Research

Measuring Oral Health Literacy of Refugees: Associations with Dental Care Utilization and Oral Health Self-Efficacy

Amira Elkerdany, RDH, MS; JoAnn Gurenlian, RDH, MS, PhD, AFAAOM;
Jacqueline Freudenthal, RDH, MS

Abstract

Purpose: The purpose of this study was to analyze associations between the oral health literacy of refugees and two oral health outcomes: dental care utilization and oral health self-efficacy.

Methods: A convenience sample of refugees in the greater Los Angeles area attending English as a second language (ESL) classes sponsored by two refugee assistance organizations was used for this cross-sectional, correlational study. Participants responded to a questionnaire using items from the Health Literacy in Dentistry (HeLD) scale, in addition to items concerning dental care utilization and oral health self-efficacy. Descriptive statistics, chi-square and Fisher's Exact tests were used to analyze results.

Results: Sixty-two refugees volunteered to participate (n=62). A majority of the respondents were female from Iraq or Syria, and selected the item "with little difficulty" for all oral health literacy tasks. In regards to dental care utilization, more than half of the respondents were considered high utilizers (63%, n=34) meaning they had visited a dental office within the last year; while a little more than one-third (37%, n=20), were low utilizers, indicating they had either never been to a dental office or it had been more than one year since they had dental treatment. Statistical analysis showed associations between oral health literacy and dental care utilization. However, few associations between oral health literacy and oral health self-efficacy were identified (p=0.0045).

Conclusions: Results support the provision of easily obtainable and understandable oral health information to increase oral health literacy and dental care utilization among refugee populations. Future research is needed to examine the oral health literacy among refugees resettling in the United States.

Keywords: oral health literacy, health literacy, dental care utilization, oral health self-efficacy, dental public health, refugees

This manuscript supports the NDHRA priority area, **Population level: Access to care** (vulnerable populations).

Submitted for publication: 12/14/18; accepted:10/20/19

Introduction

There is a global crisis in regards to the number of people displaced from their homeland as a result of war and persecution. An estimated one in every 113 people around the world are fleeing for their lives,[1,2] marking the largest flow of refugees since the second world war.[1] Little has been reported in the literature regarding the oral health literacy of refugees. Identifying deficiencies in oral health literacy among refugees may help dental hygienists take the necessary steps to address this problem and in turn, have a positive impact on the overall oral health status of refugees. Dental care utilization and oral health self-efficacy may also be improved with increased oral health literacy.

Oral health literacy has been defined as "the degree to which individuals have the capacity to obtain, process, and understand basic oral health information and services needed to make appropriate health decisions."[3] Reading, writing, numeracy, speaking, and listening are considered part of oral heath literacy.[3] For the purposes of this study, dental care utilization is defined as use of dental services (dental examinations and dental treatment), while oral health self-efficacy is defined as "an individual's confidence in knowing how to prevent dental caries and periodontal disease."[4]

Health literacy can be evaluated as functional or comprehensive. Functional health literacy is the ability

to read information and instructions about health,[5] while comprehensive health literacy is the ability to apply health knowledge in order to make appropriate judgments and decisions regarding one's health.[6] In a cross-sectional study of adult refugees from Syria, Somalia, Afghanistan and Iraq relocated to Sweden, Wångdahl et al. found about 80% of the participants had inadequate or limited functional health literacy and 62% had inadequate or low comprehensive health literacy.[7] Twelve months later, a second study was conducted during the refugees' health examinations to identify relationships between low health literacy (functional and comprehensive) and communication.[8] Associations were found between inadequate functional and comprehensive health literacy, and poor quality of communication between participants and providers.[8] Participants struggled with receiving new knowledge or help regarding their health problems, which presented a barrier to care.[8] Participants did not find the health examinations useful, nor did they feel they acquired new knowledge about their health as a result of having a health examination.[8]

