

# Deaf adolescents in a hearing world: a review of factors affecting psychosocial adaptation

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**Abstract:** Adolescence has long been viewed as a time of rapid change in many domains including physical, cognitive, and social. Adolescents must adapt based on developing skills and needs and acclimate to growing environmental pressures. Deaf adolescents are often faced with the additional challenge of managing these adaptations in a hearing world, where communication and access to information, especially about their social world, are incomplete at best and nonexistent at worst. This article discusses the research on several factors that influence a deaf adolescent's adaptation, including quality of life, self-concept, and identity development. Gaps in our knowledge are pointed out with suggestions for future research programs that can facilitate optimal development in adolescents who are deaf.

**Keywords:** deaf, self-concept, identity, quality of life, adjustment

## Introduction

Adolescence is a time when individuals are faced with the task of figuring out who they are and how they fit into the world as they go through many physical and emotional changes.<sup>1</sup> These changes, as they transition into adolescence, may cause those individuals to be self-conscious or sensitive as they compare themselves to others around them within social environments.<sup>2,3</sup> It can be a time of confusion, where they start to notice differences between themselves and others, making them particularly susceptible to social and cultural pressures.<sup>4,5</sup>

This transition is trying for a typical teenager, but what if the teenager has the additional challenge of being a deaf person in a hearing world? In the United States, one in every 1,000 children is born with some sort of hearing loss.<sup>6</sup> The term "deaf" can refer to a range of individuals from those who are profoundly deaf to those who consider themselves hard-of-hearing. Deaf and hard-of-hearing (DHH) children find themselves in a unique acculturative situation, where an extra level of complexity is added to their struggle of personal development. The additional changes and processes these children are experiencing are distinct from other adolescents.

Families of deaf children are faced with decisions that families with a typically hearing child do not experience.<sup>7</sup> For example, parents of deaf children must make decisions regarding assistive technology and the mode of communication to be used with their child. Parents must also determine whether they will send their children to mainstream schools or deaf institutes and whether they want to introduce their child to the Deaf community (Deaf with an upper case "D" denotes membership in the Deaf culture or Deaf community; deaf with a lower case "d" is an audiological description).

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Decisions made early in a deaf child's life will inevitably affect them as they transition into adolescence.

The advancement of assistive technology has provided parents of deaf children a crucial decision, whether to provide assistive technology, and if so, which one? Hearing aids have been popular; however, a growing technology for various levels and causes of hearing loss is the cochlear implant (CI). Both hearing aids and a CI have the potential to provide a wide range of benefits, whether the benefit is spoken language acquisition or general awareness of sounds in the environment.<sup>8</sup> A hearing aid is an electronic device that is worn in, or behind the ear that amplifies certain sounds and depends largely on the individual's residual hearing; the more profound the hearing loss, the less likely hearing aids will be effective. CIs, on the other hand, are surgically implanted devices that convert sound into "electrical impulses" that are transmitted to the auditory nerve and then to the auditory centers of the brain.<sup>8</sup> CIs send stimuli directly to the brain in order to perceive sound, rather than devices that amplify sound such as hearing aids.<sup>9</sup> The success of the CI is not based solely on the residual hearing of the individual but rather the cause of deafness as well.<sup>8</sup>

Although the success of these devices is not guaranteed, many parents' primary concern is whether their child can succeed in the hearing world. They may be drawn to these devices, wanting the best for their child. Parents often believe that these devices will turn their child into a hearing individual, when, in fact, their child is still deaf and will still need to learn what certain sounds mean.<sup>8</sup> Furthermore, the job of the CI is not to restore hearing but rather to give a deaf individual an alternate avenue to perceive sound.<sup>10</sup> The result of this assumption is that some deaf children are deprived of a language-rich environment, causing a delay in their linguistic development. Even some deaf individuals who are provided with linguistic intervention still struggle to communicate orally.<sup>11</sup> This can cause another layer of complication when deaf adolescents try to develop an identity. Are they able to communicate appropriately? Should the devices be successful, and do they identify as hearing or deaf? With whom do they fit? Should they embrace a spoken language, or is a signed language still more appropriate? On the other hand, some parents may decide not to use assistive technology regardless of whether their child would be able to use them successfully, and accept the child as a deaf individual. Regardless of the parents' decision, their child's exposure to language will be crucial, which may be lacking, should a language-rich environment not be available.

