The Quality of Life for Deaf and Hard of Hearing Adults in Saudi Arabia

A Dissertation Presented for the

Doctor of Philosophy

Degree

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DEDICATION

I dedicate my dissertation to my parents, Mohammad and Najwa. This is the extent of what you started in your life. You always taught us that education is an essential part of our life and I will pass it to the next generations.

I dedicate my dissertation to my wife and my little girls. This journey we have undertaken together has been difficult to navigate but with time and effort and a healthy relationship with Allah, family, and friends, we have reached our destination. We are closing a chapter of our lives and starting a new one.

I dedicate my dissertation to my Deaf and hard of hearing brothers and sisters in all Arabs regions. I am hoping this work is beneficial to your community and reflects positively on your lives.

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ABSTRACT

This study investigates the quality of life (QOL) for Deaf and hard of hearing (DHH) adults in Saudi Arabia. It is an opportune time to investigate the QOL among this population because of the recent movement to provide college programs for DHH. Education has long been an indicator of QOL for individuals (Corsaro, 1997; Ross & Willingen, 1997; Whaley, 2018). QOL has been studied for a long time among hearing persons; however, there is sparse research addressing it among DHH communities around the world. Furthermore, it is exceptional to find a researcher addressing QOL among DHH in the Arabs region. It is necessary to gauge the QOL among the DHH community in Saudi Arabia, especially with onset of higher education programs that are accessible to the DHH.

The aim of this study was to investigate the extent to which educational background, modes of communication, gender, hearing status, and school placement played a role in the QOL for DHH. A total of 305 participants (228 Deaf, 74 hard of hearing, 3 cochlear implant receivers) were recruited via social media and DHH sites. The study used a self-administered survey designed for DHH (Youth Quality of Life-DHH) that was translated into Arabic and Saudi Arabian Sign Language. The results showed that higher education degrees, modes of communication, hearing status, and school placements were not statistically significant to QOL. Additionally, data showed that participants who are financially self-sufficient reported higher QOL. These findings align with prior research (Al-Khraif, Al-Mutairi, Alradihan, & Salam, 2018) showing that the person's job in Saudi Arabia, regardless of the educational degree, is an influential factor of the QOL. Also, women reported higher QOL than men, which may be explained by the level of honor and respect for women in the society. Furthermore, this study investigated the satisfaction levels with both family relationships and communication based on participants' hearing status. The results showed that hard

of hearing participants reported higher satisfaction with their family relationships and communication than Deaf participants reported. These findings suggest a future qualitative study to explore the specific QOL indicators for DHH in Saudi Arabia.

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Chapter 1:

Introduction of the Study

General Introduction

I was born and raised in a family that contained Deaf members. Two of my older brothers are Deaf, and my youngest sister received a cochlear implant. Also, my grandfather and three of my cousins are Deaf. I grew up around them, which has helped me to learn the language directly from them. I saw similarities in terms of capability between myself and my deaf family members. The only distinction I could see at that time was the difference in language, and I was passionate to learn it and have conversations all day long with them. We had many enjoyable times together as kids, playing and laughing at stories. We grew very close. Our conversations have changed over the years. We have very high transparency in our conversations. I started to realize how they have been treated, distinguished, and isolated by hearing people in the society and how they felt about it. I started to hear how people feel sorry for me to have Deaf persons in my family. When I put myself in their shoes, I find it hard to live a life where people spread inaccurate understandings about deafness, which made me want to advocate on behalf of them and spread awareness from a very early age.

I was involved in the Deaf community since an early age. I participated, as audience, in their communal events and their Deaf club. Later on, I participated with many activates as planner, assistant leader, and opportunity creator. Also, being an interpreter for Deaf persons gave me experiences with people in a position of power who make decisions in Deaf persons' lives. That drove me to be involved in Deaf Education in Saudi Arabia and to study the quality of

life (QOL) of adult Deaf persons, especially with the growth of the education and services for the Deaf people in Saudi Arabia.

Introduction

Nowadays, there is a need to investigate the quality of life for specific minority groups who are enduring many changes politically, socially, and psychologically. The push to improve the quality of life for individuals and groups has driven improvements in healthcare, education, and services. To make sure that these interventions have met their goals, follow-up investigations are needed, measuring how the interventions have affected the life quality for both individuals and groups. Some studies measure specific aspects of life quality, such as health, while others measure the quality of life generally. Many studies cite the World Health Organization (WHO) definition of quality of life (Gerich, & Fellinger, 2011, p. 102; Freeman, 2014, p. 55; McAbee, 2015, p. 1) as "the individuals' perceptions of their position in life, in the context of the cultural and value systems in which they live and in relation to their goals, expectations, standards and concerns" (WHO, 1996, p. 5).

Education for Deaf and Hard of Hearing

An overview of the education for DHH students in Saudi Arabia is provided on the Ministry of Education website (2020). Education for the DHH started in 1964 with the establishment of two elementary residential schools for the Deaf--one for each gender in Riyadh, the capital city. Due to the lack of communication at home between DHH children and their families, these elementary schools included a preparation year prior to the first grade to learn Saudi Arabian Sign Language. In 1971, another two residential schools for the Deaf were

established in Jeddah for both genders. These schools were followed by middle schools (1973) and high schools for the Deaf. Educational services for DHH grew over the years to include residential schools, mainstreaming programs for Deaf students, mainstreaming program for hard of hearing students, resource rooms, itinerant teachers, and consultant teachers.

King Saud University (KSU), located in Riyadh the capital city of Saudi Arabia, started a program for DHH students in 2011. Currently, this program offers a degree by which Deaf students can graduate with a Bachelor's of Arts (BA) degree. It offers three different majors: Special Education and Art Education for both genders, and Sport Education for men only. For Saudi Arabia, as for many countries, the offering of university degrees for Deaf students is a historical advancement in Deaf Education.

Rationale for the Study

Most of the research that looks at Deaf students in the university setting has been conducted in the United States and Australia (Cuculick, Kelly, 2003; Redding, 1997; Napier & Barker, 2004). It is important to note that Deaf people are considered a minority group among others in hearing communities (Ladd, 2003; Lane, Hoffmeister, & Bahan,1996; Marschark, Zettler, & Dammeyer, 2017). As a result of being a minority group, there are many misconceptions about Deaf students that have negatively affected Deaf students' lives. This is also true for the field of Deaf Education. The most challenging problem that DHH students face is the underestimation of their abilities--socially, mentally, and academically. For example, it was long said that Deaf students' reading levels cannot exceed 4th grade, and this misconception still persists (Holt, 1993; Scott, 2015). Because of such misconceptions, Deaf persons are often

denied the right to obtain higher education. Some countries have more experience than others in teaching Deaf students in colleges and universities. Having Deaf role models in higher education to correct the image about deafness in hearing world would help Deaf students who are in elementary through secondary education levels to change their thinking about themselves and what their capabilities are. Redding (1997) stated that "the importance of minority role models for minority children cannot be taken lightly. Because they are dual minorities, minority deaf children and adolescents have unique needs" (p.85). The same author argued that having Deaf role models would have a positive impact on the identity, self-confidence, and goal achievement of Deaf children and Deaf adults.

Earning a higher education degree may have a positive influence on Deaf students' quality of life in many different ways-- financial, social, and psychological. Butler and Deprez (2002) have found that attending college has many positive outcomes as increased independence and self-concept, better opportunities for employment, and improved abilities to pursue a goal. Those results showed how attending college may have a positive effect on a person's income and life management skills (life improvement). Also, the higher their degree, the more opportunities and options a person will possibly have (Dohm & Wyatt, 2002). Higher education can also bring recognition within one's family and society at large. This paper focuses on what is happening in the Deaf community in terms of quality of life after earning a higher education degree in Saudi Arabia. More broadly, this study will attempt to learn more about the experiences of post-secondary DHH students and how they perceive the influence of higher education on their quality of life, especially those attending the first DHH programs available at King Saud University.

Significance of the Study

Saudi Arabia is witnessing historical change in the education for DHH. KSU, established in 1957, was the first university in Saudi Arabia. This university established a bachelor program for DHH individuals in 2011. In general, it can be presumed that services like education and health should increase the QOL for all individuals. However, DHH have unique characteristics that might affect the outcome. If Deaf individuals receive access to education and health services but not to related services like interpreters and accessibility, they may not see the full benefits of these reforms.

When new services are provided, it is important to evaluate the effects of these services on individuals. There are very limited resources for investigating the QOL for DHH in Saudi Arabia. Of the few studies that have touched on the QOL of DHH degree holders (Schroedel, J., and Geyer, P., 2000), there is no single study that has specifically investigated the impact of higher education on QOL for DHH individuals in the country in a comparative way—looking at differences in QOL between those who have and do not have postsecondary education.

Several studies have revealed that DHH individuals, in general, have a low level of QOL (Fellinger et al., 2005; Gilman, Easterbrooks, & Frey, 2004). One group of studies has attempted to correlate QOL with a variety of individual variables, including the modes of communication that DHH used (Kushalnagar et al., 2011), parents' hearing status (Jombor, 2009; Maxwell, 2001), school settings (Schick et al., 2012), and individuals' levels of acculturation (Marschark, Machmer, Spencer, Borgna, Durkin, & Convertino, 2018; Maxwell, 2001). Additionally, some QOL studies have targeted the individuals who received cochlear implant (CI) to study the

impact of CI on their QOL (Denham & Battro, 2012; Meyer et al., 2013; Spencer, Tomblin, & Gantz, 2012). Most of these studies are coming from the perspective of the individual model of disability which relates the QOL of individuals to their hearing functioning. Instead of dealing with environmental changes and adjustments, they focus on hearing loss as a limitation embodied in the individual. There is need for research to investigate the relationship between personal educational achievement and individuals' QOL. The research hypothesis of this study is that there is a relationship between earning higher education degree and enhancement of QOL for DHH adults in Saudi Arabia.

The current research should contribute to the body of research related to QOL for DHH individuals in general. Also, this research will contribute to the knowledge of QOL for DHH in Saudi Arabia. This current study should inform the development of policies by the Ministry of Education (MOE), Ministry of Health (MOH), and the Council of Economic and Development Affairs. Specifically, this research should contribute to the MOE and MOH's knowledge about how level of education may enhance the QOL of DHH, and what the health domain within QOL looks like for DHH adults. Also, this research should serve as a valuable resource for the Quality of Life Program 2020 that was launched on May 3rd, 2018 under the Council of Economic and Development Affairs in Saudi Arabia. The aim of the Quality of Life Program 2020 is "to improve the lifestyle of individuals and families and to build a society in which individuals enjoy a balanced lifestyle, by setting up the environment necessary to support and provide new options that enhance the participation of citizens and residents in cultural, entertainment and sport activities" (Vision 2030 Kingdom of Saudi Arabia, 2018). This research should emphasis the importance of including DHH in the developmental reforms currently happening in the country.

Purpose of the Study

The purpose of this study is to investigate the quality of life among DHH adults with varying educational background in Saudi Arabia and to investigate the extent to which educational degrees enhance the quality of life for DHH individuals in Saudi Arabia.

Research Questions

My research questions are the following:

1. To what extent does a high education level have some influence on the quality of life (participation, self-acceptance/advocacy, perceived stigma) for adult D/HH students in Saudi Arabia?
    1.1. Is there a difference in QOL (participation, self-acceptance/advocacy, perceived stigma) between modes of communication (signing, speaking, both) used by parents with their DHH children?
    1.2. Does the QOL (participation, self-acceptance/advocacy, perceived stigma) differ among Deaf and hard of hearing adults based on gender?
    1.3. Do Deaf adults differ from hard of hearing adults in the QOL (participation, self-acceptance/advocacy, perceived stigma)?
    1.4. Does school placement enhance the QOL (participation, self-acceptance/advocacy, perceived stigma) of DHH individuals?
2. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their relationship with family?
3. Do Deaf adults differ from hard of hearing adults in the level of satisfaction of their communication with family?

Definition of Terms

SASL: It refers to a language that used to communicate with Deaf persons in the Kingdom of Saudi Arabia. It stands for Saudi Arabian Sign Language.

DHH: It refers to person who have hearing loss that range between mild to severe. It stands for Deaf and hard of hearing.

QOL: It refers to a person's well-being and the level of life satisfaction. It stands for Quality of Life.

Navigation of this Study

1. Chapter 2 is the literature review and the theoretical framework.
2. Chapter 3 is the method and participants.
3. Chapter 4 is the results of this study.
4. Chapter 5 is the interpretation and discussion of the results.

Chapter 2:

Literature Review

Introduction

As mentioned in chapter one, Saudi Arabia has established Saudi vision for 2030. One of programs under the vision is improving QOL for all citizens, including DHH. The aim of the Quality of Life Program 2020 is

> to improve the lifestyle of individuals and families and to build a society in which individuals enjoy a balanced lifestyle, by setting up the environment necessary to support and provide new options that enhance the participation of citizens and residents in cultural, entertainment and sport activities. (Vision 2030 Kingdom of Saudi Arabia, 2018)

The government is empowering DHH by providing access to services and facilities that others, like hearing, have. One of those services is access to higher education programs.

The ultimate goal of the QOL program 2020 is to enhance the QOL of all Saudi Arabians, especially individuals with disabilities. For DHH individuals, this goal can be achieved through *empowerment*, a term defined below. There are two ways that policymakers can contribute to empowerment of citizens--directly through measures such as improving public environment, or indirectly through education of DHH individuals. Educated DHH can lift up and advocate for their community, leading to further empowerment. The following sections explain in depth the relationships among empowerment, education, and QOL.

Theoretical Framework

Empowerment

Definition. Although there are many definitions of empowerment, all of them refer in some way to enhancing individuals' control over the enactment of goals in their lives. Mechanic (1991) has defined empowerment as ". . . a process in which individuals learn to see a closer correspondence between their goals and a sense of how to achieve them and a relationship between their efforts and life outcome" (p. 641). Rappaport (1987) has defined it as "a process, a mechanism by which people, organizations, and communities gain mastery over their affairs" (p. 122). Cattaneo and Chapman (2010) has defined empowerment as

> an iterative process in which a person who lacks power sets a personally meaningful goal oriented toward increasing power, takes action toward that goal, and observes and reflects on the impact of this action, drawing on his or her evolving self-efficacy, knowledge, and competence related to the goal. (p. 647)

In addition, Page & Czuba (1999) have defined it as "a multi-dimensional social process that helps people gain control over their own lives" (p. 1). Wallerstein & Bernstein (1988) defined empowerment as "a social action process that promotes participation of people, organizations, and communities in gaining control over their lives in their community and larger society" (p. 380). Perkins & Zimmennan (1995), Rappaport (1981), Zimmennan & Warschausky, (1998) have defined empowerment as

> empowerment is both a value orientation for working in the community and a theoretical model for understanding the process and consequences of efforts to exert control and influence over decisions that affect one's life, organizational functioning, and the quality of community life. (as cited in Zimmerman, 2000, p. 43)

Looking closely at the previous definitions, all of them illustrate that empowerment is a process, which can differ depending on the context, culture, and setting. Mechanic's (1991) definition tends to empower individuals to meet their goals with considerations of the amount of effort that is calculated to obtain the desired outcomes, while Rappaport's (1987) definition aims to empower the oppressed or minority groups, either individually or as group, that do not have power to control their own choices. Moreover, Cattaneo and Chapman (2010) take further steps to expand the definitions from other scholars (e.g., Mechanic) and break down the steps of the shape of empowerment. They claim that the previous researchers who wrote about empowerment have mentioned that there is a process to obtain empowerment individually or communally. However, the term process is a general term that needs to be divided into clear steps toward empowerment. Table 1 from Cattaneo and Chapman (2010) shows the components of the empowerment process. This table explains the process of empowerment from the perspective of both individual helpers and programs. They list questions regarding each component of the empowerment process that helpers and program should ask. Page & Czuba (1999) have identified the process as a social process toward individuals for gaining control on their lives, which can increase empowerment. Zimmerman (2000) has shared some elements of others' definitions (e.g., gaining control) with the addition of some details about the process of the three different levels of analysis of empowerment: individually, organizationally, and communally. See Table 2 for the illustration of the empowerment process and the empowered outcome for each level (e.g. the empowering process and empowered outcome for individual). He claims that empowerment is a way of a social change, whereby many social problems occur "due to unequal distribution of, and access to, resources" (Zimmerman, 2000, p. 44).