The literature has shown that refugees have more oral diseases and limited access to oral health care services as compared to the most underprivileged populations within the host country.[9,-13] Geltman et al. studied adult Somali refugees residing in Massachusetts for ten years or less and found 74% of the study population to have low health literacy.[14] Further analysis revealed refugees living in the United States five or more years had higher health literacy scores and were more likely to utilize preventive dental care, while those participants with low health literacy scores were more likely to adopt a poor Western diet and were less likely to pursue preventive dental care.[14] Additionally, participants with low health literacy scores were more likely to be less acculturated, the process by which immigrants adopt the cultural practices of their host country.[14] However, lower literacy scores in this study population were not significantly associated with decayed teeth.[14]

After careful examination of the same data set one year later, Geltman et al. concluded health literacy was not the only predictor for seeking preventive dental care, and identified acculturation as the primary driving force for utilizing preventive care.[15] Participants with high acculturation levels reported significantly higher preventive dental care visits.[15] The authors hypothesized that the acculturation process exposes refugees to notions of preventive dental care prevalent within the United States.[15] Additional studies examining the relationship between acculturation, oral health status, oral health knowledge, and frequency of dental visits among Vietnamese immigrants living in Melbourne, Australia also revealed that immigrants with higher acculturation had less decay, better oral health knowledge, and were more likely to utilize oral health services in the past twelve months.[16]

In addressing oral health literacy, an Australian study examined refugee children from Iraq, Lebanon, and Pakistan.[17] Refugee mothers were surveyed to identify the relationship between sociocultural factors and oral health literacy on the oral health outcomes of their children. Results demonstrated a relationship between poor oral health literacy of the mother and the oral health outcomes identified in their children.[17] While all participants identified children's oral health as important, many stated their child's oral health status had worsened after being resettled in Australia, and many blamed the new diet as the cause.[17] The authors' hypothesized that the poor oral health status of the refugee children might be associated with a lack of awareness of dental disease and beneficial oral hygiene practices, combined with dietary changes.[17]

Similarly, a comprehensive review of the literature regarding the oral health status of immigrant and refugee children in North America, showed poorer oral health among children of recent immigrants compared with children of Canadian-born parents.[18] Low health literacy among parents was shown as a barrier to dental care for children and a possible reason for poorer oral health.[18] Recommendations for improving oral health literacy included making educational materials available in the immigrants' native language, and focusing oral health education on the parents.[18] Other barriers to care included language, cost of care, lack of dental insurance, and proximity of dental offices; all of which contribute to poorer oral health outcomes among refugees and immigrants.[18]

Perceptions of the importance of dental care during pregnancy were examined in a qualitative Australian study conducted with Afghan and Sri Lankan refugees.[19] Focus group questions included dental care during pregnancy, navigating dental services, and maternal oral health literacy.[19] Incorrect perceptions were identified in regards to dental care during pregnancy, the link between maternal oral health and infant oral health, in addition to difficulty navigating dental services.[19] While no specific tool was used to measure oral health literacy, the researchers identified the participants as having low maternal oral health literacy.[19]

Little has been reported in the literature regarding oral health literacy specifically in immigrant and refugee populations. However, currently available literature indicates a promising relationship between adequate oral health literacy and positive oral health outcomes. More research is needed to identify whether immigrants and refugees, regardless of

country of origin, possess lower oral health literacy skills, and whether their level of oral health literacy affects their oral health outcomes. The purpose of this study was to analyze the association between the oral health literacy of refugees resettled in the greater Los Angeles area and two specific oral health outcomes: dental care utilization and oral health self-efficacy.

Methods

This cross-sectional, correlational study used a convenience sample of refugees resettled within the past 10 years attending ESL classes at Interfaith Refugee and Immigration Services (IRIS), and Access California Services (ACS) in the greater Los Angeles area. The sample size consisted of 62 participants. This study was approved by the Human Subjects Committee, Institutional Review Board (IRB-FY2018-278) at Idaho State University.