Early language exposure is a major contributor to a deaf individual's life. Typically, children learn language effortlessly. However, deaf children are not able to do so as effortlessly because they face an extra obstacle, a lack of access to a shared language. Remarkably, ~95% of deaf children are born to hearing parents who have limited or no knowledge of a signed language.<sup>11</sup> Many deaf individuals are unable to benefit from exposure to spoken language, leaving them at a disadvantage in the early stages of development.<sup>12-14</sup> Failure to access communication often denies deaf children their "rightful opportunity to learn and understand others".<sup>14</sup> As a result, some deaf adolescents struggle to internalize appropriate behavior models, learn self-regulation strategies, and often misunderstand social norms.

There are an inordinate number of psychological differences between deaf children of deaf parents and deaf children of hearing parents, some of which are linked to effective communication.<sup>15</sup> For example, deaf children of deaf parents, who had a shared and early access to language, typically demonstrate better academic performance, exhibit a more positive self-image, are less prone to impulsivity, and are even more proficient in English.<sup>16</sup> Researchers Meadow,<sup>17</sup> Montanini Manfredi,<sup>18</sup> and Scheetz<sup>19</sup> similarly concluded and emphasized the importance of a shared language for a deaf child's development of self-concept and identity.

Having a shared language has a profound impact on the success of a deaf child; however, it is not the only factor. Parents of deaf children must make the decision whether to send their children to a mainstream school with hearing children or to enroll them in a deaf program. Those enrolled in mainstream schools have the additional challenge of identifying themselves among their hearing peers, many of whom may not share a language with them. Some research supports the enrollment of deaf children in mainstream programs based on the potential for cognitive gains; however, social consequences must be considered.<sup>20</sup> The possible impact of the child's academic and social adaptation must be considered for those enrolled with hearing peers as well. In a review of literature analyzing deaf programs versus mainstream schools, Musselman et al<sup>21</sup> concluded that there is substantial evidence supporting the conclusion that deaf-specific programs promote more successful socioemotional growth compared to mainstream schools. This still rings true in recent years as deaf children in mainstream schools experience dinner table syndrome: watching hearing peers converse while remaining unable to decipher what they are saying.<sup>22</sup> It is not uncommon for deaf children in mainstream

schools to be one of few, if not the only deaf individual.<sup>22</sup> Hearing peers may not consider that the deaf adolescent cannot access their conversation and might not make accommodations to include them. Unsurprisingly, deaf students in mainstream programs reported feeling “socially isolated and lonely” and “have lower self-esteem than those students in special schools”.<sup>20</sup>

Research has shown that deaf adolescents in mainstream schools have higher levels of academic achievement than their peers in special programs; however, these findings are potentially misleading.<sup>23</sup> Deaf programs, though they may present the deaf adolescent with a more accessible linguistic environment, might include a very different population. Often, deaf programs include deaf adolescents with additional disabilities, whereas mainstream schools tend to enroll deaf individuals without additional disabilities. With that being said, deaf adolescents in mainstream schools are stimulated by the extra challenge of meeting requirements with a language barrier and are, therefore, obligated to invent new methods to survive.<sup>24</sup>

It is clear how complicated life can be for a growing deaf individual. Studying development in DHH adolescents is also quite challenging. DHH individuals differ on a wide array of characteristics that can affect outcomes, such as cause of the hearing loss, degree of hearing loss, ability to use residual hearing, and potentially comorbid disorders affecting behavior. This is in addition to differences in communication needs and modalities, family backgrounds, educational environments and philosophies, and culture of origin. Furthermore, hearing loss tends to be a low-incidence disorder. Thus, recruiting sample sizes that are large enough to examine hypotheses with some power or rigor is difficult. The result is that many studies on DHH adolescents are exploratory or suggestive more than confirmatory.