Table 1

Components of the Empowerment Process[1]

Component	What individual helpers should assess	What programs should assess
Personally meaningful, power-oriented goal	What kind of power is this person seeking? What makes this goal personally meaningful? How are more short-term goals related to overarching goals?	To what extend do client tend to have a clear idea of their goals when they request services? What mechanisms do we have to assess how our services might relate to client goals? What is the range of typical client goals? What goals is our program designed to assist with?
Self-efficacy	Does this person believe she or he can reach her or his goal? What factors contribute to this person's sense of self-efficacy, including the history of his or her attempts to reach this goal, and practical considerations?	What mechanisms do we have in place to learn about client' beliefs and the context of those beliefs?
Knowledge	What does this person know about what is required to reach his or her goal? What can I teach the client about what is needed to reach his or her goals? What can I learn about the client's environment and history that will increase my knowledge about what is needed to reach his or her goals? How do the power dynamics relevant to this goal operate in this person's life?	What do clients need to know, and how can the clients we tend to see best learn? What resources do clients need, and what is their access to those resources? How can we enhance their access to these resources? What mechanisms do we have in place to ensure that we learn about obstacles and opportunities in each client's environment? What mechanisms do we have in place to consider power dynamics related to clients' goals?
Competence	Does this person have the skills to do what is required? Do I understand the history of this person's attempts to gain such skills? Are there obstacles to gaining skills that I can help to address?	What do clients need to be able to do, and how can the clients we see best build these skills? What resources are needed to support their skill building? How can we increase access to these resources? What mechanisms do we have in place to learn about obstacles to and opportunities for skill building in each client's environment?
Action	Is this person taking action to pursue his or her goal? What is the context of any choices this person has made in the actions she or he is taking?	What are the pros and cons of taking action? Are there ways we could shift the balance? What mechanisms do we have in place to assess how pros and cons vary depending on clients' context?
Impact	What happened as a result of this person's action? What factors influenced the impact? How will these events influence this person's continuing iterations through the other components of the process?	What is the impact of actions we encourage, or that clients tend to take? What is the impact on our client, on our program, and on others? What in the environment affects that impact? Are there ways we could influence the response to clients' actions?

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1 From "The process of empowerment: A model for use in research and practice," by L. B. Cattaneo and A. R. Chapman, 2010, *American Psychologist*, 65, p. 657. Copyright 2010 by American Psychological Association. Reprinted with permission.

Table 2

Processes and Outcomes of Empowerment at Different Levels of Analysis[2]

Levels of analysis	**Process ("empowering")**	**Outcome ("empowered")**
Individual	Learning decision-making skills Managing resources Working with others	Sense of control Critical awareness Participatory behaviors
Organizational	Opportunities to participate in decision-making Shared responsibilities Shared leadership	Effectively compete for resources Networking with other organizations Policy influence
Community	Assess to resources Open government structure Tolerance for diversity	Organizational coalitions Pluralistic leadership Residents' participatory skills

Zimmerman (2000) has illustrated that the empowerment is either in the process or in the outcome in three different layers. Those layers are individual, organizational, and communal (see Table 2). He has concluded that those three layers have to be shaped with participation, control, and critical awareness in each layer:

> At the individual level of analysis, these factors include a belief in one's ability to exert control (intrapersonal component), involvement in decision-making (behavioral component), and an understanding of causal agents (interactional component). At the organizational level of analysis, these factors refer to settings that provide individuals with opportunities to exert control and organizational effectiveness in service delivery and the policy process. At the community level of analysis, these factors refer to the contexts in which organizations and individuals interact to enhance community living,

[2] From *Handbook of community psychology* (p. 47) by J. Rappaport and E. Seidman, 2000, New York: Springer US. Copyright 2000 by Kluwer Academic/Plenum Publishers. Reprinted with permission.

and insure that their communities address local needs and concerns. (Zimmerman, 2000, p. 58)

Empowerment and QOL. Empowerment is an essential asset for a community to enhance the QOL of individuals (Cattaneo & Chapman, 2010; Zimmerman, 2000). Empowerment in the community level is translated by working together toward a better QOL in a community with creating a strong relationship among organizations (Clement, 1994; Perkins & Zimmerman, 1995) and agencies in that community (Zimmerman, 2000). Perkins and Zimmerman (1995) and Zimmerman (2000) have claimed that the empowerment theory has connected the well-being of individuals with the environment socially and politically. This encourages people to have chances to be part of the decision-making in a community to improve their lives in the three different layers (individuals, organizations, and communities) (Zimmerman, 2000). Especially, when power is unequally distributed in a community favoring one group over another, the empowerment process is required to rebalance the power among people (Cattaneo & Chapman, 2010). People then gain a sense of personal control which can lead to better health and well-being of individuals (Chandola, Kuper, Singh-Manoux, Bartley, & Marmot, 2004; Griffin, Fuhrer, Stansfeld, & Marmot, 2002).

Lenses on Disability

The previous section reinforces the connection between empowerment and community behaviors/orientation where the communities are able to empower/disempower minorities. Communities' perspectives toward minorities, including DHH people, should not be taken lightly. There are two lenses describing disabilities in the societies that are worth mentioning.

The first lens, the individual model of disability, views a person as disabled, and this disability limits the person's participation in the community (Oliver, 1996). The problem centers around the person's disability. On the other hand, the second lens, the social model of disability, examines how people with disabilities have been excluded from social participation due to environmental constructions (Oliver, 1996): "It recognizes that it is society's failure to provide appropriate services that cater for the needs of disabled people within the society" (Nortey, 2009, p. 26). The limitations and problems are environment- centered, not disability-centered. This model "has been effective psychologically in improving the self-esteem of disabled people and building a positive sense of collective identity" (Shakespeare, 2006, p. 199), which is an important construct in the quality of life. The current study is framed by the social model of disability lens and guided by Zimmerman's (2000) definition of empowerment.

Summary

Deaf and hard of hearing people in Saudi Arabia like any other places in the world are considered a minority group. They face difficulties in life including, and not limited to, misconceptions, limited access to services, and limited choice of educational opportunities. In addition to these limitations, DHH people experience lower expectations for their social and academic abilities. For instance, employers ask DHH persons to be overqualified for positions, whereas the job can be given to a hearing person with less qualification. DHH persons work twice as hard to convince the stakeholders. This same issue is prevalent in research when researchers assume that DHH persons' reading level cannot exceed the fourth grade level. These issues are considered societal (dominant oppression) and political (authority power) issues.

Thus, the theoretical framework of this study integrated two perspectives: (1) authority to an individual (empowerment) and (2) dominant group to a minority group (lenses on disability). Both theories cumulatively build upon each other to illustrate QOL for DHH individuals. While DHH persons' abilities are underestimated, authority (empowerment) improves services and insures access for DHH people to achieve their goals and gain success. A lense on disability at the societal level illustrates how social structures and widespread perceptions are impeding DHH from success.

Literature Review on Quality of Life

Research in the quality of life (QOL) has been active for a long time with variability in the weight of coverage among societies, minorities, disabilities, and age groups. One group that has been understudied is Deaf people. Among the few studies on quality of life with Deaf people, most are from a medical viewpoint, where researchers examine the deafness as a type of sickness and try to find remedies to alleviate or cure the deafness (McAbee, 2015). For example, studies focus largely on cochlear implants (CI) or hearing aids and how they may improve individuals' quality of life domains (Isarin et al., 2015; Yorgun et al., 2015), or focus on psychological, mental health, and educational aspects. Psychological and mental health studies rely on psychological aspects to indicate the person's QOL (Fellinger et al., 2005), while educational aspects study the students' atmosphere, services, and communication accessibilities in schools (Jambor, 2009; Kushalnagar et al., 2011; Schick et al., 2012; Stepanchak, 2017). Some issues have been studied by adolescent or adult age groups (e.g., youth's quality of life by school placements, mode of communication or language modality, degree of hearing loss, and CI usage). Some of these issues, are common across age groups, whereas others are more relevant to

DHH adults such as job issues, communications issues, acculturation and identity, family and friends relationship, satisfaction with current status, satisfaction of specific services, and satisfaction with life in general.

My review of the literature suggests that DHH individuals tend to have decreasing QOL in some domains as they are coming into adulthood (Patrick et al, 2011; Schick et al, 2012). Naturally, people realize the difficulties of being DHH adults when they start to live more independently. DHH individuals learn that privileges are distributed among others as they grow up. As DHH children, they may have thought their life normal, even though it was lacking privileges. This may create frustration among them when they realize how the services were built based on hearing ability; in other words, services are not divided equally for all in the community.

In most countries, minorities, including DHH, have fought for their rights. Equal access to education is one of their rights that they have fought for. Researchers believe that education has an impact on persons' QOL (Nortey, 2009; UNDP, 2013). However, there is no research found by the author that connects QOL and Education specifically for DHH in higher education. Although, many QOL and DHH studies have been done in the educational settings, either at college levels or school levels, there is a need to investigate the education of the DHH community, while including participants from different educational backgrounds.

QOL with Adolescents

Patrick et al. (2011) have validated a measure—the Youth Quality of Life-Deaf and Hard of Hearing Module (YQOL-DHH)—which has been a useful research tool and been used much by researchers. This instrument consists of three domains: self-acceptance/advocacy (how do they feel about themselves), participation (how are their relationships with others), and perceived stigma (how are the environments treating them socially and culturally; opportunities and obstacles). YQOL-DHH is a Deaf and hard of hearing-specific instrument. Drawing upon a grounded theory approach, its contents were derived from interviews and focus groups with DHH youth and parents of DHH children (Patrick et al., 2011). Qualitative methods helped the researchers draw on participants' own experiences and language (in the interviews) to develop the set of survey items (the QOL domain) that were used to capture how DHH affects the QOL (Patrick et al., 2011). In addition to young DHH participants, researchers recruited parents and other adults who either were DHH or had expertise in DHH along with DHH clinicians, to help them develop the measure (P. 142). Participants identified the significant and relevant concepts of QOL that affected their physical, psychological, and social needs due to their hearing status (Patrick et al., 2010). The participants in the Patrick et al. (2011) study had differences by language modality, degrees of hearing loss, use of cochlear implants, and school placements. They were between the ages of 11-18. The YQOL-DHH was administered in web-based, paper-and-pencil, and sign language formats. The result showed that there is no relationship between the degree of hearing loss and quality of life. Participants between the age of 11-14 years had statically significantly higher scores on the participation domain and significantly lower scores on the perceived stigma than the group of 15-18 year olds. Participants with high QOL showed lower levels of depression.

Kushalnagar et al. (2011) studied the quality of life among young DHH participants (11-18 years old) and related it to the participants' perception of their communications with their parents. Participants' backgrounds varied in terms of degrees of hearing loss, CI use, and preferred language modality. Using both the generic YQOL-R and the DHH-specific YQOL-DHH, researchers discovered a positive correlation between participants' quality of life and lower levels of perceived stigma, lower depression symptoms, and higher level of understanding of their parents' communication. Measurements were administered in paper-and-pencil, web-based, and sign language formats. This study showed the importance of understandable communication between parents and their DHH children. The level of quality of life for Deaf youth varied with understanding of their parents' communication; when the level of understanding increased, the quality of life score significantly increased as well. Not only is accessible, understandable communication in the preferred modality between parents and their DHH children important to quality of life, it also affects the socioemotional development of children (Hintermair, 2006). Parental stress can also impact socioemotional development for DHH children; parental stress can be significantly stabilized by providing access to personal and social resources (Hintermair, 2006). This fact clearly strengthens the case for consulting and supportive programs of early intervention (Hintermair, 2006).

As in Patrick et al. (2011), the level of hearing loss did not affect the youth's perceived quality of life. Also, participants who preferred to use spoken language as their preferred language modality reported higher perceived stigma than those who used a combination (spoken and sign) as their preferred language modality: "The addition of sign language to the DHH

youth's daily communication appears to carry a beneficial effect in reducing youth perceived stigma associated with hearing loss" (Kushalnagar et al., 2011, p. 519-520).

Schick et al. (2012) studied the relationship between quality of life among Deaf youth and their school placements. Participants varied in terms of educational setting (i.e., schools with DHH programs, schools without DHH programs, and schools for the Deaf) and levels of hearing loss; the study also included participants with CI. Measurements were administered in paper-and-pencil, web-based, and sign-language formats. This research had three aims: 1) to examine the relationship between YQOL-DHH domains and school placements; 2) to examine the different scores of YQOL-DHH domains among DHH participants with hearing versus Deaf parent/s; and, 3) to utilize YQOL-R, an instrument designed for mainstream, to compare QOL between DHH youth and youth of the general population (Schick et al., 2012, p. 55). The researchers revealed that different school placements did not produce any significant differences for QOL in any domains of the YQOL-DHH. There were significant differences between the 11-14 year old age group in the participation domain and the 15-19 year old age group, and participants who had higher depression symptom scores received low scores on QOL. For the second domain, data revealed that the participation domain in a DHH school was significantly better for Deaf students with at least one Deaf parent. For the third domain (perceived stigma), DHH scores did not differ from the general population in the total scores; however, DHH youth have significantly lower scores on the sense of self and relationships domains.

On the other hand, Meyer et al. (2013) studied QOL in different school placements too, but they focused on only Deaf youth with severe to profound sensorineural hearing loss, both

with and without technology (i.e., hearing aid, CI). This study revealed that, across school placements (mainstreaming schools with DHH programs, mainstreaming schools without DHH programs, schools for the Deaf), Deaf youth who did not use hearing aids or receive CI had a higher QOL than those using hearing aids. These previous studies were unique in that they used instruments designed specifically for the DHH population (e.g., YQOL-DHH).

On the other hand, Stepanchak (2017) studied factors that affect the QOL of DHH adolescents who attend mainstream school; more specifically, this study focused on the relationship between the level of difficulties of understanding conversations and the QOL of DHH adolescents. This study used secondary data generated by the YQOL-DHH survey instrument. The results of this study revealed that there was a highly significant relationship between difficulty understanding conversations and low scores with the participation domain as well as high levels of the perceived stigma domain. However, the self-acceptance domain/advocacy domain is not associated with level of difficulty understanding conversations. Stepanchak (2017) predicted a significant relationship between mode of communication preferred by individuals and the levels of difficulties understanding conversations. In contrast with previous studies, the results of the study revealed that participants who did not prefer one language to another (sign language and spoken language) are at higher risk of having difficulty understanding conversations.

QOL with Adults

Some researchers have focused on QOL among college students due to the many necessary changes that happen at college age. Findings show that students with disabilities have

faced difficulties that may not occur for students without disabilities (Freeman, 2013). Some obstacles occur due to the shortage of good environmental preparation and others are disability-specific. For example, researchers showed that students with learning disabilities may experience challenges in transitioning to college due to the needs of being organized, making decisions, setting goals, and persisting in work (Field, Sarver, & Shaw 2003; Getzel, 2008). Other disability-experience issues relate to physical, social, and environmental obstacles, in addition to the stigma perceived by peers and faculty members (Dowrick, Anderson, & Acosta, 2005). One of the important movements today in the research of the rehabilitation psychology field is moving from focusing on a person's deficits and difficulties to focusing on environmental, personal strength, and other resources (Chou, Lee, Catalano, Ditchman, & Wilson, 2009).

Freeman (2013) emphasized the importance of adaptation and optimism for individuals with disabilities and confirmed that those are highly correlated to QOL. She investigated the relationship between optimism, adaptation of disability among college students with different degree of perceived disability, and the quality of life. Adaptation of disability is the process toward adjustment (Livneh & Antonak, 1997), when adaptation is promoted through the processing of understanding and accepting self-limitations and abilities related to the disability (Falvo, 2009; Livneh & Antonak, 2007). The Freeman (2013) study participants were divided into two groups: high perceived severity of disability and low perceived severity of disability. Participants who were low in perceived disability (N=103) had high scores in optimism, adaptation to disability, and QOL compared to the participants with high perceived severity of disability (N=126). She claimed that optimism can predict the quality of life for individuals with disabilities.

Fellinger et al. (2005) studied mental distress and quality of life among the Deaf population in Australia. This study included around 233 Deaf adult participants. Researchers administered the assessments in written and sign language to make it easy for the whole Deaf population. The result of this research showed that the Deaf population had statistically significantly lower scores on the physical and psychological domains compared to a hearing population of the QOL instrument as well as significantly higher scores in emotional distress. They suggest that the limited access of Deaf people to communication, especially in childhood with their families, may help explain the poor results in physical and psychological domains. Howlin and Rutter (1987) point out that problems with language in early age can cause emotional issues regardless of hearing status. Limited communication and access create stress that negatively affects an individual's scores on both physical and psychological domains. Persons in need of mental health services, for example, may need a sign language interpreter to access health care and for it to be effective (Fellinger et al., 2005). In Fellinger et al., (2005), the world that participants had lived in was not a Deaf friendly environment as compared to Sweden where sign language is comprehensively provided in society. Fellinger, Holzinger, Gerich, and Goldberg (2007) had a similar study with a sample of hard of hearing adults. The results showed that the hard of hearing persons had significantly lower scores on the social relationship domain of the QOL instrument than Deaf participants, had intermediate scores in mental distress compared to hearing and Deaf participants, and were significantly more distressed than hearing participants on the General Health Questionnaire and Brief Symptom Inventory. This study indicates that hard of hearing individuals experience restrictions and limitations on communication access when they live in Deaf communities, which use sign language as the primary language, and when they live in hearing communities which leads them to higher levels

of dissatisfaction in their social relationships. This leads to lower score on the social relationship domain for hard of hearing persons. In other words, they live as a minority group (hard of hearing) inside a minority group (Deaf). In addition, this article revealed that a person's satisfaction with their level of hearing correlates positively with QOL and negatively with emotional distress.

