

Deaf Mental Health:

Analyzing Mental Health Clinicians' Knowledge of Treating Deaf Patients

By

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Abstract

Around 1.9% of the U.S. population is deaf, making for over 6 million deaf people in the U.S. Previous research has shown that deaf adults are consistently given inadequate mental healthcare, and that physicians overall do not have extensive knowledge of how to treat deaf patients. This study aims to examine mental health clinicians' knowledge in specific, using both an online survey and semi-structured interviews. Mental health clinicians had an average correct answer score of only 17.56 out of 27 (65%). Participants scored particularly bad on questions asking about logistics of the ADA (such as payment) and interpreters. Two thirds of respondents (21 out of 32) admit that they are either "not very confident" or "not at all confident" in providing the same level of care to a deaf person compared to a hearing person. Nearly half of respondents (14 out of 32) reported knowing little or nothing about their responsibilities under the Americans with Disabilities Act (ADA). This indicates a need for change regarding psychologist training. Insights from the interviews revealed that a Continuing Education module about how to treat deaf patients would be the most useful, including information on the history of d/Deaf oppression, biological interactions between deafness and mental health, Deaf experience/culture, and working with interpreters.

Acknowledgements

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Introduction

The National Deaf Center estimates that 1.9% of the population of the United States are deaf (NDC, 2021). That makes for approximately 6.375 million deaf people in the United States, double the population of the city of Los Angeles (U.S. Census Bureau, 2023). While there have been contradictory studies, depression and anxiety disorders may occur at higher rates in deaf adults as compared to hearing adults (Kushalnagar et al., 2019, p. 378). Using Kushalnagar et al.'s estimated rate, around 1.6 million deaf adults in the U.S. likely have diagnosed depression or anxiety disorder. Yet, this large section of the population is consistently given inadequate mental healthcare (Hamerdinger & Crump, 2022).

This can occur (in part) due to lack of clinician knowledge about their responsibilities to deaf individuals under the Americans with Disabilities Act (ADA), lack of clinician knowledge about deaf experiences, lack of clinician knowledge about the interpreting process, and lack of clinician knowledge about sign languages such as American Sign Language (ASL). This study aims to find out: How much do mental health clinicians know about interacting with Deaf people as patients? Is this correlated with percentage of Deaf population in their state, training they have had (Deaf Awareness Training or similar), degrees they have gotten, etc.? What tools may be most helpful to educate mental health clinicians on these topics?

Research

Although studies have been done on general physician knowledge of the ADA, not much research has been done on mental health clinicians' knowledge of the ADA in general or of their knowledge of the requirements for deaf patients in specific. Additionally, not much research has

been done on (the lack of) clinician education/training on Deaf culture, ASL, and interacting with deaf patients and interpreters. This study aims to change that by looking at mental health clinicians' knowledge in all of these areas, to both get an understanding of where they are failing deaf patients compared to physicians, as well as to develop policy recommendations to help correct for lack of knowledge.

This study expands the range of previous studies since it looks at knowledge of the ADA, Deaf culture, ASL *and* deaf patient/interpreter/clinician interactions. At the same time, it is specifying and clarifying existing research into these topics by specifically looking at mental health clinicians. Since communication is a major part of mental health treatment in particular compared to other medical disciplines, it is imperative that we have good research on where mental health clinicians' (lack of) knowledge about these topics may be resulting in communication breakdowns. This study aims to figure out mental health clinicians' knowledge of their requirements under the ADA to deaf patients, the interaction of ASL and deaf mental health, Deaf culture/experience, and deaf patient/interpreter/clinicians interactions.

Roadmap

This paper includes 5 sections, *Background*, *Literature Review*, *Methodology*, *Results*, and *Policy Recommendations*, organized as follows.

In the *Background* section there is an overview of the history of mental healthcare for the deaf in the United States and its historic shortcomings. This section also details the current state of deaf mental healthcare as well as background regarding deaf people's experiences that will be

useful to understanding the current study. This includes a discussion of the progress and shortcomings of the Americans with Disabilities Act (ADA).

The *Literature Review* section contains an overview of what previous studies have accomplished as well as where the gaps in the current literature are that this study aims to fill. While previous studies have focused on surveying physicians' knowledge in general about their requirements under the Americans with Disabilities Act (ADA) or their knowledge of Deaf culture, no study has surveyed mental health clinicians in specific with regard to a multitude of pertinent issues for providing mental healthcare for the deaf (not only Deaf culture and ADA requirements, but how signed languages like American Sign Language may interact with providing mental health care).

The *Methodology* section details the study, which combines qualitative and quantitative methods. This involves an overview of the survey sent out, where it draws its questions from, and which questions were cut and why. It details who the survey was sent out to and an outline of any subsequent interviews. It also includes the sample size and the level of attrition.

The *Results* section details what trends were found among the survey data, as well as any patterns seen in the interviews with mental health clinicians.

The *Policy Recommendations* section details what policies I would recommend in order to fill in the gaps in mental health clinicians' knowledge in the four areas mentioned previously. They draw both on observed gaps in knowledge from the survey responses as well as areas that providers informed me needed improvement during the interview process.

Background

History

Deaf people have a long history of oppression. Throughout the 19th century, many individuals accepted Aristotle's judgement that since deaf people did not speak, that meant they had the intellectual capacity of non-humans (Pollard, 2019). In 1880, the Second International Congress on Education of the Deaf, otherwise known as the Milan Conference, took place in Milan, Italy, where hearing educators voted that oral methods of communication instead of manual methods were to be used to educate deaf students (Jankowski, 1993). There has been progress with a further acceptance of ASL, but oppression persists. Parents of deaf children must decide if they send their child to a school that focuses on creating speech or one that focuses on manual communication, and if they send them to a mainstream, residential, or day school program. These decisions impact acculturation outcomes, which has implications for deaf identity and educational attainment (Leigh, 1999).

Deaf individuals have also been treated as if they have a medical condition that needs a cure, which has led to a distrust of hearing people and medical professionals (Jankowski, 1993). The publication of "A Dictionary of American Sign Language" in 1976 was a catalyst for bringing deaf students and consumers into contact with professional psychology (Pollard, 1998). Yet, there continue to be few doctorate-level deaf therapists who primarily use ASL (Gutman & Pollard, 1999). Such implants "have been viewed by the Deaf culture as a 'standard' imposed by the hearing medical community that perceives deaf/Deaf people as having a disability in need of repair" (Boness, 2016).

Deaf Culture

As opposed to medical models of deafness, within Deaf culture being deaf is viewed as a communication barrier similar to any other linguistic minority, not as a disability (Stebnicki & Coeling, 1999). As a marker of identification with the community, Deaf is spelled with a capital “D”, while a lowercase “d” only refers to the audiological phenomenon of deafness. This Deaf pride works to override other differences within the community and aid in socialization. In fact, many Deaf parents often hope to have deaf children so that their children will be accepted into their culture (Stebnicki & Coeling, 1999).

The Deaf community values ASL, narrative storytelling, Deaf cultural pride, and Deaf identity. Recently there has been a controversy around cochlear implants. While one study has found that cochlear implantation in children has positive effects on psychosocial wellbeing, many in the Deaf community have more negative views (Fellinger, Holzinger, & Pollard, 2012).

Mental Health Needs

Greater incidences of “substance abuse, past year suicide attempt, intimate partner violence, trauma and abuse, unemployment and underemployment, isolation and segregation from others, and distrust of members in mainstream society” are common problems in the d/Deaf community (Boness, 2016). Additionally, one study found that postlingually deaf people may have a greater degree of mental distress, although this was only found among women (de Graaf & Bijl, 2002). The d/Deaf community may particularly struggle with PTSD and identity problems due to childhood experiences in mainstreamed schools or due to language deprivation in childhood.

Literature Review

Lack of Clinician Knowledge About Responsibilities Under the ADA

In a 2019-2020 survey, 35.8% of physicians reported knowing little or nothing about their responsibilities under the ADA, and only 40.7% of physicians felt very confident about providing equal-quality care to patients with disability (Iezzoni et al., 2022, pp. 99-100). Egregiously, 71.2% of participants in this survey provided incorrect answers about who makes decisions about reasonable accommodations for patients with disability (Iezzoni et al., 2022, p. 100).

Physicians' lack of knowledge about their responsibilities can lead to situations like those described by deaf emergency department (ED) patients in a 2018-2019 study. Deaf participants waited for at times up to 8 hours for interpreters to be provided, and most participants—although they do not specify exactly how many out of the 11 participants—said that on-site interpreters were never provided (James et al., 2022, p. 52). In one study, both deaf and hard-of-hearing interviewees—this paper also did not specify the exact number out of 14 deaf participants and 12 hard-of-hearing participants—reported that physicians often required them to use “inadequate modes of communication,” such as reading lips, writing notes, or using family members to interpret, leading to difficulty understanding (Iezzoni et al., 2004, pp. 358-9).

Communication

Communication impediments are especially crucial to understand and combat with mental health care, as most of the symptoms are relayed through communication and

communication is then one of the primary methods of treatment. If physicians and patients lack a shared language and cultural framework, they need an interpreter (Hamerdinger & Crump, 2022).

Previous research has found a severe lack of knowledge amongst physicians regarding providing health care for deaf people, and so this study aims to find if mental health clinicians have the same level of knowledge as general physicians or if they differ (for better or worse). Similar to the 2019-2020 study, it uses a comprehensive survey to aid in determining general levels of mental health clinician knowledge.

Lack of Clinician Knowledge about Deaf Experiences

More than 90% of deaf children are born to hearing parents, where a form of visual language such as sign language is inaccessible, creating an immediate barrier to them acquiring language (NIDCD). This can lead to language dysfluency in deaf adults, a problem specific to deaf and hard-of-hearing adults. If physicians are not aware of the psychosocial development of prelingually deaf individuals, they are more likely to misdiagnose deaf patients (Misiaszek et al., 1985, p. 513). When evaluating a patient for psychiatric disorders, for example psychosis, thought disorganization or disordered language may be used as a diagnostic (Landsberger et al., 2013, p. 91). Language dysfluency/language deficits due to language deprivation can be misconstrued as symptoms of thought disorganization by a naïve clinician (Landsberger et al., 2013, p. 91).

Additionally, a deaf person's level of cultural identification with "Deaf culture" can affect both how they approach their deafness (not seeing themselves as handicapped or disadvantaged),

as well as affecting how distrustful they may be of hearing clinicians (Landsberter et al., 2013, p. 90). If mental health clinicians are not aware of this, they will likely not ask about this, and this can affect the efficacy of psychiatric treatment as patients may not be as accepting of psychiatric treatment if they and their clinician view their disability differently. This study aims to find how much knowledge mental health clinicians in specific have about deaf experiences and how they impact mental health care.

Lack of Knowledge about the Interpreting Process

Interpreting between signed language and spoken language is not a word-for-word translation, and if clinicians do not understand that interpreters make decisions on how to portray the message, it can lead to poorer treatment (Hamerdinger & Crump, 2022). For example, concepts involved in diagnosing psychosis such as “hearing voices” may be difficult to interpret, resulting in misunderstanding (Landsberger et al. 2013, p. 91). In addition, clinicians may not be aware that they should look for mental health interpreters in particular, as an interpreter not trained with clinical work may struggle to understand the goals and process of therapy and inadvertently hinder progress (Hamerdinger & Crump, 2022). This study aims to find out how much mental health clinicians in particular know about how the interpreting process functions.

Lack of Knowledge about Signed Languages

ASL exhibits grammatical structures that are very different from spoken English, which a clinician could misinterpret as indicating something about a patient’s mental health. Some of the most notable differences from English are: ASL places verbs at the end of sentences, adjectives

come after the words they modify, it does not have individual signs for the words *the*, *is*, *are*, *was*, and *were*; ASL uses time concepts to establish time frame instead of referring to it multiple times as is the case in English, and signers use the space around their body to convey linguistic meaning throughout the conversation (Pollard, 2014). Facial expressions, body language, and agitated, emphatic gestures are used to modify adjectives in ASL. These could be perceived as an absence of depression by some clinicians (Landsberger et al. 2013, p. 91).

Additionally, if ASL is interpreted literally or is written down, it can approximate the loosely associated communications found in schizophrenia (Misiaszek et al., 1985, p. 515). Clinicians that are not aware of ASL's grammatical differences from English may interpret written notes from their deaf patients as false symptoms of schizophrenia. To the best of my knowledge, studies have not previously been done on clinicians' knowledge of these facts, and so this study aims to uncover how much clinicians know of these phenomena.

Contribution to Current Literature

While these phenomena have been identified in the literature, there is very little research that has been done on how aware the general mental health clinician population is about these issues. This study aims to gather information about how much different types of mental health clinicians know about these issues, and if there are any trends in their knowledge (do they have a larger deaf population in their area, have they received specific training pertaining to this, etc.) To the best of my knowledge this will be the first study of its type, and will help policymakers inform how they could offer services to mental health clinicians to improve care in their area.

Methods

Study Design

A study using a questionnaire-based survey was given to mental health clinicians in nine states: New Jersey, Michigan, West Virginia, Maine, Oklahoma, New Mexico, Montana, Kentucky, and Arkansas. These states were selected because, based on the results of the American Community Survey from 2019, they are, the states with the lowest (NJ), closest to the median (MI), and highest percentage (WV, ME, OK, NM, MT, KY, AR) of people with a hearing difficulty (U.S. Census Bureau, 2019). Participants were also given the opportunity to have a subsequent one-on-one interview discussing their experience caring for deaf patients.

Initially, only West Virginia was selected for the “highest percentage” category since it had the single highest percentage, but it had far fewer psychologists available to reach out to than NJ and MI (6 compared with 150+ each for NJ and MI). Instead, the 7 states with the highest percentage of people with a hearing difficulty were selected to make for more equal groups (200 psychologists from Michigan, 276 psychologists from New Jersey, and 160 from the 7 other states). The table below shows the breakdown of clinicians contacted per state and how many psychologists from each state filled out the survey.

