

# Investigating Teen Audism: The Development and Use of a Survey Scale to Measure Misconceptions of the Deaf Community in a Hearing High School

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## Summary

**The intention of this study was to investigate the patterns and frequency of misconceptions that hearing high school students have towards the Deaf and Hard of Hearing (HoH) community. These misconceptions about the Deaf community commonly involve false beliefs about Deaf intelligence, social norms, and political practices. In this study, a new survey scale was created specifically asking younger students for their opinions on the Deaf and HoH community. The results from the students suggest that misconceptions surrounding American Sign Language (ASL) and cochlear implant surgery are the most frequently occurring, while misconceptions about home ownership and literacy were the least common. Also, the frequency of misconceptions was mediated by the amount of prior exposure the participant had with the Deaf and HoH community. Age did not appear to play a role in mediating the amount of misconceptions participants displayed.**

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## Introduction

Misconceptions surrounding the D/deaf and Hard of Hearing (HoH) community are usually over exaggerations, misconstrued facts, or simply false statements, similar to the stereotypes about race and gender (1). These misconceptions often lead to various limitations for the D/deaf and HoH in business, social interactions, academic achievement, and the overall presentation of their community to the hearing population. While previous research has constructed measurements for misconceptions of the Deaf among hearing adults, there has not been a specific test that identifies and measures the misconceptions about the Deaf in a hearing high school setting (2). Collecting this data on misconceptions held by high schoolers adds to our collective understanding of Deaf misconceptions

by filling a clear gap in the literature. It is expected that hearing individuals will hold many misconceptions due to a lack of exposure to the Deaf community (2, 3).

The term Deaf can include both the Deaf and HoH populations, and people with cochlear implants, although not all individuals will ascribe to the cultural designation of Deaf. The upper case 'D' can be used as a general, cultural, or societal descriptor. The lowercase 'd' is used for the medical description of physical hearing loss (3, 4). HoH people identify themselves as having medical hearing loss, which varies from mild to profound. Generally, HoH individuals are less likely to identify themselves as culturally Deaf (4, 5).

This study specifically focuses on the misconceptions hearing high school students have about the Deaf; therefore, it is necessary to understand Deaf culture and society. Deaf epistemology is the theory of knowledge of how Deaf society is understood (1, 2, 5). In studies related to the Deaf community done by hearing researchers, caution is necessary due to potential errors in method validity resulting from a lack of understanding of Deaf culture. It is necessary to proceed with caution because a certain amount of bias may occur during the experimental design, in the sense that hearing researchers must be careful in writing survey instruments. This study will use a Deaf focus group to review drafts of the survey to help prevent such bias.

The idea of the Deaf community having their own type of culture and systemic structures of support within society, such as Deaf schools, can lead to misconceptions throughout the hearing population. For instance, the hearing population is able to live in an auditory reality, while the Deaf must live in a visual reality, placing more value on vision. Deaf society consists of the social structures put in place to maintain Deaf culture, such as schools designated for the Deaf, the use of American Sign Language in the household setting, and upholding the ideas and beliefs of Deafhood. Deafhood is the gathering of information about the Deaf, attempting to move beyond Deaf restrictions in social, political, and economic aspects, and the celebration of the idea of being Deaf (1). Hearing individuals may misunderstand the idea of Deafhood because of their misconception that deafness is equivalent to a disability, thus making Deaf people somehow inferior, even though those in the

Deaf community would feel differently (1, 2).

It is often thought that the terms *difference* and *misconception* are synonymous, but in reality these terms have divergent meanings. A *difference* is a distinct uniqueness or unlikeness between two or more groups, while a *misconception* is an opinion or belief about an expected behavior that derives from an incorrect assumption (6). This study is not denying the differences between hearing people and Deaf people (7), but instead measured the positive and negative misconceptions hearing high school students have about the Deaf community and culture.