Jambor (2009) emphasized that QOL indicators for Deaf individuals are the same for hearing individuals, even though Deaf individuals have more needs due to their condition like the "need for communication, support and technology" (p. 27). She stated the following about Deaf people:

> They often have to strive to achieve quality of life since it is likely to be strained due to the functional limitations imposed on them by their deafness and the restricted social interaction that results from the communication barrier. Those deaf individuals who are able to make the best of the situation to improve their circumstances despite the difficulties they face, are likely to experience a higher quality of life than their counterparts with hearing loss. (p. 27)

She criticized a study that emphasized the disadvantages that Deaf people will suffer from living in non-inclusion settings, most importantly the limitation on their access to "social behaviors to function well" (p. 28), which affect the quality of life (Cartledge, Paul, Jackson & Cochran, 1991; Mertens, 1989). She also criticized another study conducted by Gilman, Easterbrooks, and Frey (2004) in which the researchers found that educational settings, either Deaf residential school or day school, do not affect a person's overall life satisfaction. She argued that both

studies had methodological problems in terms of sample size used in the studies, claiming that those samples did not represent the population.

Maxwell (2001) studied acculturation and psychological well-being for DHH. She emphasized the differences between acculturation (behavioral actions, cultural competence, and cultural attitudes) and social identity (psychological identification), which in some research are used interchangeably. Participants were divided into four groups based on their response on an acculturation scale (i.e., Marginal, Hearing Acculturated, Deaf Acculturated, Bilingual). The result of this study revealed that the Hearing Acculturated group had significantly higher scores on the self-esteem and life satisfaction scales than the Marginal group. Additionally, the Deaf Acculturated and Bilingual groups had significantly higher scores on both scales than the Hearing Acculturated group. The same outcomes were yielded when both scales (Self-Esteem and Satisfaction with Life) were combined to determine the overall well-being for participants. Also, parental hearing status and language used at home were predictors of the participants' acculturation. Participants who had Deaf parents or used sign language at home tended to score highly on Deaf Acculturation. In contrast, participants who had hearing parents or used spoken language at home tended to score highly in Hearing Acculturation (Jombor, 2009; Maxwell, 2001). These results show the influence of the environment and surrounding people on Deaf individuals' acculturations. This study did not include participants' social and economic indicators.

In contrast, Jambor (2009) found that DHH participants who were hearing acculturated, those who scored above the median on hearing culture scale and scored below the median on

Deaf culture scale, scored highly in self-esteem and life satisfaction compared to DHH who are Deaf acculturated in Nevada which were unexpected results to the author. This study also revealed that DHH who were hearing acculturated tended to have a high civic well-being, which assessed the services and access provided for the DHH people in Nevada. The researcher wondered whether the lack of services due to the small number of DHH people in the community contributed to the result; DHH who were hearing acculturated were able to benefit from access to services for hearing people: "Being able to utilize the services needed for succeeding in everyday life can boost self-esteem while the lack of those services may lead to lower self-esteem" (p. 92).

Another way of studying QOL within a community or minority group is to treat the participants as the object and the unit of the study (Flanagan, 1978) and ask them to define the term from their own perspective (McAbee, 2015). McAbee (2015) studied QOL qualitatively among DHH. Simply, her research asked Deaf participants to define QOL. She developed her interview questions based on QOL constructs found in the research of Schalock and Alonso (2002). Those constructs/domains are as follows: physical well-being, interpersonal relations, social inclusion, personal development, material well-being, self-determination, and rights. Five themes emerged from this research based on interviews with the Deaf participants: (a) the identity of being Deaf as who they are, (b) the equal importance of family and friends and its connection to QOL, (c) the importance of being independent, (d) the inadequacy of vocational rehabilitation services for increasing QOL, and (e) the problems relating to the interpreters in general and specifically in the medical field. The most frequently mentioned concept by the participants was being Deaf. They showed how that identity was important to themselves and in

building a relationship with others—even though the interviewer did not mention the word "Deaf" in her questions. There was an absolute relationship between QOL and being who you are (Deaf in this case), because their true identity is what creates meaning in their lives (McAbee, 2015).

Marschark, Machmer, Spencer, Borgna, Durkin, and Convertino (2018) studied the relationship between psychosocial functioning (cultural identity, social participation, stigmatization, quality of life, self-advocacy/acceptance) and the ability to perceive a language, in spoken and sign modality, among deaf students with and without CI in the first year of college. The researchers added the language component because it had not been investigated in the previous studies. The researchers surveyed participants about their acculturation and preferred language. Most of the participants with CI preferred spoken language as a method of communication while participants without CI preferred sign language. Participants received scores on how they perceive themselves and actual scores of their language abilities. Researchers administered all assessments twice, at the beginning and end of the first year. Marschark, Machmer, Spencer, Borgna, Durkin, and Convertino (2018) stated that,

> Foremost among the findings were consistent results contradicting any strong claims that either deaf acculturation and the use of sign language or cochlear implantation and the use of spoken language are necessarily essential to quality of life for young deaf adults. Regardless of how they arrived at this point, the two groups of students in the present study evidenced no real differences in the perceived quality of their lives. Many deaf individuals gain

benefit from the use of CIs, just as many do early access to sign language. (p. 37)

Education and Empowerment

Empowerment, as a concept, has been utilized on both the individual and collective levels with various terms like self-strength, self-reliance, independence, self-power, control, life of dignity in accordance with one's values, own choice, and own decision-making (World Bank, 2002). These terms have been used repeatedly as indicators in QOL research. Sen (1999) stresses that freedom, or action of empowerment, is a need for national development and that one of its basic requirements is social freedom—in other words, removing barriers that minorities encounter through such means as health care and education. He suggests that the expansion in relative freedoms in cultures reinforces QOL and economic growth.

Education is strongly valued in the concept of empowerment and is important for personal development (Goodale, 1995). Education and training have helped individuals increase their income, raise awareness about health issues, be productive, improve nutrition, and protect children's health (UNDP, 2013). At the same time, empowerment as actions differ by culture, age, gender, and socioeconomic status, and there is no one best way to attain empowerment (World Bank, 2002). Education is one way in the empowerment processes because it helps others to take decisions, be independent, and solve problems (Zimmerman, 2000): "Quality of education and education in accessible formats should be made available to [Deaf and hard of hearing (DHH) individuals] to improve their chances of gaining employment and thereby

increasing their standards of living and quality of life" (Nortey, 2009, p. iii). This may change a society's perception of a minority —in this case, a group of Deaf people.

Education and Quality of Life

Ross and Willingen (1997) propose that "education improves the subjective quality of life" (p. 276), and Corsaro (1997), Kentucky Council on Postsecondary Education (2016), and Sheppard-Jones, Kleinert, Butler, and Whaley (2018) agreed on the same concept. However, Ross and Willigen (1997) asked whether the psychological well-being of a person comes from the education he/she received or from what the education brought the person, such as an income source. Education enhances individuals' social support and personal control, which correlates with low levels of physical and emotional distress (Ross & Willingen, 1997). Rogot, Sorlie, and Johnson (1992) claimed that educated individuals live longer than individuals with low education.

Ryff, Magee, Kling, and Wing (1999) stated that there is a special relationship between education achievement and a person's developments and characteristics; educational achievement is the one that affects income and occupational status. They claimed that people see themselves and others through their level of education, and the level of the educational degree differentiates persons in the "social worlds" (p. 264). They indicated that education improves a person's decision-making, problem solving, social supports, and coping strategies. Also, Cuculick and Kelly (2003) indicated that there is a high relationship between the language skills, specifically reading ability, for Deaf students and the type of degree earned; students with high language skills are most likely to attain bachelor's degrees than students with low language

skills. They found out that higher language skills affect the cumulative students' GPAs and influence the rate of completion, especially for bachelor's and associate's degrees. Researchers referred to the study by Ryff and Magee (1995) to find the relationship between the education attainment and well-being for men and women in their midlife. The result of their study showed that there is a high relationship between a higher education degree and a higher level of well-being among women: "for men, there were also differences in well-being as a function of educational attainment, but the effects were not as strong" (p. 267). Educational attainment must be considered a QOL indicator because it influences the comprehensive well-being of DHH individuals (Jambor, 2009, p. 30).

QOL Services for DHH in Saudi Arabia

Deaf citizens in Saudi Arabia face both opportunities and barriers to a high quality of life. These opportunities and barriers are discussed below in relation to some of quality of life indicators. I will present the barriers in the beginning of each section, followed by the opportunities.

Health

One of the essential indicators of the QOL for individuals is access to health services (Center for Disease Control and Prevention, 2011). The issue of health services for people with deafness starts from day one of their lives. Before 2016, Saudi Arabia had only few hospitals, located in big cities, that provided hearing screening tests for newborns (World Health Organization, 2016). The annual report of the Ministry of Health (MOH) 2015 reported that hearing screening tests for newborns would be initiated in hospitals supervised by MOH. The

application plan of this service is described below where the "National Newborn Screening Program" is discussed. Lack of access to these screening tests resulted in families spending months or years without knowing about their children's hearing status, a delay that negatively affects DHH children's communication from the early stages of their lives (Hintermair, 2006). Delays in learning about deafness also delays parents' consideration of options such as cochlear implants or sign language. The reactions of parents vary in terms of acceptance of their children's hearing conditions. From a medical viewpoint, doctors may encourage families to choose cochlear implants for their child. However, families that want CI surgery may need to consider moving to a big city that provides the services (audiology and speech therapy) that are required following the surgery.

Only a few hospitals in the country provide the surgery and speech and audiology programs that must follow cochlear implant surgery. These rehabilitation programs last, sometimes, for more than 5 years depending on the child's growth and response to therapy. There is a greater shortage of rehabilitation specialists (speech pathologists and audiologists) than of doctors who have expertise in CI surgery. The surgery itself may last only about 20 minutes and the surgeons need to see the patient only once or twice a year for checkup, while the rehabilitation must take place regularly. It is hard for rehabilitation specialists to accept new patients due to the limited capacity (A, Hagr, personal communication, April 2, 2015), president International Arabic Cochlear Implant Conference (ACIC) and director of King Abdullah Ear Specialist Center (KAESC). Ideally, hospitals could provide family counselors who can present the options without any bias, so that the families can meet and discuss their particular cases. It would also be helpful for families facing a decision to be able to connect with others who have

who already gone through the process and have chosen different decisions, both CI-receivers' families and families who rejected it.

Another issue that falls under the health subheading is the communication services of hospitals. It is important for the DHH patient to communicate directly with doctors regarding all of their health conditions. Problems arise when hospitals do not provide translation services. The patients themselves have to bring interpreters with them, especially if the patient's language modality is Saudi Arabian Sign Language (SASL), and the translator may not be an expert with medical terms. The interpreters may be family members or professional interpreters; however, there is no professional job titled "SASL interpreters" in MOH, which mean the interpreters are volunteers working in different fields and they are often not available to be interpreters for DHH patients. This limits communication access and negatively affects the QOL of individuals' who are DHH. Ideally, there should be a system in the Ministry of Health to create a system that covers the shortage of specialists in the country. To date, there is no system for requesting and supplying interpreters for DHH patients, not even with the use of online technologies.

There are some services that can be considered as opportunities under the health domain. The Ministry of Health in Saudi Arabia provides free hospital services including surgery for all DHH. MOH has a project called the "National Newborn Screening Program." This program came about after the Royal Decree in 2005, to initiate a screening program to provide the appropriate early intervention and medical care at an early age; the program focused on 17 different type of diseases and disabilities including hearing loss (MOH, 2015). This program has been extended year by year and is moving forward step by step. The MOH's Annual Report of

2015 stated that it is the time to initiate the hearing screening for newborn program in referral hospitals as phase one of the project (MOH, 2015), while the second phase will cover the public hospitals based on their capacity and the number of babies that they deliver. Phase One of the project was launched in 2016 (MOH, 2016). MOH's Annual Report of 2016 stated that hearing loss screening programs have been introduced in 29 hospitals, where 62% of babies are delivered, with plans to expand the program to 71 hospitals in the beginning of 2017 in the second phase (MOH, 2016). MOH's Achievements Report of 2017 stated that MOH increased their percentage of examining newborn hearing screening test from 17% to 89% of newborns (MOH, 2017).

MOH also provides free hearing aids and maintenance of cochlear implant devices. For children who have received CI and been accepted in rehabilitation programs, MOH provides free flight tickets for the child and a family member to attend each appointment when the family lives in a different city. The MOH understands that there is a shortage in rehabilitation services around the country, so this is a quick fix to make sure that children keep getting the benefits of the CI and most importantly the rehabilitation to avoid any delay in language acquisition.

Education

One of the most important skills for children in early age is to have access to a language to communicate with parents and others (Moeller, 2000). Children diagnosed with hearing loss in Saudi Arabia often need to wait until school age to get any educational services. There are no early intervention programs provided for DHH children. DHH children may spend years and years around their family trying to figure out how to communicate with them. Parents often

create their own gestures or home language to have basic conversation, but this home language does not help the child to communicate with other DHH peers or with anyone outside the home. Children often reach school age without knowing a single word in SASL or only minimal number of SASL vocabulary.

Another problem is teacher preparation. There is no test or tool to evaluate the sign language skills of teachers who work with DHH students in Saudi Arabia. Any person who has a college degree in Deaf Education and passes the general teachers' tests administered by National Center for Assessment is qualified to teach DHH students. There is no test to measure teachers' SASL competence or signing skills, and low signing ability among teachers can negatively affect the quality of students' sign language learning and development.

In 2011, King Saud University (KSU) launched an undergraduate program for DHH students (KSU, 2018). This program is a transitional point in the history of Deaf Education in the country, offering hope for every DHH person in the country, as well as hope for families and advocates for Deaf Education. However, this program only focuses on Special Education, Art Education, and Physical Education majors for DHH men, and is restricted only to Special Education and Art Education for women (KSU, 2018). Those are the only disciplines currently offered by KSU, but there are plans to expand to other disciplines in the near future. We should not expect the KSU to offer all majors especially since the program is just getting started and is something entirely new in the country. However, it is still worth noting the value of offering majors that meet DHH interests such as computer science.

Still, the undergraduate program for DHH students is a great step toward improving the QOL for DHH (Sheppard-Jones, Kleinert, Butler, & Whaley, 2018) in Saudi Arabia. Establishing undergraduate programs for DHH students creates more college-educated role models, raises awareness among hearing people and decision-makers, and shows there is no difference between DHH and hearing persons in their capacity to obtain higher education degrees. This program also has hired some deaf students and prepared others for graduate school. One of the goals/objectives of this program is to prepare DHH teachers, empower them, and help them to become leaders in the deaf education field, which will be a significant change in the field (KSU, 2018) and will expand to the quality of teaching for DHH children too. Since sign language is often their natural and mother language, communication barriers should be minimal.

Students who are not accepted into the program may apply to two-year program at the Technical and Vocational Training Corporation under the College of Telecom and Information, which was launched in 2004/2005. This college offers an associate degree program for DHH to be specialized in Office Applications and Computer Maintenance (College of Telecom and Information, 2018). The variety of options is growing slowly due to the shortage of specialists. The government of Saudi Arabia has encouraged improvements in Deaf Education by providing scholarships for both DHH and hearing students in the field. DHH students have received scholarships and are studying in U.S. universities famous for their programs in the Deaf Education. This is another opportunity for DHH students who are willing to study abroad. A few years from now, there will be greater numbers of DHH who have earned either undergraduate or graduate degrees with the hope of continually supporting others like them in their future careers and advocating for the future of the education of DHH individuals.

Communication Services, Accessibilities, And Participations

As described above, the shortage of interpreters and interpreting majors is a significant issue in the QOL for DHH (Kushalnagar et al., 2011). Communication and understanding others has often been studied as a QOL indicator (Hintermair, 2006; Kushalnagar et al., 2011).