Oral health literacy was assessed using a validated instrument known as the Health Literacy in Dentistry scale (HeLD).[20,21] The HeLD scale is an instrument that measures oral health literacy across seven domains: 1) communication, 2) access, 3) receptivity, 4) understanding, 5) utilization, 6) support, and 7) economic barriers.[20] The following subscales were relevant for this study: understanding, access, communication, and utilization. Each oral health literacy item was ranked on a 5-point Likert scale ranging from 0 to 4, with a possible score range of 0 to 44. Higher scores indicated minimal difficulty performing the task described by the subscale item, (suggestive of higher oral health literacy), while lower scores indicated difficulty performing the task, and thus, lower oral health literacy. One question was added regarding dental care utilization,[4] and four questions were added regarding oral health self-efficacy.[22] Demographic questions were limited to age, gender, country of origin, and year of resettlement. The principal investigator (PI) was advised by a Refugee Health Assessment Program Coordinator against asking highly personal questions such as level of education and employment, due to the possibility of triggering feelings of shame or overall insecurity regarding the participants' sense of safety as a refugee. Participants had been provided MediCal dental insurance as part of their refugee resettlement, therefore questions regarding dental insurance were not included in the demographics. A content validity index (CVI),[23] test, and re-test procedures were pilot-tested among experts in the field prior to administration of the survey. The survey items were found to be highly relevant and consistent. The 20-item instrument consisted of four demographic questions, eleven oral health literacy questions, one dental care utilization question, and four oral health self-efficacy questions and was designed to be administered on paper in English, Spanish, Arabic, and Farsi. Survey translations were completed by either a dental assistant or dental hygienist who was bilingual in English and the language of translation. Languages of translation were based on the California Department of Social Services' data indicating the greatest number of refugees resettled in Los Angeles County from 2012-2016 were from Iran (5,973) and Iraq (1,408).[24] Additional data from Access California Services' data indicated an influx of refugees from Central America during the same period of time.

Surveys were administered by the PI to refugees attending ESL classes offered through IRIS or ACS. Volunteer participants indicated their preferred language for informed consent and the 15-minute survey. Surveys completed in a language other than English were back-translated by dental professionals prior to data analysis. A brief oral health lesson was also presented by the PI following administration of the survey. Each attendee, regardless of whether they participated in the study, attended the oral health lesson and received information about locally available dental services and received an oral hygiene kit containing a toothbrush and fluoride toothpaste donated by Colgate®.

Demographic data was reported as descriptive statistics; chi-square tests were performed to evaluate associations of oral health literacy with dental care utilization and oral health literacy with oral health self-efficacy. The small cell frequencies presented a challenge with the inferential statistical analysis, therefore Fisher's Exact Test was performed. To correct for type-1 error, a family wise rate using a Bonferroni correction was made. The level of significance was established at $p = 0.0045$ to account for some of the low cell frequencies.

Results

Seventy-five attendees, between the two sites, were present and available to participate; 62 chose to participate yielding a response rate of 82.6% (n=62). All participants were over the age of 18 years, and most were female. The most common countries of origin represented were Iraq and Syria. No additional demographic variables were obtained, in order to preserve the participants' privacy. Demographic information is shown in Table I. Regarding oral health literacy, most respondents selected the item "with little difficulty" for all oral health literacy tasks. Oral health literacy responses are shown in Table II.

Dental care utilization was assessed by survey items inquiring when the last dental exam or treatment appointment (including a dental cleaning) occurred. Of the respondents to this item, over one-half (n=34, 63%) were considered high

Table I. Participant demographics

Gender	n=62	%
Male	26	41.90%
Female	36	58.10%
Country of Origin	**n=62**	**%**
Iraq	14	23.00%
Syria	14	23.00%
Afghanistan	6	9.80%
Egypt	6	9.80%
Iran	5	8.20%
Mexico	4	6.60%
Lebanon	3	4.90%
Jordan	2	3.30%
Vietnam	2	3.30%
Sudan	1	1.60%
Philippines	1	1.60%
Romania	1	1.60%
India	1	1.60%
Eritrea	1	1.60%

utilizers, meaning they had visited a dental office within the last year, while a little more than one-third (n=20, 37%) were low utilizers indicating they had either never been to a dental office or it had been more than one year since they had received any kind of dental treatment. The majority of respondents felt confident in their ability to clean their teeth properly and prevent tooth decay. Frequency of responses related to oral health self-efficacy are shown in Table III.