There are multiple misconceptions about the Deaf, ranging from their social norms to the political and academic aspects of their lifestyles (6, 7). Examples of common misconceptions regarding social norms are: the Deaf's use of American Sign Language (ASL), lip-reading, and dependence on interpreters/translators (1-3, 5, 8). Though many people within the community use ASL as a means of communication, it is neither their only language nor an expectation. Some Deaf and HoH people prefer not to use ASL due to the lack of use in their home environment (1, 2, 5).

Lip-reading is the ability to translate mouth movements into actual words. Many Deaf people have been misplaced in the lip-reading category due to the misconception of lip-reading being "easier to understand" than communicating with someone who does not know ASL or lacks an interpreter/translator (2, 3, 5, 8). Lip readers often understand less than half of the words being said due to a multitude of possible visual obstacles such as facial hair, hand-over-mouth, over enunciating, or speaking too quickly (1, 5).

Another misconception about the Deaf and HoH people is that they are dependent on an interpreter/translator (1, 5). Deaf and HoH people are able to communicate without interpreters/translators, and some would prefer to go without an interpreter/translator to eliminate unwanted attention or avoid being seen as making "unreasonable" demands (5, 9). Most of these social misconceptions come from hearing people who have likely never had an experience with a Deaf or HoH person(s) and are generally received through television, print, or social media (1). These misconceptions are rooted in the mistaken idea that Deaf people cannot "function as normally" as a hearing person does.

A second category of misconception is the perceived lack of political and civic involvement. For example, several studies have found that many hearing adults assume Deaf adults do not or cannot vote (1, 2, 4). This misconception is likely due to the belief that the Deaf do not have access to civic information such as the date of the election or whom to vote for. This misconception is unwarranted, as the Deaf do have access to information

via the Internet, among other sources (3, 5, 6). While some Deaf are fearful of technology due to its complex vocabulary, Internet use for information gathering is common among the Deaf community (5, 6, 8).

In addition to the political misconceptions about the Deaf community, multiple studies have investigated the intelligence of Deaf adults and students. Contrary to popular misconceptions, Deaf people on average have the same level of intelligence as hearing people (2, 5). Any differences between Deaf/HoH and hearing individuals are due to the lack of resources and opportunity, rather than the lack of intelligence (1, 5). A common misconception about a Deaf person's intelligence is that he/she struggles with literacy (2). Misconceptions about the Deaf community's ability to learn and perform academically may be due to perceived differences in information processing, knowledge attainment, and mastery of English literacy. There is no denying the challenges in the acquisition and use of the English language by hearing people as well as people within the deaf community (6), but this does not mean that Deaf people do not have the capability to learn English and use it properly as fully functioning, educated adults (8). Multiple studies show that the Deaf/HoH exhibit small variations in how they read and understand English but these differences are usually exaggerated (1, 7, 8). For example, according to one study (9), the use of universal or numeral quantifiers (modifiers of a noun or pronoun in a holistic or number form that are not specific, but generally understood by hearing people) is more ambiguous for the Deaf.

The current study and scale are based on research done in 1993 by Berkay (2), who developed a 20-question survey scale that measured the frequency and severity of misconceptions about the intelligence, academic performance, and driving skills of Deaf adults. The study's sample had a mean score of 30.314 out of a possible 150 score, indicating few misconceptions. These results may reflect higher educational attainment, as his sample consisted of college seniors. Berkay's subjects, due to at least 17 years of schooling and the fact that a substantial portion (29%) of the participants had a deaf classmate during their time at college, may have held fewer misconceptions than expected. The current study expands on Berkay's work by updating the scale to account for the widespread adoption of technology, such as computers, cell phones, and cochlear implants, as well as conducting the study with a younger, less educated sample.

Similar to previous studies (2, 10, 11), the purpose of the current project was to create a new survey scale to quantify key information about the Deaf community. In particular, this study investigated the degree to which misconceptions of the Deaf community are present

among high school students. This research had a focus group that reviewed the new survey. Then, the revised survey was given to the student sample. This study sought to understand the misconceptions present in a younger population of hearing people and included two hypotheses:

*Hypothesis 1.* There will be a difference in the amount of misconceptions based on prior exposure to the Deaf community. Participants may have fewer misconceptions because of prior exposure to a Deaf person and to their culture, society, or lifestyle (2).