Table 1

Psychologists Contacted and Respondents by State

State	# Clinicians Contacted	# Respondents	Hearing-Impaired Rate
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NJ	276	14	Low
MI	200	9	Median
AR	14	0	High
KY	43	1	High
ME	33	1	High
MT	15	1	High
NM	26	3	High
OK	23	0	High
WV	6	1	High
PA	0	2	NA
OR	0	1	NA

Initially, the survey contained a total of 82 questions. Criteria used by Pew Research for their surveys were used to evaluate if it was too long (Hatley & Kennedy, 2022). Pew research limits their online surveys to 85 points (Hatley & Kennedy, 2022). When evaluating the initial survey without any cuts, the survey had 7 points too many. There were over twice as many Deaf culture questions than those in other test sections (Deaf culture had 23 questions, mental health care had 9 questions, and A.D.A. had 11). In order to both make the sections more even and shorten the survey while keeping the necessary personal and professional characteristics questions, the Deaf culture questions were reduced to 12 questions. The questions kept were randomly selected (code in Appendix). The test now has a total of 81.02 points. These points come from stand-alone questions which are given one point, battery items that are a single prompt with multiple questions (e.g., “To what extent do you agree or disagree with the following statements...?”) which are given 0.67 points each, check-all questions which are given 2 points, and open-ended questions (Hatley & Kennedy, 2022). For open-ended questions, they be assigned from 5-8 points. There is only one open-ended question on the survey, “What steps

do you follow before/during the intake of a deaf patient?”, which I decided to give 8 points, as the response could potentially be quite long depending on the respondent. A shorter survey ensures it should take less than 15 minutes, which should lead to a better response rate and higher quality of each answer than a longer survey (Hatley & Kennedy, 2022). The survey can be found in the Appendix.

Interviews were semi-structured, with a few guiding questions to structure the conversation, while participants were encouraged to share their own anecdotes or delve further into topics they found interesting. The guiding questions can be found in the Appendix.

Interviews lasted anywhere from 10 minutes to 1 hour depending on the participant’s level of relevant experience. The mean interview time was 25 minutes, with 5 of the interviews being 20 minutes or under, one interview taking 41 minutes and one interview taking 55 minutes.

Interviews were conducted over Zoom. Interviews were transcribed using otter.ai and were coded using Dedoose.

The survey was sent out through an email to all mental health clinicians (N=636) found in the states online through the APA’s psychologist locator. “Mental health clinician” refers to an umbrella of mental health professionals that provide therapy, including psychiatrists, psychologists, social workers, counselors, and more (Hamerdinger & Crump, 2022). Only psychologists with their email available were contacted. There was a follow up email one week after the initial email, and another two weeks after the initial email.

All research activities were approved by the University of Chicago’s Institutional Review Board.

Recruitment and survey implementation

Mental health clinicians were invited to complete a confidential and anonymous questionnaire from January 29, 2024 through March 8, 2024. Study participation was voluntary. Clinicians were recruited via email with a link to the electronic version of the questionnaire (Google Forms). All willing participants provided their signed consent prior to the start of the survey, and returned surveys were de-identified by using only a number for record tracking and data collection purposes. All interviews were transcribed and de-identified through the same process, using a number. All documents were retained by a single investigator.

Upon completion of the survey, each participant was provided a secret code to keep. As compensation, after the survey deadline 10 secret codes were randomly selected to receive a \$50 Amazon gift card. An email was sent out with the 10 winning codes, and participants with those codes were told to reach out to the researcher to arrange the receipt of the Amazon gift card.

Data collection and analysis

Each participant's responses were graded using an answer key provided using an answer key. A binary coding system (1 = correct, 0 = incorrect) was used to record results and percent correct was calculated for each question set. Results were measured using univariate descriptive statistics (frequencies, percent distributions, mean, median, mode, and standard deviation). Quotes from the transcripts were grouped into general themes. The scores on the test portion of the questionnaire was also analyzed by ASL familiarity, hours of Deaf Awareness Training, and % population with a hearing difficulty from their ZIP code to see if there were any significant effects.

Any significant effects would show if there may be a connection between community deaf population and physician knowledge. Analyzing the data by ASL familiarity and hours of Deaf Awareness Training would show if policies such as implementing more Deaf Awareness Training or ASL training would result in a positive change to mental health care for deaf individuals.

Attrition

After sending out the first recruitment email, I learned that 26 of the email addresses had bounced, resulting in the survey only successfully going out to 610 email addresses. Additionally, although the recruitment emails were sent out to over 600 psychologists, only 36 completed the survey. This makes for an attrition rate of 94.1% (completion rate of 5.9%). One meta-analysis found that the average online survey response rate is 44.1%, making this low response rate concerning (Wu, Zhao, & Fils-Aime, 2022). Psychologists are busy people, and many may have ignored the email because the topic did not interest them or they presumed that because they did not have deaf patients they should not fill out the survey. This may have resulted in only clinicians interested in the topic filling out the survey. These clinicians are more likely to know correct answers due to their personal interest, possibly leading to an overestimation of clinicians' knowledge.

Due to the survey format, the people who signed up for an interview (N=13) may not have fully completed the survey. The original survey had a link which took the participant to a secondary survey to fill in interview contact information in order to keep test answers anonymous. However, some participants may not have returned to the original survey as

instructed to submit it. For instance, one interviewee said she was fluent in ASL yet there are no survey responses that say that they are fluent in ASL. This may bias the survey. Additionally, the interviewees had a higher rate of experience with deaf patients, with 43% (3 out of 7) of the interviewees having experience, while only 12.5% (4 out of 32) of the included respondents had deaf patients. This may lead to an overestimation of clinician knowledge in the interviews. However, the interviews were used more to explore institutional supports (or the lack thereof) and what interventions clinicians thoughts would be useful and less as a fine-tuned gauge of knowledge.

Some of the participants who signed up to be interviewed never signed up for an interview despite a reminder email. One person who provided a phone number provided a phone number that was not in service. Seven interviews were completed.

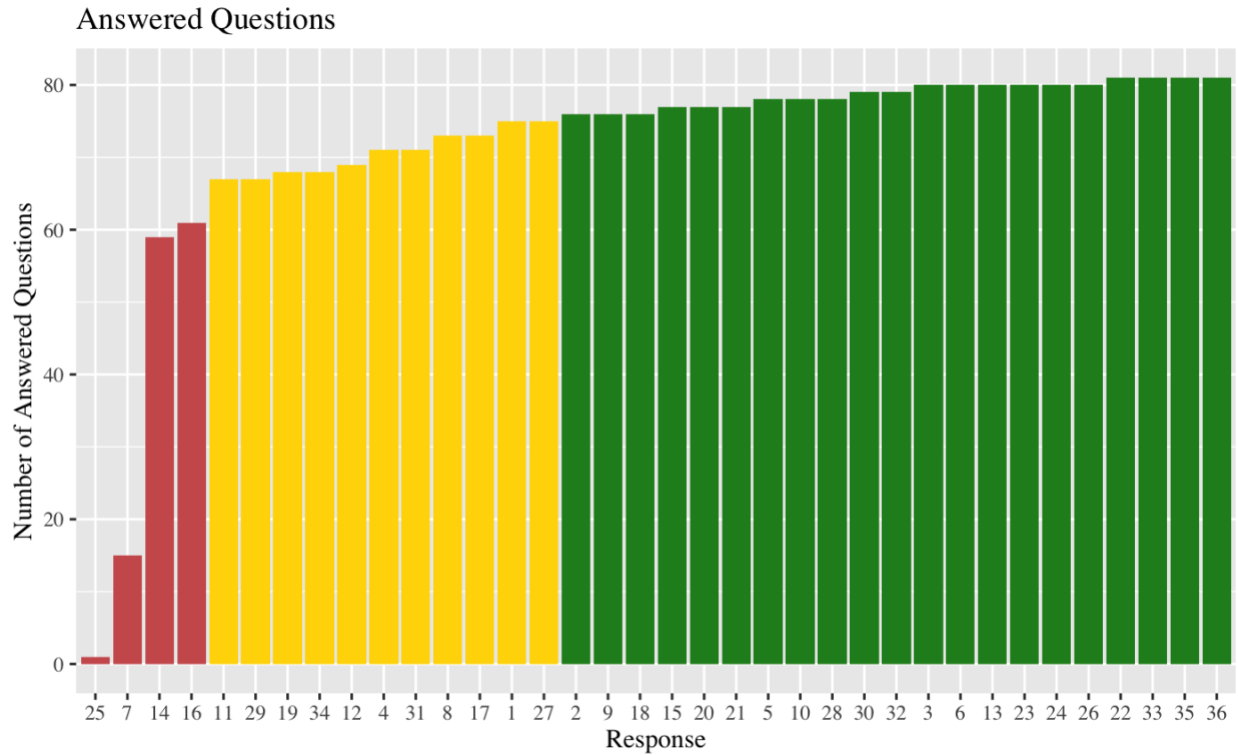
Completion Rate and Excluding Samples

Completion rate of the survey varied dramatically, as evidenced by the figure below. The participants in green completed the number of questions consistent with full completion (there were several questions that may not apply to some participants and therefore may not have been filled in by everyone, ex. “Which family member was born deaf?”). The participants in yellow completed the number of questions consistent with skipping the ADA section of the quiz (an option which was provided) and completing the rest of the survey. Although not every one of these participants skipped that section, the decision was made to keep them in to preserve as many survey responses as possible due to a small sample size. The participants in red completed even fewer questions, including one participant who declined the consent form and was

subsequently taken to the end page of the survey. As a result, the decision was made to drop these four participants from the analysis.

Figure 1

Completion Rates



The completion rates did not appear to vary based on gender, whether their state had a “high”, “low,” or “median” proportion of hearing difficulty, or race. (See the Appendix for figures of the completion rates broken down by these parameters.) Those who had deaf patients did appear to have higher completion rates. Clinicians’ ASL level and their interest in taking an ASL course does appear to be related to higher response rates. This indicates that closeness to the issue and personal experience likely influenced how much of the survey clinicians completed

and whether they completed it at all. This may have led to an overestimation of clinicians' knowledge.

Results

Sample Overview—Survey

The sample contained roughly equal numbers of men and women along with one nonbinary participant. The sample was overwhelmingly white (26 out of 32). The majority of respondents came from New Jersey and Michigan. There were some participants who listed their state as states that were not targeted (Pennsylvania and Oregon), indicating that either those clinicians had moved or were licensed in multiple states including at least one of the other target states but primarily worked out of another.

Most respondents do not interact with deaf people frequently (23/32 said they interact with them less than once a month or never). Additionally, most of them have never taken courses in ASL (N=26), cannot communicate in ASL (18 Not at all, 14 Poorly), and most have never had Deaf Awareness Training (N=20). Additionally, overwhelmingly they do not treat deaf patients at their current job (N=28). This indicates that most psychologists have not been very exposed to deafness.

Table 2

Sample Demographics

Question	Response	Freq	% Total
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How often do you interact with deaf or hard of hearing people outside of working as a mental health clinician?	Daily	2	6.25
	2-3 times a week	2	6.25
	Once a week	1	3.125
	2-3 times a month	2	6.25
	Once a month	2	6.25
	Less than once a month	12	37.5
	Never	11	34.375
	Total	32	100
Have you taken courses in ASL?	No	26	81.25
	Yes	6	18.75
	Total	32	100
How well can you communicate in ASL?	Not at all	18	56.25
	Poorly	14	43.75
	Moderately	0	0
	Fluently	0	0
	Total	32	100
On a scale of 1 to 5, how interested are you in learning ASL?	No interest (1)	14	43.75
	Somewhat intersted (2)	8	25
	Interested (3)	5	15.625
	Very interested (4)	4	12.5
	Currently taking ASL lessons/Already know ASL (5)	1	3.125
	Total	32	100
Do you treat deaf patients at your current job?	No	28	87.5
	Yes	4	12.5
	Total	32	100
	No	20	62.5
	Yes	12	37.5

Did you have any Deaf awareness training in your education?	Total	32	100
What is your gender? Do you identify as:	A man	14	43.75
	A woman	17	53.125
	Non binary or genderqueer	1	3.125
	Total	32	100
Please describe your race/ethnicity (MARK ONE)	African American non hispanic	2	6.25
	African American and White	1	3.125
	Asian	2	6.25
	Hispanic	1	3.125
	White non hispanic	26	81.25
	Total	32	100
What state do you primarily practice in?	Kentucky	1	3.125
	Maine	1	3.125
	Michigan	9	28.125
	Montana	1	3.125
	New Jersey	14	43.75
	New Mexico	3	9.375
	Oregon	1	3.125
	Pennsylvania	1	3.125
	West Virginia	1	3.125
	Total	32	100
Are you Hearing, Hard of Hearing, or Deaf?	Hard of Hearing	3	9.375
	Hearing	26	81.25
	Total	32	100
	No	31	96.875

Do you consider yourself part of the Deaf community?	Occasionally	1	3.125
	Total	32	100
Do you have a family member who was born deaf?	No	32	100
	Total	32	100
Do you have culturally Deaf friends, i.e. who identify with the Deaf community?	No	29	90.625
	Yes	3	9.375
	Total	32	100
Do you have deaf friends who do not identify with the Deaf community?	I do not know	3	9.375
	No	26	81.25
	Yes	2	6.25
	Total	32	100
What type of mental health care professional most closely fits your job title?	Psychologist	32	100
	Total	32	100
What is your highest level of education?	PhD	19	59.375
	PsyD	13	40.625
	Total	32	100
How would you describe your medical practice site (Check One – If you work in more than one practice, please answer about the practice where you see the most patients)	Community health center	1	3.125
	Corporate health center	1	3.125
	exclusively telehealth since covid	1	3.125
	Private practice in the community	26	81.25
	state contractor for evaluations	1	3.125
	Telehealth private practice	1	3.125
	Total	32	100
	No	2	6.25
	Yes	30	93.75

Are you the owner or co-owner of your medical practice?	Total	32	100
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Table 3

Practice Statistics

		Mean	Std.Dev	Min	Q1	Median	Q3	Max
Approximately what percentage of your patients are primarily covered by:	Medicaid	6.066666667	12.31464879	0	0	0	5	50
	Medicare	18.35483871	22.61054089	0	0	10	25	80
	Private	63.67741935	26.85316505	0	50	70	80	100
	Uninsured	14.875	23.22922242	0	0	5	22.5	100
Including yourself, approximately how many of these types of health care professionals work in your practice?	Physicians	0.875	2.028029395	0	0	0	1	10
	Nurses	0.533333333	1.960530071	0	0	0	0	10

Most of the psychologists treat patients who are privately insured, and most of them work alone.

Sample Overview—Interviews

Below is a chart laying out some characteristics of the seven interviewees. The participants’ genders and states were taken from their profiles on the APA Psychologist Locator website.

Table 4

Interviewee Characteristics

Participant	Gender	Deaf Patients?	Education	Years in Practice	State	Interview Length (min)
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1	Male	Yes, few	Bachelor's, Master's, PsyD	20	West Virginia	18
2	Male	Yes, few	Master's, PhD	21	Michigan	16
3	Female	No	Bachelor's, 2 Master's, PhD	6	New Jersey, New York	15
4	Female	No	Bachelor's, PsyD	5	New Jersey	11
5	Male	No	Bachelor's, Master's, PhD	18	Michigan	41
6	Female	Yes, many	Bachelor's, Master's, PhD	12	New Mexico, Kentucky	55
7	Female	No	Master's, PsyD	6	New Jersey	20

There were roughly equal numbers of women and men. Most of the interviewees did not have extensive experience treating deaf patients. Most interviewees were from either Michigan or New Jersey. There were roughly equal numbers of PsyD degrees vs PhD degrees.