Chi-square associations between responses were statistically significant, with the exception of oral health literacy items 7 and 9, indicating assoc-iations between oral health literacy and dental care utilization among this population. Associations were found among those who responded at either end of the oral health literacy response choices, such as "I don't go to the dentist" or "with little difficulty" and response choices regarding dental care utilization. Associations of oral health literacy responses with dental care utilization responses are shown in Table IV.

Statistical significance was found between oral health literacy and confidence in knowing how to brush one's teeth, clean in between one's teeth, and confidence in knowing how to avoid foods that lead to tooth decay. Associations of oral health literacy responses with oral health self-efficacy are presented in Table V.

Discussion

Several studies have reported an association between oral health literacy and dental care utilization.[15,16,22,25-28] Low oral health literacy was not associated with the number of dental care visits or dental care utilization among adult patients seeking care at two private dental practices in North Carolina,[25,26] or with a group of Belarusian adult patients seeking dental care at an urban hospital,[27] nor among adult patients at two university-based dental clinics in Maryland and California.[22] Two additional studies examining refugees' oral health care practices identified acculturation as the primary predictor for dental care utilization, as opposed to oral health literacy.[15,16] Regarding oral health self-efficacy, one study identified an association between high oral health self-efficacy and high oral health literacy,[22] while another did not identify an association between oral health self-efficacy and oral health literacy.[28] Results from of this study of refugees in the greater Los Angeles area, contradict those previously presented in the literature, which do not indicate an association between oral health literacy and dental care utilization.

Associations between oral health literacy and dental care utilization were identified through statistical analysis, however there were few associations found between oral health literacy and oral health self-efficacy. Participants reporting high utilization of dental care services tended to have higher oral health literacy scores and those who reported visiting the dentist within the past year indicated little difficulty in completing the oral health literacy tasks. Conversely, participants who reported low utilization of dental care services tended to have lower oral health literacy scores and expressed greater difficulty in completing the oral health literacy tasks. Increased exposure to dental care services, including oral health education, appears to be linked to an increased ability to obtain, process, and understand the basic oral health information and services needed to make appropriate oral health decisions.

Similar to other studies found in the literature,[28] there were little to no associations identified between oral health literacy and oral health self-efficacy. No associations were found between oral health literacy and confidence in knowing how to use fluoride toothpastes and rinses properly, despite the findings that the majority of the participants indicated confidence in this specific oral health self-efficacy item. Of the few associations identified in this study, the ability to change to a different dentist to get better dental care was associated with the participants feeling confident in knowing how to brush and clean in between their teeth properly and knowing how to avoid foods that can cause tooth decay. The ability to change oral health care providers in order to receive better care demonstrates a more advanced level of oral health literacy that involves making appropriate decisions about one's health. It is understandable to see why an association may exist between this oral health literacy item, and the high level of confidence reported in the ability to prevent dental disease.

