

UNHEARD VICTIMS OF COVID-19: THE IMPACT OF MASK USE ON
COMMUNICATION FOR d/DEAF AND HARD OF HEARING PEOPLE

by

Kym Couch



A dissertation

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy in Public Policy and Administration

Boise State University

May 2023

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BOISE STATE UNIVERSITY GRADUATE COLLEGE

DEFENSE COMMITTEE AND FINAL READING APPROVALS

of the dissertation submitted by

Kym couch

Dissertation Title: Unheard Victims of COVID-19: The Impact of Mask Use on Communication for d/Deaf and Hard of Hearing People

Date of Final Oral Examination: 03 March 2023

The following individuals read and discussed the dissertation submitted by student Kym Couch, and they evaluated the student's presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

Krista Paulsen, Ph.D.	Chair, Supervisory Committee
Julie VanDusky-Allen, Ph.D.	Member, Supervisory Committee
Jen Schneider, Ph.D.	Member, Supervisory Committee
Elizabeth Schniedewind, Ph.D.	Member, Supervisory Committee
Amanda Ashley, Ph.D.	Member, Supervisory Committee

The final reading approval of the dissertation was granted by Krista Paulsen, Ph.D., Chair of the Supervisory Committee. The dissertation was approved by the Graduate College.

DEDICATION [1]¹

This work is dedicated to all of the people who have shaped the way I see the world and challenged my understanding of it.

This work is dedicated to the Deaf community and all d/Deaf and hard of hearing people. Thank you for being welcoming and willing to guide me to ensure I am representing you, your culture, your experiences, and your feelings with compassion and accuracy. I hope I have made you proud.

This work is dedicated to N Echon Reyes. I wish I could have continued to tell you everything about it throughout the rest of the writing and research process and sent it to you to edit, just for you to tell me every week that you will and then not do it until the week before I turned it in. I miss you, my friend.

¹ After each chapter title is a number in brackets. This number represents the number of pages in that chapter. This has been added for accessibility. For more information see PREFACE [3] - A Note on Accessibility (p. 2).

ACKNOWLEDGMENTS [2]

Thank you to my incredible committee who challenged and directed me during a difficult time in my life to aid me in pressing forward and completing my research.

Thank you to my husband, Ian Pedersen, for his support and encouragement.

Thank you to my stepkids, Russell and Link, for accepting me into your family and always reminding me of the joys in life. Thank you for being understanding when I couldn't hang out because I needed to write. Always remember to follow your hearts.

Thank you to my sister, Katrina RayMoon, for always being a guiding person in my life, willing to listen to every thought and complaint I have.

Thank you to the d/Deaf and hard of hearing people who gave their time and energy to complete surveys, interviews, respond to emails, and discuss their experiences with me.

Thank you to the interpreters who assisted me in ensuring my survey, interviews, and defense were accessible. Thank you to Sierra McIver, Dr. Elizabeth Schniedewind, Kayla Crane, Katie Campbell, and Frances Bennett.

Thank you to Jasmine Platt for going through this fantastic and terrible journey with me. What you have done in a time of extreme difficulty is incredible and I'm very proud of you.

Thank you to my family, friends, and editors for writing with me, helping me remember words I forgot existed, guiding me on accessibility choices, and keeping me going. Thank you to Emma Morris, Josh Goldberg, Ra Hopkins, and the #NaNoWriMo writing community.

Thank you to my wonderful support system for being there for me as I navigated the toughest year of my life, while also writing my dissertation. Thank you to Megean Bourgeois, Jo Edson, Meghann Neveau, Brittany Desgrosseilliers, Mike Taylor, Noel Nelson, Amanda Pedersen, Darel Pedersen, RefHaus, and Grannyyy.

I couldn't have survived this year without you all.

ABSTRACT [2]

Masks are effective at preventing the spread of COVID-19, but they also impact communication for d/Deaf and hard of hearing (DHH) people. This research is a mixed methods approach to analyzing the impact that the widespread use of masks in response to COVID-19 has had on DHH people. Building on the allowance for nuance and paradox presented by Deborah Stone in her book *Policy Paradox: The Art of Political Decision Making* (2012) and holding to the Social Model of Disability, this research involves the qualitative and quantitative analysis of a survey of one-hundred and ninety-eight (198) DHH people, interviews with fourteen (14) DHH people, and analysis of forty-one (41) United States statewide mask mandates, some of which provide exceptions that specifically mention, or may apply due to their ambiguity, to DHH people.

Findings in this research suggest that DHH people are extremely diverse in their communication methods used, cultural ideals, and personal identification language related to their deafness. Statewide mask mandates implemented later were more likely to include exceptions related to DHH people and more likely to use terminology that is deemed offensive by many DHH people. Masks had a significant impact on DHH people, and the impact was slightly higher for those who use spoken English as their primary language than for those who use American Sign Language (ASL) as their primary language. However, both groups reported an impact on communication due to masks, and this impact had a

negative emotional impact on participants including increased feelings of isolation, frustration, and embarrassment. Innovations in clear masks suggest a more accessible future, but there is a need for Accessibility By Default, rather than by request, for an accessible future to be achieved.

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LIST OF ABBREVIATIONS AND TERMINOLOGY [7]

- Accessibility By Default:** Providing accessibility at all times, without being asked and without awareness of whether the accommodations are needed.
- ADA:** Americans with Disabilities Act of 1990. A law which provides guidelines on required accommodations to protect people with disabilities from discrimination.
- ASL:** American Sign Language. A form of manual language (signed using the hands and body, also known as sign language) developed in the United States and primarily used by d/Deaf and hard of hearing people. ASL is also used by others such as the families of d/Deaf and hard of hearing people, educators, interpreters, people with learning disabilities, and people with mutism.

CDC: Centers for Disease Control and Prevention. A U.S. federal agency that studies and provides recommendations and requirements to the public on public health matters. “The science-based, data-driven, service organization that protects the public’s health” (Centers for Disease Control and Prevention, n.d., para. 1).

CSI: Concealable Stigmatized Identity. A personal identity that a person is able to hide from others, and therefore choose whether or not to reveal, which holds stigma. Examples include LGBT+ identities, invisible disabilities (like hearing loss), and mental illness.

Cochlear Implant: Cochlear implant. A medical device that is surgically inserted into the head to bypass damaged portions of the ear and cochlea and transmit soundwaves to the auditory nerve, which directs them to the brain. Considered controversial within the Deaf community, particularly when given to children under five (5) years old.

- COVID-19: Coronavirus disease of 2019. The disease was caused by the SARS-CoV2 virus and began what is generally referred to as the COVID-19 pandemic.
- CH-DHH: Culturally hearing d/Deaf or hard of hearing person. Someone who is d/Deaf or hard of hearing who does not identify as part of the Deaf community. CH-DHH people may personally identify with a variety of possible terms to describe their deafness and cultural connections. See PREFACE [3] - A Note on Terminology (p. 1) for more information on the use of this term.
- Deaf: Big-D Deaf. A person who is Deaf or Hard of Hearing who identifies as part of the Deaf community. Distinguished in English writing through capitalization as “Deaf” and in ASL through the phrase “CAPITAL-D DEAF.” “Big-D” Deaf people who are hard of hearing will capitalize the term “Hard of Hearing” in writing. See PREFACE [3] - A Note on Terminology (p. 1) for more information on the use of this term.