Test Scores

Test scores varied, although no respondent received a perfect score. The maximum score was 22 out of 27, while the lowest score was 13 out of 27. The mean score was a 17.56 (65%). This indicates a problem of lack of psychologists' knowledge.

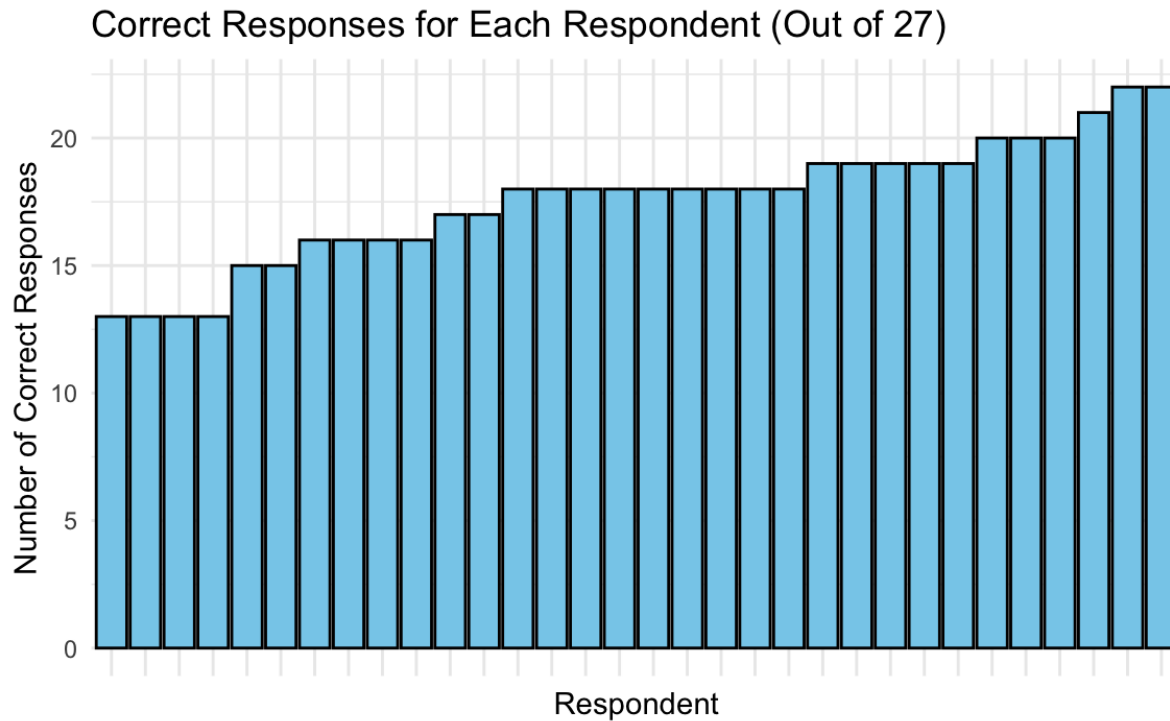
Table 5

Descriptive Score Statistics

Min.	1st Qu.	Median	Mean	SD	3rd Qu.	Max.
13	16	18	17.56	2.43	19	22

Figure 2

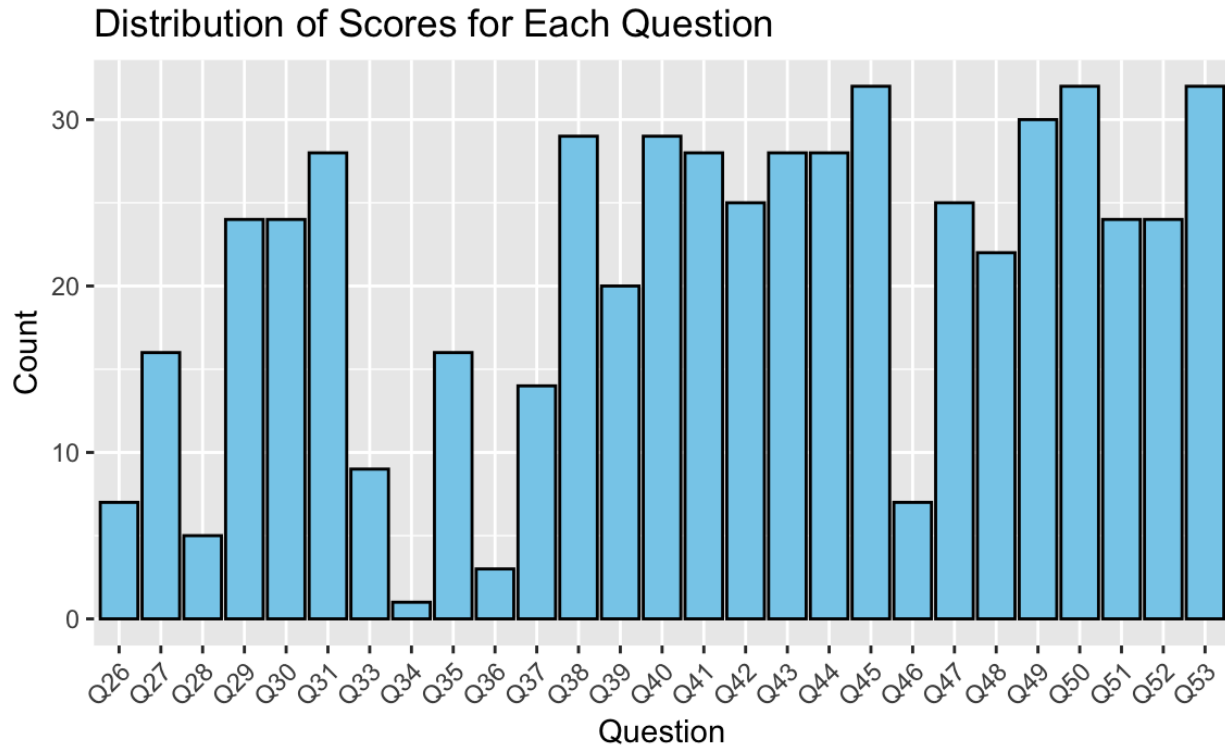
Test Scores by Participant



Analyzing the scores for each question, some questions were evidently more challenging than others (Figure 3). Some of the questions with the lowest correct answer rate (26, 28, and 34) were questions that had multiple correct answers. These were graded such that only selecting all the correct responses with no incorrect responses was graded as correct (1), and all other responses were graded as incorrect (0).

Figure 3

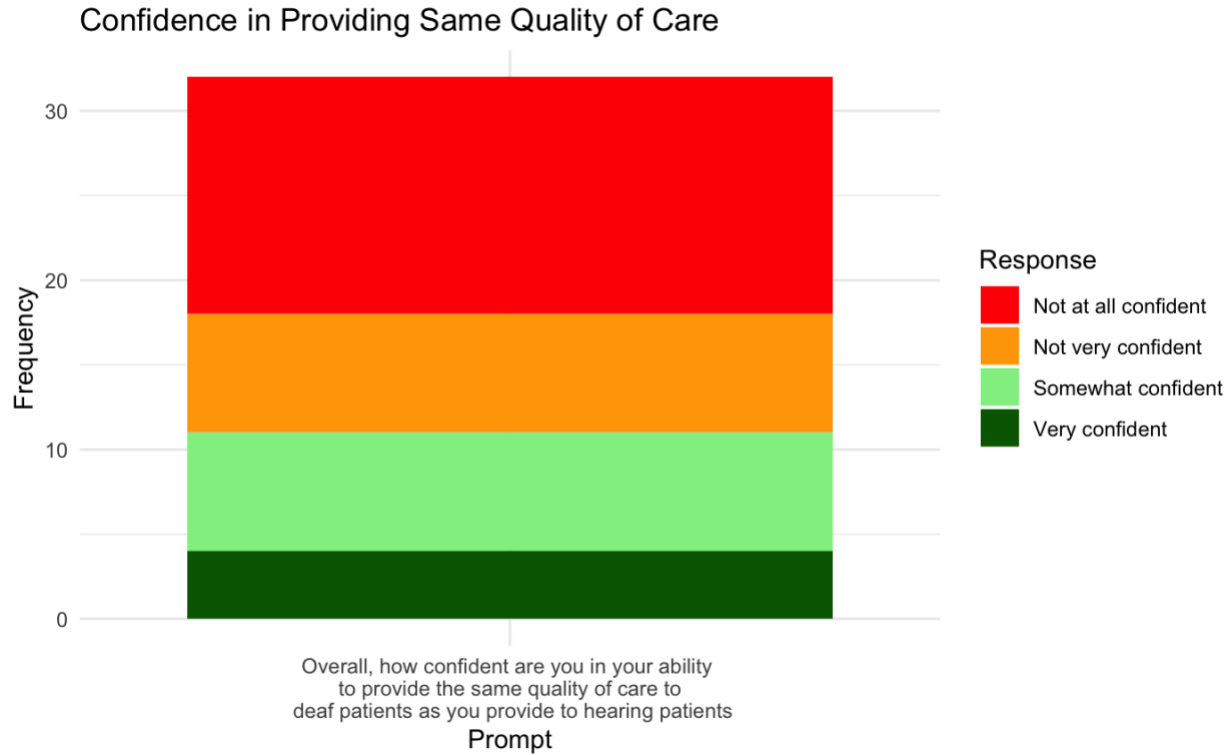
Test Scores by Question



In addition to the test, participants were asked about their confidence in providing the same quality of care to deaf patients as to hearing patients. Two thirds of respondents (21 out of 32) reported that they are either “not very confident” or “not at all confident” in providing the same level of care, as seen in Figure 4 below, suggesting that clinicians are aware of their lack of knowledge in this area.

Figure 4

Confidence in Providing the Same Quality of Care



ADA Knowledge

Nearly half of respondents (14 out of 32) reported knowing little or nothing about their responsibilities under the Americans with Disabilities Act. This is a larger proportion than those in Iezzoni et al.’s study two years ago on physicians in general, in which only 35.8% of physicians reported knowing little or nothing (Iezzoni et al., 2022). Exactly half of respondents (16 out of 32) answered incorrectly to “Who is responsible for paying for the reasonable accommodation(s) that patients with disability should receive while being cared for in your practice? (Check all that apply)”. This is almost 30% more incorrect answers than Iezzoni et al.’s

previous study, in which only 20.5% of respondents answered incorrectly (Iezzoni et al., 2022). The correct answer is “Owners of practice”. Question 28, pertaining to what is within a deaf patient’s rights in a medical setting, had an extremely low correct answer rate, but this may not be a strong indicator of knowledge as it is one of the questions with multiple correct options that was coded in a binary system.

Nearly a quarter of participants (7 out of 32) falsely reported that “Insurers/payors” are responsible for determining what reasonable accommodation(s) patients with disability should receive. Additionally, 25% of participants put down incorrect answers as to whose responsibility it was to schedule an interpreter, with most of those incorrect answers being “Do not know”. This is worrying, as if one of these providers were to get a new deaf patient in their practice, they may assume that someone other than themselves is responsible for scheduling an interpreter. They may rely on the patient scheduling an interpreter themselves, even though it is their legal responsibility. The same proportion of participants (25%) also incorrectly answered that it would be acceptable to use a nurse who has taken several semesters of ASL classes to interpret for a consultation. This is similarly extremely worrying—it conveys a lack of understanding of how ASL works (it cannot be learned in only a few semesters) as well as a lack of knowledge of what a “qualified” interpreter is. In a future study, a useful question to add may be to ask participants if they can name an organization that provides certifications for interpreters.

Participants scored higher (87.5%) on the last question on the ADA test portion of the survey, indicating that they realize that the ADA does not require an interpreter if the patient does not want one. This is a good sign, however overall participants’ scores on the ADA section of the test were worrying. The nearly 30% difference between these mental health clinicians and physicians in general on who pays for accommodations (per Iezzoni et al.’s study) indicates that

mental health clinicians may be particularly unknowledgeable about their responsibilities under the ADA. This indicates that psychologists may not get adequate training on the ADA during their PhD/PsyD compared to those going through MD programs. When regressing an “ADA score” (a person’s score on questions 27-31) on education, it does not yield any significant results, even when controlling for race, gender, state, and whether they have had deaf patients or not. This suggests that it is not a problem that is due only to choosing a PhD program or a PsyD program, but is a problem endemic to both programs. In the future, comparisons of psychologists’ and psychiatrists’ degrees, particularly of MDs compared to PhDs and PsyDs, would be useful in determining if this is truly an effect of degree training or if there is another explanation.

One interviewee (Participant 7) reported not remembering any specific training in her Master’s or PsyD about her responsibilities under the ADA, while most interviewees reported remembering at least some degree of training. Participant 6 graduated before the ADA was passed and discussed learning about 504s (plans schools develop to support children with disabilities) while at Gallaudet but otherwise learning on the job. However, several participants indicated that they did not have *extensive* knowledge of their responsibilities, and several participants expressed that they were intrigued by the research topic because they had not given it much thought before.

Participant 3 said she had completed a Continuing Education course on the ADA, but in the same interview she expressed uncertainty about whether one could use family members as interpreters. This is concerning as documents on the government-run website about the ADA specifically state that it is “inappropriate to ask family members or other companions to interpret for a person who is deaf or hard of hearing” (“ADA Business BRIEF”, 2005). Participant 2, who

had stated he learned most of what he knew from the patient's interpreter, stated that he had not had training, and had learned he was required to pay for the interpreter from the interpreter. He also recounted how the CEO of his company did not want to continue to pay for an interpreter, so they began referring deaf patients to another doctor in the community. He expressed disappointment because that doctor "is a great psychologist. But he's also, y'know, a 65-year-old man[...]we know from our training that, y'know, we want to try to give them options, if they want a female therapist or one that matches their nationality. And by not deciding as a company to do that was disappointing." This reveals another difficulty in providing adequate care for deaf patients: wanting to make money above providing the best quality care and following the ADA.

This indicates that training programs for *all* psychologists, not only those working in schools or at Gallaudet, need to be either altered to include more ADA training or supplemented by ADA training outside of formal education.

