Treating Hearing-Impaired Patients: The Perspectives of Dental Faculty and Students

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Abstract

Purpose: *This study analyzed students and educator's knowledge, attitudes, and practices towards performing certain dental procedures and appropriate treatment modalities for hearing-impaired patients.*

Methods: *A survey was sent to all faculty and student at one Midwestern University via BlueEval, the university's survey program. Content validity and survey construction were verified by two independent individuals with expertise in special needs patients prior to distribution. Data were analyzed using SPSS 24 statistical software and statistical significance was determined ($\alpha = 0.05$).*

Results: *Faculty data showed that minority faculty were slightly more comfortable treating the hearing-impaired population. Faculty also felt confident in their knowledge about and treatment of this population and being able to relay that on to the students. Compared to the students, the younger student population were much more skeptical of the abilities of the faculty to help them through an appointment with a hearing-impaired patient.*

Conclusion: *It is important that these future professionals develop not only necessary practical skills but also a change in attitude, as professionals, concerning treating hearing-impaired patients. There is a necessity to increase the level of teaching in order to make the student feel more comfortable in treating hearing-impaired patients.*

Introduction

Good health is a fundamental right, a social goal and an essential human need. A significant number of research- based article have described oral health as a major determinant of general health. However, patients that are considered as disabled face an indescribable challenge when it comes to both maintaining their physical, mental and oral health as well as finding health care providers who are knowledgeable of their unique needs. According to the disability statistics from the American Community Survey (ACS), an estimated 12.8 percent of Americans reported a disability in 2016, for people ages 65 and older, 35.2% had a disability [1]. The numbers of individuals with special health care needs have been increasing over the past decades, which may be partly due to a longer life expectancy of persons with disabilities [2].

In context of the oral health, the Commission on Dental Accreditation (CODA) defines special needs patients as those "whose medical, physical, psychological, or social situations make it necessary to modify normal dental routines in order to provide dental treatment for that individual. These individuals include, but are not limited to, people with developmental disabilities, complex medical problems, and significant physical limitations" [3]. In 2000, the first U.S. Surgeon General's report on oral health stated that patients with special health care needs have poorer oral health than other patients in addition to having problems accessing oral health care services [4]. The Surgeon General's report also indicated that patients who were medically compromised or who had disabilities were at a greater risk for oral diseases [4]. Other studies have also documented that these patients encounter more challenges when seeking dental care [4-6]. It is, therefore, crucial to educate future dental care providers in such a way that they will accept the professional responsibility to appropriately treat patients with special health care needs, and increase their comfort level while serving patients with special needs.

Individuals with hearing impairment are considered to have "special needs," and are group lacking adequate oral health awareness due to lack of access to communication, information, education and culture [7-9]. Most individuals with hearing impairment may have healthy teeth and gums in younger ages but, as time continues, oral health may suffer [10]. Diet, physical limitations which impacts good home care and the attitudes of health care providers contribute to poor oral health

outcomes. Inadequate plaque removal is the main reason for higher prevalence of dental caries and periodontal conditions in individuals with disabilities, including the hearing-impaired communities [7-9, 11].

Finding a dental care provider that is knowledgeable and comfortable enough to treat patients with hearing disabilities can be very challenging, resulting in an access to care barrier. Past research has found that the more experience dental students have in treating individuals with disabilities, the more positive their attitudes and the more willing they are to continue to care for these individuals [10]. Dao et al [12]. found that the more dentists agreed that their dental education had prepared them well to treat patients with special needs, the more likely they were to actually treat these patients and to have staff members who were comfortable and knowledgeable in providing care for them. This finding coincides with the Surgeon General's 2005 Call to Action [13] that emphasized improving the education and training of oral health care providers. This will help individuals with disabilities in addressing one of the barriers to receiving oral health care for this population [2].

In order to make sure dental students obtain the necessary knowledge of how to treat these special populations, the level of knowledge and attitude of the faculty that supervise the dental and dental hygiene students must also be evaluated [14, 15]. It is essential that the faculty within the dental programs have appropriate and accurate knowledge as well as be comfortable with providing appropriate services to the hearing-impaired in order to pass this on to the students. Conversely, being comfortable and knowledgeable about this population and its unique needs actually begins prior to ever seeing a patient in a dental setting. Therefore, it is necessary to explore this topic within the dental programs and explicitly teach students that this population has special needs that we must accommodate when providing services. The main objective of the present study is to find out if the faculty members and the students with in a dental school (which includes both dental and hygiene students) were comfortable in treating these patients and providing appropriate accommodations to the hearing impaired communities. We also explore the comfort level of the faculty in teaching the student in clinical settings when the patient is hearing impaired. Finally, is there are difference between the perspective of faculty and students.