- DHH:** d/Deaf or hard of hearing. Someone who is not fully hearing. This phrase includes everyone who is not hearing, regardless of their personal preferred terminology used to describe themselves. This is a common abbreviation used for this group. See PREFACE [3] - A Note on Terminology (p. 1) for more information on the use of this term.
- Hearing:** Someone who is not d/Deaf or hard of hearing and uses the majority of their hearing without significant limitations or technological hearing devices, such as cochlear implants or hearing aids.
- Hearing Aid:** An electronic medical assistive device that is worn in or behind the ear to amplify sound for d/Deaf or hard of hearing people.
- HoH, HOH, or HH:** Hard of hearing. Someone who does not have a full range of hearing, but is not fully d/Deaf. Hard of hearing people who identify as part of the Deaf community often capitalize “Hard of Hearing” to emphasize their cultural identification.

LGBT+: Lesbian, gay, bisexual, transgender, and other gender and sexual minorities including, but not limited to, queer, intersex, asexual, and two-spirit. Sometimes referred to as “queer” or “gender and sexual minorities.”

Linguistically Deaf: Linguistically Deaf d/Deaf or hard of hearing person, shortened in this research as “Linguistically Deaf person.” The word linguistic is used in this research in a colloquial sense, rather than to do with the field of linguistic study. A d/Deaf or hard of hearing person who primarily communicates in-person through American Sign Language. Linguistically Deaf people may personally identify with a variety of possible terms to describe their deafness and cultural connections. See PREFACE [3] - A Note on Terminology (p. 1) for more information on the use of this term.

Linguistically Hearing: Linguistically Hearing d/Deaf or hard of hearing person, shortened in this research as “Linguistically Hearing person.” The word linguistic is used in this research in a colloquial sense, rather than to do with

the field of linguistic study. A d/Deaf or hard of hearing person who primarily communicates in-person in ways other than American Sign Language. Examples include, but are not limited to, vocalizing with spoken English and lipreading spoken English of others. Linguistically Hearing people may personally identify with a variety of possible terms to describe their deafness and cultural connections. See PREFACE [3] - A Note on Terminology (p. 1) for more information on the use of this term.

Lipreading:

Also called “speechreading,” lipreading is looking at the lips of a speaker to determine what is being said. Lipreading is a highly inaccurate and difficult form of speech comprehension in the English language, but is heavily used by DHH people to aid in understanding spoken language. More information about lipreading can be found in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81).

Mask: Personal protective equipment (PPE) face mask.

Unless otherwise specified, any reference to a mask in this research is referring to a fabric or medical cloth PPE face mask that covers the nose and mouth to prevent or reduce the likelihood of vapor transmission to control the spread of disease.

Sign Language: Also called a “manual language,” a sign language uses the hands, face, and body to communicate, rather than oral sounds. There are an estimated hundreds of sign languages used around the world and sign languages also have regional dialects and accents. In the United States, ASL is the most common, but numerous sign languages are used. Within this research, the phrase “sign language” will be used to mean any manual language, and ASL or another sign language name will be used when referring to a specific sign language.

Policy: Regulations, procedures, guidelines, or laws enacted by a government agency, branch of the government, or organization to address a specific problem.

WHO: World Health Organization. A United Nations agency dedicated to promoting health on an international scale. During and before COVID-19, they provided pandemic response recommendations to nations.

PREFACE [3]

A Note on Terminology

Classification and identification terms and their meanings for d/Deaf and hard of hearing people (DHH) are controversial and deeply personal. Through my research, I have come to an understanding of common terms that I use and develop further, as well as developed additional terms for the purpose of this research. That being said, it is important to recognize that these terms should not be seen as the end of the conversation, as the conversation is ongoing and ever-changing. To quote a well-designed article with similar disclosures around their use of terminology, Bone et al. (2022) explain:

We recognize that the use of any such terminology homogenizes and simplifies what are fluid, intersectional, personal and social, and therefore complex experiences (Ruiz-Williams et al. 2015).² We further acknowledge that terminology and construction of meaning has been and is problematically influenced by hearing people. ... we use a range of terminology ... that we recognize is socially and historically located, and that continues to homogenize people and their experiences. (p. 497)

Similarly, I recognize that the use of terminology and classification systems of a marginalized group can be problematic in nature. Still, I have determined that

² Referenced in original text.

they are also essential for drawing relevant conclusions regarding this research. In general, the cultural and disability identification terms used for an individual are often deeply personal and should always be asked about, rather than assumed, before being used.

Personal Reflective Statement

I am a hearing and abled³ White woman whose connection to the Deaf community and DHH people is primarily one of academic research. Although I have some DHH people in my life, I have made the majority of these connections through academic settings. I have taken ASL and Deaf culture courses taught by Deaf people, which has given me a conversational fluency in ASL, and an appreciation and foundational understanding of Deaf culture.

However, I am not DHH myself and am a member of the cultural majority group as a hearing and abled person. I unintentionally participate in audism and ableism⁴ and benefit from my hearing status in a hearing-centric society. I have a passion for understanding the Deaf community, Deaf culture, and DHH people and hope to collaborate with more DHH people in future research to help reduce the limitations my hearing cultural experiences and internalized audism have on my future research findings.

³ Someone who is not disabled.

⁴ Audism is a form of discrimination based on hearing ability (Schallau, 2022, para. 2). Ableism is a form of discrimination based on being disabled.

A Note on Accessibility

Some formatting choices made in this dissertation may be considered a bit unusual. These unusual choices are rooted in a desire for Accessibility By Default. A list of accessible choices made are:

- An increased number of subheadings and shorter paragraphs for ADHD⁵ and screen reader accessibility.
- Numbers following the title of each chapter to show many pages are in that chapter for ADHD accessibility.
- Blue-scale on figures for colorblindness accessibility.
- Alt text provided on photos and figures for blindness accessibility.
- Non-serif font for dyslexia and dyscalculia accessibility.
- Whole numbers written out and repeated as numerals for dyslexia and dyscalculia accessibility.⁶

⁵ Attention-Deficit/Hyperactivity Disorder, a common mental disorder that generally impacts attention span.

⁶ Survey question numbers (e.g. Q15) and numbers with decimals are written numerically.

CHAPTER ONE: INTRODUCTION AND PROBLEM IDENTIFICATION [18]

Introduction

While face masks limit the spread of disease, they also limit access to communication, particularly for d/Deaf and hard of hearing (DHH) people. Before the COVID-19 pandemic, face masks were rarely seen in the United States outside of healthcare settings, and were primarily worn by healthcare professionals and those who were sick with a particularly contagious disease. One of the most visible changes in the United States as a response to COVID-19, was the legal requirement and social pressure for everyone, regardless of whether they were sick or healthcare professionals, to wear masks in public places. A less noticeable consequence of this change is reports of an increase in communication issues because of the masks, particularly for DHH people who are already prone to communication challenges.