Table II. Oral health literacy

Survey Item and Responses	n	%
OHL1. Are you able to fill in dental forms (example: health forms)? (n=62)		
"I don't go to the dentist"	7	11.30%
"Unable to do so"	3	4.80%
"Very difficult"	1	1.60%
"With some difficulty"	8	12.90%
"With little difficulty"	43	69.40%
OHL2. Are you able to read information (example: brochures) given to you by your dentist? (n=60)		
"I don't go to the dentist"	6	10.00%
"Unable to do so"	4	6.70%
"Very difficult"	1	1.70%
"With some difficulty"	6	10.00%
"With little difficulty"	43	71.30%
OHL3. Do you know how to get a dentist's appointment? (n=62)		
"I don't go to the dentist"	6	9.70%
"Unable to do so"	3	4.80%
"Very difficult"	3	4.80%
"With some difficulty"	5	8.10%
"With little difficulty"	45	72.60%
OHL4. Do you know where you can see a dentist? (n=62)		
"I don't go to the dentist"	7	11.30%
"Unable to do so"	3	4.80%
"Very difficult"	3	4.80%
"With some difficulty"	7	11.30%
"With little difficulty"	42	67.70%
OHL5. Are you able to ask a dentist questions to help you understand dental information? (n=61)		
"I don't go to the dentist"	6	9.80%
"Unable to do so"	3	4.90%
"Very difficult"	3	4.90%
"With some difficulty"	8	13.10%
"With little difficulty"	41	67.20%
OHL6. Are you able to get the information you need when seeing a dentist? (n=60)		
"I don't go to the dentist"	7	11.70%
"Unable to do so"	2	3.30%
"Very difficult"	6	10.00%
"With some difficulty"	8	13.30%
"With little difficulty"	37	61.70%

Survey Item and Responses	n	%
OHL7. Are you able to change to a different dentist to get better dental care? (n=60)		
"I don't go to the dentist"	7	11.70%
"Unable to do so"	3	5.00%
"Very difficult"	1	1.70%
"With some difficulty"	10	16.70%
"With little difficulty"	39	65.00%
OHL8. Are you able to use information from a dentist to make decisions about your dental health? (n=60)		
"I don't go to the dentist"	6	10.00%
"Unable to do so"	3	5.00%
"Very difficult"	0	0.00%
"With some difficulty"	6	10.00%
"With little difficulty"	45	75.00%
OHL9. Are you able to discuss your dental or oral health with people other than a dentist? (n=59)		
"I don't go to the dentist"	6	10.20%
"Unable to do so"	11	18.60%
"Very difficult"	1	1.70%
"With some difficulty"	4	6.80%
"With little difficulty"	37	62.70%
OHL10. Are you able to understand instructions that a dentist gives you? (n=58)		
"I don't go to the dentist"	7	12.10%
"Unable to do so"	3	5.20%
"Very difficult"	2	3.40%
"With some difficulty"	6	10.30%
"With little difficulty"	40	69.00%
OHL11. Are you able to carry out instructions that a dentist gives you? (n=60)		
"I don't go to the dentist"	7	11.70%
"Unable to do so"	3	5.00%
"Very difficult"	1	1.70%
"With some difficulty"	4	6.70%
"With little difficulty"	45	75.00%

Table III. Oral health self-efficacy

Survey Item and Responses	n	%
SE1. How confident are you that you know how to brush your teeth properly? (n=61)		
"Unsure"	9	14.80%
"Not Confident"	8	13.10%
"Confident"	44	72.01%
SE2. How confident are you that you know how to clean in between your teeth properly? (n=61)		
"Unsure"	10	16.40%
"Not Confident"	12	19.70%
"Confident"	39	63.90%
SE3. How confident are you that you know how to properly use fluoride toothpastes or fluoride mouth rinses? (n=61)		
"Unsure"	5	8.20%
"Not Confident"	16	26.20%
"Confident"	40	65.60%
SE4. How confident are you that you can avoid foods that lead to tooth decay/cavities ("rotting teeth")? (n=61)		
"Unsure"	8	13.10%
"Not Confident"	17	27.90%
"Confident"	36	59.00%

Table IV. Oral health literacy and dental care utilization

Item	value	df	*p*-value
OHL1	14.88	4	0.00*
OHL2	13.76	3	0.00*
OHL3	14.09	4	0.00*
OHL4	13.43	4	0.00*
OHL5	12.64	4	0.00*
OHL6	13.10	4	0.00*
OHL7	11.69	4	0.01
OHL8	13.55	3	0.00*
OHL9	7.47	4	0.07
OHL10	12.66	4	0.00*
OHL11	16.57	4	0.00*