Methodology

A 17 item, 5-page self-reported anonymous online survey was sent out to the faculty, pre-doctoral dental students and dental hygiene students seeking their bachelor's degree at a dental school in the Midwest of United States. This study was independently reviewed and approved by the University's Institutional Review Board (IRB # 651361). Respondents to the survey implicitly gave their written informed consent if they proceeded to take the survey after reading a preface outlining the description of the survey.

The survey only took a 10-15 minutes to complete but enabled the researcher to gain an understanding of how this special population were treated in clinical situations as well as taught didactically. The respondent's demographic information, knowledge about the treatment needs of the hearing impaired, practitioner's comfort level in providing different dental procedures (e.g., prophylaxis, restorations, oral hygiene instructions, periodontal scaling, endodontic treatment, etc.) to hearing impaired patients, the dental professional's practice of providing different types of accommodations to hearing impaired patients were asked in both the faculty and student survey. The last questions on the survey were different for faculty and students. Faculty were asked about the comfort level in teaching dental and dental hygiene students clinically when presented with hearing impaired patients. Students were asked about their perception of how this topic was taught both didactically and clinically.

Prior to distribution, two independent individuals with expertise in special needs patients verified content validity and survey construction. Some of the survey items were written in reverse wording in order to reduce acquiescent responding. Data were analyzed with the SPSS 24 statistical software package and descriptive statistics along with Chi Square analysis are reported. Alpha level of 0.05 is used to determine statistical significance.

Results

Faculty Survey

Data were collected from dental faculty at from mid-western dental university, (n=60). This was nearly a 33% response rate. The majority of the sample consists of Caucasians (n=49) and only a few identifying as a racial or ethnic minority (n=11). There was an almost equal distribution between genders (male n=35; female n=24; and other n=1).

Dental and dental hygiene faculty were less likely to report that hearing-impaired patients needed special accommodations compared to other types of special needs patients ($X^2 = 40.009$, $p = .029$). There was also a statistically significant difference in terms of the race/ethnicity of those who felt that hearing impaired patients needed special accommodations ($X^2 = 14.070$, $p = .015$). Faculty who identified as racial/ethnic minorities were less likely to report that patients with hearing impairments need special accommodations during their dental appointment. Finally, female dental and dental hygiene faculty were more likely to report a greater likelihood of removing hearing aids during dental treatment as compared to male dental faculty ($X^2 = 36.092$, $p = .015$).

There were no statistically significant results regarding whether dental practitioners would not perform certain dental procedures on hearing impaired patients. Therefore, these respondents performed the same procedures at the same extent with on hearing impaired patients as they did on other patients without special needs. In addition, faculty reported that they were comfortable in guiding and educating dental and dental hygiene students in regard to treating special needs patients.

Student Survey

The data were also collected from the students in the dental and dental hygiene program (n=172) from mid-western dental university. The response rate was 68 %. The sample consists

of female (n=105) and male (n=63) students. The majority of the respondents were in their third year of dental school (n = 80), followed by fourth year dental students (n= 68), third year dental hygiene students (n = 15) and fourth year dental hygiene students (n = 9). Similar to data from faculty, the majority of the sample consists of Caucasian (n=135), whereas racial or ethnic minorities were smaller in number (n=43). Almost 96% had seen and treated hearing-impaired patient.

While there were no significant findings regarding the knowledge, beliefs and experiences of treating hearing impaired patients between gender or racial or ethnic categories, there were several significant findings in terms of age of the student and beliefs about hearing impaired patients. Students that were younger, less than 25 years old, were significantly less likely to agree that hearing impaired patients can lead a normal life (X^2 = 190.758, p = .000). Likewise, younger students were less likely to disagree that hearing-impaired patients should be treated at a separate clinic outside of normal dental practices (X^2 = 192.595, p = .000). Younger students were more likely to strongly agree that hearing impaired patients needed special accommodations during their dental visit whereas older students were more likely to somewhat agree or disagree (X^2 = 190.757, p = .000). Older students were more likely to strongly or somewhat agree that they were willing to treat hearing impaired patients compared to the younger student cohort (X^2 = 184.538, p = .000). Older students also rated themselves as being more comfortable treating a hearing-impaired patient compared to the younger students (X^2 = 190.211, p = .000).