Masks being required for everyone is a nuisance for all, but for DHH people it provided an additional level of difficulty due to increasing communication issues. DHH people supplement their lower hearing level by using a variety of different communication methods and coping methods including (but not limited to) sign language such as American Sign Language

(ASL),⁷ lipreading spoken English, and medical technology such as cochlear implants or hearing aids. Masks obscure sound, making it more difficult to hear and understand speech. Masks also obscure the face visually, making lipreading cues completely inaccessible and making it more difficult to understand facial expressions and mouth morphemes (a unit of language), elements that are very important to ASL.

Over the course of a few short months in early 2020, the COVID-19 pandemic went from something that some people were vaguely aware of, to something that seemingly put the entire world on hold. Three years following the first signs of COVID-19, the world is still feeling the effects of the pandemic as it continues to mutate and spread, killing thousands of people and disrupting lives in various ways. The Centers for Disease Control and Prevention (CDC, 2022) reports that hospitalizations and deaths are consistently trending downward, but spikes in COVID-19 continue to arise and it remains a threat (para 1).

In the early days of COVID-19, the CDC recommended against everyone wearing masks because there was concern about the low supply of masks available to medical professionals. There was also limited information and disagreement from medical professionals about whether the disease was airborne (Ram et al., 2021, p. 3). However, McReynolds (2020) explains that as it

⁷ In the United States, ASL is the most common sign language, but it is not the only sign language used. Leigh et al. (2018) explain that there are around one-hundred and thirty-six (136) known living sign languages in the world and that each is unique from the spoken languages in that culture and has their own grammar, vocabulary, morphology, and history (65). There are also different dialects of ASL based on region and culture. Segregation of Deaf schools led to the natural development of Black American Sign Language (BASL), a distinctly different dialect of ASL (82).

became clear that people could be infected, contagious, or both, and yet unaware of it, the CDC's position changed and they began recommending masks for everyone, regardless of whether they were sick or working in healthcare (para. 8). Once the advice from the CDC changed, some decision-makers moved to institute emergency executive orders, and other policies, which would help reduce the spread of the disease and encourage safer practices amongst individuals.

On April 8, 2020, Governor Phil Murphy of New Jersey was the first U.S. governor to sign a statewide executive order that required face masks for the public outside of healthcare settings, requiring that essential retail businesses enforce mask requirements for customers and employees (Official Site of the State of New Jersey, 2022, para 3). In their study of mask mandates, Jacobs and Ohinmaa (2020) identified that thirty-three (33) U.S. states implemented emergency executive orders to establish mask requirements for citizens by August 1, 2020 (1). The District of Columbia and Puerto Rico also implemented similar mask requirements in this timeframe, though this was not included in Jacobs and Ohinmaa's study (Mitropoulos, 2020, para. 2). My research found that after August 1, 2020, six (6) more states implemented mask mandates, the latest being Utah on January 21, 2021.

In the twelve (12) states where there were no statewide mandates, there were often city mandates, county mandates, or mandates instituted by specific government organizations such as school districts. The case of Anchorage, Alaska, illustrates this layering of mandates, as Alaska did not institute a

statewide mandate, but the Anchorage Municipal Assembly instituted a citywide mask requirement. Separately, the Anchorage School District instituted one as well. Goodykoontz (2021) explains that when the Anchorage city mandate was lifted, this did not lift the school district mandate, which continued for a period longer (para. 6).

In addition to government policy requirements, private companies such as Costco Wholesale implemented policies and regulations internally for employees and customers, sometimes removing or barring people from the institutions who would not submit to them (Murphy Marcos, 2020, paras. 1-3). Once Joe Biden became president in early 2021, the CDC Department of Health and Human Services (2021) issued a public health service act order requiring masks on all public transportation, including airplanes (5). The policies, and later federal guidelines, were enforced by airlines, even going as far as adding non-compliant passengers to no-fly lists and turning planes around to remove them (Kachroo-Levine, 2020, para. 7; Baskar, 2020, para. 5). With social consequences such as being added to a no-fly list, compliance under the policies was, overall, fairly high at eighty-four percent (84%) in 2021 (Taylor and Asmundson, 2021, p. 1).

In addition to emergency policies by government offices and policies by private companies, there was also social pressure to wear masks. Betsch et al. (2020) conducted a study of nine-hundred and twenty-five (925) participants in randomized scenarios in order to learn about the social and behavioral consequences of mask policies. In this study, Betsch et al. (2020) found that “independent from policies, wearing masks is a social contract wherein compliant

people perceive each other more positively, and non-compliance is socially punished. Mask wearing is also related to adhering to other protective behaviors, and it signals prosocial concerns” (21851). Some examples of social consequences for not wearing a mask include exclusion from social events such as weddings or fractured social relationships as individuals were perceived less positively by their mask-wearing peers if they were non-compliant. Someone who is non-compliant, or requesting someone else to be non-compliant due to communication issues, could potentially have similar negative social consequences, which was reported by participants in this research.

Statement of the Problem

As policies to mitigate COVID-19 were being implemented, most of the statewide mask mandates did not provide exceptions for communication situations involving DHH people. The impact of masks on communication for DHH people has been, for the most part, overlooked by the general public in discourse around mask usage. Mask usage and mandates became highly politicized, in part due to the actions of then president Trump, and this developed a politically polarized public debate surrounding mask usage. Because of this public debate, the wide variety of mandates, and the ever-changing recommendations from healthcare officials, mask use was uneven nationwide and often highly politicized. This debate placed DHH people in a difficult position when those around them began wearing masks and began holding a strongly positive or negative stance toward those who did or did not wear masks, or requested no mask use from others.

Many DHH people use coping methods like medical technology, their remaining hearing ability, and visual cues like lipreading and facial expressions to communicate with hearing people in English, rather than using ASL. Because of this, their deafness is often an *invisible disability* that is not obvious to those around them. People with invisible disabilities must regularly choose between disclosing their disability, which opens them up to awkward conversations, stigma, discrimination, and misconceptions, or not disclosing their disability and struggling due to a lack of accessibility accommodations. Once masks became widespread, DHH people whose deafness was not apparent, were suddenly not able to use their previous coping methods as effectively, pushing their deafness into visibility and creating compounding communication issues for them that they did not face before widespread mask usage.

Mask mandate policies are an example of emergency policy adoption, which happens on a faster timeline than most standard policy. Because of the speed of COVID-19 transmission and the impact the high number of cases was having on the healthcare system, policies requiring masks were adopted quickly. Decision-makers rushed to implement policies to protect people from a deadly disease, and reduce the economic and social impact of such large-scale sickness and death. In these quick decisions, some mask mandate policies provided exceptions for communication situations involving DHH people, while others did not. Some communication exceptions provided were done so in a way which implied a lack of understanding of the issue.