Despite the research challenges, scholars have been working on understanding the levels of complexity that a deaf individual may experience as they enter adolescence. To gain a better understanding of what this adaptation might entail, we will examine three overlapping areas of research. The first area relates to the deaf individual's overall quality of life and what factors may contribute to the quality of life. The second is the development of self-concept that exists in these individuals as they transition into adolescence. The third, and arguably the most prominent area of research, is how identity develops in deaf youth based on their experiences in life and their current environment. These areas were chosen because they relate to overall mental health and adjustment and are

commonly challenged during adolescence. There are also a small but growing number of studies that have attempted to address these topics. For each of the topics examined here, studies were reviewed if they included DHH adolescents and addressed the topic. If the study focused only on children or only on adults, it was not considered for the present discussion.

## Quality of life

Quality of life has been examined in a modest number of studies, examining variables such as age, degree of hearing loss, school placement, and perhaps, most frequently, use of a CI. The World Health Organization described the concept quality of life as the way an individual sees, “... their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns”.<sup>25</sup> The questions in quality of life research are how does the person feel about themselves, how they are progressing in life, how do they see their peers and family treating them, and what do they think of their environment, such as school, church, or work? In addition to a general quality-of-life concept, researchers have looked at what is called health-related quality of life that asks about how an individual sees their life in connection with a medical condition or some sort of disability.<sup>26</sup>

## DHH versus hearing youth

Much of the research involving DHH children and adolescents asks whether they are performing as well as their hearing peers. This is perhaps the most common research design with DHH people. Regarding quality of life, the question is whether their quality of life is lower than their typically hearing peers. The follow-up question, regardless of the first answer, is what influences that quality of life? As always, the answer to this sort of question is complicated by the large number of confounding variables mentioned earlier and by the fact that these constructs are full of intricate relationships. Several studies have found that DHH youth report overall lower quality of life than hearing youth. Fellingner et al<sup>27</sup> in an adult sample from Austria found that deaf people there reported a generally lower quality of life than the normative German population. When Fellingner et al completed a similar study with Austrian children and youth, they obtained more complicated findings. Parents of DHH youth tended to have a positive view of their children's lives and progress. However, the children and adolescents themselves noted areas of challenge. They were more positive than hearing peers about

school and family but less satisfied with their physical health, recreational pursuits, and general interests. DHH youth also were reported to have more mental health problems or symptoms than their hearing peers as well.<sup>28</sup> Similarly, Gilman et al<sup>29</sup> found that hearing youth reported more positive satisfaction than DHH youth. The domain that was most substantially different was the domain on friendship, which again is consistent with the study of Fellingner et al.<sup>28</sup>

Trapp-Petty completed a study where she examined a construct called sense of coherence and quality of life in deaf and hearing youth aged 8–17 years. Sense of coherence was defined as "... a compilation of personal factors that determine someone's capacity to respond to stressful situations".<sup>30</sup> She found that children who were considered more resilient and with better coping skills saw life as generally more satisfying. At the same time, Trapp-Petty's data showed that, overall, the deaf participants generally reported a lower quality of life than hearing children. There was only one area where the deaf children did not differ from their hearing peers and that was in a satisfaction with a sense of self. But in areas of family, friends, emotions, and school, the DHH participants reported lower levels of satisfaction.

## Influences on quality of life

Researchers have examined a number of variables in connection with quality of life, including receiving a CI, type of educational setting, and, to a lesser extent, home life. Duarte et al presented evidence from a Portuguese sample showing that DHH adolescents without an implant reported a lower quality of life than their hearing counterparts. However, for implanted DHH adolescents, there was no discernible difference between the groups.<sup>31</sup> Huber obtained more complicated results in an Austrian sample of children and adolescents. Using the KINDL-R,<sup>32</sup> she found that children with a CI reported lower quality of life than hearing children, with a large effect size. However, the adolescents with a CI did not differ from their hearing peers. Huber also obtained ratings from parents of the adolescents and reported that the adolescents' and parents' ratings did not differ from each other. This study, however, had a small number of adolescents (only eleven).<sup>33</sup> In contrast, Warner-Czyz et al,<sup>34</sup> in a much larger sample from the United States, found using the KINDL that health-related quality of life worsened as children with a CI aged.