A number of new organizations have been supported by the government, led and run by specialized persons in the field of Deaf Education and Interpreting (e.g., Saudi Society for Sign Language Interpreters). Along with organizations led and run by DHH individuals participating in community events side by side with other organizations like Deaf Education and the Deaf Youth Group. Such organizations are one of the best ways to make DHH voices heard and allow them to participate actively in the society.

In 2018, the Saudi Society for Sign Language Interpreters organization, established in 2017, collaborated with the Ministry of Education to provide scholarships in the major of Sign Language Interpreting for students abroad (SA scholarships, personal communication, February 22, 2018). People who are hard of hearing, children of Deaf parent/s, and interpreters have priority to apply for this scholarship (Saudi society for sign language interpreters, personal communication, February 27, 2018). This is a great step toward professionalizing interpreting in the country especially since there is no sign language interpreting major at any Saudi Arabian university. Hopefully in the near future, those scholarship receivers will use the full benefits of the knowledge that they have gained through their studies to certify many interpreters in the country. The Saudi Society for Sign Language Interpreters organization works as an advocate for DHH rights for living as a human. It has signed an agreement with Saudi Patient Safety Center to

provide health services related to improving the safety of DHH patients (Saudi society for sign language interpreters, personal communication, March 21, 2018). Recently, the head of this organization reported on a meeting that included the Minister of Communications and Information Technology, Director of Saudi Patient Safety Center, and the organizations' representatives. Their aims were to improve communication services for DHH individuals in security services by applying technology to serve as mediators and to improve the communication services for DHH in hospitals to limit the problems that DHH may have due to miscommunication between health practitioners and DHH individuals (Saudi society for sign language interpreters, personal communication, April 3, 2018). Saudi officials have promised to begin offering these services soon. When implemented, these services will improve the QOL of DHH individuals.

Alongside the previously mentioned communication services for the DHH, Elm company works side by side with the government to improve government services and facilities. They have announced a new application "Eshara" to improve communication services for DHH individuals (Elm, personal communication, February 20, 2019). This application provides immediate live interpreting services free of charge. Elm plans to grow gradually to cover all the facilities and services that need interpreting services between DHH individuals and the service providers (Elm, 2018). Immediate action from Dammam Airports Company announced that they will use this application to facilitate communication with DHH in King Fahd International Airport (DACOKSA, personal communication, February, 26, 2019). In the same context, Ministry of Communications and Information Technology announced (MCIT) a competition titled "Best Technical Solution for DHH" under the theme "our hearts are listening to you" in

three different disciplines: immediate translation, health field, and educational and cultural field. The focus of the competition is to use technology to implement best ideas of resolving issues related to communication for DHH, including and not limited to government departments, which enhance the individual's' independence and privacy. The MCIT last 6 months from registration to the announcement of the winners (November 26, 2018 - April 25, 2019). To make it highly competitive, MCIT will distribute a half million Saudi Riyal among the winners in the disciplines.

Other organizations and Deaf Clubs also exist that help DHH individuals to participate in community events (e.g., Deaf Youth Group, Saudi Association for Hearing Impairment). There are many Deaf Clubs across the country that provide weekly programs for DHH individuals. Most of those clubs have been established by hearing people. Recently, some of those clubs have transitioned their leadership from hearing people to a full staff of DHH people (as with Deaf Club in Riyadh). These clubs and organizations participate in public events to raise awareness about deafness and to speak up about the rights of DHH individuals. Recently, they celebrated a public awareness event under the theme “Listen to Me” (E. Alhadlaq, personal communication, April 21, 2018). Also, some educated DHH adults have used social media platforms to speak up about their rights, through their own channels. Some others have reported in newspapers on subjects related to Deaf people and Deaf culture. These steps and activities are important to help the DHH community grow and be part of the larger society.

Recently, the King Salman Center for Disability Research (KSCDR) hosted an international conference in Riyadh, Saudi Arabia, the 5th International Conference on Disability

and Rehabilitation, which presented more than 80 speakers from 24 countries. Mr. Colin Allen, World Federation of the Deaf President and International Disability Alliance Chair, was invited to provide a workshop for DHH between 3-5 of April, 2018 in Saudi Arabia titled the Deaf Leadership Workshop, 2018. Liz Scott Gibson, World Association of Sign Language Interpreters President, was the guest of honor and contributed to the workshop. The target audience was between 12-16 participants of both genders, all members of the Saudi Association for Hearing Impairment. This event demonstrates how the government is looking to empower DHH individuals in the country. Some open discussions with DHH individuals followed, in the Saudi Association for Hearing Impairment. The same center hosted a conference in 2015, which included a significant 4 day workshop for interpreters titled "Signed Language Interpreters: What do we need to do to be true allies of the Deaf Community?" presented by Dr. Debra Russell, Liz Scott Gibson, and Jonas Carlsson (KSCDR, 2018).

With many historical changes happening in Saudi Arabia, Hamad Alhamad, a prominent member of the DHH Saudi community who graduated with a master's degree from Gallaudet University, presented at the annual conference at Sharjah City for Humanitarian Services (SCHS) in the UAE, on the theme "5% Within Frequency Range" on 17-18 April 2018 (SCHS, 2018). His presentation's title was "Cultural and Educational Experiences of the Saudi Deaf." It is great to move forward to enable and empower DHH individuals. The DHH community recently celebrated their many achievements in their first Annual Forum of Deaf Achievement in Saudi Arabia sponsored by Makkah Chamber of Commerce (Makkah chamber of commerce, personal communication, March 8, 2018). One of these achievements is that a member of the DHH community, who was also the first to lead the SASL training, has launched a SASL

training program for hearing audiences; this comes after years of SASL training programs that have been exclusively provided by hearing people.

Some other recent events deserve emphasis. The Saudi Association for Special Education, collaborating with other Deaf organizations, launched a public event under the theme "Listen to Me" between 25-29 of April 2018 (E. Alhadlaq, personal communication, April 21, 2018); Prince Sattam Bin Abdulaziz University (PSAU) hosted the 43rd Arab Deaf Week in April of 2018 under the theme "Empower Deaf" (PSAU, personal communication, April 25, 2018). They invited highly educated DHH adults to administer and present the event. The Princess Alanood Foundation has initiated programs related to youth empowerment, including an event titled "My Job" for DHH (Warif, personal communication, April 23, 2018). This event was presented by eight DHH adults from both genders. Also, this organization held a training program between 28-30 April, 2018 related to the theme "My Job", focusing on helping DHH to search for employment, setting up meetings with job providers (stakeholders), and helping DHH participants to create their CVs (Warif, personal communication, April 25, 2018). It is noteworthy that, while at past DHH events, the speakers and leaders have generally been hearing people, DHH individuals have recently taken the lead, proving that they are able to do anything hearing people can do when they are given the opportunity. I believe that progress in education for the DHH individuals, along with the government's consistent support, may be instrumental in empowering DHH persons and resulting in a higher QOL for DHH individuals in Saudi Arabia.

Summary

Some research related to QOL focuses on specific educational settings and comparing them to others (Schick, Skalicky, Edwards, Kushalnagar, Topolski, & Patrick, 2013). For example, studies focus on the differences of quality of life between students who attended residential schools and those who attended inclusion programs for certain levels of education (e.g., elementary or middle school). Other studies focus on the method of communication, particularly with deaf participants, in home and school and how that method of communication (e.g., oral or sign language) enhances a child's self-esteem (Hintermair, 2008), which affects the quality of life outcome. Other studies of quality of life constructs have compared students with a certain kind of disability to their nondisabled peers (Hintermair, 2011; Schlesinger, 2000), or to participants with different types of disabilities (Chao, 2018). Some other studies focus on services and accessibilities at the educational setting (West, Kregel, Getzel, Zhu, Ipsen, & Martin, 1993). Also, there are studies that have compared the QOL among specific groups with different postsecondary education degrees (Schroedel & Geyer, 2000).

Researchers have studied QOL from different angles to investigate and explore the level of QOL for DHH individuals. Communications, accessibility, acculturation, literacy skills, and hearing aids were the most common topics that researchers have focused on. Some of those issues are the purview of family, educational system, or the society. Researchers are connecting the dots between them to come up with a clear picture of the QOL indicators.

Marschark, Machmer, Spencer, Borgna, Durkin, and Convertino (2018) have added the variable of language skills for first year students accepted in college to fill the gap found in the literature. In the case of the King Saud University program for the DHH, students take competitive language placement tests before starting the program. Students will be sorted based on the results of their language test. Students who meet the language requirements are admitted to the language preparation year, which is held before the actual academic program. The research by Marschark, Machmer, Spencer, Borgna, Durkin, and Convertino (2018) directs my study to go a step beyond investigating language skills at the higher education level, and instead focus on how the higher education degree may enhance QOL of DHH individuals in KSA. Most likely, DHH students who earned bachelor degrees have high level of language skills too (Cuculick and Kelly, 2003). My research builds on this previous body of QOL research by exploring how higher education enhances QOL for DHH individuals.

Higher education has been shown to enhance the QOL for individuals with intellectual disabilities (Sheppard-Jones, Kleinert, Butler, & Whaley, 2018). However, there is a part missing in the current literature of QOL with DHH individuals. I have not found a single study that compares the QOL of a group of DHH participants holding various postsecondary degrees with other DHH participants who have only a high school degree. My research will add value to the QOL research regarding DHH persons.

Chapter 3:

Methodology

Research Questions

1. To what extent does a high education level have some influence on the quality of life (participation, self-acceptance/advocacy, perceived stigma) for adult D/HH students in Saudi Arabia?
    1.1. Is there a difference in QOL (participation, self-acceptance/advocacy, perceived stigma) between modes of communication (signing, speaking, both) used by parents with their DHH children?
    1.2. Does the QOL (participation, self-acceptance/advocacy, perceived stigma) differ among Deaf and hard of hearing adults based on gender?
    1.3. Do Deaf adults differ from hard of hearing adults in the QOL (participation, self-acceptance/advocacy, perceived stigma)?
    1.4. Does school placement enhance the QOL (participation, self-acceptance/advocacy, perceived stigma) of DHH individuals?
2. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their relationship with family?
3. Do Deaf adults differ from hard of hearing adults in the level of satisfaction of their communication with family?

Participants

In the current study, I am focusing on participants who identify and consider themselves to be Deaf or hard of hearing (DHH) individuals, including participants with cochlear implants;

participants with additional disabilities (mental functioning related disabilities) were excluded to avoid any effect on the results from other disabilities. Participants were categorized either Deaf or hard of hearing based on self-identification. They were not asked to provide hearing test charts or any medical results. Self identification allows persons to be who they are. The hearing loss is not the direction of this research, and in fact, a person's culture might be a stronger indication of their identity. Due to the unique conditions of Deaf and hard of hearing persons, researchers have come up with variety of categorizations of identity for most common conditions of DHH individuals. For instance, Holcomb (1997, p.90) came up with seven categories (*balanced bicultural, deaf-dominant bicultural, hearing-dominant bicultural, culturally isolated, culturally separate, culturally marginal, and culturally captive*), and DHH persons may fall in one of them. In this research, participants chose the best category that fits their identities—Deaf or Hard of Hearing.

Additionally, I included both genders of DHH adult individuals who have earned one of the following degrees: high school, vocational training, bachelor's degrees, or graduate degrees. Preference was given to participants who have received a bachelor's or higher educational degree no less than 6 months prior to data collection, and no less than a year for both high school and vocational training degrees. In other words, the plan was to exclude participants with a short span between the time of graduation and the time of collecting data, as long as I was able to get the desired number of participants in this category. The intent for allowing this length of time after graduation was to lead to a higher possibility that participants have begun engaging in their working lives. The total number of desired participants for this study was between 150 and 200; there was intent to include DHH adults individuals from various educational backgrounds—

those with high school degrees (~50 participants), with technology and vocational training degrees (~50 participants), and with bachelor's degrees (~50 participants). While these were the main participants sought for this study, participants with advanced degrees or those who have studied abroad were also included. Participation was voluntary and any collected data would remain anonymous.

Sampling Procedure

Quota sampling was used to recruit the participants. Acharya (2013) explained the Quota sampling as "The sampling procedure that ensures that a certain characteristic of a population sample will be represented to the exact extent that the investigator desires" (p. 332). Participants were recruited through different types of communications. To recruit those with bachelor's degrees or vocational training, I asked the King Saud University (KSU) and Technology and Vocational Training Corporation (TVTC) to send the survey to the participants through their system. In an attempt to recruit participants with varied educational experiences, I circulated material through social media outlets and at the DHH organizations and clubs around the country. WhatsApp, one of the popular apps that DHH people use to communicate with each other, was used to recruit participants too. Furthermore, The Ministry of Education offers scholarships to study abroad for the citizens who are qualified, including DHH. The current study also targeted DHH individuals who earned higher education degrees by studying abroad. To ensure that every DHH with a bachelor's degree has received the invitation, the DHH Saudi foreign organizations platform was used to recruit DHH students who studied abroad and who graduated with bachelor's or post-graduate degrees.

Design

A quantitative research approach has allowed investigation of the QOL of the Deaf population in Saudi Arabia and given validity to the relationship between the independent and dependent variables (Creswell, 2014). This study has a non-experimental, specifically causal-comparative research design. Causal-comparative research is used "to identify cause-and-effect relationships by forming groups of individuals in whom the independent variable is present or absent-or present at several levels-and then determining whether the groups differ on the dependent variable" (Gall, Gall, & Borg, 2007, p. 306). Level of education, gender, communication with family, mode of communication, and being Deaf or hard of hearing have been identified as independent variables in this research while the QOL is the dependent variable. This study does not address change over time, because no intervention has been applied.

Measure

In this research, the self-administered, Youth Quality of Life instrument-Deaf and Hard of Hearing (YQOL-DHH), was used (see Appendix B) invented by Seattle Quality of Life Group (2010). Demographic questions were added (see Appendix A) to collect data related to the educational backgrounds, hearing status, mode of communications, genders, and attendee and non-attendee perspectives toward the DHH program at KSU. YQOL-DHH describes QOL for DHH individuals. It contains 32 questions divided into three domains: self-acceptance/advocacy, perceived stigma, and participation. The survey is provided in Appendix B. This instrument has been designed and normed for the youth (11-18) DHH. However, some researchers have used it with participants older than 18 years old (Marschark, Machmer, Spencer, Borgna, Durkin, &

Convertino, 2018). I have contacted one of the authors who was part of the validation phase of the instrument, and they confirmed that this instrument can be used for adults too. YQOL-DHH demonstrates good cross-sectional reliability and validity with DHH youth participants (Patrick, et al., 2011). This instrument contains 3 domains: self-acceptance/advocacy, perceived stigma, and participation. The item-scale correlations for those domains in internal consistency and test-retest reliability are between 0.84-0.86 for participation domain, 0.82-0.91 for self-acceptance/advocacy domain, and 0.81-0.91 for perceived stigma (Patrick, et al., 2011). Participants have done test-retest within approximately one week and "the intraclass correlation coefficients exceeded the recommended 0.70 on all 3 component scores" (Patrick, et al., 2011, p. 140).

Prior to the current study, the YQOL-DHH questionnaire had not been translated to Arabic language yet. To avoid any concern about language difficulties in filling out the survey, Saudi Arabia Sign Language (SASL) was also provided. Participants had access to each question in two forms--written Arabic and SASL. A forward-backward translation process was used to translate the questionnaire. The process of the translation followed the steps of Guillemin, Bombardier, & Beaton (1993) except that I added the steps of adding a third language to the process (SASL). Table 3 organizes the translation process visually. The forward-translation of the YQOL-DHH questionnaire was translated to Arabic by the current author, a native Arabic speaker. Two native Arabic speakers, who specialize in linguistics, English, and interpreting, and are also professors from the English Department in one of the western universities in Saudi Arabia, were asked to review the accuracy and appropriateness of the forward-translation. In the

translation process we considered the following: (1) the level of language should be similar to the original survey--not exceeding a fourth grade level—in order to be appropriate for most of

Table 3

Forward-Backward Translations Process

Stage	**Process of Translation**
Forward	1- Author translated the original version from English to Arabic.
	2- Two professors of English who are Arabic speakers reviewed and edited the Arabic translation.
	3- A professor in Deaf Education who is an interpreter too validated the contents.
	4- A professor in English who is a native Arabic speaker validated the translated Arabic version.
Backward	5- Two Professors in English who are native Arabic speakers complete a back translation from the Arabic version to English.
	6- The original inventor reviewed and approved the translated versions.
	7- I conducted a pilot study with DHH participants to validate the clarity of the written and signed versions
	8- I applied the feedback on the final written and signed versions of the survey.

the targeted participants; (2) questions should be culturally relevant, and (3) appropriate terms were added to include all graduates, not only current students. A native Arabic speaking professor specializing in Deaf Education reviewed the items to clarify the appropriateness of terms and provided suggestions. He validated the content of the Arabic version (see Appendix C). Additionally, to validate the translation, a third native Arabic speaking professor specializing in the English Department at one of the southern universities in Saudi Arabia reviewed the translation versions and certified the proficiency of the translation.