Significance of the Problem

Harrington (2014) states that the number of people who have “hearing problems” is believed to be around thirteen percent (13%) of the U.S. population. Gallaudet University, as quoted by Harrington, estimates that of those thirteen percent (13%) of people, 1.3% to 5.2% use a sign language such as ASL. The variety of communication styles used by DHH people means that the impact of masks on communication can be felt by them in different ways.

Study of the impact of masks on communication for DHH people since the COVID-19 pandemic has thus far been limited, and comparisons of responses from DHH people based on language use have not yet been performed. Although the language of participants is mentioned in the current research, studies have chosen to either include just one group (either those who use ASL or those who use spoken English) or combine the two groups and merely note what percentage of respondents use which languages.

In Germany, Lau et al. (2022) analyzed data from a sample of fifty-nine (59) d/Deaf-since-birth participants to determine how masks impacted their ability to read facial cues when compared with hearing individuals. Of the participants whose data was used, 96.61% reported using sign language daily,⁸ and participants who did not report sign language use were included within the same analysis, not separated for comparison (4). Lau et al. found that d/Deaf participants rated the emotions of those wearing masks with a higher valence (extent to which an emotion is positive or negative) than hearing participants did.

⁸ The majority of participants use German Sign Language.

“This suggests that deaf people perceive more intense information from facial expressions and face masks are more inhibiting for deaf people than hearing people” (Lau et al., 2022, p. 1).

In a multi-national study in the United Kingdom and Spain on the impact of masks on communication for DHH people, Gutierrez-Sigut et al. (2022) categorized participants based on whether they knew a sign language, but they were asked “if they knew any sign language,” which is different from whether they regularly use that sign language (6). This study found that most DHH participants experience communication issues, and that late-onset d/Deaf people experience more communication issues than early-onset DHH participants. To fill this gap left open by current research, I chose to categorize individuals based on a combination of answers to questions regarding their language use to determine what was their primary form of communication. This categorization is important because I expect that the effects of communication issues will vary across these two groups as those who use ASL, an entirely visual language, communicate quite differently than those who use spoken English, a primarily auditory language. This categorization is explained further in CHAPTER THREE: METHODOLOGY [43] (p. 37).

It is important to understand the ways in which quick-moving policy and social changes can have a negative impact on people, particularly those who are outside of the social majority and may need exceptions or accommodations made for them. Through an attempt to solve one problem through emergency policy, there can be unintended consequences that create additional problems.

While later statewide mask mandates began to provide exceptions for situations of communicating with DHH people, some did not. Little work has been done thus far to understand the impacts such unintended consequences have had on DHH people and this issue has received little public attention in the American discourse on mask policies. I aim to fill that gap with this research.

This research is important because pandemics, such as the COVID-19 pandemic, are not new, and will continue to impact the world and masks will continue to be used, both in pandemic situations, as well as everyday medical situations. Marani et al. (2022) developed a study that showed that extreme epidemics are increasingly likely and that in every given year, there is a 2% chance of another global pandemic outbreak similar to that of COVID-19 and the probability can continue to increase “up to threefold in the coming decades” (1). What was learned through the pandemic response to COVID-19 will advise future pandemic responses, and if the problem of communication issues caused by masks is not considered in future pandemic responses, the reported negative impact of pandemic responses on DHH people will continue.

Hearing loss may also be on the rise. Although the studies are still in their infancy and information is still very limited, there have been multiple studies that have shown that COVID-19 can lead to deafness or tinnitus, a disease that causes ringing in the ears. In an analysis of current literature, Jafari et al. (2022) found that COVID-19 can cause hearing loss in 3.1% of COVID-19 patients (184). In a study of two-hundred and twenty-five (225) COVID-19 patients with self-reported sensory loss, Thrane et al. (2022) found that 10.7% of them

reported hearing loss (125). An increase in deafness or tinnitus due to COVID-19 means that the number of people impacted by communication issues due to masks may continue to increase.

Understanding the impact of COVID-19 mask mandates on DHH people can help direct future pandemic responses, as well as inspire innovations in mask technology to provide accommodation for DHH people in everyday medical situations. Understanding the nonverbal and nonmanual⁹ forms of communication used by DHH people can provide guidance for legislation around accessibility, by ensuring that other forms of communication are considered in interpretation and accessibility accommodations.

Some of the statewide mask mandate policy exceptions regarding DHH people were written in ways that were too specific, rendering them less valuable in addressing the issue. This example of how emergency legislation impacted DHH people and a deeper understanding of the problem can help us reflect on the ways in which policy can be written to provide consideration for people with disabilities and differences. By analyzing this problem, we can consider the ways emergency legislation could be written with ambiguity to provide exceptions for unanticipated or poorly understood needs of individuals.

Research Questions and Hypotheses

To examine the problem of mask use on communication for DHH people, the first natural question is: **who are d/Deaf and hard of hearing (DHH)**

⁹ Manual languages are those that primarily use the hands or body.

people? I began with this research question because I found it essential to take a closer look at the cultural and communication diversity of this group. It is impossible to understand how masks impact communication for DHH people without first understanding who is DHH, what their cultural values and practices are, and how communication is achieved. This question is quite general given that the target population is an extremely diverse group with varied types of communication, languages, race, age, education, and involvement in both the Deaf community and the hearing world. These varied demographics create a significant difference amongst individuals in their life experiences, which could result in variation in the ways the use of masks has impacted them. I hypothesized that there would be extreme diversity amongst DHH people in communication methods, cultural identification, and terminology for their deafness. This question is explored in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81).

Once establishing who DHH people are, the next question I wanted to answer was: **how did statewide mask mandates address, or fail to address, the problem of masks and communication for DHH people?** This question is important for understanding the successes and failures of the policy wording to better direct future policies. I hypothesized that earlier statewide mask mandates would be less likely to provide exceptions for DHH people, while later statewide mask mandates would be more likely to. I also hypothesized that statewide mask mandates use language and provide exceptions that suggest a lack of understanding of DHH people and Deaf culture. I further hypothesized that

attempts to address communication for DHH people would often be too ambiguous or too specific to successfully address the issue of communication. This question is explored in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 133)

The next research question is the one at the heart of this research: **how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people?** Since this is an area of relatively new research due to the freshness of the pandemic, this general and qualitative question allows for the research to be inductive, looking at the areas in which DHH people have identified issues with the use of masks. This provides an inductive foundation to ensure my research, and future research that builds off of it, is listening to what DHH people have actually said is most relevant to them. This type of inductive research is important when working with traditionally underrepresented and marginalized populations, especially those whose communication methods are so different from the more mainstream cultures. Taking on an inductive and qualitative research focus helps ensure that researchers who are not part of the target population are approaching new research in a way that aligns with the group's ideals and perspectives, rather than overly assigning their external understandings to the target population incorrectly.

I hypothesized that DHH people would report an increase in communication issues during the pandemic due to mask use lessening the ability to rely on lipreading, hearing, and other facial cues. Corey et al. (2020) found that masks of all types reduce the value of speech in front of the speaker (2374).

Since spoken language communication is audibly muffled and visually disrupted by the use of masks, it is understandable that communication would be harder for people who can only hear at louder decibels, as well as people who rely on lipreading and facial expressions to aid in communication.