* Significance established at $p = 0.0045$

Table V. Oral health literacy and oral health self-efficacy

Item	SE1			SE2			SE3			SE4		
OHL	**value**	**df**	***p*-value**	**value**	**df**	***p*-value**	**value**	**df**	***p*-value**	**value**	**df**	***p*-value**
1	14.38	8	0.03	16.80	8	0.01	12.63	8	0.07	15.02	8	0.02
2	10.84	8	0.12	12.57	8	0.05	7.08	8	0.52	12.91	8	0.05
3	10.46	8	0.12	21.20	8	0.00*	11.62	8	0.09	14.78	8	0.02
4	10.09	8	0.22	15.41	8	0.01	11.69	8	0.09	14.28	8	0.02
5	14.75	8	0.02	18.46	8	0.00*	17.19	8	0.01	16.59	8	0.01
6	26.07	8	0.00*	17.00	8	0.01	14.40	8	0.03	17.40	8	0.01
7	24.70	8	0.00*	22.36	8	0.00*	16.63	8	0.01	19.42	8	0.00*
8	14.14	6	0.01	15.89	6	0.00*	10.46	6	0.05	18.64	6	0.00*
9	19.16	8	0.00*	15.66	8	0.01	14.31	8	0.03	16.92	8	0.01
10	14.53	8	0.02	18.46	8	0.00*	15.46	8	0.02	18.67	8	0.00*
11	15.64	8	0.02	15.28	8	0.01	9.22	8	0.25	14.50	8	0.02

* Significance established at $p = 0.0045$

Additionally, an association exists between feeling confident in knowing how to brush one's teeth and being able to get the information needed when seeing a dentist as well as discussing one's oral health with people other than a dentist. Associations also exist between feeling confident in knowing how to clean in between one's teeth and the following oral health literacy tasks: knowing how to get a dental appointment, being able to ask a dentist questions in order to better understand dental information, using information from a dentist to make decisions, and understanding instructions from a dentist. Finally, associations were found between the participants' confidence in knowing how to avoid foods that lead to tooth decay and using information from a dentist to make decisions in addition to understanding instructions from a dentist. It may be that learning how to brush and clean between one's teeth properly as well as avoiding foods that lead to tooth decay is a consequence of getting the information needed when seeing a dentist, which includes the ability to ask the dentist appropriate questions in order to fully understand the information being presented. It is logical to conclude that this could lead to improved decision-making skills and the ability to discuss one's oral health with others.

Study findings indicate that refugee participants who are able to obtain, process, understand, and act on oral health information with little difficulty, are also higher utilizers of dental care services; thus, they are more adept in managing oral disease and improving their oral health outcomes. Oral health care practitioners must provide easily obtainable oral health information that can be understood by these populations. There is a need for more educational materials available in the various languages spoken by refugees settling in any given geographic area. Oral health advocates are needed to work with refugee assistance organizations to help navigate the complicated oral healthcare delivery system in addition to educating refugees on disease prevention strategies. Developing relationships between refugee assistance organizations and Federally Qualified Health Centers providing dental services could be a natural first step in the process towards increasing oral health literacy, dental care utilization, and oral health self-efficacy among refugee populations.

Limitations of this study included refugees resettled within the past ten years, in the greater Los Angeles area of California. Refugees located in other regions, or who have been resettled for greater than ten years, were not studied. Additionally, this study was limited to refugees attending ESL classes, and refugees not affiliated with an adult education program such as ESL. Furthermore, attending an ESL class may suggest the individual is attempting to adapt or acculturate to society, and may have influenced the findings. Attempting to acculturate and adopt "Western" beliefs regarding oral health could explain why most of the participants selected the item "with little difficulty" for all oral health literacy tasks, in addition to reporting confidence in their ability to properly clean their teeth and prevent tooth decay. Acculturation may also explain why over one-half of the participants had visited a dental office within the last year, categorizing them as high utilizers of dental care. Demographic information was limited in order to reduce apprehension, security, and feelings of shame of the participants, particularly in regards to questions determining the level of education. However, concerns regarding the nature of the study discouraged some refugees from participating and impacted the sample size. The brevity and close-ended style of the survey instrument also acted as a limitation, preventing participants from providing additional answers or explanations. The survey instrument was only available in four languages: English, Spanish, Arabic, and Farsi; therefore, refugees who were unable to read these languages were excluded from the study.