Knowledge of Deaf Experience

Overall, participants scored better on questions relating to Deaf Experience than those on their responsibilities under the ADA. That being said, many questions relating to Deaf experience were true false, and so even a participant guessing would have a 50/50 chance. Question 33 and 34 had particularly low correct response rates. While question 34 is one of the questions of concern since it has multiple correct answers, question 33 does not. Question 33 asks participants to mark what is correct about a cochlear implant. Almost $\frac{3}{4}$ of respondents (23 out of 32) answered incorrectly, indicating a lack of knowledge of what d/Deaf individuals may go through if they get a cochlear implant. Although the correct answer rate for this question is still higher

than Kung et al.'s study in Puerto Rico, it is still low enough to be concerning (Kung et al., 2021).

Question 36, which asked participants: "The percentage of the English language that can be accurately lip read falls in:" with the option of several intervals. Only 3 participants out of 32 answered correctly. Of those who answered incorrectly, almost half (13 out of 29) said that they did not know the answer. Six participants overestimated the amount that could be lipread, and nine participants underestimated the amount. The participants that underestimated the amount are less concerning, as they would be probably be less likely to rely on lipreading to communicate with a deaf person. However, that still leaves over half of the participants (19 out of 32) who either overestimated or said they did not know, still demonstrating a lack of knowledge that could actively harm deaf patients they interact with if they assume that lipreading is more effective than it is. This correct answer percentage for this question is about the same (6.25% compared to 6%) compared to pre-clinical medical students in Kung et al.'s 2021 study. Yet as medical school experience increased in their study, so did correct answers to this question, further indicating that perhaps the difference in training for psychologists and medical doctors results in a lower overall knowledge of treating deaf patients for psychologists.

Question 39 asked whether deaf people's literacy is equal to or better than the general public. Twelve respondents (37.5%) answered incorrectly that it was. Once again, this has serious implications for how they interact with deaf patients, as attempting to rely on writing back and forth can lead to miscommunications and misdiagnoses (Hamerdinger & Crump, 2022).

Reassuringly, clinicians scored higher on questions 42-44, indicating that clinicians are more aware that other physicians do not use a certified interpreter with deaf patients and that the vast majority of deaf people have hearing parents. However, this does not offset the concerning

correct answer percentages for questions concerning communication through lipreading and writing, which could negatively impact deaf patients.

In the interviews, all except for one physician who went to Gallaudet indicated that they had extremely limited knowledge of Deaf culture. Participant 1 indicated that they had some education on how MRIs/EEGs and other testing is impacted by prelingual deafness, but they did not indicate any education on Deaf culture. One participant discussed a multicultural class she took that was aimed at helping psychologists understand different cultures to be better at interacting with and treating patients from those cultures. Yet she said they mainly focused on race/ethnicity and did not discuss Deaf culture. When I asked one participant (Participant 7) if she had heard of several figures/movements/pieces of media that pertain to Deaf culture (ex. Nyle DiMarco, Deaf President Now) she did not recognize them, only recognizing the movie CODA, which is more well-known as it won Best Picture at the Academy Awards (France, 2022).

Knowledge not only of deaf medical experience but also of Deaf cultural events is important to treating Deaf patients. As Participant 6 recalls, she was seeing a Deaf patient and had mentioned that something happened the same year Nyle won ANTM. “If you were not aware of Deaf culture, you would have no idea what he was talking about[...]You wouldn’t know anything that was such a culturally specific statement. The fact that I knew what he was talking about, really, I think that was the thing that opened the rapport more than anything else.” If instead the patient was seeing a psychologist who did not have that cultural knowledge, he may not have opened up. When answering question 51, 25% of respondents falsely claimed that a deaf patient’s trust of a clinician does not depend on their level of identification with “Deaf culture”. Participant 6’s anecdote suggests that this is false. Clinician knowledge on deaf

experience and Deaf culture is critical to being able to treat d/Deaf patients, and the lack of it as found in this study, especially when it comes to communication and Deaf cultural touchstones, is concerning.

Deafness and Mental Health

While most of this section has detailed more broad concerns about d/Deaf experience, there were also some questions on the survey and several anecdotes from Participant 6 that highlighted how mental health work with deaf patients can be actively harmful if clinicians do not know the differences between treating deaf and hearing patients.

One quarter (8 out of 32) participants said incorrectly that deaf psychosis patients generally “hear voices” in the same way that hearing people “hear voices”. Misconceptions about how deafness influences or does not influence mental health can lead to incorrect diagnoses, or an incorrect lack of diagnosis. For instance, Participant 6 recalled how, conversely, difficulties getting school officials to believe that deaf people *can* have auditory hallucinations (they can, they are just not exactly the same as hearing people’s auditory hallucinations) led to a student not getting properly diagnosed. She recounts how at one point, “this guy was having auditory hallucinations—which, even if you’re profoundly deaf you can have auditory hallucinations. And the school district[...]was like, he has never heard a thing in his life. He can’t have auditory hallucinations[...]So that was an extremely frustrating, extremely frustrating case[...]I mean, he was saying he was talking to the devil, he was seeing blood and all of these things. But they wanted to just brush it off.” If a psychologist approached this patient from the same perspective as the school board, they may not have properly diagnosed him.

She also discussed an example of a woman who had come from a previous psychologist that had given her a litany of diagnoses including OCD. Within the first meeting she could tell that she was definitively not OCD, “what she did have was complex PTSD” and not a lot of social experience. This exemplifies how physicians that do not know how to approach deaf patients differently may misdiagnose patients.

Participant 6 also discussed how she uses different diagnostic tests and therapy styles with deaf individuals. She discussed how people should use nonverbal tests and how some rating scales/personality measures are too complicated for most deaf individuals to read and understand. She also discussed how CBT (Cognitive Behavioral Therapy) and Acceptance and Commitment Therapy are not appropriate to use with deaf patients “because there’s too much background that you’ve got to get before you can even get started”. This could include discussing schooling experiences, any language deprivation, etc. When asking Participant 7 (who had never had a deaf patient) if she thought she would change anything about her therapy approach, she said she did not think she would. In the survey, question 48 was a True/False question that stated “Over half of deaf mental health inpatients have language dysfluency”. It is true. This was designed to test participants’ awareness of language deprivation and its effects (such as language dysfluency) in the deaf population. Almost a third of respondents (10 out of 32) answered incorrectly. This indicates that mental health clinicians overall may not be aware of the different language experiences between deaf and hearing patients that would necessitate changing therapeutic practices.

Compared to Participant 6, participants who did not have as much experience with deaf patients demonstrated that their training did not give them the tools needed to treat deaf patients.

As Participant 6 put it, some people “go in thinking it’s one size fits all [...] and that leads to a lot of misunderstanding and pretty bad stuff.”

Knowledge of the Interpreting Process

Several questions related to interpreting have been discussed in the ADA section, so those will not be discussed here. Questions 35, 37, 38, 40, 47, and 53 are the other questions that pertain to interpreting. The percentage of correct answered varied wildly from 44 to 100, as seen below in Table 6.

Table 6

Percent Correct for Interpreting Questions

Question #	Question	Correct Response	Percent Correct
35	In a consultation room, where would you suggest the patient and interpreter to sit?	Place the interpreter beside the provider. The provider and the interpreter are facing the patient	50%
37	You are running considerably behind schedule. Your deaf patient is waiting with his/her interpreter. The interpreter is ethically bound to wait with the patient until you are ready to see them	FALSE	44%
38	When communicating with a deaf patient through an interpreter, you should face the interpreter and explain to the interpreter what the patient needs to know	FALSE	91%
40	A good interpreter will be able to step out of his/her interpreting role in order to explain to the provider what the patient is really trying to say	FALSE	91%

47	Any certified interpreter can be used to interpret for mental health work.	FALSE	78%
53	Some mental health symptoms/vocabulary are difficult to interpret, frequently leading to miscommunication	TRUE	100%

While physicians seem to be more knowledgeable on how to use an interpreter once they are there (questions 38, 40, and 53), they are less knowledgeable about the process of getting an interpreter, what rules interpreters are bound by, and how to position them before beginning the session. Of particular concern is question 37, as over half of participants incorrectly answered that an interpreter would be ethically bound to wait with a patient if the provider was late. This could result in a patient not having an interpreter with them. Additionally, 50% of respondents would place the interpreter incorrectly. While in reality this may be corrected by the interpreter, this also displays a lack of knowledge of how interpreting would work. For instance, if a participant chose that the interpreter should face the provider, they may have a misguided notion about what the interpreting process should look like.

In Participant 2’s interview, he discussed how most of his education on what to do came from the interpreter. He mentioned purposely avoiding words that may have been too complicated to interpret. His patient set up the interpreter themselves. Participant 1 said that his deaf patient also set up the interpreter themselves, and the place where he had worked previously had someone on staff that was ASL certified that directed them towards external resources. With the exception of participant 6, none of the participants indicated that they would know where to go on their own to get interpreters—most said they would go through contacts of theirs, either previous patients, colleagues, or listhosts with other psychologists. Some also said they would Google it. It is obvious that psychologists do not know much about the logistics of interpreters,

which is of particular concern since most respondents were the owner of their practice, so presumably they do not have many assistants to help them with these logistics. Psychologists must be made more aware of the resources to use when getting interpreters, and should not have to rely on the patients or their interpreters for information.

Knowledge of Signed Languages

Overall, the survey respondents did not have a high level of previous knowledge of ASL. 81% of respondents had never taken courses in ASL, and 56% of respondents could not communicate at all in ASL. The other 44% of respondents could only communicate poorly in ASL. Only two questions on the survey related to ASL, question 45 and 46. Question 45, a True/False question, asks participants if animated signing can be interpreted as an absence of depression. It was answered correctly (False) by all respondents. Question 46 asks: “If ASL is interpreted literally, it can approximate communications found in people with:”, with the correct response being “Schizophrenia”. It was answered correctly by less than a quarter of respondents (7 out of 32), suggesting a severe lack of knowledge of how differences between ASL and English may interact with mental health work.

Participant 6 recounted how she had brought in a CDI (Certified Deaf Interpreter) to help understand one patient’s signing because she was having difficulty understanding it and could not determine if it was psychosis or language dysfluency. If a deaf person with language dysfluency but not psychosis was being treated by a psychologist who was unaware of the potential overlap between how language dysfluency and psychosis presents in sign—as it seems most psychologists in the sample probably are—they may have been misdiagnosed.

Participant 6 brought up another example of ASL/English differences leading to misunderstandings/misdiagnoses. A boy was taken to the hospital, the staff there were doing a mental status exam. When they asked him who the President was, he said the name of the superintendent of the school. But, in ASL, superintendent and President are the same sign. So, her friend had to step in and say he knew what was going on. If they had not stepped in, the hospital staff may have thought that child was not aware of what was going on and may have started down the path of a misdiagnosis or a treatment plan that was not applicable. Clinicians need to be made aware the differences between ASL and English as well as how deaf experiences like language dysfluency may seem to present similar to psychological disorders.

Possible Causes of More/Less Knowledge

There was no significant difference in average scores based on participants' level of ASL, whether or not they have had deaf awareness training, their level of awareness training, gender, or race. No significance with deaf awareness training was fairly surprising, although where they had this deaf awareness training was not recorded, so this could possibly be a factor. There is a slight positive relationship when making a scatterplot of deaf awareness training duration, although this was insignificant. Using numbers from the American Community Survey, I was able to compare psychologists' scores to the percentage of people with a hearing difficulty in their ZIP code(U.S. Census Bureau. "Disability Characteristics"). There was a slight negative relationship, but it was statistically insignificant. This indicates that the psychologists' surrounding area does not greatly affect their knowledge of treating deaf patients. This is less surprising than it may seem, since simply seeing a deaf person in public does not provide a psychologist with the tools to know how to treat deaf patients.

Figure 5

Deaf Awareness Training Duration Scatterplot

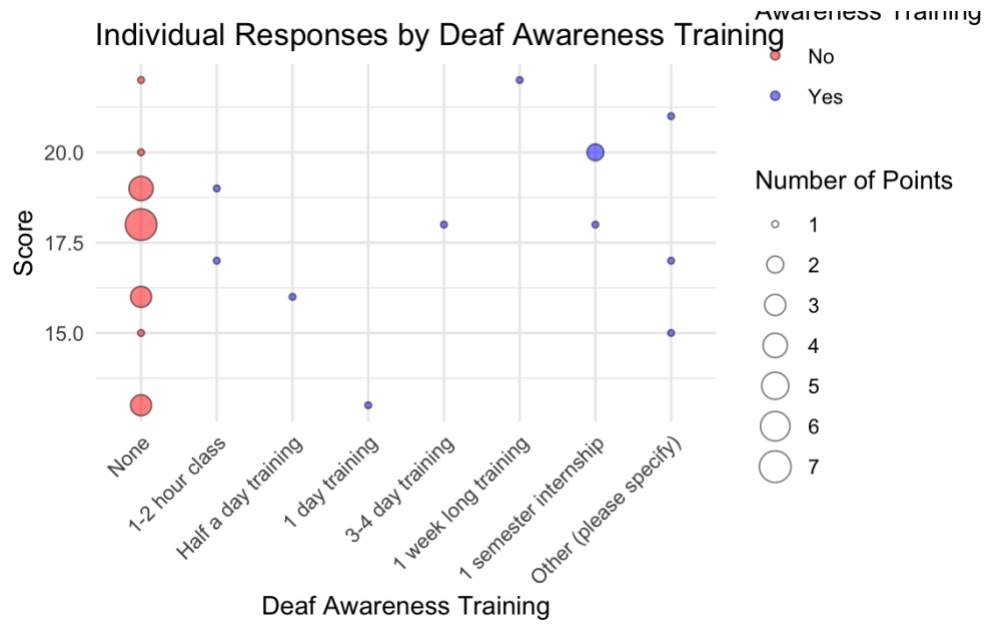
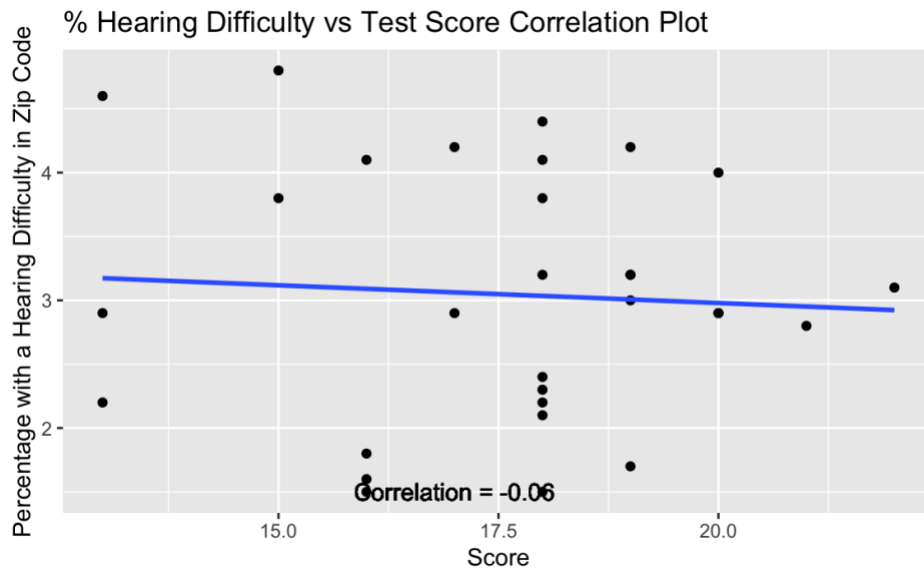