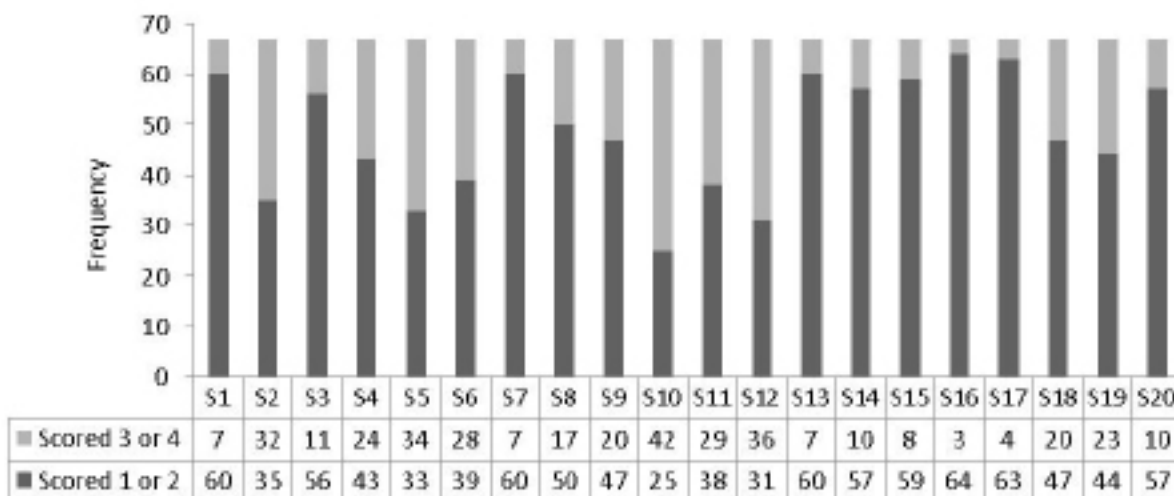
*Hypothesis 2.* There will be a negative relationship between the frequency of misconceptions of the Deaf and age. Previous research (2) found fewer misconceptions with older, reasonably educated adults. Therefore, it is possible that the younger and less educated someone is, the more misconceptions he/she may have.

## Results

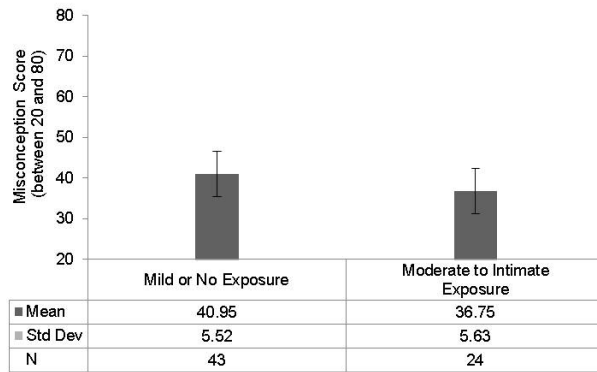
The trends in misconceptions across questions are visualized in **Figure 1**. The statements in the survey were written in two directions and scored, such that the higher the score, the greater the misconception. For example, a statement on the survey was “All Deaf people know/use American Sign Language,” is a negative question, since not all Deaf people use ASL. Therefore, participants who mildly or strongly agreed to this statement would receive a score of three or four respectively, indicating the presence of a misconception. However, if the statement is a positive question, such as “Deaf people are able to drive,” then an answer of “mildly agree” or “strongly agree” would be scored as a one or two, respectively, indicating no misconception.