Future research should include replicating this study to identify whether the results support the literature as well as further examining associations between dental care utilization and oral health self-efficacy. The majority of the study participants were originally from Iraq and Syria; expansion of this study should include a larger and more diverse refugee population. Additional considerations include intervention studies involving participation in an oral health program and its effect on oral health literacy, dental care utilization, and oral health self-efficacy. Additional qualitative studies could further explore aspects of oral health literacy, along with studies measuring participants' ability to properly carry out preventive behaviors such as toothbrushing and interproximal cleaning. Acculturation has been noted in the literature as a driving force for utilization of preventive services and developing preventive behaviors. Future studies should measure associations between acculturation, oral health literacy, and oral health outcomes among refugees. Finally, the need for culturally competent health care providers has driven research towards measuring the confidence of clinicians in treating culturally diverse refugee patients.[29] Future efforts should also focus on preparing dental hygienists to work with refugee patient populations.

Conclusion

The purpose of this study was to assess associations between oral health literacy, dental care utilization, and oral health self-efficacy among refugees living in the greater Los Angeles area. Associations were found between oral health literacy and dental care utilization. Few associations were found between

oral health literacy and oral health self-efficacy. Future research is needed to examine the oral health literacy and various oral health outcomes among refugees resettled in the United States. Findings from expanded research on these initial findings can be used to prepare dental hygienists to work with refugee populations to improve their oral health outcomes.

Amira Elkerdany, RDH, MS is an instructor in the Department of Dental Hygiene, Oxnard College, Oxnard, CA.

JoAnn Gurenlian, RDH, MS, PhD, AFAAOM is a professor and graduate program director; ***Jacqueline Freudenthal, RDH, MS*** is a professor and program chair; both in the Department of Dental Hygiene, Idaho State University, Pocatello, ID.