Other researchers have attempted to determine whether a CI seems to improve the quality of life over other technologies, such as hearing aids. For example, Meyer et al<sup>35</sup> studied the quality of life using a measure that had a DHH section.<sup>36</sup>

They also looked at the type of school program the adolescent attended. In general, they found that children with a CI reported better quality of life than those with hearing aids in mainstream education programs. This was true regardless of whether the school had a specific DHH program or whether the child was more isolated. However, when looking at schools for the deaf, participants who did not use technology had higher participation scores and also were less troubled by stigma-related concerns. Hintermair also reported similar data in a German sample. He was interested specifically in classroom participation of DHH youth. His data showed that students who reported that they participate well in their classroom reported higher quality of life in several areas, including school and peer connections. He also reported that his DHH sample was fairly comparable, overall, to typically hearing children.<sup>37</sup>

Given these complicated findings in Meyer et al regarding CI and school placement, Schick et al looked specifically at whether school placement made a difference in quality of life. They did not look particularly at the impact of having a CI but did control for age, sex, hearing level, and depression. In general, they found that there was no difference according to school placement such that DHH children in mainstream programs did not appear to have any lower quality of life. Schick et al emphasized that this was true even though they used a measure that focused on hearing loss issues. However, there were some other complicated interactions depending on whether the DHH adolescent had deaf versus hearing parents. They also reported that for their older adolescents, scores on participation dropped, particularly for mainstreamed students.<sup>38</sup> Stinson et al<sup>39</sup> found similar results in high-school seniors almost 20 years ago.

Kushalnagar et al, in a large-scale study, examined quality of life in DHH adolescents particularly as it related to how well the youth perceived communication with their parents. DHH youth were asked to rate how well they understood their parents' communication with them and also filled out a quality of life survey and a measure of depression. Their data showed that the better the DHH adolescents believed they understood their parents, the better their quality of life report. This was especially true for those areas of quality of life that relate to DHH issues, such as participation and acceptance.<sup>40</sup>

It is difficult to draw a definitive conclusion from the research on quality of life in DHH youth. However, it can be said that some DHH adolescents do feel satisfied with their lives and experience as much of a sense of enjoyment as their typically hearing peers. At the same time, it seems evident that a number of factors play a role in that satisfaction with

life. Receiving and using a CI seems generally advantageous, although family composition (deaf vs hearing parents) and type of school attended are important as well. Home communication and a sense of being understood also play a major role. Furthermore, deaf adolescents do have different concerns than their hearing peers and seem to rate friendship and recreation as more important or more challenging for them than their hearing peers, consistent with the idea that communication skills are critical at this stage.

## Self-concept

How we conceive of ourselves and describe ourselves have been a topic of interest for psychologists at least since William James proposed the idea of a Me-self, the object of a knower, and the I-self, the knower doing the observing.<sup>41</sup> The importance of this research is supported by the connection that has been found in the typically hearing population between self-concept or self-esteem and mental health.<sup>42,43</sup> Research with deaf youth has also confirmed the connection. Both Hindley et al<sup>44</sup> and Mejstad et al<sup>45</sup> found that low self-esteem predicted mental health problems. In a study in the Netherlands, Van Gent et al studied a group of deaf adolescents, all with normal cognitive abilities. They found a moderate relationship between global self-worth and *Diagnostic and Statistical Manual-IV* emotional disorders.<sup>46</sup> Van Gent et al went further and looked for potential moderating variables in this relationship. They found that it was a combination of low self-esteem and acquired deafness that was the significant risk factor. Youth with a more profound hearing loss fared better than those with a less severe loss; uncomplicated genetic causes of hearing loss – as opposed to other etiologies – had healthier development. The data of Van Gent et al suggest the importance of self-concept in the development of deaf youth and the need to examine other variables related to hearing loss in order to more deeply understand how deaf adolescents are adapting.<sup>46</sup>