Figure 6

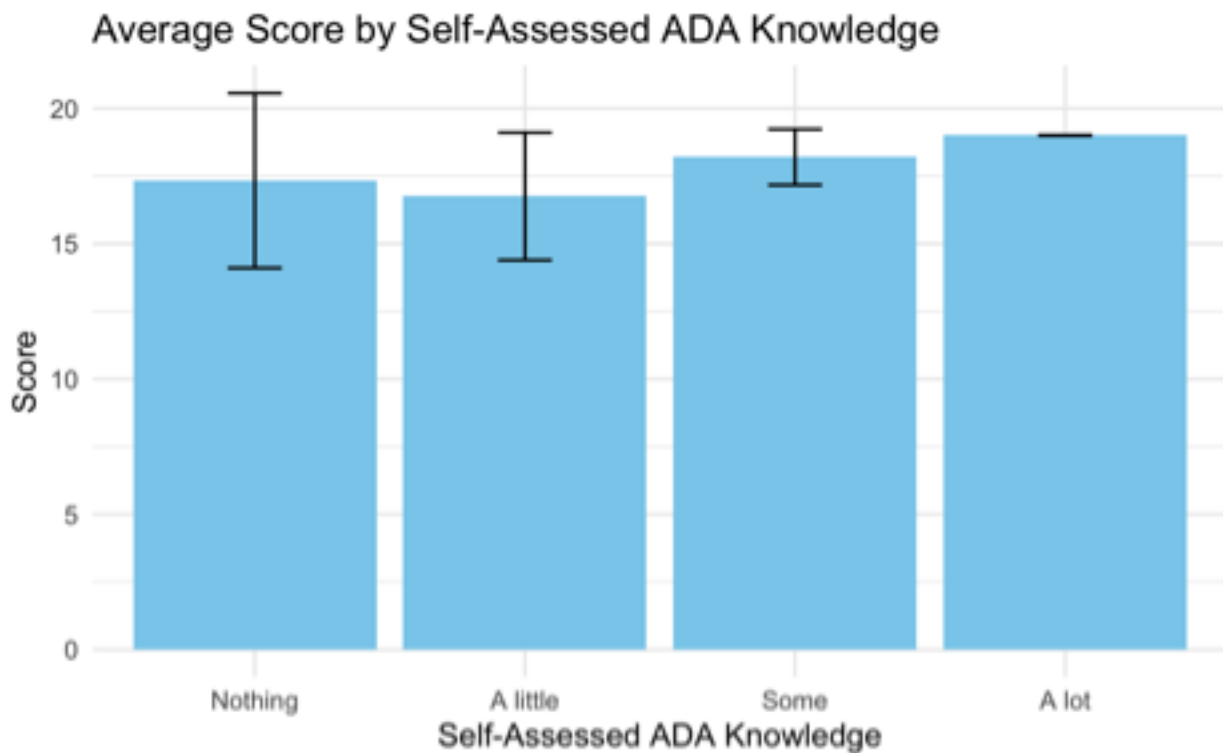
Test Scores vs % With a Hearing Difficulty in ZIP Code



Using a chi squared test, there was a significant (at the 0.01 level) difference in average scores for participants' self-assessed ADA knowledge. This was done twice: once comparing "Nothing" and "A little" to "Some" and "A lot", and once comparing "Nothing" to all other responses. The second comparison was more significant (5.96×10^{-7} compared to 1.94×10^{-7}). However, as seen by the plot below, the difference in averages between the self-reported knowledge levels was not dramatic.

Figure 7

Score vs Self-Assessed ADA Knowledge



Several regressions were run. Below is the regression chart. Each variable of interest was run once on its own and once with a variety of controls (gender, state, race, whether or not they have had deaf patients, and education).

Table 7

Regressions

Model	Variable	Categories (if applicable)	Controls?	Estimate	Std. Error	P value
1	Intercept		No	18.0	0.662	<2e-16***
	Gender	A woman		-0.647	0.894	0.475
		Non-binary or genderqueer		-3.00	2.56	0.251
2	Intercept		No	18.4	7.54	0.0208**
	Completeness Score			-0.110	0.0991	0.913
3	Intercept		No	18.0	1.38	2.09E-13**
	% With a Hearing Difficulty in ZIP Code			-0.146	0.433	0.738
4	Intercept		No	20.0	2.54	5.66E-08***
	State (Compared to Kentucky)	Maine		-2.00	-3.59	0.583
		Michigan		-2.889	2.68	0.292
		Montana		-7.00	3.59	0.0637*
		New Jersey		-1.93	2.63	0.471
		New Mexico		-3.67	2.93	0.224
		Oregon		-1.00	3.59	0.783
		Pennsylvania		-2.00	3.59	0.583
West Virginia	-2.00	3.59	0.583			
5	Intercept		No	19.0	1.70	3.36E-11***
		Never		-0.636	1.85	0.734

	Interaction Frequency Outside of Work (Compared to 2-3 times per month)	Less than once a month		-1.58	1.86	0.403
		Once a month		-0.500	2.41	0.837
		Once a week		-3.00	2.95	0.319
		2-3 times a week		-4.50	2.41	0.0734*
		Daily		-3.50	2.41	0.159
6	Intercept		No	17.4	0.485	<2e-16***
	Taken an ASL Course?	Yes		0.949	1.12	0.404
7	Intercept		No	17.2	0.582	<2e-16***
	ASL Level (Compared to None)	Poorly		0.778	0.880	0.384
8	Intercept		No	22.0	2.34	5.18E-10***
	Interest in Taking ASL (Compared to currently taking ASL classes)	No interest		-5.29	2.42	0.0379**
		Somewhat interested		-4.00	2.48	0.115
		Interested		-3.20	2.56	0.222
Very interested			-5.00	2.62	0.0665*	
9	Intercept		No	17.36	0.408	<2e-16***
	Had Deaf Patients? (Compared to No)	Yes		1.64	1.30	0.217
10	Intercept		No	17.3	0.544	<2e-16***
	Awareness Training? (Compared to No)	Yes		0.700	0.905	0.445
11	Intercept		No	13.0	2.36	1.15E-05***

	Awareness Training Duration (Compared to 1-day training)	None		4.30	2.42	0.0879*
		1-2 hour class		5.00	2.89	0.0963*
		Half a day training		3.00	3.34	0.147
		3-4 day training		5.00	3.34	0.378
		1 week long training		9.00	3.34	0.0126**
		1 semester internship		6.33	2.72	0.0288**
		Other		4.67	2.72	0.0995*
12	Intercept		No	16.8	0.837	<2e-16**
	Knowledge of the ADA (Compared to a little)	Nothing		1.583	1.28	0.652
		Some		1.45	1.04	0.173
		A lot		2.25	1.87	0.240
13	Intercept		No	17.5	1.83	3.68E-10***
	Race (Compared to African American non-hispanic)	African American and White		-1.50	3.17	0.640
		Asian		-1.00	2.59	0.702
		Hispanic		1.50	3.17	0.640
		White (non-hispanic)		0.154	1.90	0.936
14	Intercept		No	18.2	0.543	<2e-16***
	Education (Compared to PhD)	PsyD		-1.60	0.852	0.0711*
15	Intercept		Yes	17.6	4.50	0.00191***
	Gender	A woman		0.102	1.20	0.993
		Non-binary or genderqueer		-9.355	3.103	0.767

16	Intercept		Yes	12.6	10.6	0.257	
	Completeness Score			0.0644	0.135	0.640	
17	Intercept		Yes	17.6	4.50	0.00191***	
	% With a Hearing Difficulty in ZIP Code			-0.0549	0.669	0.936	
18	Intercept		Yes	17.6	4.50	0.00191***	
	State (Compared to Kentucky)	Maine			0.243	3.76	0.949
		Michigan			-1.77	2.46	.484
		Montana			NA	NA	NA
		New Jersey			-1.45	2.62	0.589
		New Mexico			-5.17	2.64	0.0704*
		Oregon			4.25	3.83	0.285
		Pennsylvania			0.156	3.47	0.948
West Virginia		0.276	3.77	0.943			
19	Intercept		Yes	18.4	4.34	0.0028***	
	Interaction Frequency Outside of Work (Compared to 2-3 times per month)	Never			-2.33	1.82	0.237
		Less than once a month			-3.01	1.56	0.0901*
		Once a month			0.597	1.91	0.763
		Once a week			-6.33	2.63	0.0428**
		2-3 times a week			-2.32	2.55	0.389
Daily		-4.89	2.19	0.0566*			
20	Intercept		Yes	16.7	4.59	0.00305***	
	Taken an ASL Course?	Yes		1.51	1.78	0.411	
21	Intercept		Yes	17.7	4.78	0.00265***	

	ASL Level (Compared to None)	Poorly		-0.667	1.45	0.654
	Intercept			14.2	6.75	0.0595**
22	Interest in Taking ASL (Compared to currently taking ASL classes)	No interest	Yes	-4.89	2.31	0.0577*
		Somewhat interested		-4.17	2.72	0.153
		Interested		NA	NA	NA
		Very interested		-1.82	2.75	0.519
	Intercept			17.6	4.50	0.00191***
23	Had Deaf Patients? (Compared to No)	Yes	Yes	2.30	1.49	0.155
	Intercept			17.4	4.69	0.00267***
24	Awareness Training? (Compared to No)	Yes	Yes	0.447	1.35	0.745
	Intercept			16.8	7.25	0.0455**
25	Awareness Training Duration (Compared to 1-day training)	None	Yes	2.59	3.36	0.459
		1-2 hour class		3.35	3.38	0.347
		Half a day training		2.41	3.95	0.558
		3-4 day training		2.60	4.15	0.546
		1 week long training		NA	NA	NA
		1 semester internship		1.37	4.27	0.756
		Other		4.19	3.59	0.273
26	Intercept		Yes	16.2	4.96	0.00862***

	Knowledge of the ADA (Compared to a little)	Nothing		0.959	1.72	0.590
		Some		-0.503	1.52	0.747
		A lot		0.366	2.06	0.862
	Intercept			17.6	4.50	0.00191***
27	Race (Compared to African American non-hispanic)	African American and White	Yes	0.380	3.78	0.921
		Asian		3.36	2.73	0.239
		Hispanic		NA	NA	NA
		White (non-hispanic)		3.05	2.60	0.260
	Intercept			17.6	4.50	0.00191***
28	Education (Compared to PhD)	PsyD	Yes	-2.24	1.49	0.155

* = significant at 10% level, ** = significant at 5% level, *** = significant at 1% level

Before adding controls, practices in Montana as compared to Kentucky significantly decreased scores by 7 points on average, interacting with deaf people 2-3 times a week significantly decreased scores by 4.5 points on average, having awareness training that was not half a day or 3-4 days significantly increased scores compared to a one-day long training, and having a PsyD compared to a PhD significantly decreased scores by 1.60 points on average. However, most of these effects changed with controls. When controlled, New Mexico significantly decreased scores and R did not display Montana as a variable. Having interactions with deaf people less than once a month, once a week, and daily significantly decreased scores compared to once a week. Having no interest in taking ASL classes significantly decreased scores by almost 5 points on average. Education was no longer significant.

In regressions both with and without controls, having no interest in taking ASL classes was associated with lower scores on average. This makes sense, as likely those interested in taking ASL would be those more interested in learning about the Deaf community and would therefore be more knowledgeable.

Education was significant before controls. This is surprising, as PsyD degrees have a greater emphasis on practical training while PhDs have a greater emphasis on research. However, it is possible that with those pursuing PhDs they were encouraged more to look at populations that were not previously written about in order to contribute something more to the literature. This could result in them having more of a background in underserved populations such as the deaf population. However, this effect disappeared with controls, casting doubt on whether there truly is an effect of education.

The only significant results for state were from states that had less than 5 respondents, so I suspect this is a result of a sample size that is too small. It is possible that state could affect it insofar as what the state requires psychologists to do to obtain and maintain their licenses, although the results from these regressions do not paint a clear picture of that except for New Mexico and possibly Montana. Looking at New Mexico Montana compared to Kentucky, the only main difference to my knowledge is that Kentucky requires fewer Continuing Education credits (39 every 3 years as opposed to 40 every 2 years) (Kentucky Legislature, 2022; Psychology Degree 411; NetCE). However, this does not seem like a plausible mechanism for why Montana/New Mexico would have lower scores, unless completing Continuing Education credits in Montana/NM was taking up time psychologists would have instead been using to learn about treating deaf patients. Gender, race, and percentage of people with a hearing difficulty in

their ZIP code were not significant, indicating this is not an issue split on gender, racial, or spatial lines.

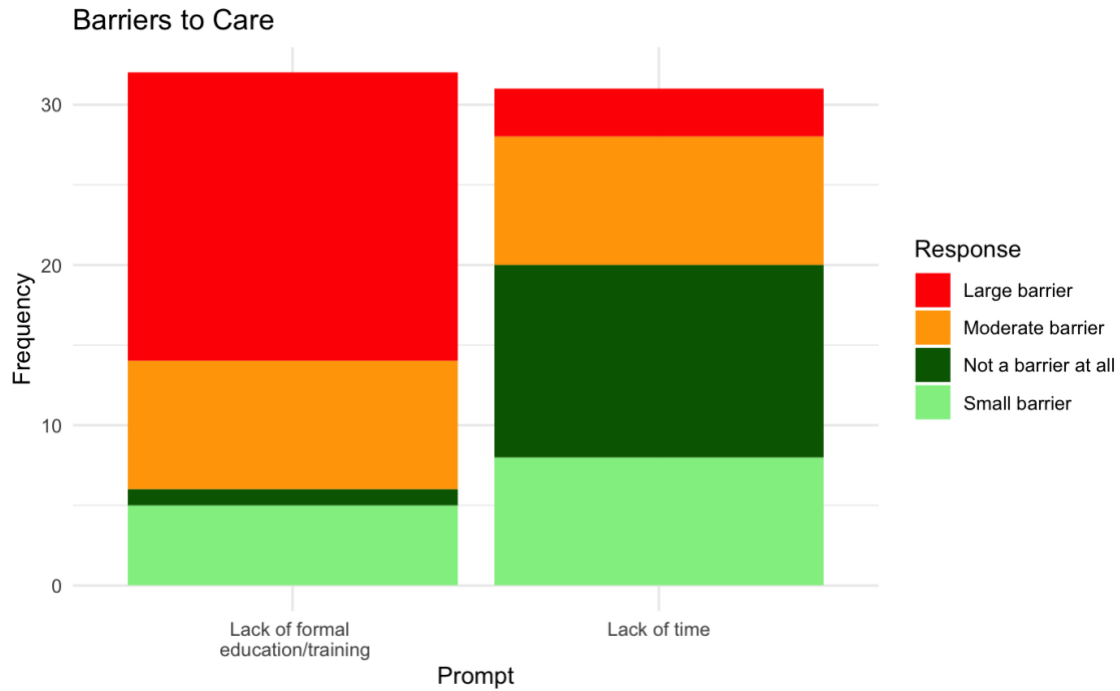
Interaction frequency with deaf people was significant with controls for “Less than once a month”, “Once a week”, and “Daily” compared to “2-3 times per month”. However, all of these indicated that they would decrease scores even though “Less than once a month” is less than the comparison category and the other two are higher. Ultimately, this does not offer much insight into whether interaction frequency affects scores.