For those who use ASL more often, facial cues are extremely important because expression is one (1) of the five (5) parameters of a sign, which determine the meaning of the sign, similar to the sounds and corresponding letters that make up a word in a spoken language. Tennant and Gluszak (1998) explain that in order to be a good and effective signer, you cannot merely make the sign with your hands, you must also include nonmanual signals through your body and facial expressions (14). When one (1) of the five (5) parameters of a sign is changed or obstructed, the meaning of the sign can change.¹⁰ By visually disrupting facial expressions, masks impact ASL in a way that could be compared to removing a few sounds from the English alphabet. While communication with masks may still be understandable, miscommunication is bound to happen when used consistently.

While exploring how communication has been impacted for DHH people, I take into account the diversity of this population by comparing the responses of those who primarily use ASL with those who primarily use spoken English. I hypothesized that the communication methods being used (i.e., ASL or spoken

¹⁰ For example, Valli and Lucas (2000) explain that if you use the ASL signs “HOME” and “YOU” sequentially, this can convey one of four possible meanings depending on the nonmanual signals that accompany it (114). The four possible interpretations are “you are home,” “you weren’t home,” “go home,” and “are you going home?”

English) are likely to impact how masks affect communication. Of these two (2) categories, I predicted that those who primarily use Spoken English would report the highest impact on communication while those who primarily use ASL would report an impact, but at a slightly lower intensity. This is because, while ASL is limited by the loss of mouth movements, it is still overall understandable, albeit with more miscommunications than without. I also predicted that those who primarily use ASL are likely to have lower levels of hearing than those who primarily use spoken English and, therefore, were more likely to already rely on alternative forms of communication such as interpreters or passing notes back and forth. Since they would be more likely to already rely on alternative forms of communication, they would therefore be less impacted by masks obstructing verbal communication and lipreading.

Methodological Direction

It may seem obvious or intuitive that DHH people were impacted by communication issues brought on or exacerbated by mask use, but the purpose of this mixed methodology research is to learn more about exactly how they have been impacted. In order to study this problem, I conducted a survey, interviews, and an analysis of statewide mask mandate language.

The survey included multiple choice questions, open-ended questions, and Likert scale questions, and one-hundred and ninety-eight (198) survey responses were used for both qualitative and quantitative analysis. I conducted fourteen (14) interviews via Zoom, eleven (11) in spoken English and three (3) in

ASL with a licensed ASL interpreter.¹¹ I conducted content analysis of the language of all forty-one (41)¹² statewide mask mandates.

More details on the methodology of this research can be found in CHAPTER THREE: METHODOLOGY [43] (p. 37). More details on research findings can be found in the findings chapters, CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81), CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28] (p. 133), and CHAPTER SIX: FINDINGS III: MASKS AND COMMUNICATION [40] (p. 161).

This research analysis was conducted through the perspective of Deborah Stone's (2012) model of the polis. The polis is a dynamic framework that allows for the nuances of paradoxes to exist simultaneously in a way that many other frameworks do not allow for. It was also conducted with the Social Model of Disability in mind, the concept that people are not disabled by their physical characteristics, but rather by the inaccessibility of a world that is built for able people (or in this case, hearing people). I explore these concepts in CHAPTER TWO: LITERATURE REVIEW - POLICY PARADOXES AND THE SOCIAL MODEL OF DISABILITY [16] (p. 22).

The Plan of This Research and Major Takeaways

This research is divided into seven (7) chapters; introduction, literature review, methodology, three findings chapters, and the conclusion.

¹¹ Licensed in the state of Idaho.

¹² Including the District of Columbia and Puerto Rico.

In CHAPTER TWO: LITERATURE REVIEW - POLICY PARADOXES AND THE SOCIAL MODEL OF DISABILITY [16] (p. 22), I provide a literature review examining Deborah Stone's model of the polis presented in *Policy Paradox: The Art of Political Decision Making* (2012). This is explained to ground the reader in the framework I will be using to analyze the problem of masks and communication for DHH people. I also provide background on the Social Model of Disability and ground this work within the context of both models.

In CHAPTER THREE: METHODOLOGY [43] (p. 37), I explain and defend the methodological choices of this research, while also acknowledging the limitations thereof. I provide information on the methodology of participant selection, survey design, and interview design that primarily relates to the findings in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81) and CHAPTER SIX: FINDINGS III: MASKS AND COMMUNICATION [40] (p. 161). I also provide information on the methodological choices pertaining to examining statewide mask mandates seen in CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28] (p. 133).

In CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81), I take a deep dive into the complexities of DHH identity, culture, and communication methods. It summarizes the findings from my external research into the topic, as well as findings from the survey and interviews conducted within this research. The findings suggest that DHH people are extremely diverse when it comes to community identification, deafness

terminology, and preferred methods of communication. This diversity can affect how situations like widespread mask usage can impact individuals.

In CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28] (p. 133), I review the statewide mask mandate orders seen in thirty-nine (39) U.S. states, the District of Columbia, and Puerto Rico. I analyze the wording of the mask mandates, and the extent to which they did, did not, or may have through the use of ambiguity, created exceptions to mask mandates for communication situations involving DHH people. Statewide mask mandates implemented later were more likely to provide exceptions for DHH people. Of the mandates with exceptions for DHH people, earlier ones were more likely to use terminology deemed offensive by many DHH people, while later ones were less likely to. These findings suggest that these exceptions were written with a lack of understanding of DHH people. Membership criteria for the application of the exception (i.e. who was considered exempt) was based on deafness, general communication, visual communication, or the lack of ability to achieve communication through other means. Some exceptions were so specific as to not allow anyone to use them.

In CHAPTER SIX: FINDINGS III: MASKS AND COMMUNICATION [40] (p. 161), I examine the findings from the survey and interviews conducted as part of this research to learn how masks impacted DHH people. The findings suggest that masks have a significant impact on communication for DHH people due to their impact on visual and auditory communication. This impact is slightly greater for participants who primarily use spoken English over those who primarily use

ASL. Multiple participants reported that masks led them to learn something new about themselves, either that they had hearing loss or that they relied more heavily on visual cues for communication than they had previously realized. Participants reported changes in behavior to manage communication issues related to masks, such as advocating for their needs or avoiding situations. Most participants expressed overwhelming support for masks due to the security they provide, but frustration at the communication issues they presented. Participants supported the use of clear masks, but held reservations about their prevalence and people's willingness to wear them.

In CHAPTER SEVEN: CONCLUSIONS [11] (p. 201), I wrap up the research analysis with a summary of key findings and the implications, direction for future research, and some final thoughts.