## DHH versus hearing youth

As with quality of life, a common research question is whether DHH adolescents have lower self-esteem than their hearing peers. The argument has been that DHH youth have more challenges to a positive self-concept and, therefore, may not have as positive a self-concept or high a level of self-esteem. However, the data thus far have not been consistent. Some researchers have found that the self-esteem of DHH children and adolescents is lower than their hearing peers.<sup>47–50</sup> Other researchers have not obtained significant differences between deaf and hearing youth.<sup>51–53</sup> However, the older studies on

self-concept that did not find a difference used different measures of self-concept than the more current research, such as teacher report or an old self-report self-concept scale with students from one classroom in only one school.<sup>51,52</sup>

The research by Van Gent et al utilized Harter's Self-Perception Profile for Adolescents, along with a measure of ego development, which they argued represents James's "I-self". The deaf adolescents, in comparison to hearing peers, were lower in social acceptance and close friendships. They scored higher than their hearing peers in their views on their physical appearance. The deaf youth also scored lower on their measure of ego development. Van Gent et al went further and performed a cluster analysis on the deaf sample, finding three clusters of youth in terms of social competence. One was uniformly high competence in all areas; one was uniformly low across all areas. The third one was characterized by low social acceptance but high physical appearance.<sup>49,54</sup>

## Influences on self-concept

Despite the importance of CIs to the lives of deaf youth and their families, very little research focuses specifically on self-concept. As reviewed earlier, much of it focuses on quality of life. Sahli and Belgin, in a Turkish sample, did examine self-esteem in adolescents after receiving a CI. They found that pre- to post-implant, there was improvement in self-esteem in CI users and that no noticeable differences were found between CI users and hearing peers.<sup>55</sup> Leigh et al had more complex results and interpretation. In their study of deaf adolescents with and without a CI, they concluded that other mediating factors, such as acculturation status and school placement, exert influence on psychosocial outcomes.<sup>56</sup>

School placement is believed to play a role in self-concept, as school placement determines the type of peer group the deaf student has. If self-concept is determined in part by comparisons with a social group, then the characteristics of that group are important. Weisel and Kamara,<sup>50</sup> for example, found lower levels of self-esteem and secure attachment in an adult sample, all of whom had attended mainstream education programs. Van Gorp<sup>57</sup> in a study specifically focusing on school placement type found that there were academic advantages to attending mainstream programs, but social advantages in attending more segregated settings. However, Leigh et al,<sup>56</sup> along with others, found social and self-esteem advantages in mainstream students.<sup>45,58</sup> Similarly, there have been conflicting results reported regarding degree of hearing loss.<sup>50,57,59</sup> No single study, though, has been able to control for all relevant confounds, such as additional disability, use of a CI, and school placement.

Leigh et al<sup>56</sup> collected data on DHH adolescents, administering a wide variety of measures of psychosocial adjustment. They found clear evidence for a strong connection between satisfaction with home communication and scholastic self-esteem as well as social competence self-esteem and satisfaction with life. Similarly, Van Gent et al<sup>49</sup> found through hierarchical regression analyses that signing during childhood and quality of parent–child communication predicted global self worth. This is consistent with Kushalnagar et al,<sup>40</sup> and their finding that satisfaction with home communication or understanding parents predicted better ratings on quality of life. Older research also obtained results suggesting that skilled signing in parents is related to higher levels of self-esteem in deaf youth.<sup>60,61</sup>

As with quality of life, some DHH adolescents develop a positive self-concept. Once again, communication skills appear to play a major role. This is true for communication in the home with family and in school with peers. When there is clear and easy communication, self-concept develops in ways that are similar to typically hearing youth.

## Identity

### Defining identity

There is no single definition to encompass all aspects of the word “identity.” Fearon, in an attempt to define such a multifaceted concept, defined identity in two parts: social inclusion as defined by common attributes and expected behaviors of group members and as unchangeable unique aspects of the individual in which they hold great pride (JD Fearon, unpublished manuscript, 1999). Identity, in a sense, represents the “intersection of the individual and society”.<sup>62</sup> A person’s identity can include, but is not limited to, race, sex, sexual preference, heritage, religion, and, in the case of a DHH individual, hearing status. An important stage in the development of identity occurs during adolescence. In fact, “adolescence is dominated by ‘identity work’; the business of developing and maintaining personal identities”.<sup>63</sup> For DHH individuals, they must figure out what being deaf means to them. In this way, identity is unique from both quality of life and self-concept. Hearing individuals rarely consider their identity in terms of their hearing status, whereas this status can become very important for a deaf person. The question becomes not how deaf individuals identify themselves compared to hearing, but rather how a deaf person identifies themselves both within the deaf community and the hearing world.

