Limited Diabetes Education and Resources in American Sign Language

Michelle L. Litchman,[1] Christopher Moreland,[2] Angela Fagerlin,[3,4] and Poorna Kushalnagar[5]

[1]University of Utah College of Nursing, Salt Lake City, UT; [2]Department of Internal Medicine, Dell Medical School at the University of Texas at Austin, Austin, TX; [3]Department of Population Health Sciences, University of Utah, Salt Lake City, UT; [4]VA Informatics Decision-Enhancement and Analytic Sciences (IDEAS) Center for Innovation, Salt Lake City, UT; [5]Center for Deaf Health Equity, Gallaudet University, Washington, DC

An estimated 500,000 deaf and hard of hearing (DHH) people use American Sign Language (ASL) (1). Rates of diabetes among deaf middle-aged and older adult signers who self-identify as LGBTQ (lesbian, gay, bisexual, transgender, or queer) are higher than those in the general population for this age-group (∼26 vs. 14–21%) (2). While diabetes rates in the overall DHH populations are not available, data indicate these individuals are 3.2 times more likely to be told they have diabetes when compared with hearing individuals (3). The disparity in self-reported diabetes among DHH signers is believed to be related to a lack of access to health information in ASL. In health care settings, ASL interpreters are not provided in half of medical appointments (4), including during diabetes specialty visits (5). When an interpreter is provided, about one-third of the time the interpreter is unqualified (not trained for health care settings) (4). As a result, DHH people who use ASL as their primary language lack access to easily accessible and high-quality information in ASL and turn to other sources for health information, including social media (6).

YouTube is the most common social media platform in the United States, and diabetes professional organizations such as the American Diabetes Association (ADA) and the Association of Diabetes Care and Education Specialists (ADCES) often use YouTube to distribute diabetes education content. Therefore, we conducted a systematic appraisal of the first 150 YouTube videos for the terms "deaf diabetes" and "ASL diabetes." Videos were included if they used sign language for the purpose of providing diabetes education. Videos were excluded if they focused on diabetes, deafness, or hearing loss in isolation or if they used sign language focused on non-diabetes–related conditions. Videos meeting inclusion criteria were then assessed for accessibility components (sign language, closed captioning, and transcript) and video developer.

Thirty-four videos met the inclusion criteria. These videos ranged in length from 39 seconds to 87 minutes, with an average length of 9 minutes. Sign language is not universal, and there were five different and unique sign languages represented in the videos (Table 1). The presence of closed captioning was mixed, although the majority of the videos (76.5%) did not have closed captioning or transcript accessibility. Table 1 provides additional accessibility details. Four videos were developed by professional diabetes organizations outside of the United States (Diabetes UK [$n = 2$] and Diabetes Victoria [$n = 2$]). No videos using ASL were developed by professional diabetes organization based in the United States. Among ASL-accessible videos ($n = 20$), content was delivered by a hearing nurse with an ASL interpreter ($n = 1$), a deaf dietitian ($n = 1$), a hearing audiologist with an ASL interpreter ($n = 1$), a deaf minister ($n = 1$), an ASL-fluent medical student who is a child of a deaf adult ($n = 2$), deaf people living with diabetes ($n = 5$), deaf community centers ($n = 9$), and ASL students who posted a diabetes-related assignment ($n = 11$).

There is insufficient diabetes education content in ASL on YouTube. Of the available videos, it is very concerning that the number delivered by ASL students outnumber those delivered by health care professionals. ASL students are not health care experts, nor are they certified interpreters, and thus they may not be relaying accurate diabetes information. Although a few diabetes education videos exist, they are short in length and focus mostly on explaining what diabetes is. Very little content addresses diabetes self-care behaviors (e.g., coping, healthy eating, being physically active, monitoring glucose, taking medications, problem solving, and reducing risks), which is a standard of

TABLE 1 Diabetes Education Videos by Accessibility Component (*N* = 34)

	n (%)
Sign language	
ASL	20 (58.8)
Auslan	2 (5.9)
British Sign Language	7 (20.6)
Indian Sign Language	4 (11.8)
Trinidad and Tobago Sign Language	1 (2.9)
Written access	
Closed captioning	6 (17.6)
Closed captioning accessible	1 (2.9)
Transcript	1 (2.9)
None	26 (76.5)
Voice access	
English	7 (20.6)

diabetes care (7). Without access to high-quality diabetes education in ASL, DHH populations will continue to be marginalized.

We urge professional diabetes organizations in the United States, including the ADA and ADCES, to partner with deaf organizations to develop and deliver diabetes education content that is accessible to the deaf community, which includes using ASL and closed captioning, to address this important issue of deaf health equity.

AUTHOR CONTRIBUTIONS
M.L.L. wrote the manuscript and collected and analyzed the data. C.M., A.F., and P.K. contributed to the discussion and wrote the manuscript. M.L.L. is the guarantor of this work and, as such, had full access to all the data presented and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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