Younger students were less likely to agree that they could provide patient education to a patient that is hearing impaired (X^2 = 194.563, p = .000), but they also indicated that they were less likely to write down important information regarding patient education (X^2 = 182.419, p = .000). These younger students were also more likely to always offer an ALS interpreter at the appointment whereas the older students suggested that they would sometimes offer this service, but not always (X^2 = 182.980, p = .000). Older students were more likely to state that you had to sometimes alter how patient education was given for this population (X^2 = 189.271.758, p = .000). In terms of other accommodations, older students were more likely to turn off or remove hearing aids during treatment compared to the younger students (X^2 = 184.929, p = .000).

Younger students were also less confident in the knowledge of their faculty members in order to help guide them through the appointment (X^2 = 184.940, p = .000). Interestingly, younger students thought including information about special needs patients into the dental curriculum was unimportant (X^2 = 183.645, p = .000). Older students also indicated that no specific training regarding treating hearing impaired patients be included or increased within the curriculum (X^2 = 193.539, p = .000). Finally, younger students were more likely to indicate that they did not have outside training or significant experiences outside of school.

Discussion

The Surgeon General's 2005 Call to Action [13] emphasized improving the education and training of the oral health care provider in order to provide appropriate treatment for special needs patients. Our survey data indicated that the faculty were overall well-versed with treating and providing resources to students to treat hearing impaired patients. Data indicated that female dental and dental hygiene faculty did note that they were more likely to suggest removing or turning off hearing aids during certain treatments compared to the male faculty, but that was the only difference between male and female faculty. Faculty data also showed that minority faculty were slightly more comfortable treating the hearing-impaired population, but they were also less likely to consider this population for special accommodations. Perhaps these two are interrelated – minority faculty have an increase in comfort level in their interactions with this population and thereby do not see them as "different."

While faculty felt confident in their knowledge about and treatment of this population and being able to relay that on to the students, the younger student population were much more skeptical of the abilities of the faculty to help them through an appointment with a hearing-impaired patient. This indicates that the faculty needs to do a better job in identifying patients with special needs prior to the appointments as well as provide more oversight when students are engaging in appointments with patients with special needs. This is a perfect time for the faculty to step into the operatory more and use this as a teaching moment. While the faculty may feel like this is happening, the younger student population felt differently.

There were also differences when it came to the younger student population in terms of their beliefs and knowledge about the hearing-impaired population compared to their older student counterparts. Perhaps this difference is attributed to life experience again. Older students have typically had more life experiences and interactions with people of all walks of life whereas younger students may have not had as many opportunities. Again, this is a perfect time for faculty to help guide, educate and model appropriate interactions with people of hearing impairment along with all special needs' patients.

Conclusion

Hearing loss is the complete or partial loss of ability to hear from one or both ears. Prevalence of hearing loss in adult population is 30% in above 60 years old, 14.6 of those 41-59years, 7.4% of those 29-40 years. Hearing impairment makes language and speech difficult, thereby impairing communication between patient and healthcare provider [4]. Health care professionals working with people with hearing disabilities have a duty to treat these patients with dignity and respect and ensure fair and impartial access to the healthcare system. This survey was initiated to measure the faculty personnel's knowledge and awareness of teaching and treating hearing-impaired patients, as well as student attitude towards hearing-impaired patients.

Providing a solid basis of knowledge and skills around making accommodations has the potential to improve future dentists'

and hygienist's attitudes and confidence towards treating these patients. Such positive attitudes may, in turn, allow them to self-reflect and overcome obstacles that may keep them from treating these patients, such as the setup of their practice, and hiring or training their staff to provide the support needed to integrate these patients into their patient families [14].

The roles of a healthcare instructor include increasing awareness, establishing positive attitudes, and delivering effective teaching and training to the students for all types of patients, including those with special needs. Oral healthcare faculty can increase student awareness from the beginning of their dental career, focusing on the different considerations indicated when treating a patient with special needs and providing the essential knowledge and guidance to treat the hearing-impaired patient. Lack of training could inevitably decrease the number of future practitioners delivering proper treatment and, without properly trained oral health care providers, ultimately perpetuate the oral health disparities experienced by these patient populations.

As with all research, this study has limitations. One limitation is that the data is gathered at one dental institution, inhibiting generalizability to other dental institutions. Efforts in the future should be made to survey faculty and students at other institutions to gather more data and see if these findings are indeed generalizable. Also, this research is based on survey methodology, which has limitations itself. The response rates for the student survey was much higher than the response rate for the faculty survey, but both response rates were adequate to draw conclusions. Half of the survey items were written in reverse order in order to minimize acquiescent responding, but the risk of this happening is always high in survey methodologies. Future research could expand on the findings of this survey by gathering qualitative data to explore these topics much more in-depth.

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