“Identity” is a term that is heard often in the deaf community. Although Social Identity Theory posits that there are two opposite positions a person can take in their community

(as a member or as a separate individual), DHH individuals tend to lie along a spectrum.<sup>64</sup> Deaf identity should not be considered as a static concept. In fact, in a study by McIlroy and Storbeck, it was found that DHH people are always seeking a sense of belonging and that belonging can be found in the deaf world, the hearing world, or both. They must figure out for themselves how strongly they identify with each culture.<sup>65</sup>

Maxwell-McCaw and Zea<sup>66</sup> developed and validated the Deaf Acculturation Scale (DAS), adapted from the pre-existing Birman and Zea Acculturation Scale in order to assess deaf identities.<sup>67</sup> The DAS consists of two overall acculturation scales: Acculturation to Deaf Culture (DASd) and Acculturation to Hearing Culture (DASh). The implication of this scale is that DHH individuals do show diversity in terms of how acculturated they are in either the deaf or hearing world, including those who consider themselves to be completely bicultural.

Research has suggested that those who choose to be more individual, separating themselves from the deaf community, often seek their identity in the hearing world.<sup>56</sup> These individuals tend to view their deafness as a hearing “impairment” and strive to emulate their hearing peers.<sup>65</sup> Conversely, those who are strongly involved in the Deaf community may find meaning in their life through that involvement. However, there are deaf individuals who are successful in the hearing world, while remaining involved in the Deaf community, and vice versa.<sup>68</sup> In fact, in her study, Bat-Chava concluded that DHH individuals who chose to involve themselves both in the hearing and in the deaf culture presented improved academic and professional success compared to their peers, as well as higher levels of self-esteem. These individuals were still able to maintain a strong deaf identity, while being able to function appropriately in the hearing world.

Glickman<sup>69</sup> posited in his study that just as other biracial and bicultural individuals do, bicultural DHH individuals go through four stages of identity development.<sup>70</sup> These stages move from internalizing the need to match their hearing peers (hearing identity), confusion regarding where they belong, to immersion, and finally to a bicultural identity, integrating both the hearing and the deaf cultures. As those who are culturally deaf might use a capital “D” when describing their community, McIlroy<sup>71</sup> proposed the term “DeaF” referring to bicultural individuals. Maxwell-McCaw found that DeaF individuals seemed to present an overall positive sense of well-being when compared to those who were hearing acculturated (D Maxwell-McCaw, unpublished doctoral dissertation, 2001). These findings were true for those who

were “deaf acculturated,” suggesting that involvement in the Deaf community can provide some kind of psychological support. Subsequent researchers have agreed with the findings of Maxwell-McCaw, which suggest that DHH individuals often have more positive life experiences when they choose to be bicultural.

Like with any other human being, a DHH person’s identity is not limited to their hearing status. The question ultimately becomes, where within the hierarchy of identity labels do these individuals include their “deaf identity”? The backgrounds of deaf individuals are vastly diverse. It is not uncommon for these individuals to find themselves in a situation where they must figure out how they identify themselves within their own family before they even have a chance to identify themselves in the world. Furthermore, their identity within their family may have a large influence on how involved they might choose to be within the Deaf community. Some DHH individuals are naturally born into the deaf community, as their parents are deaf themselves and very involved. However, for those 95% who are born to hearing families, it becomes the responsibility of the parents and the individual themselves to gain exposure to the Deaf world. Those who do not experience a sense of belonging in their families may reach out to the Deaf community to make up for it and to have the chance to become a “successful member of society, and gain full access to its richness and opportunities [it provides]”.<sup>14</sup>

## Influences on identity

### Language

A shared communication system is necessary to avoid a “general sense of isolation among family members”, but it is common for parents to struggle to find the appropriate match for their child.<sup>72</sup> Further, research has shown that despite their efforts, some parents who have attempted to learn sign language still do not feel comfortable enough to communicate fully.<sup>73</sup> Whether the deaf child eventually uses sign, speech, or both can have a large impact on their identity as a deaf person. Most commonly within the deaf community, a signed language is used to communicate. However, there are many deaf individuals who cannot or choose not to sign. Their choice of communication may have quite an impact on whether they chose to be a part of the Deaf community.