CHAPTER TWO: LITERATURE REVIEW - POLICY PARADOXES AND THE SOCIAL MODEL OF DISABILITY [16]

Introduction

In her book *Policy Paradox: The Art of Political Decision Making*, Stone (2012)¹³ presents a model of a political community she refers to as the polis. The polis is presented in direct opposition to the market model of a political community, perhaps best explained by rational choice theory, in which individuals and groups are expected to make rational decisions to benefit what is in their best interests. While people are admittedly likely to act in their own best interests, Stone presents that political decision making is a lot more muddled than that straightforward view, and that it is riddled with paradoxes and contradictions, even within a single decision by a single actor (19). In reality, sometimes people, and policy makers, will make decisions that go against what is in their best interests because a contradictory value is deemed as more important. Further, what is in someone's best interests can be difficult to determine when actions, and policies, can have both positive and negative consequences.

The model of the polis is a helpful tool for examining the issue of masks and communication for DHH people because it provides explanation of the policy

¹³ This chapter is primarily a synopsis of the work of Stone (2012). To avoid redundancy of citation, Stone (2012) will be cited rarely, with page numbers presented more regularly when referring to a specific portion of the work. When referencing Stone's other work or another author, the full in-text reference is provided.

choices made by decision-makers when implementing mask mandates and the exceptions outlined. In this chapter, I will explain the contradictory values which came into conflict with each other when policy decisions to control the spread of COVID-19 then impacted communication for DHH people. I will also provide a foundation of the Social Model of Disability to present how social choices and policies can serve to either further disable people, or reduce the disabling effects of physical differences such as deafness.

Community Goals and Policy Narratives

Stone explains that community goals are values that we all hold, and describes how these goals can create paradoxes in political decision making. Community goals are translated into policy narratives that political actors use to frame their position on a policy solution to receive support. In this research, I explain how the community goal of security led to policies that came into conflict with the community goals of liberty and welfare. While there is a community desire for citizens to wear masks to keep people safe and reduce the spread of COVID-19 (security), the wearing of masks results in reduced communication access, which harms and limits DHH people's lives (liberty and welfare).

Stone explains that liberty can mean different things to different people, but generally refers to freedom of choice. Traditional concepts of liberty present that governments should only infringe on liberties to prevent harm coming to others (108). But this assertion requires a firm definition of harm, which is similarly ambiguous. Stone explains that harms can be physical, like being sick with COVID-19, or they can be abstract and difficult to measure, like the impact

of masks on communication (111). In the case of mask use and communication for DHH people, the harms are mostly abstract and the community goal of security results in reduced liberty by limiting communication options for DHH people, reducing the number of situations that are accessible to them. This is a motivation for using qualitative means of analyzing the harms because, short of counting the number of people who say they feel it, it is difficult to quantify a concept such as “isolation.”

In addition to difficulty in quantifying harms, there comes an issue with measuring the value of harms that come in direct conflict with each other. Which is a “bigger” harm? The harm presented by COVID-19 on the goal of community security, or the harm presented by mask use on the liberty and welfare of DHH people? In their recounting of the public mask mandate debate, Victoria (2021) acknowledges this conflicting view of liberty, mentioning that both supporters and opponents of mask mandates use the value of liberty as their reasoning for their position, despite reaching opposite conclusions (para. 2). Rather than focusing on which harm is “bigger,” in this research I focus instead on understanding the causes of harms and what the harms are in order to make recommendations to reduce unintended and unanticipated harms of future emergency legislation.

Welfare is another ambiguous word with hard-to-measure criteria that results in political paradoxes. Welfare is the concept of wellness of an individual based on their needs being met. What constitutes a need is where the paradox comes into focus, or rather, becomes more blurry. Stone explains that some needs can only be met with relation to others like community, sense of belonging,

and friendship, which are hard to measure abstract factors (p. 94-95). To answer the question of **how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people?**, I consider the impact on feelings of connection with others in relation to the goal of security. Therein lies the issue, and the paradox, that by attempting to achieve the goal of security from COVID-19, mask requirements harm the liberty and welfare of DHH people.

Rules and Ambiguity

In the polis, Stone presents that informal rules, such as social expectations perceived as morally good, are just as important as formal rules, such as laws and policies (289). Although seventeen (17) U.S. states never held statewide mask mandates, many people in those states still wore masks because of the informal social rules that people should be socially distancing and wearing masks for themselves and for the greater good. Mask rules, both informal and formal, held ambiguities that resulted in confusion and inconsistency in their following. These ambiguities were very evident in statewide mask mandates, many of which provided exceptions for people with disabilities. This brings us to the paradoxical and messy aspect of classification. If a state provides an exception for people with disabilities that are exacerbated by wearing a mask, is a DHH person classified as such and thus exempt from wearing a mask in those states?

Stone explains that ambiguity in rules is both positive and negative and that a good rule should be both specific, so it cannot be manipulated, and ambiguous so it covers many possible situations (293). Stone warns that a

perfect rule, both flexible and precise, cannot exist because there is no way for one rule to hold both ideals, but that rules are deliberately written to be vague at their first introduction in order to allow for improvement at future times (299). This was reflected in mask mandate policy, as earlier ones were less likely to provide exceptions for communication with DHH people, and later ones were more likely to.

The balance of ambiguity in rules is explored further by Zahariadis (2014), who explains that ambiguity, while messy and complex, allows for innovation and reduces the need for policy makers to predict future events (168). If a policy is written in a way that allows for a more broad application, this allows for future interpretations to take into account a diverse number of issues that were not, or could not have been, predicted as consequences of the policy. Zahariadis encourages ambiguity, explaining that ambiguity allows for more choices and free will, thus increasing liberty (168). If ambiguity is allowed to flourish in emergency policy, the goal of security can be met with a reduced effect on liberty and welfare. Peters (2018) encourages embracing ambiguity as well, explaining that problems are inherently ambiguous and therefore their solutions should be too (117). The idea of ambiguity is explored further when considering the research question **how did statewide mask mandates address, or fail to address, the problem of masks and communication for DHH people?** in CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28] (p. 133).

Building on Stone

Other researchers have examined how specific policy choices aimed at the community goal of security can negatively impact the community goals of liberty and welfare. In an examination of policy choices regarding school shooting situations, Abbinante (2017) compared lockdown requirement policies with options-based policy responses, defined as requiring educators use their best judgment to select the course of action most effective for survival (61). While lockdown requirements are enacted for the community goal of security, they can negatively impact the liberty and welfare of educators, who desire the power to make choices based on survival (liberty) and feel the lack of choice can impact their emotional well-being (welfare) (160). More ambiguous policies, such as options-based policies, allow for ambiguity that aids in providing a case-by-case response to difficult and life-threatening situations. This is similar to how mask mandate policies implemented for the community goal of security, can negatively impact the individual liberty and welfare of DHH people, but that ambiguity can be leaned on in policy to provide exceptions for unpredictable situations.

Another example of research exploring the tension between the community goal of security and the goals of liberty and welfare is the dignity of risk for those with intellectual/developmental disabilities (ID/DD). The dignity of risk is the concept that taking risks, such as drinking alcohol or engaging in sexual activity, is part of everyday life, part of being human, and contributes to our feelings of dignity (Marsh and Kelly, 2018, p. 1; Burns-Lynch et al., 2011, p. 7). Onstot (2019) explains that policies restricting those with ID/DD from having sex, such as curfews and a lack of sexual education, are put in place for the goal

of security, but ultimately harm the liberty and welfare of ID/DD people by having negative psychological effects on them (636). Onstot explores this concept around the framework of Stone by explaining that the goals of liberty, welfare, and security can all exist simultaneously by changing policies to reflect those ideals. By allowing people with ID/DD to have education and liberty to make informed choices, they are more safely able to navigate risky situations, which improves their welfare. This is similar to how I engage with Stone, as I present that the goal of security from COVID-19 can be achieved without a detriment to liberty or welfare for DHH people by creating policies with accessibility in mind from the start.