Each question utilizes a likert scale from 0-10 points, where 0 represents "not at all" to 10 "very much." Furthermore, two professors specializing in linguistics, English, and interpreting-related majors at one of the universities in north central Saudi Arabia were asked to do backward translation from the Arabic version to English version. Backward translation was used to identify the accuracy of the translations of the original version of the survey.

This questionnaire then was interpreted from Arabic to SASL versions (see Appendix D) by a professional and expert interpreter. The interpreted version was created to allow DHH participants to have access to the survey through their choice of language (Arabic and/or SASL). The interpreter is involved in DHH community and has been a teacher and interpreter for over 20 years. He was one of the essential interpreters in DHH club in Riyadh before he went to pursue his PhD in Deaf Education. All documents with the final product have been reviewed and approved by the original survey inventor.

The computer-assisted data collection app QuestionPro was used as the mode of administration for this survey. This mode was helpful for the intended participants in terms of accessibility. It has some features that could make the questions easier for them. It is possible to add a link under each written question to view the question in SASL for those who prefer to use SASL or for those who face difficulty understanding some questions. This feature enhances the reliability of the questionnaire. Also, the survey was tested on multiple platforms (e.g., phone, laptop) prior to administration.

Survey modifications

A few survey revisions were necessary to better align with participants in this study. Originally, the YQOL-DHH questions were written for student participants whereas my anticipated participants ranged between current students, graduated students, and working participants. Thus one statement, "I feel okay telling my teacher about my needs," was changed to "I feel okay telling my teacher/boss about my needs." Also, there were needs for updates regarding outdated technologies. For example, "I feel I have enough technology, such as pagers, videophones, texting, and/or internet to communicate as a person who is deaf or hard-of-hearing." I have omitted pagers from the list since it is rare to find a person using pagers these days in Saudi Arabia, whether DHH or hearing persons.

Variables

The variables in this study are presented visually in Table 4.

Quality of life for DHH persons: this variable was derived from Youth Quality of Life instrument-Deaf and Hard of Hearing (YQOL-DHH). YQOL-DHH contained 3 domains:

participation, self-acceptance/advocacy, and perceived stigma. Participants rated each item on a scale from 0-10. Scores were transferred to 0-100 points scale per domain. Those domains were calculated by computing the mean of each domain. High scores (one standard deviation above the mean) on participation and self-acceptance/advocacy indicate high QOL, whereas a high score on perceived stigma indicates poor QOL. The missing data should not exceed 80% of each item scale within each domain.

Table 4

Variables of the study

Variables	**Description**
Quality of life	QOL domains are participation, self-acceptance/advocacy, and perceived stigma.
Levels of education	Highest degree the person has attained (high school or less, occupational, bachelor, masters, doctorate).
Mode of communication	Childhood way of communication with parents (speaking or signing).
Education background	College majors (Special Education, Art Education, Physical Education).
Gender	Self-identified.
Deaf vs hard of hearing	Self-identified.
School placement	Residential school for DHH, Deaf mainstreaming program, or hard of hearing mainstreaming program.
Levels of satisfaction in the relationship with family	1-5 likert satisfaction scale from very unsatisfied to very satisfied.
Satisfaction of communication	1-5 likert satisfaction scale from very unsatisfied to very satisfied.

Demographic questions provided the following variables:

Levels of education: the highest level of schooling attained (i.e., high school or less, occupational, bachelor, masters, doctorate). The primary participants of this study were those with high school or less, occupational experience, and bachelor degrees.

Mode of communication (signing vs. speaking): this variable is to identify the communication used by parents to communicate with their DHH child.

Education background: this variable identifies the major of DHH participants who attained BS degrees. The anticipated majors in this study are those currently offered at KSU for DHH (i.e., Special Education, Art Education, Physical Education).

Gender: self-identified on the survey as female or male.

Deaf vs. hard of hearing: self-identified on the survey as Deaf or hard of hearing. I did not ask for medical report to identify the participants.

School placement: the primary and secondary education experiences of the DHH participants (i.e., residential school for DHH, Deaf mainstreaming program, Hard of hearing mainstreaming program).

Levels of satisfaction in the relationship with family: Participants responded to a survey question that asked them to rate their relationship with their parents and siblings on 1-5 likert satisfaction scale from very unsatisfied to very satisfied.

Satisfaction of communication: Participants responded to a survey question that asked them to rate their satisfaction of communication with their family on 1-5 likert satisfaction scale from very unsatisfied to very satisfied.

Procedures

The following (See Figure 1) illustrates the procedures that shaped the current research. More details are provided in the following sections.

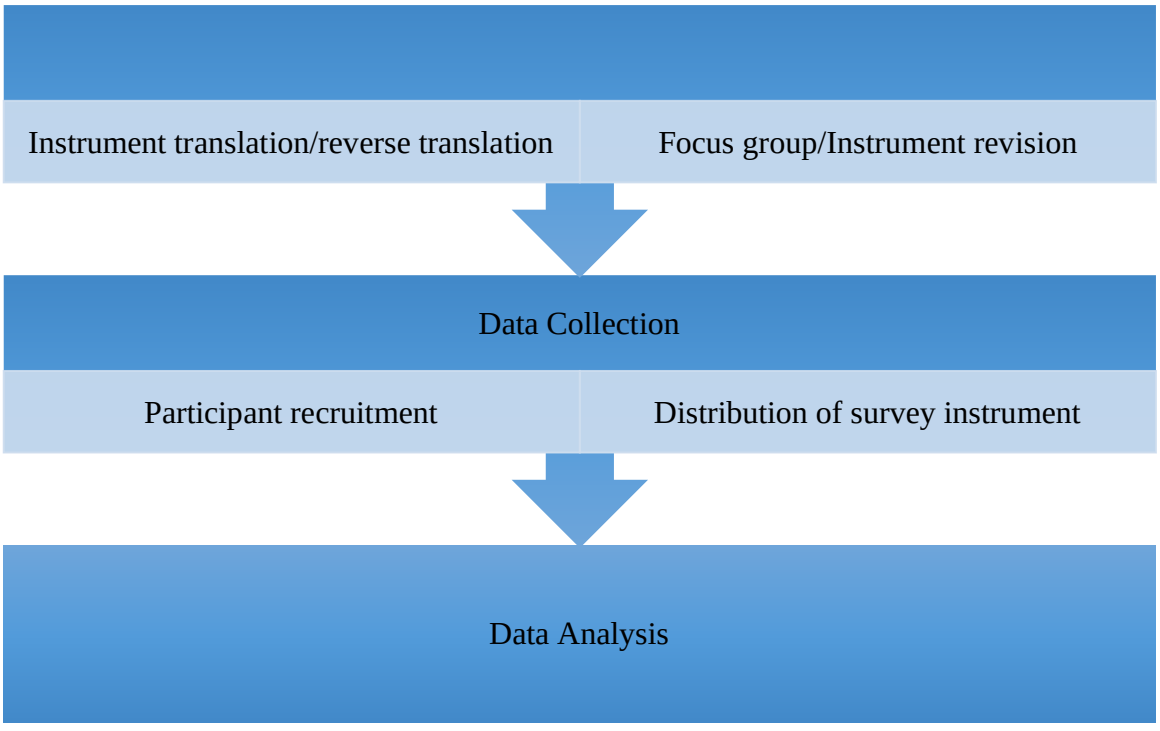


Figure 1. Research Procedure Chart. This explains the steps of the current research.

Pilot Study

A pilot study was conducted to find out any issues related to the translated questionnaire versions (Arabic and SASL). The total participants who responded to the survey were 10 men and 3 women; however, only a total of 10 (9 men and 1 woman) completed the full survey. Seventy percent of them identified as Deaf whereas 30% of them are hard of hearing. I have limited access to women participants due to the separation of genders at all levels of the education system in Saudi Arabia. I did not anticipate this to be an issue in the real study due to the use of platforms that will allow for the recruitment and involvement of participants via technologies. Of the survey respondents, two DHH male participants volunteered to complete an in-depth interview following the survey. These interviews allowed the comparison of data derived from both sources (surveys and interviews), and allowed for input on the level of clarity of both survey versions (Arabic and SASL).

The first interviewee revealed that differences in responses may be based on the timeframe that the interviewee considered when answering. For example, "I feel okay telling my teacher/boss about my needs?" This question was highly rated on the survey, whereas the same question was poorly rated during the interview. The interviewee explained that since the survey did not give an explicit timeframe, he decided to answer the question based on previous years (i.e. elementary school). However, the timeframe of present day was obvious to him during the discussion. As the participant explained, the level of communication skill of the teachers is associated positively with students' feeling okay to share their needs. To avoid any discrepancy with the DHH participants' responses, I added timeframe specifications in the instructions of the survey.

Another issue revealed during the interview was where the SASL version was sometimes not identical to the meaning of the written question. An example from the survey was the following statement, “I feel I have enough technology, such as cell phone, texting, and/or internet to communicate as I am deaf or hard of hearing.” The issue here, as he explained, is that he depended on the SASL version of this question due to difficulty of understanding the written version. After reviewing both versions, we found out that the interpreter added “such as, communicating with hearing.” The participant thought of the question as only pertaining to the technology that helped him communicate with hearing people through the invention of an app that would be able to translate his SASL into a written form. The SASL version was revised afterward for the sake of clarity.

The data of the second participant were matched in both the survey and the interview. I was not able to proceed to more surveys and interviews due to technical issues encountered during the pilot study. The survey had a glitch that led to participants being logged out over 7-10 times, which considerably lengthened the session time and could lead to participation attrition. The rest of the participants started their responses after the interview of the second participant was completed. Many of the participants gave up because of the technical issues encountered during the survey. These issues were later discussed with a technician, who confirmed that there was an issue during the timeframe of the pilot study. They confirmed that the issues encountered during the pilot study have been resolved and should not occur for the actual participants of this study. Thereafter, I set up a focus group with all DHH who participated in the pilot study following the survey to discuss any translation issues that occurred, including appropriate wording, and making sure that the main content was the same in each version. The goal here was

to reach very high agreement on the appropriateness of the translation and enhance the reliability of the instrument. I relied on open discussion during the focus group (i.e., what do you think about the survey (feedback)? Did you have any difficulties during the survey?).

The results of the focus group informed survey revisions in three different areas: wording, signing, and designing. Different wording choices were suggested by participants of the pilot study to be adopted for two questions in the Arabic written version. Most focus group members agreed that two statements were difficult to understand because of the wording of the translations (i.e., I am financially standing on my own; I support Bachelor degree programs for DHH at KSU). Second, they identified areas of the videos where the interpreter unintentionally integrated ASL signs (e.g., feel, age) into SASL expressions, which may not be fully understood by Saudi Deaf. Participants suggested adding examples for most of the questions in order to seek clarity and also suggested giving pauses between the questions and the examples. Lastly, they offered some technical advice related to the SASL version. They suggested typing the question including the number of the question in each SASL clip. Also, they suggested using a black background instead of white for those who have vision difficulties. All of the described feedback was applied to the final version of the survey.

Study Setting

The survey was distributed to the participants through social media accounts of DHH clubs and organizations in Saudi Arabia. Starting in mid-September of 2019, the survey was presented in 4 different DHH clubs (for both genders) across the country. Three of these clubs are located in the biggest cities (Riyadh, Jeddah, and Dammam) with a large DHH population.

The fourth city is Jazan due to its large population of DHH and the researcher's access to this DHH population. Other DHH clubs were invited to participate as well. An interpreted version was provided for two reasons: to respect participants for whom SASL is their first language, and to help DHH who are struggling in understanding the written Arabic Language. The anticipated length of administration of the YQOL-DHH written version was 12 minutes whereas the anticipated length of administration of SASL version was 25 minutes. The YQOL-DHH survey contained 32 questions.

Data Analysis

As an important first step, I started with data cleaning before running any analyses. The program that was used for the data analysis process was the Statistical Package for the Social Science (SPSS). After data were entered into SPSS, they were checked to minimize missing and incorrect data. The maximum percentage of missing data allowed for each variable was 20%. Missing data cells were replaced with group means. After that, I ran the descriptive statistics and frequencies to find any outliers. I ran the frequencies of the data and presented the results in table format.

Table 5 contains each research question with its respective analysis. For the first question an ANOVA was applied to find the influences of higher education degree on the QOL of DHH persons. Furthermore, the 1.1 question investigates the relationship between QOL and mode of communications used with the participants in their childhood. In order to do so, an ANOVA was applied. Additionally, descriptive statistics were calculated to find the average scores of the data on each construct. To see if there were QOL differences between the genders (question 1.2), an

independent t-test was calculated. The 1.3 question investigated QOL among Deaf vs. hard of hearing. An independent t-test was applied to analyze this question. An ANOVA was used to analyze the 1.4 question, which asked whether there was a relationship between school placement and QOL for DHH individuals. The second research question related to the level of Deaf vs hard of hearing participants' satisfaction with the relationship of their family was addressed using an independent t-test. An independent t-test was also applied to the third question focused on the level of communication satisfaction among DHH participants with their family.

Potential Weaknesses/Challenges of the Design

The current design of this research does not provide an opportunity for me to interact with participants in depth, through interviews or observations. There is no opportunity for develop additional themes, as the QOL domains were already identified on the provided survey. Also, during the research phase of translating the questionnaire to SASL, the focus group participants generally focused on men due to the separation of genders at all levels of education. One of the limitations is that this study may not include DHH individuals who are not active in DHH events, clubs, social media, and organizations. Also, DHH individuals who do not have access to the internet may not be able to be part of the study. Also, one of the limitations of this study is that there are a small number of Deaf and hard of hearing students who have graduated from the post-secondary program. The program may not have been in existence long enough to give a comprehensive picture about how higher education may influence the quality of life for the Deaf and hard of hearing population.

Table 5

Analysis by Question

Analysis	Question
ANOVA	1. To what extent does a high education level have some influence on the quality of life (participation, self-acceptance/advocacy, perceived stigma) for adult D/HH students in Saudi Arabia?
ANOVA	1.1 Is there a difference in QOL (participation, self-acceptance/advocacy, perceived stigma) between modes of communication (signing, speaking, both) used by parents with their DHH children?
Independent t-test	1.2 Does the QOL (participation, self-acceptance/advocacy, perceived stigma) differ among Deaf and hard of hearing adults based on gender?
Independent t-test	1.3 Do Deaf adults differ from hard of hearing adults in the QOL (participation, self-acceptance/advocacy, perceived stigma)?
(3 school placements) ANOVA	1.4 Does school placement enhance the QOL (participation, self-acceptance/advocacy, perceived stigma) of DHH individuals?
(1-5 Likert scale) Independent t-test	2. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their relationship with family?
(1-5 Likert scale) Independent t-test	3. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their communication with family?

Chapter 4:

Analysis

The questionnaire for this study was distributed widely among DHH adults in Saudi Arabia. I encountered difficulties finding enough participants with bachelor's degrees due to the recency of the program, so the 6 month wait time was waived for those participants. Out of 1056 participants who launched the questionnaire, 313 participants completed all of the scales' questions. Respondents spent on average 29 minutes completing all of the questions. Six participants who had not completed at least 80% of each scale were removed. Two additional participants with intellectual disability conditions were removed due to lacking the criteria required to be included in the current research. After removing unqualified responses (i.e. intellectual disability condition, number of cells completed), a total of 305 surveys remained. In the analysis of the YQOL-DHH survey, the score for each scale (participation, perceived stigma, self-acceptance/advocacy) was transformed to a 0-100 range. I used reverse scores for negative statements of the perceived stigma scale, as the lower scores in perceived stigma indicated higher QOL of participants unlike the other scales (i.e. participation and self-acceptance).

Descriptive Statistics of Survey Respondents

Descriptive statistics of the participants are presented in Tables 6-8. Participants' ages ranged between 18-60 years old. Of the participants, 62.3% (N=190) were male, and 37.7% (N=115) of the participants were female. The hearing status of the participants varied including Deaf, hard of hearing, and hearing. Of the participants, 74.8% (N=228) self-identified as Deaf, 24.3% (N=74) as hard of hearing, and 1% (N=3) as hearing (who were CI users).