Two statements had responses indicating high levels of misconception. The first statement, statement number 10, is “American Sign Language and English are the same” (1, 2, 5). This is a negative statement because although ASL and English are similar in language, they are very different in use and structure (2, 5, 6). The second statement, statement number 12, is “Deaf people should invest in cochlear implant surgery (a device put onto the brain to allow limited hearing)” (1, 2, 5-7). This is also a negative statement because of the assumption that having a cochlear implant will force Deaf and Hard of Hearing people into a type of assimilation, instead of allowing them to be proud of their own Deafness and Deafhood (1, 3-5, 10). While cochlear implants are not negative developments to invest in, the belief that a Deaf or HoH person should have the cochlear implant in order to make them “better” is the negative misconception.

There were two statements that were least common, indicating less frequent occurrences of misconception. The first statement, statement number 16, states “Deaf people can read and write” (1, 5). Very few students disagreed with this statement. The second statement, statement number 17, states that “Deaf people do not own homes/houses” (4, 5). Although other sources suggested otherwise, these misconceptions were not common in this sample of teenage, high-school students. **Figure 2** shows the visual demonstration of the two exposure groups: none/moderate prior exposure and moderate/intimate prior exposure to Deaf culture and community. The higher the bar is, the higher the amount of misconceptions held by the group. An independent t-test found a significant difference between students with little to no exposure and moderate to intimate exposure ( $t = 2.97, p = 0.0020845$ ). The no/limited exposure group (M



**Figure 1: Frequency of Deaf misconceptions by survey question.** Each question (S) is scored out of four points, with scores of three or four (light gray) indicating the presence of a misconception and scores of one or two (dark gray) indicating a lack of misconception. The vertical axis describes the number of participants ( $n = 67$ ) in the sample who did or did not display each misconception. See **Appendix A** for a full list of statements.



**Figure 2: Misconception score as a function of prior exposure.** This graph demonstrates the statistically significant difference in the amount of misconceptions held by the participants based on the amount of prior exposure students had to Deaf and HoH individuals. The vertical error bars represent the standard deviation of the groups.

= 40.95, SD = 5.52) exhibited more misconceptions than the moderate/intimate exposure group (M = 36.75, SD = 5.63). This means that the amount of exposure a student has to the Deaf and Hard of Hearing community impacts the degree of misconceptions he or she exhibits.

Because there was a significant difference in the amount of misconceptions exhibited in the two exposure groups, the second hypothesis, regarding the relationship between age and misconceptions, was investigated separately in each group. A Pearson correlation coefficient test found no significant relationship between age and misconceptions in the none/limited exposure group ( $r = 0.10$ ,  $p = 0.25$ ), as well as no significant relationship between age and misconceptions in the moderate/intimate exposure group ( $r = 0.33$ ,  $p = 0.06$ ). Likewise, there was no significant relationship when the two groups were combined ( $r = 0.017$ ,  $p = 0.08$ ). This means there is not enough evidence to say there is a relationship between age and the amount of misconceptions about the Deaf exhibited by the participants.

## Discussion

The results of this study only supported one of the hypotheses: a respondent's previous exposure to the Deaf and HoH mediates the misconceptions he or she holds. This agrees with the idea that prior exposure affects one's misconceptions (1-3). The amount of exposure may affect the misconceptions held by a participant because he or she is more likely to have interactions, experiences, and more understanding of the idea and struggle of being Deaf or HoH (1, 2). Due to the non-experimental nature of this study, we cannot conclude if the prior exposure causes a reduction in misconceptions, or if those who lack misconceptions are more likely to seek exposure to the Deaf and HoH.

The most significant limitation in this study was the small sample size compared to larger research projects done at the college level. Every student in the school grades 8–11 was included in the study, but even so this limited the sample size to 67 participants. If there was a larger sample size of students at the school in which the study was carried out, the results might have varied. For example, only two students in the sample had high amounts of exposure (the rest were moderate), and while the difference was large enough to say that exposure did matter, it may have been more significant if there were more students with intimate levels of exposure. Additionally, the study was limited by having a less diverse sample in terms of race/ethnicity. Because the sample consisted of the same race/ethnicity (Black/African American), there was no possibility of finding a difference based on race/ethnicity. Due to these limitations, it is not reasonable to assume that these results can be generalized across all high-school students.