Ultimately these regressions do not point to any one method that could be used to increase mental health clinician knowledge. However, it does suggest that psychologists more interested in ASL, a language used by the Deaf in America, are more knowledgeable about treating deaf patients. It is possible that PsyD programs could need more improvement than PhD programs, and that if psychologists treat deaf patients they may be more motivated to be more knowledgeable on the subject, however it is not clear. Unfortunately, it does not seem like having deaf awareness training made much of an impact, although this could be due to unmeasured factors such as how long ago the training was.

Per Figure 8, psychologists do not view a lack of time as a barrier, but rather a lack of formal education and training.

Figure 8

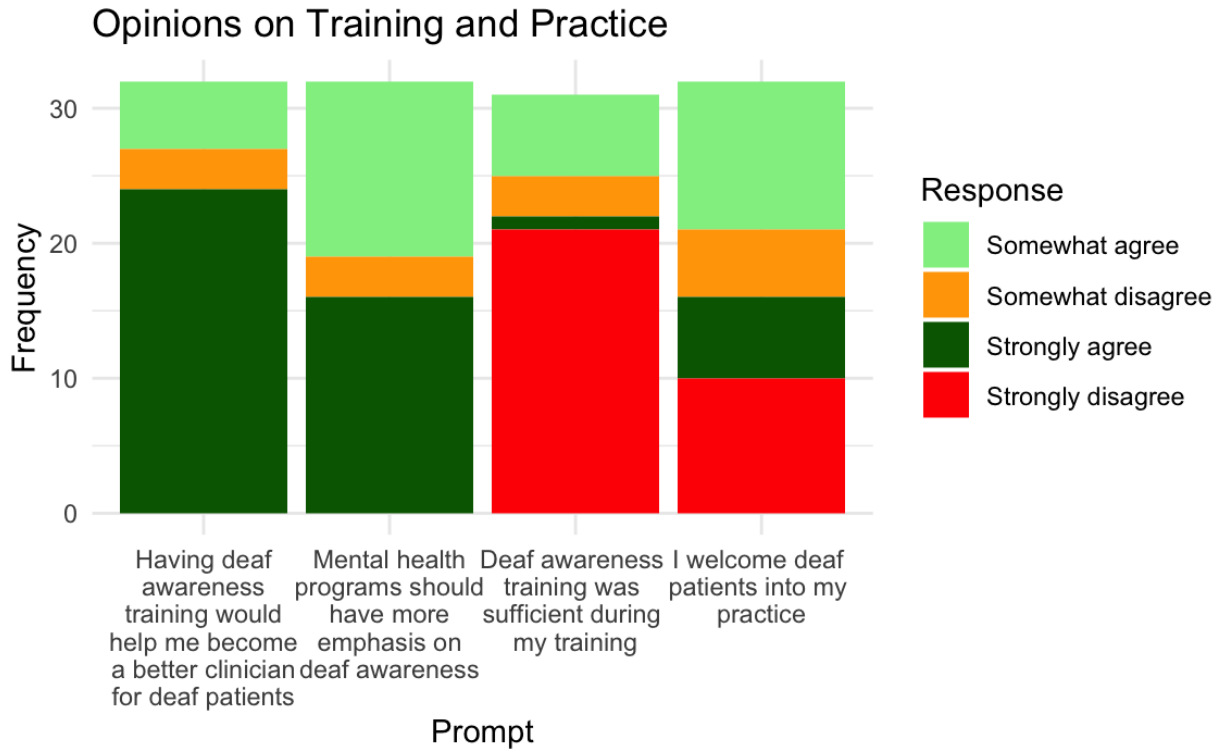
Psychologists' Opinions on Barriers to Care



Additionally, psychologists generally agree that: deaf awareness training was not sufficient during their training, training programs like theirs *should* have more emphasis on deaf awareness, and having deaf awareness training would help them become better at treating deaf patients. Even though the data do not empirically prove their belief that having more training would make them better at treating deaf patients, it provides an insight into what psychologists think may be causing this inadequate care.

Figure 9

Opinions on Training and Practice



Policy Recommendations

ASL Availability

As discussed before, inadequate knowledge about ASL can lead to inadequate care and misdiagnoses. Participant 6 was the only one who mentioned taking sign language classes in school (in her undergraduate degree) and she was also the only one who demonstrated a high

level of competency with working with deaf individuals. While ASL level did not show a significant difference in the survey sample, interest in ASL *did*, and there were also no participants in the sample who had an ASL level above “Poor”. Additionally, one interview participant even brought up that if she had deaf patients she would want to learn ASL to communicate with them. By changing curricula to include space to take ASL as an elective or even requiring a low level of ASL may not only improve psychologists’ ability to work with deaf patients, but it may spur some to take a greater interest in treating deaf patients.

ADA and Interpreter Training

Half (16/32) of all participants said they knew “Nothing” or “A little” about their responsibilities under the ADA. This significantly decreased their scores, and could result in subpar care for a deaf patient. If Participant 2’s patient had not set up their own interpreter, he may not have known how to get one. The test portion of the survey showed that logistics of responsibilities under the ADA as well as the logistics of using an interpreter were a particular weak spot for respondents. This indicates a need to educate psychologists on these topics. As discussed above, clinicians also agree that they need more training. Requiring a course in psychology doctorate degrees (whether PhD or PsyD) on how to navigate responsibilities under the ADA as well as how to use accommodations such as interpreters to facilitate the therapy process may aid in psychologists’ ability and confidence in providing mental healthcare to deaf people.

In order to pressure universities to implement ADA training to their curricula, I recommend that state licensing agencies require that license holders have taken a course on their responsibilities under the ADA.

Continuing Education Modules

Six out of seven interview participants said they could not remember seeing a Continuing Education module about treating deaf patients. Participant 6 said she could, and directed the research team to PAR, Inc. When checking the website's archive, only one recorded webinar came up, "Evaluating Deaf and Hard of Hearing Learners in Mainstream Settings" (2023). When looking at other sites provided by psychologists, such as NetCE, no courses came up when searching for "deaf" or "hearing" ("Courses"). This indicates that outside of education for attaining degrees, there is still a lack of available resources for education about treating deaf people for maintaining licenses. All six participants who had not previously seen CE modules about treating deaf patients said that they would be interested in taking one. As discussed above, 25 out of 32 survey participants said having deaf awareness training would help them become a better clinician for deaf patients, suggesting that CE modules for those already out of school would be helpful.

However, the difficult task would be compressing everything a mental health clinician should know about treating deaf patients down into a course that is only a few hours long. In the interviews, psychologists who did not have extensive experience treating deaf patients said that they would like to know: the logistics of having a deaf patient (interpreters, telehealth, etc.), what mental health problems are affecting the deaf population, the different degrees/causes of deafness

and how those interact with mental health, and Deaf culture. Participant 6, who had extensive experience with deaf patients, suggested that it include: history of deaf oppression/trauma, etiologies of deafness, modern assistive technology and languages, language deprivation and cochlear implants, effects of different educational settings and social skills development, and only *after* all that background, what assessments are appropriate and what good resources for therapy are. The survey and interviews suggest that where clinicians need the most help are understanding deaf experiences such as language deprivation, Deaf culture, the differences between ASL and English with regard to psychological evaluation, and ADA/interpreter logistics.

So, taking in all of those different recommended fields, this is what I propose as a basic, low-level course outline that could (and should) be fleshed out to a longer, more involved course. It begins with a history of d/Deaf oppression and goes over traumas specific to deaf people such as language deprivation. This transitions into a discussion of how different educational settings affect deaf children and their social skills in different ways. It then discusses the more biological component, the different etiologies of deafness and the history of medical views of deafness that viewed it as something to “fix”. It then moves onto a picture of the modern d/Deaf community, going over some important Deaf culture moments some major differences between ASL and English structure. Finally, it introduces therapeutical tools/resources such as appropriate assessments, an overview of ADA logistics, and resources to go for help. In order to maximize effectiveness of this module, I recommend that states make a module like this mandatory for all psychologists once every 5 years. That way, they are continually updated and the knowledge does not fade away as they get farther away from when they initially had training.

Conclusion and Opportunities for Further Research

This study demonstrates that mental health clinicians lack adequate knowledge to treat deaf patients at the same level of quality as hearing patients. Previous research has shown that physicians in general lack knowledge both about their responsibilities under the ADA as well as how to interact with deaf patients. Previous studies analyzed these two aspects in isolation and with physicians or medical students in general. However, my study combined these two aspects into one survey and added a third section that contained novel questions specific to mental health work with deaf patients. This was then sent out only to mental health clinicians. This aimed to get an estimation of how much mental health clinicians know about treating deaf patients compared to medical doctors and medical students. I also used semi-structured interviews to dive deeper into participants' backgrounds, experiences, and thoughts on what changes they would like to see implemented.

Mental health clinicians overall performed worse than physicians in previous studies. This was particularly bad with regard to logistics involving who is responsible to pay for ADA accommodations, what interpreters' logistical requirements are (if they are required to stay late with a patient), Deaf culture, and how language differences impact psychological evaluation. Clinicians reported that they felt they were not given enough training on deaf awareness and that more training would help them become better clinicians for deaf patients. The interviews revealed that this generic "more training" could be most useful in a continuing education module.

Following these findings, I recommend that state government officials develop and then mandate Continuing Education modules about treating deaf patients. They should be required to

be completed once every few years in order to make sure clinicians do not have enough time to forget all of their training. Additionally, I recommend that the agencies that govern licensure in different states require that license holders have completed a course on the ADA at one point. This may motivate graduate curricula to include these into their coursework. I also recommend that psychology programs and associations encourage students/members to take ASL, as having an interest in ASL is associated with more knowledge of how to treat deaf patients. Encouraging more interest in the language could encourage more overall interest in Deaf culture and result in more informed clinicians.

However, this study had several limitations. The most obvious one was the extremely small response rate to both surveys and interviews, with a completion rate of 5.9% for the survey and 1.1% for the interviews (out of people who completed the survey, the interview completion rate is 22.9%). A future study with a larger sample size—perhaps surveying all 50 states instead of a subsection and offering more incentives—would be better equipped to make generalizable statements about the population. Additionally, not many people in the sample had experience with deaf patients and none could sign in ASL better than “Poorly”. Again, a study with a larger sample size and more variation would be able to look at whether ASL ability is correlated with more knowledge of how to treat deaf patients. This also goes for the lack of variation in the type of mental healthcare professional, medical practice type, and various other demographic characteristics that would be interesting to examine with more variation.

As discussed earlier, questions with multiple correct answers were graded as a binary, which may have resulted in correct answer rates that did not accurately represent participant knowledge. In an expanded version of this study, I would look at analyzing answers by

cumulatively adding a point for each correct option selected, resulting in a maximum of 4 points for some questions and only 1 for others.

There are several questions I would add to a future survey. One is asking participants if they have seen a Continuing Education module about treating deaf patients and if they would want to take one. This could further be expanded by asking how many hours long they would want that CE module to be and what they would want to learn from it. This could help gauge how to implement an effective CE module. Another area that could be improved is the section asking about deaf awareness training. Deaf awareness training was not defined, and so participants may have said “yes” when they should have said “no” or vice versa.

I would also want to ask if they had previously had any training on the ADA overall. Relatedly, I would want to ask if they could name any agencies they could go to in order to obtain an interpreter for a session, to see if any clinicians know where they could get interpreter services.

Additionally, I would want to delve deeper into some of the clinicians’ weaknesses: how language differences impact psychological evaluation and Deaf culture. I would want to ask clinicians “What, if anything, would you change for treating a deaf patient as opposed to a hearing one?” and would ask them if they recognize various figures/movements/events in Deaf culture. After further research, I would also ask them specifically to identify various assessments that are/are not appropriate to use for deaf patients. In general, this study is constrained by its small sample size and in the future with a larger study I would like to dive deeper into some areas that were only touched on in the current study.

Ultimately, this study reveals not only that mental health clinicians lack a significant amount of knowledge about treating deaf patients, but also that mental health clinicians are aware of that fact. Further than that, they have ideas on actions to rectify that lack of knowledge. Those actions just need to be implemented. Further research is needed to identify exactly what training may have already been useful and should be expanded moving forward, as well as a more accurate picture mental health clinicians' knowledge of Deaf culture and their eagerness (or lack thereof) for certain interventions.

