0.8)	1.3 (0.5)
35–49	13 (25)	18.1 (4.2)	12.4 (2.2)	7.3 (1.3)	1.9 (0.7)
50–64	4 (7)	11.0 (7.5)	6.8 (4.0)	3.2 (2.3)	1.0 (1.3)
65+	5 (9)	27.2 (6.7)	12.2 (3.6)	2.2 (2.0)	1.8 (1.1)
Sex					
Male	13 (25)	11.5 (4.3)	7.1 (2.2)	3.2 (1.3)	0.8 (0.7)
Female	40 (75)	15.4 (2.5)	10.3 (1.3)	6.0 (0.7)	1.7 (0.4)
Marital status					
Married	34 (64)	14.6 (2.6)	9.9 (1.3)	5.8 (0.8)	1.8 (0.4)
Single	13 (25)	19.2 (4.2)	11.4 (2.2)	5.2 (1.3)	1.2 (0.7)
Separated	6 (11)	6.0 (3.7)	3.5 (3.2)	2.3 (1.9)	0.2 (1.0)
Last dental visits					
<1 year	23 (43)	12.0 (2.80)	11.3 (1.7)	5.3 (1.0)	1.9 (0.5)
2–3 years	11 (21)	12.2 (3.40)	8.1 (2.4)	5.2 (1.4)	1.6 (0.7)
Never been	19 (36)	11.5 (5.70)	8.1 (1.9)	5.4 (1.1)	0.7 (0.6)
Education					
0–11 years	35 (66)	15.1 (2.6)	9.9 (1.4)	5.4 (0.8)	1.0 (0.4)
12 years	14 (26)	15.5 (4.1)	9.9 (2.2)	5.9 (1.2)	2.6 (0.6)
>12 years	4 (8)	5.2 (7.8)	5.2 (4.0)	2.0 (2.3)	1.2 (1.2)
Income					
$0–$9999	42 (79)	15.3 (2.4)	9.8 (1.2)	5.4 (0.7)	1.5 (0.4)
>$10 000	11 (21)	12.5 (4.9)	9.4 (2.5)	5.3 (1.5)	1.4 (0.8)
Self-rated oral health					
Poor/fair	26 (49)	16.0 (3.0)	9.7 (1.6)	4.7 (0.9)	1.5 (0.5)
Excellent/good	27 (51)	13.0 (3.0)	9.4 (1.6)	5.8 (0.9)	1.5 (0.5)
Self-rated general health					
Poor/fair	20 (38)	19.1 (3.4)	11.3 (1.8)	5.5 (1.0)	1.7 (0.6)
Excellent/good	33 (62)	11.7 (2.6)	8.5 (1.4)	5.1 (0.8)	1.3 (0.4)

sample, it nonetheless provides some baseline data on the oral health of Somali adults beyond anecdotal information.

In this study 51% of the participants rated their oral health as good/excellent. In the third National Health and Nutrition Examination Survey (NHANES III) 41.3% of blacks below the Federal Poverty Line (FPL) rated their oral health as good compared with 54.3% of those at or above FPL (11). According to the finding in NHANES III, our study indicates a slightly lower percentage of Somali adults who rated their oral health as good/excellent compared with blacks at or above FPL. Somali adults in this study are all Medicaid enrollees and could also be recent immigrants who are less well acculturated and still considered their oral health as good/excellent irrespective of the dentists' perception of their oral health following a dental examination. However, our study finding still provides a valuable insight into the oral health care needs and services use of Somali immigrants. Additionally, the SROH information could also aid provider–patient communication and can be used to monitor treatment efficacy (12). An implication of this finding is the need to maintain and improve oral health education and awareness for the Somali community as an avenue for them to seek and accept the benefits of available primary dental prevention in the USA.

The results of this study show that SRGH and marital status were significantly associated with SROH. This finding supports some of Atchison and Gift's results that good oral health predictors include race/ethnicity, education, perceived general health, fewer oral symptoms and having one or more dental visits (13). Dental visits within the preceding 12 months are often used as a measure of dental service utilization. In our study slightly less than half of the study participants reported a dental visit in the previous year, and over one-third of the participants had never been to a dental office. A national survey in the USA indicates that only 26.6% of low income individuals had an annual dental visit compared with 66.7% of high income individuals (14). Although, the Somali populations in this study are all Medicaid enrollees; they reported a higher percent of annual dental visits in comparison with the low-income adults in the national survey. The reasons for this finding are beyond the scope of this study; nonetheless, one can say that the study participants were active seeker of oral health care. We also found that 83% of the Somali patients in this study rated their access to dental care as poor/fair. This was not unexpected given that the study participants were already experiencing difficulty accessing dental care. Because of the difficulty experienced by Somali immigrants that the School of

Dentistry and the Minnesota local health insurance and provider system organized the Somali dental outreach clinic as an opportunity to link them with a dental home.

An individual's social and cultural context could influence how health and oral healthcare services are rated or valued. Many immigrants still prefer to maintain their culture of origin, even when the expectations over time are that immigrant families will become acculturated. In this study a majority of the adult patients surveyed still prefer to speak, read and write in the Somali language. This finding is important in the communication process between patients and providers. Therefore, to prevent patient–doctor conflicts, providers should recognize that Somali immigrants have unique cultural needs, speak different languages and religious beliefs which should be considered during treatment planning and informed consent processes. In 2000, a study conducted in Minneapolis-St Paul using focus-groups of Hispanic, Hmong, Russian and Somali immigrants indicated that 74% of the respondents identified with their native culture more than the American culture (1). Thirty-eight percent preferred to speak their language and to live according to the ways of their culture (1). These findings emphasize the need for cultural awareness and sensitivity by dental health care providers as well as health care providers dealing with different immigrant groups.

In this study, caries experience and treatment need decreased with increase in education and income levels, similar to what is reported in other national and local studies of the general population. However, the dental caries experience of this ethnic minority population is still poorly understood. According to the information compiled by Beveridge, Somalis do not use toothbrushes; instead, they use a stick collected from the branches of a tree called 'Roomay' found in Somalia, which has become readily available in African grocery shops in Minnesota (15). Although the use of a toothbrush with fluoridated paste is widely advertised in the USA, efforts should be made as part of an oral health promotion program to educate the Somali community about the benefits of using toothbrushes with fluoridated toothpaste. Additional, research should also be conducted to identify and document any benefits associated with the Roomay stick used by the Somalis.

Certain study limitations and strengths should be noted. First, we used a convenience sample of persons receiving public assistance for dental care and who are experiencing difficulty accessing dental care services in Minnesota. Second, the study participants may have more dental disease than the average Somali person living in the USA; therefore, our findings are not generalizable to the whole Somali adult population. However, the Somali patients who participated in this study are at best fairly representative of the Somali Medicaid population living in Minnesota. In addition, in the absence of any other data this study could serve as baseline information on the oral health of Somali immigrant population. In conclusion, a substantial proportion of Somali adults rated their oral health and dental care access as poor/fair. These findings require that a culturally appropriate oral health education and promotion program be encouraged to aid in providing restorative and preventive therapy to meet their dental needs.

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