In terms of higher education, 39% (N=119) of the participants had attained a high school degree, 37% (N=113) an occupational degree, 20.7% (N=63) a bachelor degree, 2% (N=6) a master's degree, and 1.3% (N=4) a doctorate degree. Of the participants, 5.6% (N=17) reported having additional disabilities including vision disability, physical disability, and sickle cell anemia. Those surveys indicating an intellectual disability (N=2) were removed.

Most of the participants reported that they have hearing parents. Of the participants, 86.9% (N=265) reported that they have hearing fathers, and 90% (N=277) have hearing mothers. Additionally, 10.5% (N=32) of the participants have Deaf fathers, and 5.9% (N=18) have Deaf mothers. Only 1.3% (N=4) of the participants have hard of hearing fathers and 2% (N=6) have hard of hearing mothers. Of the participants, 1.3% (N=4) did not report their parents' hearing status.

In terms of marital status, more than half of the participants reported being single--59% (N=180) of all participants. Furthermore, 36.4% (N=111) of the participants reported as married. Lastly, 4.6% (n=14) participants reported being divorced.

Almost half of the participants responded that they are currently employed. The participants who reported being employed were 45.6% (N=139) of the participants. Of the remaining participants, 18.7% were unemployed at the time of their responses, 8.9% (N=27) were undergoing training for their jobs, and 26.6% (N=81) reported being active students.

In terms of modes of communications used in participants' childhood houses, 47.9%, of the participants (N=146) reported that "speaking only" was the mode of communication used with their families. "Only signing" was the mode of communication for 35.4% (N=108) of the participants. Lastly, 14.1% (N=43) of the participants indicated that they used both (speaking and signing) as a mode of communication in their family household.

In terms of school setting, participants had varied educational backgrounds. More than half of the participants--53.4% (N=163)--attended a residential school for the Deaf while 23.3% (N=71) of the participants attended a mainstreaming program for the Deaf. Additionally, 13.4% (N=41) of the participants attended an inclusion program for hard of hearing. The remaining participants either attended more than one program (N=14 participants) or attended a hearing school (N=12 participants).

Table 6

Frequency and Percentage of Respondents by Highest Educational Degree Attained

		Frequency	Percent	Cumulative Percent
Educational degree	Doctorate	4	1.3	1.3
	Master's	6	2.0	3.3
	Bachelor	63	20.7	24
	Occupational	113	37.0	61.0
	High school	119	39.0	100.0
	Total	305	100.0	

Table 7

Frequency and Percentage of Respondents by Gender, HS, Ad. Ds., Fath. H, and Moth. H.

		Frequency	Percent
Gender	Male	190	62.3
	Female	115	37.7
	Total	305	100.0
Hearing status (HS)	Deaf	228	74.8
	Hard of hearing	74	24.3
	Hearing (CI)	3	1.0
	Total	305	100.0
Additional disabilities (Ad. Ds.)	Yes	17	5.6
	No	288	94.4
	Total	305	100.0
Father's Hearing (Fath. H)	Deaf	32	10.5
	Hard of hearing	4	1.3
	Hearing	265	86.9
	Other	4	1.3
	Total	305	100.0
Mother's Hearing (Moth. H)	Deaf	18	5.9
	Hard of hearing	6	2.0
	Hearing	277	90.8
	Other	4	1.3
	Total	305	100.0

Table 8

Frequency and Percentage of Respondents by MS, PS, MoC, and SchSet.

		Frequency	Percent
Marital status (MS)	Single	180	59.0
	Married	111	36.4
	Divorced	14	4.6
	Total	305	100.0
Professional status (PS)	Employed	139	45.6
	Unemployed	57	18.7
	Job training	27	8.9
	Student	81	26.6
	Total	304	99.7
Missing	System	1	.3
Total	305	100.0	
Mode of communication (MoC)	Sign only	108	36.4
	Speak only	146	49.2
	Both	43	14.5
	Total	297	100.0
School Setting (SchSet)	Residential School	163	56.4
	Deaf mainstreaming program	71	24.6
	Hard of hearing mainstreaming program	41	14.2
	More than one option selected	14	4.8
	Total	289	100.0

Results of the Research Questions

In this section, each question is listed with its findings and tables. Questions are listed in order as stated in Ch 3. Before starting with the questions, it is worthwhile to mention that the reliability of each scale had been checked. The reliability statistics showed high consistency for each scale. Cronbach's Alpha for the scales were as followed: self-acceptance was .924, perceived stigma was .818, and participation was .883. These scores illustrate high level of reliability of the items that can measure each construct.

1. Does a high education level have some influence on the quality of life for adult D/HH students in Saudi Arabia?

A one-way between subjects ANOVA was conducted to compare the effect of educational background (Independent Variable [IV]) on QOL (Dependent Variable [DV]). Educational background included the following groups: high school completers (M= 61.37, SD= 9.84), vocational degree completers (M= 60. 47, SD= 9.77), bachelor degree completers (M= 62. 43, SD= 9.08), master's degree completers (M=59.40, SD= 13.84), and doctorate degree completers (M= 60.54, SD= 14.17). Table 9 shows that there was not a significant effect of IV educational background for DHH in Saudi Arabia on DV QOL at the $p<.05$ level for the 5 groups [$F(4, 300) = .62$, $p = .651$].

Table 9

The Influence of Education on QOL

ANOVA

QOL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	321.345	4	80.336	.616	.651
Within Groups	39114.613	300	130.382		
Total	39435.958	304			

The first question has four sub-questions related to the QOL of DHH individuals.

1.1 Is there a difference in QOL between modes of communication (signing, speaking, both) used by families with their DHH children?

A one-way between subjects ANOVA was conducted to compare the effect of modes of communication (IV) on QOL (DV). Modes of communication included the following types: speaking only (M= 61.56, SD= 0.52), signing only (M= 60.31, SD= 10.40), both speaking and signing (M= 63.37, SD= 8.15). Table 10 shows that there was not a significant effect of IV modes of communication for DHH in Saudi Arabia on DV QOL at the $p<.05$ level for the 3 groups [$F(2, 294) = 1.45$, $p = .236$].

Table 10

The Enhancement of QOL depending on Modes of Communication

ANOVA

QOL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	369.793	2	184.896	1.450	.236
Within Groups	37497.933	294	127.544		
Total	37867.725	296			

1.2 Does the quality of life differ among Deaf and hard of hearing adults based on gender?

An independent t-test was conducted to compare QOL (DV) in male and female DHH adults. Table 11 and 12 show the findings for this research question that there was a statistically significant difference in the scores by gender $t(263)= -2.70$, $p = .007$. Females (M= 66.31, SD= 10.45) acquired a higher score on the QOL than males (M= 62.81, SD= 11.75).

Table 11

Mean and Standard Deviation of QOL by Gender

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
QOL	Male	190	62.8125	11.75481	.85278
	Female	115	66.3070	10.44868	.97434

Table 12

Independent Samples T-test Comparing Males and Females on QOL

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QOL	Equal variances assumed	4.413	.036	-2.622	303	.009	-3.49449	1.33284	-6.11728	-.87169
	Equal variances not assumed			-2.699	262.605	.007	-3.49449	1.29483	-6.04406	-.94491

1.3 Do Deaf adults differ from hard of hearing adults in the QOL?

To answer this question, an independent t-test was conducted to compare QOL (DV) in Deaf and hard of hearing adults. Three participants of CI users noted that they self-identified as hearing. They were not included in the analysis due to their small number. Table 13 and 14 demonstrate there was not a significant difference in the scores for Deaf (M= 63.69, SD= 11.79) and hard of hearing (M= 65.58, SD= 10.01) conditions; $t(300)= -1.24$, $p = .098$.

Table 13

Mean and Standard Deviation of QOL by Hearing Status

Group Statistics

	Hearing status	N	Mean	Std. Deviation	Std. Error Mean
QOL	Deaf	228	63.6856	11.79017	.78082
	Hard of hearing	74	65.5783	10.00659	1.16324

Table 14

Independent Samples T-test Comparing the Effect of Hearing Status on QOL

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QOL	Equal variances assumed	2.759	.098	-1.243	300	.215	-1.89266	1.52278	-4.88934	1.10401
	Equal variances not assumed			-1.351	144.190	.179	-1.89266	1.40101	-4.66182	.87650

1.4 Does school placement enhance the QOL of DHH individuals?

A one-way between subjects ANOVA was conducted to compare the effect of the type of school settings (IV) on QOL (DV). School settings included the following types: residential school for the Deaf (M= 61.23, SD= 10.08), Deaf mainstreaming programs (M= 61.39, SD= 10.49), hard of hearing mainstreaming programs (M= 62.27, SD= 7.24), and public school (M= 57.43, SD= 6.95). Table 15 shows that there was not a significant effect of IV school settings for DHH in Saudi Arabia on DV QOL at the $p<.05$ level for the 4 groups [$F(3, 285) = .71$, $p = .547$].

Table 15

The Enhancement of QOL depending on School Settings

ANOVA

QOL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	275.447	3	91.816	.710	.547
Within Groups	36878.644	285	129.399		
Total	37154.091	288			

2. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their relationship with family?

An independent t-test was conducted to compare the level of satisfaction for the family relationship (DV) by hearing status of participants (IV). Hearing status of the participants include the following: Deaf, hard of hearing, hearing. Table 16 and 17 show that there was a statistically significant difference in scores for satisfaction of the family relationship between Deaf (M= 3.82, SD= 1.18) and hard hearing (M: 4.19, SD: 1.19) conditions; $t(300)= -2.34$, $p = .020$. Hard of hearing participants scored higher on the satisfaction of the relationship with family than Deaf participants did.

Table 16

Mean and Standard Deviation of Family Relationship by Hearing Status

Group Statistics

	Hearing status	N	Mean	Std. Deviation	Std. Error Mean
Satisfaction of family relationship	Deaf	228	3.82	1.175	.078
	Hard of hearing	74	4.19	1.190	.138

Table 17

Independent Samples T-test Comparing the Effect of Hearing Status on Family Relationship Satisfaction

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Satisfaction of the family relationship	Equal variances assumed	.009	.924	-2.340	300	.020	-.369	.158	-.679	-.059
	Equal variances not assumed			-2.325	122.611	.022	-.369	.159	-.683	-.055

3. Do Deaf adults differ from hard of hearing adults in the level of satisfaction in their communication with family?

An independent t-test was conducted to compare the level of satisfaction of family communication (DV) by hearing status of participants (IV). The findings presented in Table 18 and 19 show that there was a statistically significant difference in the scores for the satisfaction of family communication among Deaf (M= 3.74, SD= 1.13) and hard hearing (M: 4.28, SD: 1.05) conditions; $t(299)= -3.68$, $p = .000$. Hard of hearing participants had a higher score for family communication satisfaction than Deaf participants did.

Table 18

Mean and Standard Deviation of Satisfaction of Family Communication by Hearing Status

Group Statistics

	Hearing status	N	Mean	Std. Deviation	Std. Error Mean
Satisfaction of family communication	Deaf	227	3.74	1.133	.075
	Hard of hearing	74	4.28	1.054	.122

Table 19

Independent Samples T-test Comparing the Effect of Hearing Status on Family Communication Satisfaction

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Satisfaction of family's communication	Equal variances assumed	.525	.469	-3.675	299	.000	-.548	.149	-.842	-.255
	Equal variances not assumed			-3.813	132.340	.000	-.548	.144	-.832	-.264

Summary

This study primarily investigated the impact of educational levels on QOL of DHH individuals. The results were surprising, as I hypothesized education to have an impact on the QOL for DHH in Saudi Arabia . However, the results demonstrate that the level of education did not predict QOL for the DHH Saudi Arabian, and that other variables such as type of career may alternatively have impact on QOL. These results are surprising because they differ from from the findings of other studies, which show that there is a strong relationship between level of education and QOL of individuals. Additionally, women scored higher on QOL in this study. This result is not necessary surprising, but it is an unexpected result. Women are honored and fully respected in Saudi Arabia which may explain this relationship.

Chapter 5:

Discussion, Limitation, and Future Research

313 participants responded to instrument used in this study, however only 305 participants were included for further analysis from both genders (male: 190, female: 115). Most of the participants were Deaf (N=224) compared to hard of hearing (N=74) and hearing with CI (N=3). Of the participants, 156 reported that they wear hearing aids whereas only 23 reported that they have received CI.

Summary of the Research Analysis

In the current research, I studied the QOL for Saudi DHH adults with respect to the following factors: educational degree attained, modes of communication, gender, hearing status, and school settings. Additionally, I examined the family relationship and family communication satisfaction levels of Deaf and hard of hearing respondents. ANOVA and t-test analyses were conducted to determine the relationship between those factors. The findings with regard to educational degree attained, mode of communication, and hearing status were not statistically significant, whereas gender was a statistically significant factor for QOL. Females had a significantly higher score on QOL than males. Furthermore, both satisfaction of family relationships and family communication were statistically significant with respect to the hearing status factor. Hard of hearing participants had statistically significantly higher scores on both factors (family relationships and family communication).

Discussion

Perceptions of Education among DHH.

One explanation for the discrepancy between the study results and the theoretical model of this research might have to do with the cultural expectations surrounding education in Saudi Arabia for DHH. In Saudi Arabia, the bachelor's degree for DHH is rare, and graduate and terminal degrees are even rarer. Because higher education is a relatively new option for DHH, perhaps DHH persons in Saudi Arabia do not associate any stigma with a lack of education, and thus do not report a lower QOL than their more educated peers.

That raises a question: Would the results of QOL among Saudi DHH adults be different if the comparison was done between educated (high school and above) DHH adults vs. participants who attained only elementary education degrees, even though the latter is such a rare case. There certainly would be fewer job opportunities for those with only elementary education degrees because the norm for DHH was set based on the high-school level. Additionally, there would be high-perceived stigma within the DHH community and among stakeholders. However, there are additional factors that may contribute to the unexpected results noted above which will be discussed below.

As demonstrated by the increased number of programs at King Saud University, (KSU, 2018), access to higher education for DHH individuals is improving rapidly in Saudi Arabia. Paradoxically, increasing access may lead to a greater divergence in QOL once higher education becomes more accessible to the DHH population. Once higher education becomes more

widespread for DHH and the education norm shifts, there might be a different perception of education and a greater divergence in QOL.

Higher Education and Employment.

The theoretical model of this research suggested that greater education results in greater QOL. However, the direct relation between higher education and QOL does not appear to hold in the current research. To explain the lack of connection in this research, QOL may be more related to employment outcomes than education, and higher education does not ensure employment outcomes among DHH. Researchers have found that education is an indicator of QOL for individuals (Corsaro, 1997; Kentucky Council on Postsecondary Education, 2016; Radovanović, Bogavac, Cvetanović, & Kovačević, 2017; Ross & Willingen, 1997; Spancer, Tomblin, & Gantz, 2012; Whaley, 2018). So, it may be proposed that education is an intermediary step toward QOL, as it often leads to gainful employment. Theoretically, the quality of education and access to education increase potential for DHH persons to be employed, which leads to an increase in the QOL and standard of living (Nortey, 2009). Perhaps a closer indicator of QOL for DHH individuals in Saudi Arabia is employment outcomes.

Currently, Higher Education for DHH is relatively new and may not yet result in qualified gainful employment. Groups of educated DHH continually advocate for their rights, including access to education and job opportunities appropriate for their given educational degrees. Currently, for example, they are advocating for DHH people who attained Bachelors' degrees in Deaf Education to be assigned as teacher assistants or teachers for DHH (Pre-K–K12) students. The reputation of the program can build a bridge into employment for its graduates.

The strength of the program can persuade the stakeholders to have trust in the next generation of graduates. Consistently evaluating the program will help in the growth of its reputation and the professionalism of its participants. It is deeply important to reflect on the outcomes of the program, consumers' feedback, the quality of the program, accessibility of services, and internal evaluations.

Additionally, Deaf people encounter obstacles after attaining a degree and oftentimes must convince the stakeholders that they are able to do their jobs (Woodcock, Rohan, and Campbell, 2007). In so many cases, stakeholders are confused between abilities of DHH people and other disabilities. I personally witnessed this when I used to interpret for DHH people, especially in the private sectors, that they were offered jobs that did not require a degree (i.e., Produce Clerks), even though they had occupational degrees. In some cases, they were viewed as incompetent persons. Hosain, Atkinson, and Underwood (2002) reported that 79.7% of persons who disclosed their disabilities said that it affected their employment negatively (i.e., earn less than their colleague, were compelled to change jobs, dismissed, or did not find a job). DHH people are struggling to get jobs in general, and some of them are facing family resistance to letting their DHH offspring go away from them to seek jobs (Nortey, 2009).