References

- ADA Business BRIEF: Communicating with People Who Are Deaf or Hard of Hearing in Hospital Settings.* (2005, October). U.S. Department of Justice.
<https://archive.ada.gov/hospcombr.htm>
- Boness, C. L. (2016). Treatment of deaf clients: Ethical considerations for professionals in psychology. *Ethics & behavior, 26*(7), 562-585.
- Courses.* (n.d.). NetCE. <https://www.netce.com/courselist.php>
- de Graaf, R., & Bijl, R. V. (2002). Determinants of mental distress in adults with a severe auditory impairment: differences between prelingual and postlingual deafness. *Psychosomatic medicine, 64*(1), 61-70.
- Evaluating Deaf and Hard of Hearing Learners in Mainstream Settings.* (2023, January 25). Psychological Assessment Resources, Incorporated.
<https://partalks.parinc.com/p/s/evaluating-deaf-and-hard-of-hearing-learners-in-mainstream-settings-347>
- Fellinger, J., Holzinger, D., & Pollard, R. (2012). Mental health of deaf people. *The Lancet, 379*(9820), 1037-1044.
- France, L. R. (2022, March 27). *Oscar winners 2022: See the list.* CNN.
<https://www.cnn.com/2022/03/27/entertainment/oscar-winners-2022/index.html>
- Hamerdinger, S. H., & Crump, C. J. (2022). Sign language interpreters and clinicians working together in mental health settings. *The Routledge Handbook of Sign Language Translation and Interpreting.*

- Hatley, N., & Kennedy, C. (2022, December 8). *How we keep our online surveys from running too long*. Pew Research Center. <https://www.pewresearch.org/decoded/2022/12/08/how-we-keep-our-online-surveys-from-running-too-long/>
- Iezzoni, L. I., O'Day, B. L., Killeen, M., & Harker, H. (2004). Communicating about health care: observations from persons who are deaf or hard of hearing. *Annals of internal medicine*, *140*(5), 356-362.
- Iezzoni, L. I., Rao, S. R., Ressalam, J., Bolcic-Jankovic, D., Agaronnik, N. D., Lagu, T., ... & Campbell, E. G. (2022). US Physicians' Knowledge About The Americans With Disabilities Act And Accommodation Of Patients With Disability: Study examines what physicians know about the Americans With Disabilities Act and what is done to accommodate patients with a disability. *Health Affairs*, *41*(1), 96-104.
- Gutman V & Pollard RQ. Association of Psychology Postdoctoral and Internship Centers (APPIC) Newsletter. 2. Vol. 24. Washington, DC: APPIC; 1999. Nov, Working with deaf interns and internship applicants; pp. 22–24.
- James, T. G., Coady, K. A., Stacciarini, J. M. R., McKee, M. M., Phillips, D. G., Maruca, D., & Cheong, J. (2022). “They’re not willing to accommodate Deaf patients”: communication experiences of Deaf American Sign Language users in the emergency department. *Qualitative Health Research*, *32*(1), 48-63.
- Jankowski, K. A. (1993). The battle of ideologies: A struggle for ownership in the Deaf community.
- Kentucky Legislature. (2022, November 9). Kentucky Administrative Regulations (KAR). Retrieved from <https://apps.legislature.ky.gov/Law/KAR/titles/201/026/175/>

- Kung, M. S., Lozano, A., Covas, V. J., Rivera-González, L., Hernández-Blanco, Y. Y., Diaz-
Algorri, Y., & Chinapen, S. (2021). Assessing Medical Students' Knowledge of the Deaf
Culture and Community in Puerto Rico: A Descriptive Study. *Journal of medical
education and curricular development*, 8, 2382120521992326.
<https://doi.org/10.1177/2382120521992326>
- Kushalnagar, P., Reesman, J., Holcomb, T., & Ryan, C. (2019). Prevalence of Anxiety or
Depression Diagnosis in Deaf Adults. *Journal of deaf studies and deaf education*, 24(4),
378–385. <https://doi.org/10.1093/deafed/enz017>
- Landsberger, S. A., Sajid, A., Schmelkin, L., Diaz, D. R., & Weiler, C. (2013). Assessment and
treatment of deaf adults with psychiatric disorders: A review of the literature for
practitioners. *Journal of Psychiatric Practice*®, 19(2), 87-97.
- Leigh, I. (1999). *Psychotherapy with deaf clients from diverse groups*. Gallaudet University
Press.
- Misiaszek, J., Dooling, J., Gieseke, M., Melman, H., Misiaszek, J. G., & Jorgensen, K. (1985).
Diagnostic considerations in deaf patients. *Comprehensive Psychiatry*, 26(6), 513-521.
- National Deaf Center (2021). *Research & Data*.
<https://nationaldeafcenter.org/resources/research-data/>
- NetCE (n.d.). *New Mexico Psychologists CE Requirements, Accreditations & Approvals*.
<https://www.netce.com/ce-requirements/psychologist/NM/>

- NIDCD [National Institute on Deafness and Other Communication Disorders (2016). *Quick statistics about hearing*. <https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing>
- Nagakura, H., Schneider, G., Morris, J. *et al.* Assessing Deaf Awareness Training: Knowledge and Attitudes of Recent Genetic Counseling Graduates. *J Genet Counsel* **24**, 104–116 (2015). <https://doi.org/10.1007/s10897-014-9742-3>
- Pollard, R. Q., Marschark, M., & Clark, M. D. (1998). Psychological perspectives on deafness.
- Pollard Jr, R. Q. (2014). What if your client is deaf. *Atrium Experts Monthly Newsletter*, 9(4).
- Pollard, R. (2019). 100 years in psychology and deafness: A centennial retrospective. *Jadara*, 26(3), 8.
- Psychology Degree 411. (n.d.). Montana Psychology Licensure Requirements. Retrieved from <https://www.psychologydegree411.com/licensure/montana/>
- Stebnicki, J. A. M., & Coeling, H. V. (1999). The culture of the deaf. *Journal of Transcultural Nursing*, 10(4), 350-357.
- U.S. Census Bureau. (2019). DISABILITY CHARACTERISTICS. American Community Survey, ACS 1-Year Estimates Subject Tables, Table S1810. Retrieved November 16, 2023, from [https://data.census.gov/table/ACSST1Y2019.S1810?q=S1810&g=010XX00US\\$0400000](https://data.census.gov/table/ACSST1Y2019.S1810?q=S1810&g=010XX00US$0400000)
- U.S. Census Bureau. (2023). City and Town Population Totals: 2020-2022. Retrieved December 10, 2023, from <https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.html#v2022>

U.S. Census Bureau. "Disability Characteristics." *American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, 2022*,
[https://data.census.gov/table/ACSST5Y2022.S1810?q=hearing difficulty](https://data.census.gov/table/ACSST5Y2022.S1810?q=hearing%20difficulty). Accessed on
March 10, 2024.

Wu, M. J., Zhao, K., & Fils-Aime, F. (2022). Response rates of online surveys in published research: A meta-analysis. *Computers in Human Behavior Reports*, 7, 100206.

Appendix

1 Survey Question Randomization Code

1 Survey Question Randomization

[51]:

```
# Setting Up The Random Module

import numpy as np np.random.seed(24601)

# This is the number of questions from which we are cutting down
total_num_questions = 23

# What the new number of questions (within # the section we're cutting down) should be new_total
= 12

# What number in the overall set is question 1?
question_number_offset = 33

# Randomly choose questions using above paramers:
questions_to_keep = np.sort(
    np.random.choice(
range(total_num_questions), new_total,
replace = False

    ) + question_number_offset
)

print("Questions to keep:", questions_to_keep)
```

Questions to keep: [33 34 35 36 37 40 41 42 43 46 52 54]

2 Survey Questions

Survey Questions			
No.	Question	Response Categories	Points
	Experience with Deafness		
1.	How often do you interact with deaf or hard of hearing people outside of working as a mental health clinician?	Never; Less than Once a Month; Once a Month; 2-3 Times a Month; Once a Week; 2-3 Times a Week; Daily	1
2.	Where do these interactions take place?	At home; Circle of friends; Volunteering; Work other than mental health; Other (please specify)	1
3.	Have you taken courses in ASL?	Yes; No	1
4.	How well can you communicate in ASL?	Not at all; Poorly; Moderately; Fluently	1
5.	On a scale of 1 to 5, how interested are you in learning ASL?	No interest (1); Somewhat interested (2); Interested (3); Very interested (4); Currently taking ASL lessons/Already know ASL (5)	1
6.	If interested in learning ASL, what motivates you to learn ASL?	[open ended response]	1
7.	Do you have deaf or hard of hearing colleagues at your workplace?	Yes; Not sure; No	1
8.	Do you treat deaf patients at your current job?	Yes; No	1
9.	How many deaf patients have you counseled in the past year?	None; 1-10; 11-20; 21-48; More than 48 patients	1
10.	How frequent are your visits with deaf patients?	Never; less than once a month; ~2x a month; ~once a week; more than once a week	1
11.	What steps do you follow before/during the intake of a deaf patient?	[open ended]	8
12.	When do you ascertain your deaf patients' preferred mode of communication?	Inquire ahead of appointment; Inquire at the beginning of the appointment; Inquire during the appointment; I do not inquire; Never had a deaf patient	1
13.	How often do you use the following modes of communication at work when interacting with your deaf patients? Give a percentage for each:	%__ Certified ASL interpreter %__ Patient's family member or friend acts as interpreter; %__ Your own knowledge of ASL	2

		%__ Relying on the patient's ability to lip read %__ Hand gestures %__ Writing back and forth %__ Never had a deaf patient %__ Other (Please specify)	
14.	How often have you used a certified American Sign Language (ASL) interpreter when counseling a deaf patient whose preferred language is ASL?	Never had a deaf patient; Never; Occasionally; Most of the time; Every time	1
15.	Did you have any Deaf awareness training in your education?	Yes; No	1
16.	What was the duration of the deaf awareness training you received? (ex. 1 hour class, 2 day training, etc.) If you received a couple of hours for a week, add up the number of hours into days	1-2 hour class; half a day training; 1 day training; 2 day training; 3-4 day training; 1 week long training; 1 semester internship; Other (please specify)	1
17.	Please tell us how much each of the following is a barrier for you in caring for deaf patients...? Lack of time	Not a barrier at all; small barrier; moderate barrier; large barrier	1.34
18.	Please tell us how much each of the following is a barrier for you in caring for deaf patients...? Lack of formal education/training	Not a barrier at all; small barrier; moderate barrier; large barrier	
19.	Overall, how confident are you in your ability to provide <u>the same quality of care</u> to deaf patients as you provide to hearing patients. Would you say...?	Very confident; somewhat confident; not very confident; not at all confident	1
20.	To what extent do you agree or disagree with the following statements...? I welcome deaf patients into my practice.	Strongly disagree; somewhat disagree; somewhat agree; strongly agree	2.68
21.	To what extent do you agree or disagree with the following statements...? Deaf awareness training was sufficient during my training.	Strongly disagree; somewhat disagree; somewhat agree; strongly agree	
22.	To what extent do you agree or disagree with the following	Strongly disagree; somewhat disagree; somewhat agree; strongly agree	

	statements...? Mental health programs should have more emphasis on deaf awareness.		
23.	To what extent do you agree or disagree with the following statements...? Having deaf awareness training would help me become a better clinician for deaf patients.	Strongly disagree; somewhat disagree; somewhat agree; strongly agree	
	ADA-related questions		
24.	For academic purposes, the next couple of sections will ask you about your knowledge of the ADA and deafness and mental health. Please do not google the answers, the goals of this survey is to understand people's knowledge of this. The individual results won't be shared with anyone, and only aggregated measures will be presented. If you don't want to answer, please select "No", to move to the next session.	Yes; No	1
25.	Overall, how much do you know about your legal responsibilities or obligations as a clinician under the ADA when caring for patients with disability?	A lot; Some; A little; Nothing	1
26.	Who is responsible for <u>determining</u> what reasonable accommodation(s) patients with disability should receive while being cared for in your practice? (Check all that apply)	Physician(s) caring for the patient; Patients/family; Practice staff/managers/administrators; Insurers/payors; Other (please specify)	2
27.	Who is responsible for paying for reasonable accommodation(s) that patients with disability receive while being cared for in your practice? (Check one)	Owners of practice ; Patients/family; Insurers/payors	1
28.	In a medical setting, it is the right of the deaf patient	A. To express a preference for a particular interpreter (correct) B. To be provided with an interpreter by the practitioner (correct)	2

		<p>C. To determine how much personal information he/she wants to disclose in an interpreted situation (correct)</p> <p>D. To request an interpreter of a specific race (correct)</p> <p>E. Do not know (incorrect)</p> <p>Best answer: ABCD</p>	
29.	Whose responsibility is it to schedule an interpreter?	<p>A. The patient's (incorrect)</p> <p>B. The provider's (correct)</p> <p>C. The insurance company's (incorrect)</p> <p>D. Do not know (incorrect)</p>	1
30.	If a deaf patient requests an interpreter, you may ask your nurse, who has taken several semesters of ASL classes, to interpret for the consultation	True; False (correct)	1
31.	The Americans with Disabilities Act requires an interpreter to be present whether the patient wants one or not	True; False (correct)	1
32.	If you are reading this question, answer "Do not know"	<p>A. Deaf patients are discriminated against</p> <p>B. Deaf patients show no statistically significant discrimination</p> <p>C. Do not know</p>	1
Deaf Culture/Experience Knowledge Questions			
33.	A cochlear implant	<p>A. Will allow a deaf adult to immediately begin hearing and understanding oral conversation (incorrect)</p> <p>B. Destroys any residual hearing in the ear that the patient may have had (correct)</p> <p>C. Corrects for any type of hearing loss (incorrect)</p> <p>D. Is desired by at least 90% of deaf people (incorrect)</p> <p>E. Do not know (incorrect)</p>	1
34.	The hospital has arranged for you to give a presentation on an important health topic with the assistance of an ASL interpreter. The audience, which consists mainly of deaf	A. Stand on stage and wait patiently for the audience to settle down (correct)	2

	patients, are all socializing prior to the presentation. You are ready to begin your presentation. You should:	<p>B. Flick the lights on and off several times in order to get the audience's attention (correct)</p> <p>C. Clap loudly (incorrect)</p> <p>D. Ask the interpreter to sign that you are ready to begin (correct)</p> <p>E. Do not know (incorrect)</p> <p>Best answer: ABD</p>	
35.	In a consultation room, where would you suggest the patient and interpreter to sit?	<p>A. Place the interpreter beside the patient. The patient and the interpreter are facing the provider (incorrect)</p> <p>B. Place the interpreter beside the provider. The provider and the interpreter are facing the patient (correct)</p> <p>C. Place the interpreter at an equal distance between the provider and the patient (incorrect)</p> <p>D. Do not know (incorrect)</p>	1
36.	The percentage of the English language that can be accurately lip read falls in:	<p>A. 10-25% (incorrect)</p> <p>B. 26%-50% (correct)</p> <p>C. 51-75% (incorrect)</p> <p>D. 76-100% (incorrect)</p> <p>E. Do not know (incorrect)</p>	1
37.	You are running considerably behind schedule. Your deaf patient is waiting with his/her interpreter. The interpreter is ethically bound to wait with the patient until you are ready to see them	True; False (correct)	1
38.	When communicating with a deaf patient through an interpreter, you should face the interpreter and explain to the interpreter what the patient needs to know	True; False (correct)	1
39.	Because deaf people rely upon printed forms of information, their literacy is equal to or better than the general public	True; False (correct)	1
40.	A good interpreter will be able to step out of his/her interpreting role in order to explain to the provider what the patient is really trying to say	True; False (correct)	1