## The “Other”

The idea of the “other” is a “post-modern construct taken up by theorists working in the area of disability”.<sup>74</sup> Although deafness is not always viewed as a disability, this concept can become

important when trying to understand how deaf people define themselves. “Otherness is based on the notion of difference coupled with issues of power. Through the process of othering, people in the dominant group marginalize those whom they view as different”.<sup>74</sup> For deaf people, there is a common phenomenon where hearing individuals place DHH individuals in the role of the other, labeling them as different from everybody else. Being the “other” during the period of adolescence can be particularly taxing given that these individuals are trying to figure out where they belong. This may cause them to try and blend in with their hearing peers so that they may identify more with the “dominant” group. Some, however, may be perfectly fine identifying as different from the hearing world, embracing their culture, language, and values.<sup>74</sup>

## School placement

As with self-concept, a large factor in identity construction is social interaction and practice in schools.<sup>74,75</sup> DHH adolescents undergoing identity changes must also confront the “challenges of being deaf in a sound-dominated environment not always attuned to their auditory and visual needs”.<sup>56</sup> This is particularly true in the school setting. Major findings in research have suggested that DHH students who are put in mainstream schools with hearing peers might develop friendships with them, but the interaction will remain within the school setting.<sup>76</sup> A study conducted by Leigh explored oral DHH adults in mainstream schools. Results showed that most felt as though their experience in mainstream schools had a positive effect on their identity development; however, about one-third reported feelings of isolation and insecurity.<sup>77</sup> Naturally, much has changed since these studies were conducted, but the sentiment has remained the same. When DHH individuals are placed in mainstream schools, they are often the only DHH person enrolled, if not, among a select few. This can make it difficult for them to identify with their peers and find their place among them. Their experience may differ depending on what kind of support is provided for them, but the experience is still very different from those enrolled in deaf programs.

Communication barriers may make it difficult for these students to participate appropriately in class, which can lead to exclusion. Those who support the integration of deaf individuals in mainstream schools may argue that their attendance provides them with more chances for social interaction and to acquire the necessary skills to survive in the hearing world.<sup>78,79</sup> In the study of McIlroy and Storbeck, one participant felt as though “grow[ing] up Deaf is associated with an inferior education and [having] limited opportunities

in life and treatment as an inferior person".<sup>65</sup> The participant further explained that this is why she seeks opportunities in hearing environments, such as a mainstream school.

Those who argue against integration base their opinion on qualitative research showing that DHH children in mainstream schools feel isolated and excluded. In addition, integration into mainstream schools can have a profound effect on how the DHH child develops his or her identity.<sup>80</sup> Instead, those who are against integration prefer that DHH individuals be placed in special deaf programs so that they may have an equal chance to participate in class in an accessible environment. While this may be true, the school environment in these deaf programs is vastly different than that of mainstream schools, which may have implications for psychosocial and identity development.<sup>81–83</sup>

## Conclusion

Any adolescent is going to be tasked with figuring out who they are in the context of themselves and others. For deaf children, there are extra obstacles and components that contribute to their already difficult transition into adolescence. This population has presented with some challenges for researchers given the fact that most prior research tends to be exploratory. While work continues on understanding the complexity of deaf individuals, research points to several important factors. The decisions parents make about cochlear implantation, school placement, and communication choices have major ramifications for their children's development. Good communication at home predicts better outcomes. CIs can be beneficial, even though they are not without controversy. Having a group with which one can align one's self leads to better adjustment. And, identity is a continuing and complex challenge for DHH adolescents. Furthermore, the cause of the hearing loss and additional disabilities, common in DHH groups, influences development. DHH adolescents can and do develop in healthy ways. But, future research must parse out the complicated interactions between these unique factors in their lives to best support their optimal development.

## Disclosure

The authors report no conflict of interest in this work.

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