Stone explains that while attempting to solve one problem, there can be unintended consequences that create new problems. It is impossible to predict all of the consequences of an action, both short-term and long-term, and new information should be considered all the time (31). This is, at its heart, the goal of this research: to present new information on the unintended consequences of mask requirements and how the goal of security has harmed liberty and welfare for DHH people. In considering political decisions in the polis, actors may make decisions that harm the least powerful people in exchange for reduced harm to the more powerful (260). In the case of COVID-19, mask use was required to control the spread of COVID-19, protecting all people, but having unintended additional harms on DHH people who are less powerful constituents than the hearing majority. Framing a problem solution as for the broad public good is an example of a policy narrative. COVID-19 was (and is), by all accounts, a scary

problem and the narrative presented was one of individuals wearing masks and social distancing for the purpose of the greater good, the community goal of security. This is a simplistic view of a complicated problem.

Stone explains that politicians must give the appearance of being in control, while also making backup plans for when plans fail and that they manage this contradiction through simplicity; reducing the problem to black and white (138). This is true, but this fails to develop the concept of simplicity far enough. Stone does not explain the other benefit of simplicity: reducing the narrative to create a right and wrong division aids in hiding the contradictions or unintended consequences of the proposed solution. If a politician solely presents the narrative that everyone must wear masks because we need to protect against the spread of COVID-19, the politician is not addressing the impact on liberty and welfare for those who are more greatly affected by mask use, hiding behind the simplicity of the narrative framing. Stone explains that to successfully frame a narrative, a politician will rely, not just on presenting their proposed solution, but also on reducing the number of alternatives presented (253). By presenting the narrative that masks must be worn by all for the security of all, but neglecting to present the impact that action may have on DHH people, the narrative can be limited to only about the community goal of security.

The Social Model of Disability

In discussing the causes of problems, Stone presents that there are two categories that can be used by decision-makers to create a narrative around the cause of issues. The first category is actions, which can be guided (purposeful) and unguided (without purpose). The second category is the consequences of

that action, which can be intentional or unintentional.¹⁴ This model as applied to the issue of masks impacting DHH people can be seen in *Table 1*.

Table 1 **Types of Causal Theories**

	Intended Consequences	Unintended Consequences
Unguided Actions	<p><u>Mechanical Cause:</u> Masks are designed to control the spread of disease, but they also impact communication for DHH people.</p>	<p><u>Accidental Cause:</u> The COVID-19 pandemic led to increased mask use, which impacted communication for DHH people.</p>
Guided Actions	<p><u>Intentional Cause:</u> Mask mandate policies impacted DHH people. This was an anticipated side-effect that was ignored in lieu of safety.</p>	<p><u>Unintentional Cause:</u> Mask mandate policies led to unanticipated side effects that impacted DHH people due to ignorance of the issue.</p>

All of the presented causes of masks impacting DHH people in *Table 1* can be argued to be true, but the causes that I will primarily focus on in this research are the design of masks (mechanical cause) and mask mandate policies (unintentional cause). The mask policies increased the number of people using masks, which impacted communication for DHH people and, while it is possible that decision-makers knew this would be a consequence, this seems unlikely. More likely, this was an unintended and unanticipated consequence of the guided action of requiring masks. It would be valuable to have more research into the extent of which decision-makers were advised on this potential

¹⁴ Stone uses the word “inadvertent,” but I have changed it to unintentional to draw a more direct comparison with intentional causes.

consequence, including the involvement of disability and DHH advocacy groups in the policy-writing process.

Masks reduce the spread of COVID-19, the intended consequence, but they also impact communication, an unguided action, as that is not the goal of masks. While COVID-19 led to increased awareness of this issue, the design of masks is a significant cause of communication issues and this was a problem for DHH people before COVID-19. If masks were designed with communication accessibility in mind, there would likely be a reduced, although not eliminated, impact on communication for DHH people. If society were built in a way that did not prioritize spoken language and made efforts to accommodate alternative forms of communication, then the impact that masks have on communication for DHH people would be further reduced. This idea of being disabled due to societal choices, rather than due to physical characteristics, is called the Social Model of Disability.

Lane (2002) explains that in the 1800s, there was a desire to reduce the burden of idle citizens on the state and therefore political leaders began distinguishing between those who could not work due to disability from those who would not work (357). Policies around disability have seen significant variation throughout history based on the political and social contexts of the time. Blanck (2001) explains “Among its most profound effects, the Civil War dramatically changed conceptions of disabled persons in American society” (113). With the awarding of pensions to disabled veterans came political opinions around the acceptability of the decisions for inclusion or exclusion from the pension system.

Blanck (2001) explains that the media of the time would label disabled veterans as illegitimate or unworthy of the benefits (200).

Whether a disabled person is deemed worthy of the label of disability, and whether they are marked as someone who cannot work over someone who will not work, is inherently influenced by the socioeconomic contexts of the time. In one of Stone's earlier works, *The Disabled State*, Stone (1984) explained this as a moral distinction, rather than social or economic one, as it was providing the moral reasons that entitle someone to social aid (143). However, the idea of disability as a moral distinction has since evolved.

From the concept of productivity as a measurement of disability, and the industrial revolution leading to a boom in manufacturing inventions, came the Social Model of Disability. As new manufacturing inventions were created, they were created with the average (read: abled) worker in mind, further limiting the employment options for people with disabilities as they were not designed with a focus on accessibility. Lane (2002) explains that we determine whether something is a disability, versus a natural human variation, based on whether it is significantly limiting to that person's daily function (359). The Social Model of Disability is the idea that people who are considered disabled are so because of their inability to work based on a physical difference that prevents working, and that this is not imposed by their physical difference, but rather by the lack of accessibility of society. Leigh and O'Brien (2019) explain that the Social Model of Disability is in direct opposition to the medical model of disability; that someone is disabled by their physical characteristics (99).

In *Policy Paradox*, Stone speaks about disability primarily in the context of Social Security disability benefits, not in relation to the Social Model of Disability. In *The Disabled State*, Stone (1984) takes a deep dive into the categorization of someone as disabled based on their medical status for the purpose of disability benefits. However, Stone has, for the most part, kept the conversation to be surrounding disability benefits policy, and has not updated the conversation to be more surrounding the social categorization of disability and the Social Model of Disability. Gilson and DePoy (2004) explain that Stone's emphasis is on how power and resources are withheld from disabled people and how this withholding of access to earn their own income is what disables people, rather than their disability (2-3). This explanation emphasizes that Stone's discussion of disability aligns well with the Social Model of Disability, but the two have yet to be connected.