41.	When there is a dominant source of light, such as a window, your deaf patient should be seated with his/her back to the light source and you should be seated facing the light source	True (correct); False	1
42.	When a deaf patient is hospitalized, the entire staff should be notified that the patient is deaf	True (correct); False	1
43.	Less than 50% of physicians who have deaf patients use a certified interpreter	True (correct); False	1
44.	Ninety percent of deaf people have hearing parents	True (correct); False	1
Questions Specific to Mental Health			
45.	If a deaf patient signs animatedly (e.g. exaggerated facial expressions, emphatic gestures, etc.), this can be interpreted as an absence of depression.	True; False (correct)	1
46.	If ASL is interpreted literally, it can approximate communications found in people with:	A. Depression B. Anxiety C. Schizophrenia (correct) D. Don't know	1
47.	Any certified interpreter can be used to interpret for mental health work.	True; False (correct)	1
48.	Over half of deaf mental health inpatients have language dysfluency	True (correct); False	1
49.	Language dysfluency is the same as thought disorganization	True; False (correct)	1
50.	Misconstruing language dysfluency can result in a psychosis misdiagnosis	True (correct); False	1
51.	A deaf patient's trust of a clinician may depend on their level of identification with "Deaf culture"	True (correct); False	1
52.	Deaf psychosis patients generally "hear voices" in the same way that hearing people "hear voices"	True; False (correct)	1
53.	Some mental health symptoms/vocabulary are difficult to interpret, frequently leading to miscommunication	True (correct); False	1

Personal and Professional Characteristics			
54.	What is your gender? Do you identify as:	A woman; a man; transgender; non-binary or genderqueer; prefer not to say	1
55.	Please describe your race/ethnicity. (MARK ONE)	African American (non-hispanic); Asian; Native American; Pacific Islander; Hispanic; White (non-hispanic); Other or combination (please specify)	1
56.	What state do you primarily practice in?	Drop down menu with all 50 U.S. states	1
57.	What zip code do you primarily practice in? (If there are many, which zip code is your main office/clinic in?)	_____	1
58.	Are you Hearing, Hard of Hearing, or Deaf?	Hearing; Hard of Hearing; Deaf	1
59.	Do you consider yourself part of the Deaf community?	Yes; Occasionally; No	1
60.	Do you have a family member who was born deaf?	Yes; No If No is Selected, Skip to Q62	1
61.	Which family member was born deaf? Select all that apply	Child; Mother; Father; Sibling; Uncle/Aunt; Grandparent; Cousin; Other (please specify)	1
62.	Do you have culturally Deaf friends, i.e. who identify with the Deaf community?	Yes; I do not know; No	1
63.	Do you have deaf friends who do not identify with the Deaf community?	Yes; I do not know; No	1
64.	What type of mental health care professional most closely fits your job title?	Psychologist; Counselor/Clinician/Therapist; Clinical Social Worker; Psychiatrist; Social Worker; Other (please explain)	1
65.	What is your highest level of education?	Bachelor's; Master's; M.D.; PhD; Other (please specify)	1
66.	How would you describe your medical practice site (Check One – If you work in more than one practice, please answer about the practice where you see the most patients)”	Private practice in the community; academic/teaching hospital; community nonteaching hospital; community health center; other (please specify)	1
67.	Are you the owner or co-owner of your medical practice?	Yes; No	1

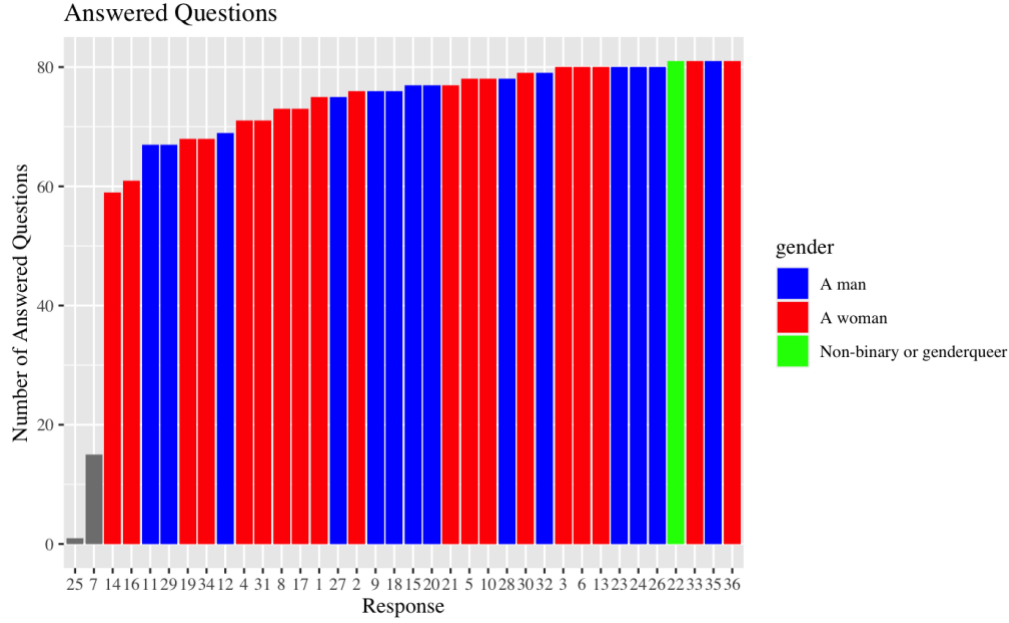
68.	Including yourself, approximately how many of these types of health care professionals work in your practice?	# ___ physicians # ___ nurse practitioners or physician assistants	2
69.	Approximately what percentage of your patients are primarily covered by:	___% Medicaid (including dual eligibility for Medicare) ___% Medicare ___% Private Insurance ___% uninsured/self-pay	2
70.	Would you be open to being contacted for a phone or video interview about your experiences as a mental health clinician?	Yes; No	1

3 Interview Guiding Questions

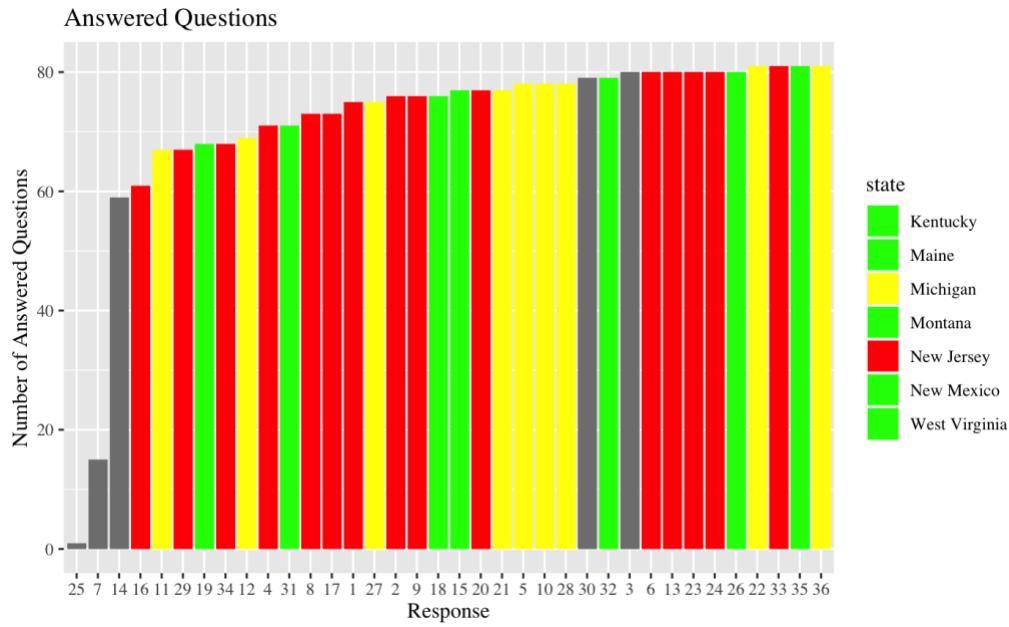
1. How many deaf patients have you seen in your practice?
2. Have you changed how you interact with your deaf patients over the years? Please describe.
3. What are any notable experiences you have had with a deaf patient (if any)? (Please describe if applicable)
4. Have you ever experienced a communication breakdown with a deaf patient? (Please describe if applicable)
5. What were you taught in your training with regard to deafness?
6. What have your interactions with Deaf culture been? Whether in person, online, etc.
7. Have you noticed any patterns of what issues your deaf patients come to you with?
8. How do you begin interactions with your deaf patients?

4 Completion Rates Broken Down By Various Parameters

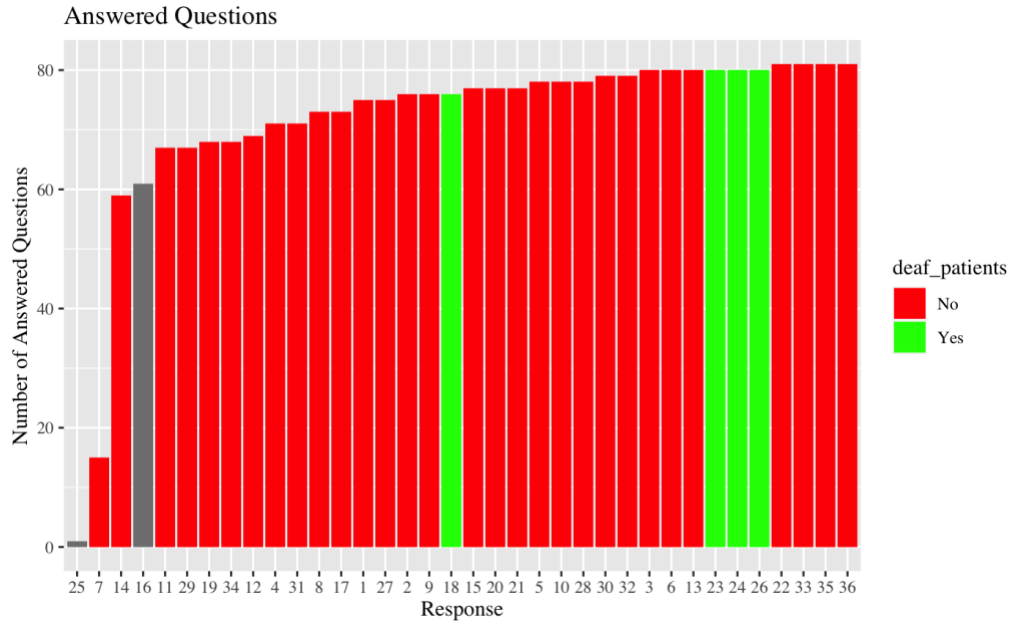
Gender



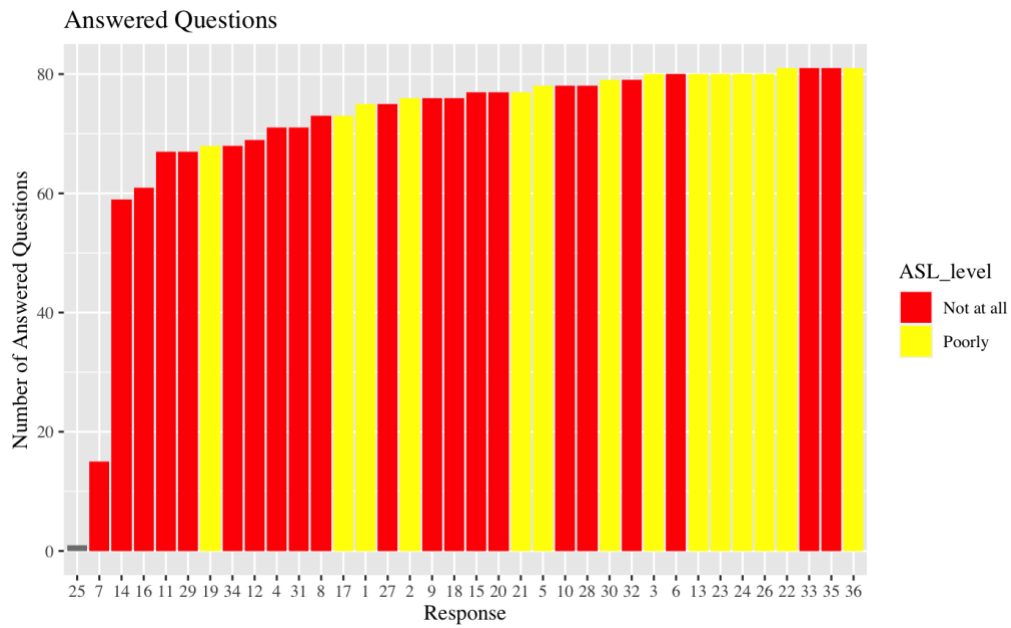
State (High, Low, or Median Proportion of Hearing Difficulty)



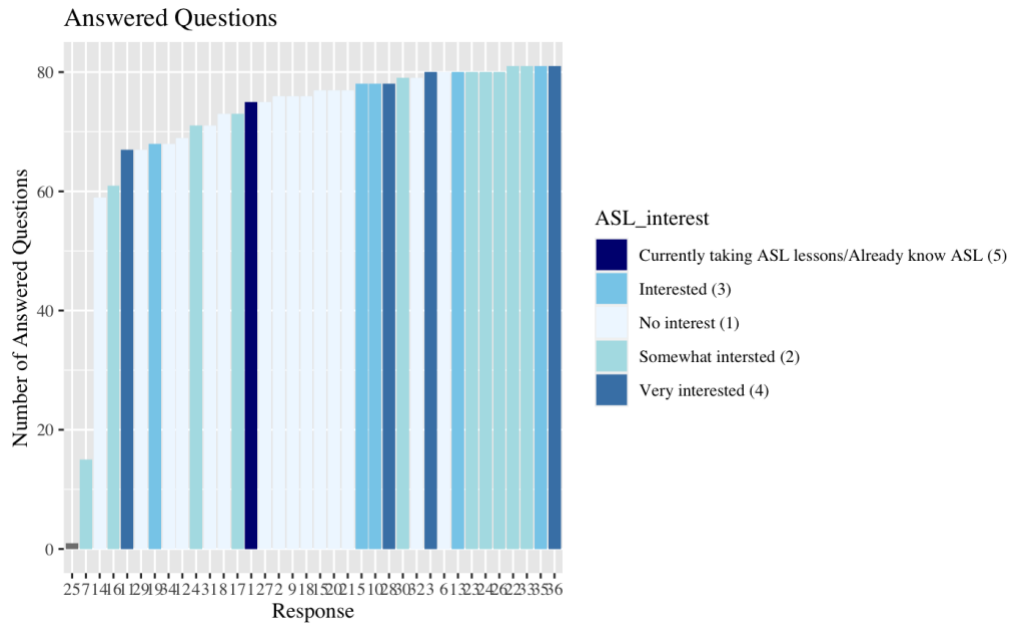
Deaf Patients (Yes/No)



Level of ASL



Interest in Taking an ASL Course



Race