Regardless of the bachelor program quality, job satisfaction is highly considered as a QOL indicator in the literature. "Education and employment are major areas where the deaf and hard of hearing are facing problems reinforcing poverty and the inability to make choices when it comes to purchasing power" (Nortey, 2009, p.78). The job's atmosphere is a factor that influences the QOL of persons (Al-Khraif, Al-Mutairi, Alradihan, & Salam, 2018; Sharour,

2010). There is a positive relationship between job satisfaction and QOL (Ibrahim et al., 2016). Munoz-Baell and Ruiz (2000) strongly advocated not only changing the environment to be accessible but also giving DHH persons power to practice their rights, which increases the level of job satisfaction for DHH individuals.

Therefore, the satisfaction of the job and the job's atmosphere are critical aspects, especially for people with special needs. Getting a job is not the goal by itself; jobs with full accessibility are more likely to increase the QOL of the DHH (Kushalnagar et al., 2014). Kelly, Quagliata, DeMartino, & Perotti (2015) stated that DHH persons with postsecondary education (two and four year programs) hold lower positions compared to their hearing peers with low job satisfaction. In contrast, Schroedel & Geyer (2000) stated that Deaf participants who earned higher education degrees had secured white-collar jobs. Therefore, the type of degrees attained by participants reflect on the type of jobs they hold, which may not be the case in the current study especially due to the very limited positions offered for DHH that required a Bachelor degree. The current study does not have the details about the type of jobs that the participants occupied. Al-Khraif, Al-Mutairi, Alradihan, and Salam (2018) stated that a person's job in Saudi Arabia is an influencing factor on the QOL, whereas the type of jobs that reflect the level of degree attained is another important factor in QOL (Aceleanu, 2012). Training for job skills, training programs for interpreters, and education for Deaf adults were some of the reforms suggested by the Deaf themselves for the achievement of Deaf empowerment (Wilson, 2005).

Quality and Accessible Higher Education.

In interpreting the result of the current research, we should question the extent to which DHH graduates feel satisfied with their higher education program; whether it enhanced their lives and led to greater personal knowledge and satisfaction. One of obstacles that DHH encounter is the limitation in the variety of majors that they can choose from. For instance, although King Saud University was established in 1957, today it only allows a limited number of majors for DHH students (i.e., Special Education, Art Education, Sport Education). These may not serve everyone's needs and interests.

A related factor that may contribute on the discrepant results of the current research is the nature of the bachelor degree program for the DHH in Saudi Arabia. It is relatively new and undergoing continuous improvement, which will certainly result in a stronger program in 5-10 years. The quality of the program may impact how graduates feel about their educational experience (and whether it has enhanced their lives).

College students, in general, encounter obstacles to achieve their goals, and DHH students face additional obstacles related to their hearing condition (Filippo, 2004). Students with disabilities reported that they encountered obstacles not only getting access to education, but also achieving understanding with administrative, staff, and faculty (West, Kregel, Getzel, Zhu, Ipsen, & Martin,1993). One of the daily obstacles DHH encounter everywhere in general, and in college specifically, is the effectiveness of the interpreters. The sign language interpreter is often the primary communication avenue in Deaf students' and professionals' lives (Woodcock, Rohan, and Campbell, 2007). The qualifications of the interpreters are not the same from one

place to another. In some countries, Deaf people have access to professional interpreters who can effectively relay content at a doctoral level, for example.

However, in many places, Deaf students still suffer from the lack of quality services needed to accomplish their goals (Woodcock, Rohan, and Campbell, 2007). Sign language interpreters in Saudi Arabia, for example, reported that they were not subject to either a written exam nor performance exam to be licensed (Alamri, 2017). They reported that they would be willing to join a bachelor's interpreting program when it is established (Alamri, 2017). Administrators in higher education or other professional venues may not realize the necessity of employing interpreters who have bilingual academic language skills in both spoken and sign language (Woodcock, Rohan, and Campbell, 2007). Highly skilled sign language interpreters who are specialized in different service settings (i.e., court, college, hospital) will allow high quality communication between the agencies and the consumers, preserving their rights and allowing for the fullest understanding. Unfortunately, in some countries, like Saudi Arabia, there is not even a Sign Language Interpreter major. The interpreters are usually a Deaf Education major or a family relative to a DHH person without professional training in the art of interpreting.

Other Factors Impacting QOL for DHH Persons in Saudi Arabia.

In a previous study, Deaf college students indicated that the following dimensions are the highest influencing factors for their QOL at their campus: being independent, living in a good place, exercising (mentally and physically), enjoying their time, and enjoying relationships with family (Filippo, 2004). These factors were embedded to some extent in the survey (YQOL-

DHH) used in the current study. Although they do not stand as factors by themselves, they were included under other umbrella categories instead. For instance, being independent is a question included in the self-acceptance/advocacy factor. It may be helpful to isolate those factors in future studies.

There may also be other significant influences on QOL in Saudi Arabia that are not fully captured in the YQOL-DHH. YQOL-DHH containing 3 scales: self-acceptance/advocacy, participation, and perceived stigma. Those scales were formed after interviews with DHH in the USA. The scales of QOL may not have been the same if the interviews had been conducted in a different country with a different culture, like Saudi Arabia. Those scales may not represent what QOL means to Saudi DHH.

Factors central to the QOL in Saudi Arabia may include healthy relationships with family, religious and spiritual engagement, access to social services and sign language interpreters, involvement in DHH clubs, strong sense of identity, and social activities. This possibility should encourage future qualitative research on the QOL for Saudi DHH adults.

An additional analysis was completed using the data from the current study to examine other potentially important variables such as whether participants consider themselves to be financially self-sufficient. An independent t-test was conducted to compare the QOL (DV) depending on whether the participants reported financial self-sufficiency (N=197) or not (N=107). The findings showed that there was a significant difference in the scores for the QOL among DHH participants who reported being financially self-sufficient (M= 62.22, SD= 9.21) to

those who are not (M= 59.22, SD= 10.46), $t(304)= 109.53$, $p = .000$. The findings showed that there is a significant difference with financial self-sufficiency and QOL, which indicates the importance of financial security regardless of the occupational status (i.e., employed, unemployed, undergoing training for a job, and student) of the participants.

QOL for DHH Women in Saudi Arabia.

The following section illustrates how the cultural structure of Saudi Arabia may lead to increases in the QOL for women. Another asset of Saudi culture is religion. Faith gives meaning to a person's life and must be considered as QOL indicator (Sharour, 2010). Saudi Arabia is a Muslim country and values the teaching of Islam. Islam teaching in some aspects was neglected in the period prior to Islam. One of those aspects is women. In many occasions the prophet Muhammad, peace be upon him, specifies women in his speech (hadith) as narrated, "take my advice with regard to women: Act kindly towards women … " ("The Book of Miscellany," n.d., hadith 273), and "the best of you is the one who is best to his wife, and I am the best of you to my wives" ("Sunan Ibn Majah," n.d., hadith 1977). The prophet Muhammad, peace be upon him, came one day to a gathering of his wives and said "may Allah be merciful to you, O Anjasha! Drive the camels slowly, as they are carrying glass vessels!" ("Good Manners and Form," n.d., hadith 170), and last but not least a person came to the prophet and asked him,

> "who among the people is most deserving of a fine treatment from my hand? He said: Your mother. He again said: Then who (is the next one)? He said: Again it is your mother (who deserves the best treatment from you). He said: Then who (is the next one)? He (the Holy Prophet) said: Again, it is your mother. He (again) said: Then who? Thereupon he

said: Then it is your father" ("The Book of Virtue, Enjoining Good Manners, and Joining of the Ties of Kinship," n.d., hadith 6180).

The prophet Muhammad, peace be upon him, urged people to treat women kindly and respectfully, which is also reflected in contemporary financial responsibility of households. In Saudi Arabia, a husband is obligated to provide for his wife regardless of her financial status. A wife is not asked to share of her wealth in the house. If she decides to help and share of her wealth that is considered generosity. The burden of providing for the family is on the husband. The cultural status of women as discussed above may account for the relatively high QOL for DHH female in Saudi Arabia. Similar results, in a recent study, were found among retired females in Saudi Arabia (Al-Khraif, Al-Mutairi, Alradihan, and Salam, 2018). The researchers investigated life satisfaction for the retired employee, including both genders in their study. The indicators of life satisfaction in the study included: demographic, familial, socioeconomic, and health. One finding of this study was that women have higher life satisfaction than men. The authors attribute this finding to the honor of retired women and appreciation in the family and community. The finding reflects the important role that women reserve as the center of the family before and after retirement (Al-Khraif, Al-Mutairi, Alradihan, & Salam, 2018).

Satisfaction with Family Relationship and Communication

A question may appear to the reader wondering about what may contribute to the high satisfaction for hard of hearing (HH) participants. One of the assets of Saudi culture is family

bonding. Families like to live around each other and see each other often. Family is always the first support for an individual. In the current study, most of the Deaf participants have hearing parents. This dynamic may explain the lack of communication that Deaf children have with their family in a culture that values the family relationships. For that reason, the hard-of-hearing participants are more likely to have quality relationships and communications with families than their Deaf peers due to the existence of spoken communication. HH children easily fit in the family system due to the shared language between the children and their family members.

It is worth noting that Deaf persons report lower satisfaction with family relationship and communication. The parents' of Deaf children need to put an effort to learn sign language to establish communication. Parents can sign up for sign language workshops to learn the basics or join the Deaf club if there is one; however, not all parents are able/willing to go the extra mile to learn a new language. Being fluent in sign language can create highly meaningful communication between Deaf persons and others in the community, in school, and in the workplace (Woodcock, Rohan, and Campbell, 2007). "The community within which an individual lives also has an important effect on the positive development of the person. The community is the place where values, norms and other resources are provided for its members to function effectively" (Nortey, 2009, p.70).

Satisfaction with family and friendship are positively associated with the QOL of individuals (Diener & Diener, 1995). Communication is more likely to be absent in the hearing family with a Deaf child than in the hearing family with HH child. This gap can be bridged by exposing the Deaf child and the family to an early intervention program to build a relationship

and communication with the child from an early age. Intervention is needed whether the family choose CI or not. Saudi Arabia already provides speech pathology services for CI receivers. However, there is no service that provides training at early age in sign language in Saudi Arabia. Clearly, families of Deaf children need such an intervention. Furthermore, research has shown that even children with CI should be exposed to sign language because hearing and speech outcomes are so variable (Jiménez, Pino, & Herruzo, 2008). Sign language provides an accessible avenue if/when spoken language is not accessible enough to acquire (Napoli et al., 2015) . Exposure to early communication will engage the DHH child in the family system from an early age and promote a sense of belonging, which is bound to impact QOL.

Limitation

The first limitation of the current study is the instrument. The results of the study led to doubt as to whether the YQOL-DHH instrument is applicable for DHH in Saudi Arabia or not. Additional qualitative methods would perhaps explain the QOL indicators for Saudi DHH much better. For instance, a qualitative method would be able to reveal new, perhaps culturally specific, indicators that influence the QOL of DHH and that could be integrated later into a quantitative survey. The second limitation is the method used for collecting the data. The DHH participants participated through an online link, which excluded the people who do not have internet. The third limitation of the study is the imbalance in gender among the participants with only 37.7% female participants; however this may reflect the general population. In 2017, the General Authority of Statistics reported that there is 53,390 male and 24,424 female DHH persons in Saudi Arabia. Genders are separated in Saudi Arabian schools, which limited communication and access to female participants.

Future Research

The results of the current research showed the necessity of further exploration of the QOL for Saudi DHH. A qualitative method will shed light on specific factors that matter for DHH in Saudi Arabia which will allow the researchers to build a proper instrument that serves its needs. The McAbee (2015) study, which looked on how Deaf define the QOL, should be replicated with DHH in Saudi Arabia. Following McAbee, we should ask the question: "how do DHH people define QOL in Saudi Arabia?" I would focus on participants with different educational backgrounds. Furthermore, the current study has data of participants' satisfaction with family communication; however, the level of inclusiveness and the level of effectiveness in the conversation is not clear from the data. These are crucial elements, which I encourage researchers to consider in their future research. Additionally, researchers should consider investigating the factors of QOL for DHH college students found in the Filippo (2004) study. They are as follows: being independent, living in a good place, exercising (mentally and physically), enjoying their time, and enjoying relationships with family.

Another angle worthy of study is to examine the similarities and differences in the educational setting based on gender. The education in Saudi Arabia is separated by gender, which might explain the differences in the results of QOL among DHH based on gender. The differences of educational strategies, teaching methods, practicing exercises, knowledge accessibilities, and school policies might be factors that impact the QOL for DHH women in Saudi Arabia.

Conclusion

The current study focused on the QOL among DHH in Saudi Arabia with varied educational backgrounds. This study did not find a relationship between higher education degree attained and QOL for the DHH in Saudi Arabia. However, DHH women obtained a higher QOL score then men respectively. This higher score was explained by the social structure that eliminates the burden of expenses for women in the household as well as the place of women in Islam. Additionally, hard of hearing participants were more satisfied with their family relationships and family communication. Finally, the current study contributes to our understanding of the QOL within the DHH community in Arab regions. Furthermore, it contributes to information needed by the Saudi Ministry of Civil Service and Ministry of Higher Education to create educationally appropriate jobs for the DHH community. More studies are needed to investigate how the particular cultural, social, and educational conditions of Saudi Arabia affect QOL for DHH individuals.

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Appendices

Appendix A

Demographic Items: (You can choose more than one if applicable)

Age:

Gender:

- ➢ Male
- ➢ Female

Hearing Status:

- ➢ Deaf
- ➢ Hard of hearing
- ➢ Hearing

Do you use:

- ➢ Cochlear Implant
- ➢ Hearing aids
- ➢ Nothing

What school did you attend for elementary, middle school, and high school?

- ➢ Alamal school (residential school for the Deaf)

➢ Deaf Mainstreaming program

➢ Hard of hearing mainstreaming program

What is the highest educational degree you have attained?

➢ High school or less

➢ Occupational degree

➢ Bachelor (Special Ed, Art Ed, Sport Ed, other).

➢ Master's degree

➢ Doctorate degree

Are you currently a college student?

➢ No

➢ Yes

o Name of the University
o Major
o Year

Do you have another disability other than DHH?

➢ Yes

○ If yes, what is it …...

➢ No

How satisfied are you with your relationship with your parents and siblings?

- ➢ Very unsatisfied
- ➢ Unsatisfied
- ➢ Neutral
- ➢ Satisfied
- ➢ Very satisfied

What is your father's hearing Status:

- ➢ Deaf
- ➢ Hard of hearing
- ➢ Hearing
- ➢ Other _____

What is your mother's hearing Status:

- ➢ Deaf
- ➢ Hard of hearing
- ➢ Hearing
- ➢ Other _____

What is the highest educational degree your father has attained?

- ➢ High school or less

- ➢ Occupational degree
- ➢ Bachelor degree
- ➢ Master's degree
- ➢ Doctorate degree

What is the highest educational degree your mother has attained?

- ➢ High school or less
- ➢ Occupational degree
- ➢ Bachelor degree
- ➢ Master's degree
- ➢ Doctorate degree

Whats is the modes of communication used with parents in childhood home?

- ➢ Signing
- ➢ Speaking

How satisfied are you with the way your family communicates with you?

- ➢ Very unsatisfied

- ➢ Unsatisfied
- ➢ Neutral
- ➢ Satisfied
- ➢ Very Satisfied

What is your marital status?

- ➢ Single
- ➢ Married
- ➢ Divorced

Current Job Statues:

- ➢ Employed

o If yes, what is it……...

- ➢ Non-Employed
- ➢ On-training Program
- ➢ Student

I am financially standing on my own

- ➢ Yes
- ➢ No

I support Bachelor degree programs for DHH at KSU

➢ Yes

➢ No

Appendix B

Quality-of-Life Measure for Deaf or Hard of Hearing Youth (YQOL-DHH)

· You will read questions about your feelings about yourself.

· Please select the number to reflect how much each question matches your situation. Please circle one number on each scale describing your situation with the best phrase that applies to you.

· We are only interested in how you feel about your life in general.