In terms of potential error in the study, one of the most important details of the survey was the difficulty some participants had in understanding the statements and what they implied. Although there was a pilot group of students to help with the revisions of the survey for clarity, there still may have been misunderstanding. For example, two ninth grade students had asked for clarification on a statement, but did not circle an answer (when students omitted a question, their survey was omitted from the study). Additionally, one student circled more than one answer, also requiring their omission from the data analysis. To avoid this problem in the future, researchers using this survey scale should check the survey before final collection and documentation to be sure that each student has correctly followed directions.

This study has several implications for future studies. The first note is to increase the sample size. Seventy students took both the survey and questionnaire, creating a small sample size, which may have limited the significance of the differences in exposure. Also, an unbalanced sample limits the possible differences based on age. All students were ages 13–18, but with an extremely high amount of 15- and 16-year-old (78%) students. Despite these limitations, this study provides an important addition to our understanding of common misconceptions that hearing high school students have of Deaf and HoH people.

## Methods

In order to investigate misconceptions about the Deaf in a hearing high-school setting, a new survey scale of 20 statements was created and administered to 70 students, grades 8–11. Three participants' surveys were omitted from the study due to missing or multiple responses to

survey questions. Participants were asked to state if they agreed or disagreed with various statements about Deafness, with a four-item response scale (**Appendix A**). Along with the survey, a questionnaire (**Appendix B**) was given to students to document any previous experience or interaction with the Deaf/HoH community. The survey scale was reviewed by a focus group of Deaf/HoH young adults and a certified American Sign Language interpreter. This was done to ensure that the survey authentically documented the cultural concerns of Deaf and HoH people in order to ask the students about their opinions on common misconceptions.

The participants of this study were students who attended a private college preparatory high school in grades 8, 9, 10, and 11. The students were ages 12–18, were all Black or Biracial, were 58% female and 42% male, and had an average age of 15.1 years (SD = 1.51). Participants were part of a convenience sample of all students at the school. The survey was based off previous research (2) done at the college level. A new survey was created that contained updated misconceptions. It was developed by collecting a variety of sources on Deaf misconceptions from the Internet. The frequencies of the misconceptions were measured, and the twenty most common misconceptions were chosen for the first draft of the scale.

Like previous research into creating measures concerning the Deaf community (11, 12), a focus group composed of three Deaf college freshmen students and a translator/interpreter was held to review the survey before it was given to the students. The primary goal of the focus group was to edit and add other possible misconceptions that were missed. For example, the focus group had discussed the misconception of the language differences between American Sign Language and English. This was added to the survey scale. Additionally, a pilot group of three senior classmen was given the survey to identify questions or instructions that were not clear to them. This group was timed to estimate the amount of time that would be necessary for the other grade levels to complete the survey. The survey was administered during normal class time. No students declined to complete the survey.

The survey questions were scored in two directions: positively and negatively. The survey had a total of 20 questions: 11 negative questions and 9 positive questions. Positive questions were expected to receive a positive answer, meaning that if a student does not have that misconception, he/she would agree. Positive questions were scored so that “strongly agree” was worth 1 point, “mildly agree” was 2 points, “mildly disagree” was three points, and “strongly disagree” was worth 4 points. Negative questions would be disagreed with if the student does not hold that misconception, with

the scoring system reversed such that “strongly agree” was worth 4 points and “strongly disagree” was worth 1. The scores for each question were summed to give an overall score, with higher numbers indicating more misconceptions held by the participant.

In addition to the survey, a separate questionnaire was given to the students to document their possible exposure to the Deaf and HoH community. The survey was administered first, followed by the questionnaire. The questionnaire given to each participant after the survey included questions regarding whether the student had Deaf/HoH relatives, experience with fingerspelling or ASL, or basic interactions with Deaf/HoH people(s). There was also a section reserved for students to explain in detail their experience if the option was not given to them on the checklist. Initially, the original intention of the questionnaire was to be able to identify students within four different exposure groups. However, an extremely low amount of students in the fourth (highest exposure) group violated an assumption of the ANOVA test that was to be used for investigating differences across more than two groups (13). Therefore, the four groups were truncated into two groups, and a t-test was used instead.