Corresponding author: Amira Elkerdany, RDH, MS; amira_elkerdany1@vcccd.edu

References

1. United Nations High Commissioner for Refugees (UNHCR). Global trends: forced displacement in 2015 [Internet]. Geneva: United Nations High Commissioner for Refugees; 2016 Jun [cited 2018 Jul 28]. 68 p. Available from: http://www.unhcr.org/en-us/statistics/unhcrstats/576408cd7/unhcr-global-trends-2015.html
2. Miliband D. Rescue: refugees and the political crisis of our time. New York: TED Books; 2017. 136p
3. NICDR. The invisible barrier: literacy and its relationship with oral health. J Public Health Dent. 2005 Summer;65(3):174-82.
4. Macek MD, Atchison KA, Watson MR. Assessing health literacy and oral health: preliminary results of a multi-site investigation. J Public Health Dent. 2016 Apr 29: 76(4):303-13.
5. Nutbeam D. The evolving concept of health literacy. Soc Sci Med. 2008 Dec;67(12):2072-8.
6. Sorensen K, Broucke SV, Fullam J. Health literacy and public health: a systematic review and integration of definitions and models. BMC Public Health. 2012 Jan 25;12(1):80-93.
7. Wångdahl J, Lytsy P, Mårtensson L. Health literacy among refugees in Sweden - a cross-sectional study. BMC Public Health. 2014 Oct 3;14(1):1030-43.
8. Wångdahl J, Lytsy P, Mårtensson L. Health literacy and refugees' experiences of the health examination for asylum seekers - a Swedish cross-sectional study. BMC Public Health. 2015 Nov 23;15(1):1162-74.
9. Keboa MT, Hiles N, Macdonald ME. The oral health of refugees and asylum seekers: a scoping review. Global Health. 2016 Oct 7;12(1):59-70.
10. Singh HK, Scott TE, Henshaw MM. Oral health status of refugee torture survivors seeking care in the United States. Am J of Public Health. 2008 Dec;98(12):2181-2.
11. Ghiabi E, Matthews DC, Smith Brilliant M. The oral health status of recent immigrants and refugees in Nova Scotia, Canada. J Immigr Minor Health. 2013 Jan 31;16(1):95-101.
12. Okunseri C, Yang M, Gonzalez C. Hmong adults self-rated oral health: a pilot study. J Immigr Minor Health [Internet]. 2007 Jun 2;10(1):81-8.
13. Mattila A, Ghaderi P, Tervonen L. Self-reported oral health and use of dental services among asylum seekers and immigrants in Finland--a pilot study. Eur J Public Health. 2016 Aug 18;26(6):1006-10.
14. Geltman PL, Adams JH, Cochran J. The impact of functional health literacy and acculturation on the oral health status of Somali refugees living in Massachusetts. Am J Public Health. 2013 Aug;103(8):1516-23.
15. Geltman PL, Adams JH, Penrose KL. Health literacy, acculturation, and the use of preventive oral health care by Somali refugees living in Massachusetts. J Immigr Minor Health. 2007 Jun 2;10(1):81-8.
16. Mariño R, Stuart GW, Wright FA. Acculturation and dental health among Vietnamese living in Melbourne, Australia. Community Dent Oral Epidemiol. 2001 Apr;29(2):107-19.
17. Riggs E, Gibbs L, Kilpatrick N. Breaking down the barriers: A qualitative study to understand child oral health in refugee and migrant communities in Australia. Ethn Health. 2014 Apr 17;20(3):241-57.
18. Reza M, Amin M, Sgro A. Oral health status of immigrant and refugee children in North America: A scoping review. J Can Dent Assoc. 2016 Feb;82(g3):1-18.
19. Riggs E, Yelland J, Shankumar R. "We are all scared for the baby": promoting access to dental services for refugee background women during pregnancy. BMC Pregnancy Childbirth. 2016 Jan 21;16(12):1-11.
20. Jones K, Parker E, Mills H. Development and psychometric validation of a Health Literacy in Dentistry scale (HeLD). Community Dent Health. 2014 Mar;31(1):37-43.

21. Ju X, Brennan DS, Parker E. Confirmatory factor analysis of the Health Literacy in Dentistry scale (HeLD) in the Australian population. Community Dent Health. 2018 Aug 30;35(3):140-7.

22. Macek MD, Atchison KA, Chen H. Oral health conceptual knowledge and its relationships with oral health outcomes: findings from a multi-site health literacy study. Community Dent Oral Epidemiol. 2017 Aug;45(4):323–9.

23. Wynd CA, Schmidt B, Schaefer MA. Two quantitative approaches for estimating content validity. West J Nurs Res. 2003 Aug; 25(5):508-518.

24. CDSS. Refugee arrivals into California by country/region of origin [Internet] Sacramento: California Department of Social Services; 2017 Aug [cited 2018 July 28]. 1 p. Available from http://www.cdss.ca.gov/Portals/9/Refugee/Arrivals/2012-2016_Arrivals_by_Region_and_County.pdf?ver=2017-08-18-104902-680

25. Jones M, Lee JY, Rozier RG. Oral health literacy among adult patients seeking dental care. J Am Dent Assoc. 2007 Sep;138(9):1199-1209.

26. Burgette JM, Lee JY, Baker AD. Is dental utilization associated with oral health literacy? J Dent Res. 2016 Feb;95(2):160–6.

27. Blizniuk A, Ueno M, Zaitsu T. Association of oral health literacy with oral health behavior and oral health status in Belarus. Community Dent Health. 2015 Sep; 32(3):148-52.

28. Lee JY, Divaris K, Baker AD. The relationship of oral health literacy and self-efficacy with oral health status and dental neglect. Am J Public Health. 2012 May;102(5):923-9.

29. Capozzi BM, Giblin-Scanlon LJ, Rainchuso L. Treatment of a culturally diverse refugee population: dental hygiene students' perceptions and experiences. J Dent Hyg. 2018 Apr;92(2):50-6.