1. Because I am DHH I feel my parents give me the same amount of independence as others who are my age.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

2. I feel included in the things my family does together.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

3. I feel okay telling my teacher/boss about my needs.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

4. I feel I have enough technology, such as cell phone, texting, and/or internet to communicate as I am deaf or hard of hearing.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

5. I feel okay explaining to others that I am DHH.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

6. Because I am DHH I feel okay asking for help when I need it.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

7. I know how to stand up or speak up for myself as a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

8. As a DHH person, I feel okay asking for what I want in public places.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

9. As a DHH person, it is easy for me to start talking to people I do not know.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

10. As a DHH person, I am satisfied with the ways I have to communicate.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

11. I feel other youth are willing to help me when I need it because I am a DHH person.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

12. My teacher/boss helps me to communicate easier in the classroom/workplace as a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

13. As a DHH person, I feel there are enough things to do with people other than my family.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

14. As a DHH person, I feel accepted by students/colleagues at my school/ workplace.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

15. I get upset when people do not understand what I am saying because I am a DHH person.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

16. I feel like my parents protect me too much because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

17. I feel people who are hearing treat me badly because I am a DHH person.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

18. I feel people think I am dumb because I am a DHH person.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

19. I feel people bully me because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

20. I feel people make fun of me because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

21. I feel embarrassed when people stare at me because I am a DHH person.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

22. I feel embarrassed to ask people to repeat themselves because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

23. I feel left out of family conversations because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

24. I feel I miss things when talking with people who are deaf or hard-of-hearing.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

25. Because I am a DHH person I feel I miss out on activities and things I want to do.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

26. I feel I miss what is important for me to know because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

27. Because I am a DHH person I have to work harder than other youth to do the things I want to do.

Not at all 0 1 2 3 4 5 6

7 8 9 10 A lot

28. Because I am a DHH person I feel it is hard to participate in large groups.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

29. Because I am a DHH person I feel what I want to do in the future is limited.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

30. I feel it is hard for me to understand what people are saying because I am a DHH person.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

31. Because I am a DHH person I feel I miss things when talking with people who are hearing.

Not at all 0 1 2 3 4 5

6 7 8 9 10 A lot

32. I feel life is harder for me because I am a DHH person.

Not at all 0 1 2 3 4 5 6 7

8 9 10 A lot

Appendix C

Arabic Version of YQOL-DHH

جودة الحياة للشباب للصم أو ضعاف السمع (YQOL-DHH)

- يهدف الباحث للتعرف على مستويات جودة الحياة للصم الكبار في المملكة العربية السعودية مع اختلاف الدرجة العلمية للشخص.

- هذا الاستبيان يسمح للشخص اختيار واحد من الخيارات المتاحة لكل سؤال والذي يعكس الإختيار الأصح لكل شخص، على سبيل المثال:
بصفتي شخصًا أصم أو ضعيف السمع، أشعر أن تركيزي أثناء قيادة السيارة أعلى من أقراني السامعين ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

جودة الحياة للشباب للصم أو ضعاف السمع (YQOL-DHH)

- سوف تقرأ أسئلة تطرح استفسارات حول مشاعرك تجاه نفسك.
- الرجاء اختيار الرقم بما يعكس تطابق السؤال لحالتك. من فضلك ضع دائرة حول رقم واحد على كل مقياس يصف حالتك بأفضل عبارة تنطبق عليك.
- نحن مهتمون فقط بكيفية شعورك حيال حياتك بصفة عامة.
- الأسئلة التالية تستهدف الفترة الزمنية الحالية (اخر أسبوعين).

1. بصفتي شخصًا أصم أو ضعيف السمع، أشعر أن والدي يمنحانني نفس القدر من الاستقلالية مساوياً لأقراني في العمر... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

2. أشعر أنني مشمول في الأشياء التي تقوم بها عائلتي ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

3. أشعر بنوع من الراحة للتحدث مع (معلمي/مديري) عن إحتياجاتي ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

4. أشعر أن لدي ما يكفي من التكنولوجيا الحديثة، مثل أجهزة الهواتف الذكية، والرسائل النصية، و / أو الإنترنت للتواصل كشخص أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

5. أشعر بالراحة عندما أشرح للآخرين بأنني أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

6. بصفتي شخصًا أصم أو ضعيف سمع، أشعر بالإرتياح لطلب المساعدة متى ماالحتجت لذلك ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

7. أعرف كيف ادافع وأتحدث عن نفسي كشخص أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

8. بصفتي شخصًا أصم أو ضعيف سمع، أشعر بالراحة لطلب ما أريد في الأماكن العامة ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

9. بصفتي شخصًا أصم أو ضعيف سمع، من السهل أن أتحدث إلى أشخاص لا أعرفهم ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

10. بصفتي شخصًا أصم أو ضعيف سمع، أشعر بالرضا عن طرق التواصل المتوفرة لدي ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

11. أشعر أن هناك أشخاص آخرين على استعداد لمساعدتي عندما أحتاج لذلك كوني شخص أصم أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

12. يساعدني (معلّمي/مديري) على التواصل بسهولة في (غرفة الصف/مقر عملي) بصفتي شخصًا أصمًا أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

13. بصفتي شخصًا أصم أو ضعيف سمع، أشعر أن هناك أشياء كافية للقيام بها مع أشخاص آخرين غير عائلتي ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

14. بصفتي شخصًا أصم أو ضعيف سمع، أشعر بالقبول من قبل الزملاء في (مدرستي/عملي) ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

15. انزعج عندما لا يفهم الناس ما أقوله لأنني أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

16. أشعر أن والديّ يحمياننني بشكل كبير لأنني أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

17. أشعر أن الأشخاص السامعين يعاملونني بشكل سيئ لأنني أصم أو أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

18. أشعر أن الناس يعتقدون أنني أبكم لأنني أصم أو ضعيف سمع. ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

19. أشعر بأن الناس يتنمرون عليَ لأنني أصم أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

20. أشعر أن الناس يسخرون مني لأنني أصم أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

21. أشعر بالإحراج عندما يحدق الناس في وجهي لأنني أصم أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

22. أشعر بالإحراج عندما أطلب من الناس تكرار ما يقولونه لأنني أصم أو ضعيف سمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

23. لأنني شخص أصم أو ضعيف سمع، أشعر أنني مستثنى من المحادثات العائلية ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

24. أشعر أني أفقد جزء من المحادثة أثناء التواصل مع الأشخاص الصم وضعاف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

25. لأنني أصم أو ضعيف السمع، أشعر بأنني أفتقد الأنشطة والأشياء التي أريد القيام بها ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

26. أشعر بأنني أفتقد ما هو مهم بالنسبة لي معرفته لأنني أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

27. لأنني أصم أو ضعيف سمع، يجب علي عمل مجهود أكثر من الشباب السامعين لعمل الأشياء التي أريدها ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

28. لأنني أصم أو ضعيف سمع، أشعر أنه من الصعب المشاركة في مجموعات كبيرة ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

29. لأنني أصم أو ضعيف سمع، أشعر أن ما أريد القيام به في المستقبل محدود ... (يرجى وضع دائرة حول واحد من الأرقام التالية)
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

30. أشعر أنه من الصعب علي فهم ما يقوله الناس لأنني أصم أو ضعيف السمع ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

31. لأني أصم أو ضعيف سمع، أشعر بفقد جزء من المحادثة حينما أتحدث مع الأشخاص السامعين ... (يرجى وضع دائرة حول واحد من الأرقام التالية)

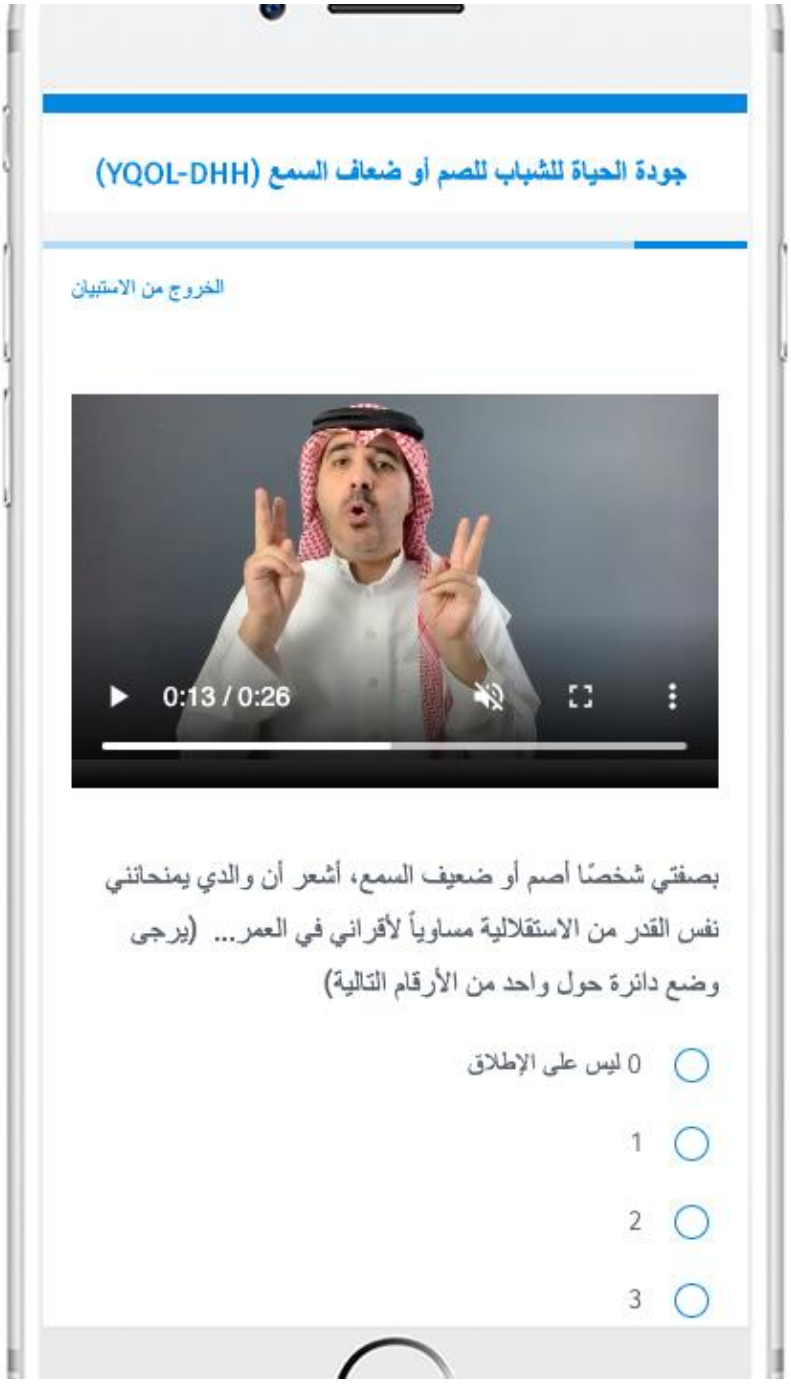
ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

32. أشعر أن الحياة أصعب بالنسبة لي لأنني أصم أو ضعيف السمع... (يرجى وضع دائرة حول واحد من الأرقام التالية)

ليس على الإطلاق ٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ١٠ كثيرا

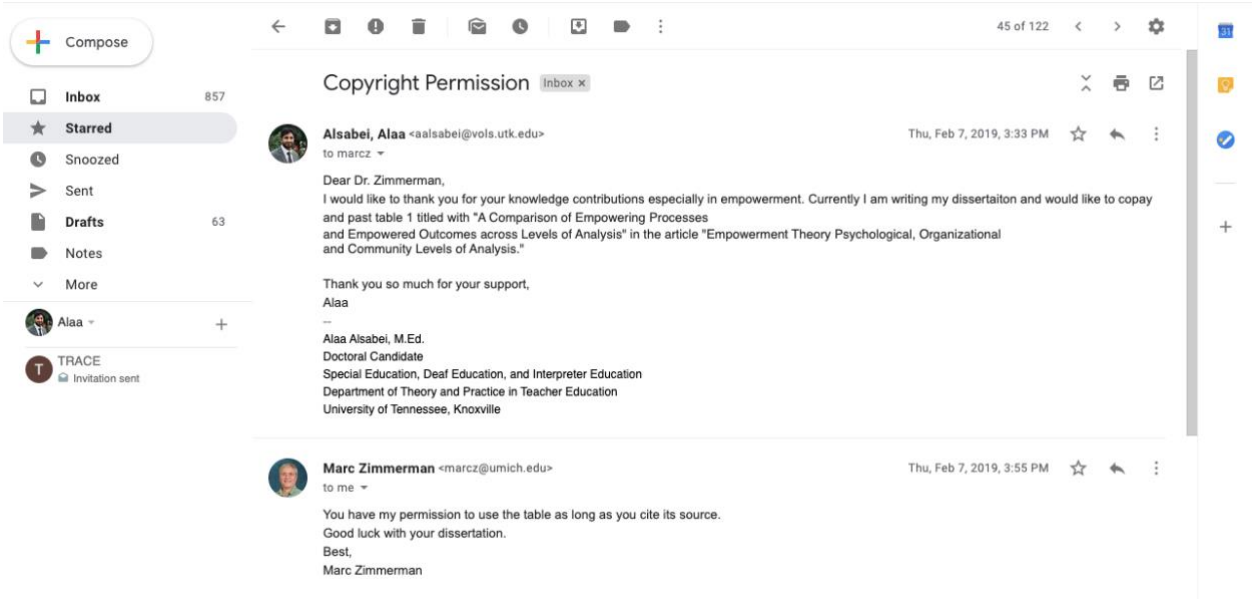
Appendix D

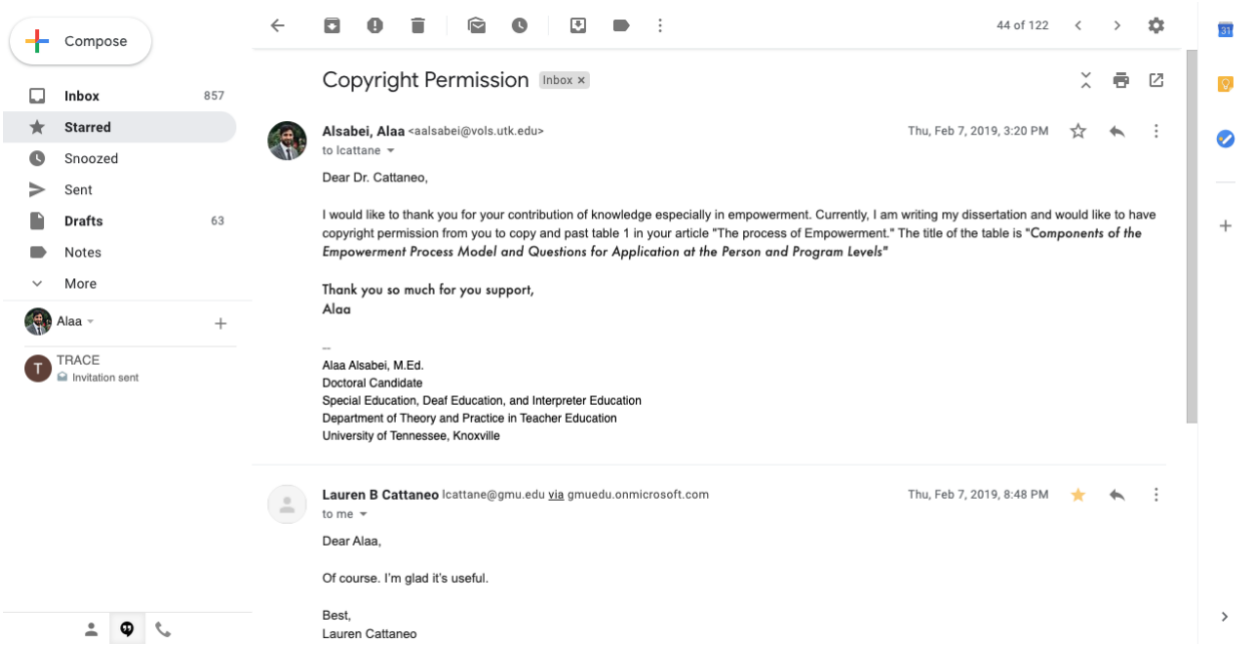
Demonstrating the Survey in both Languages (Arabic and SASL)



Appendix E

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Vita

Having grown up with three Deaf and hard of hearing siblings, Mr. Alsabei has been immersed in Deaf culture from an early age. He has always wanted to help raise awareness among hearing people about deafness and correct common misconceptions. That ambition guided him to be a faculty member at a university where he worked with teachers who specialized in educating Deaf and hard of hearing (D/HH) students and who strove to empower D/HH students at different educational levels. Because he shares these goals, he has worked in Deaf Education throughout his higher education. He received a Bachelor of Education degree in Deaf Education from King Saud University in Riyadh Saudi Arabia in 2009, He received a Master of Education degree in Deaf Education from Kent State University in Kent, OH in 2014, and received a PhD degree in Teacher Education with concentration in Special Education, Deaf Education, and Interpreter Education from The University of Tennessee in Knoxville TN in 2020.