The first group was the “none/mild” exposure group. This group contains the students with no Deaf/HoH relatives and little or no ASL/Fingerspelling use or experience, but they may have had a casual interaction in athletics, a public setting, or as a former classmate. The other category was the “moderate/intimate” exposure group. This group describes the students who have Deaf/HoH relatives, a moderate amount of ASL/Fingerspelling use or experience, and/or had a mutual friend, classmate, or coworker who was Deaf/HoH.

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Appendix A

Grade:\_\_\_\_\_

Age:\_\_\_\_\_

Gender: please circle one - MALE or FEMALE

Introduction to Questionnaire and Survey

*The purpose of this questionnaire is to document your possible experiences and encounters with Deaf and Hard of Hearing people. The survey is to observe your viewpoints of the Deaf and Hard of Hearing (HoH) Community. This survey is going to be collected and documented for the purposes of my Senior Seminar experimental phase. The data collected from this survey **will not be shared individually and is only going to be based off of the results and the basic demographic received above.** All responses **will remain anonymous.***

Directions

*Please answer all questions with the letter response you feel is most accurate and factual to your understanding. Please use a pencil, as you are allowed to and may feel compelled to change your answer. If you decide to change your answer, erase as clearly as possible.*

To indicate your opinion, please circle:

- A = you strongly agree
- B = you mildly agree
- C = you mildly disagree
- D = you strongly disagree

	AGREE		DISAGREE	
1. Deaf people are less intelligent than hearing people.	A	B	C	D
2. It is unlikely to hear a Deaf person talking.	A	B	C	D
3. Deaf people can/are able to drive.	A	B	C	D
4. Deaf people are disabled, similar to people with autism.	A	B	C	D
5. All Deaf people know/use Sign Language.	A	B	C	D
6. Deaf people should be allowed to serve in noncombat positions in the military.	A	B	C	D
7. If you shout/yell at a Deaf person while talking, they should be able to hear you.	A	B	C	D
8. Deaf people always have translators/interpreters with them.	A	B	C	D
9. Deaf people are good parents/guardians.	A	B	C	D
10. American Sign Language and English are the same.	A	B	C	D
11. Deaf people view Deafness as empowering/are proud of their Deafness.	A	B	C	D
12. Deaf people should invest in cochlear implant surgery (a device put onto the brain to allow limited hearing).	A	B	C	D
13. Anyone can become deaf.	A	B	C	D
14. Deaf people have the right to work at offices and factories.	A	B	C	D
15. Deaf people do not watch TV/go to the movie theater.	A	B	C	D
16. Deaf people can read and write.	A	B	C	D
17. Deaf people do not own homes/houses.	A	B	C	D
18. Deaf people do know/can speak English.	A	B	C	D
19. Deaf have a hard time asking for help.	A	B	C	D
20. Deaf people use computers and cell phones.	A	B	C	D

Appendix B

Grade: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: please circle one -      MALE      or      FEMALE

Directions

*Please answer all questions you feel are most accurate to your actual experience. Please use a pencil, as you are allowed to and may feel compelled to change your answer. If you decide to change your answer, erase as clearly as possible.*

Are you related to any Deaf or Hard of Hearing people?

- YES
- NO

Do you have any experience with Sign Language?

- No, I cannot fingerspell or use sign language
- Yes, I fingerspell a little bit
- Yes, I know a few signs
- Yes, I have fair signing/sign language skills
- Yes, I am a skilled signer/user of sign language

Have you ever had any interaction(s) with a Deaf or Hard of Hearing person besides someone in your family?

- YES
- NO

If yes, please check all if applicable

- SPORTS (at TNA or elsewhere)
- MUTUAL FRIEND
- FRIENDSHIP
- CASUAL (park, Wendy's, mall, etc.)
- FORMER CLASSMATE
- CO-WORKER

If yes to interactions with a Deaf or Hard of Hearing person (previous question) but not listed above, please briefly describe below:

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