Deaf people are unique as a subcategory of the disabled community, in part because many of them do not consider themselves disabled. Deafness being a disability is not, by any means, a cultural requirement. In her ethnological study of the deaf population in Martha's Vineyard in Massachusetts in the early 1800s to the early 1900s, Groce (1985) explains that a large percentage of the population was deaf due to a genetic predisposition. Because of that, most of the residents of the area, hearing and DHH, used sign language,¹⁵ and this was

¹⁵ The sign language used in Martha's Vineyard was not ASL, it was a different sign language known as Martha's Vineyard Sign Language (MVSL). MVSL was developed before ASL, and later influenced ASL during its formation, when MVSL was brought to the mainland (Groce, 1985).

considered a cultural norm. Due to the cultural norm, deafness was not considered a disability. Groce (1985) points out:

Perhaps the best description of the status of deaf individuals was given to me by an island [Martha's Vineyard] woman in her eighties [80s], when I asked about those who were handicapped by deafness when she was a girl. 'Oh,' she said emphatically, 'those people weren't handicapped. They were just deaf.' (p. 5)

Minow (1990) recounts this example in her explanation of the Social Model of Disability and speaks of a hopeful future where accessibility is predominant and by default, thus reducing the impact of society on disabled people's lives (377). Providing accessibility to everyone, regardless of whether it has been requested, is referred to in website development as Accessibility By Default (Laurin, 2019). Accessibility By Default is a tenet of Universal Design, the design of products and spaces to be usable by as many people as possible, focusing on usability, inclusivity, and accessibility (Story, 2001, p. 4.3).¹⁶ I bring the term Accessibility By Default to my research to emphasize that accessibility accommodations that are provided for all, can reduce the negative impact of disabilities on an individual and reduce unintended consequences of policy decisions. The Americans With Disabilities Act of 1990 (ADA) was hugely impactful in making significant strides toward the goal of universal accessibility,

¹⁶ I favor the term Accessibility By Default over the term Universal Design because Universal Design is more generalized, focusing also on usability and inclusivity in addition to accessibility. Accessibility By Default provides a more direct focus on accessibility, which is the core of my research.

but the issue of masks and communication is a current and relevant reminder that it does not go far enough in its protections of DHH people.

Many DHH people, particularly Deaf people, argue that being Deaf is not a limiting variation and therefore they do not identify with the term “disabled” because they have not perceived a loss due to being Deaf, and they are still able to hold a large range of jobs and complete daily life functions without significant accommodations (Bairle, 2019, para. 3). Further, if someone is provided with the necessary accommodations for their disability, their disability would then no longer be limiting and, under the Social Model of Disability, it would not be considered a disability at all.

These feelings by DHH people surrounding pride in being Deaf is reflective of a modern view of disability, which builds on the Social Model of Disability, referred to as the Affirmation Model of Disability. Swain and French (2000) explain that the affirmation model is a “non-tragic view of disability and impairment that encompasses positive social identities, both individual and collective, for disabled people grounded in the benefits of lifestyle and life experience of being impaired and disabled” (569). The Affirmation Model of Disability is relevant to identity associations for DHH people, which is discussed further in regards to the research question of **who are DHH people**, is explored in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81).

Where This Research Fits

Stone's polis is a fantastic model for reviewing the problem of mask use on communication for DHH people, as it gives a dynamic view for analysis, which is reflective of the complexities of the issue. I apply the work of Stone to this research and expand it further by exemplifying where Stone got it right, and where more should be considered.

Stone's groundwork of decision making in the policy process is extremely valuable for this research on the impact of masks on communication for DHH people, by providing conceptualizations and definitions for the reasons there are paradoxes in complex policy issues. This gives a richer view of the masking debate, which is often presented in black-and-white terms in the public narrative, but is more accurately about the conflict between the community goal of security and the community goals of liberty and welfare.

The Social Model of Disability is relevant to masks and communication for DHH people, because traditional surgical masks are not designed with a consideration for visible accessibility of communication and, under the Social Model of Disability, this lack of consideration is what is disabling DHH people in situations where masks are present, not the deafness of the individual. Through my research, I will bring Stone's *Policy Paradox: The Art of Political Decision Making* into a modern context through connecting it to the Social Model of Disability and relating that to the policies made regarding masks in the COVID-19 pandemic.

CHAPTER THREE: METHODOLOGY [43]

Introduction

To study the research questions proposed in CHAPTER ONE: INTRODUCTION AND PROBLEM IDENTIFICATION [18] (p. 4), I use a mixed methods approach of both qualitative and quantitative analysis. In this chapter, I discuss the methodological choices I made to answer these questions as well as the reasoning behind those choices.

I begin by discussing the overall selection of a mixed-methods approach before moving on to discussing the survey methodology, followed by the interview methodology. I then explain the combined qualitative analysis process for the interviews and the open-ended survey questions followed by the limitations and delimitations. The chapter concludes with the methodology of the statewide mask mandates, including data collection, data analysis, and limitations and delimitations.

Selection of Mixed-Methods Approach

Since the research questions for this study are broad in nature, I use a mixed-methods approach with an emphasis on qualitative analysis. In the function of this research, qualitative means that the research is inductive, allowing themes and conclusions to emerge through analysis and re-analysis of the data. This research is not intended to count the number of people with these

experiences in relation to the number of DHH people, the intent is to better understand the nature of the problem to then direct further research and future policy processes. As Xu and Storr (2012) suggests a qualitative researcher should, I recognize that my audience may be more familiar with statistical data, and therefore use multiple methods to provide a fuller picture and more robust analysis (14). The quantitative approach, regarding the close-ended survey responses and the study of statewide mask mandates, allowed me to understand and compare opinions and actions on a numerical scale. The qualitative approach, of the open-ended survey questions and interviews, allowed me to take a deeper look at this complicated and paradoxical problem and identify new trends in the data, which then can be explored in future research.

I used a convergent mixed methods approach, conducting various methods of research and integrating the findings together for overall results (Creswell and Creswell, 2017, p. 19). Interviews were selected as an appropriate method of analysis to complement the survey data, providing richness and further context to the information presented by survey participants. Creswell and Creswell (2017) present that convergent mixed methods are valuable for “providing a comprehensive analysis of the research problem” (p. 19). Interviews were an important part of that. Due to the vast diversity of this group, my position as a hearing researcher, and the complicated nature of this issue, interviews are valuable because they reduce the limitations of these aspects of the research. I recognize that my position as a hearing researcher can have an influence on the outcomes of my research (a naturalist-constructionist approach), and the use of

interviews allowed me to describe and explain a very complicated situation, without oversimplifying it (Rubin and Rubin, 2011, p. 16-17). In this work, I use the qualitative research approach Grounded Theory to analyze interview and open-ended survey data to allow for abstract concepts to become more clear. Khan (2014) explains that Grounded Theory is the method of using an inductive approach to draw conclusions through analyzing and re-analyzing the data until data patterns cease to emerge (225-227). Khan explains that Grounded Theory is ideal for allowing for the data to drive the research, which is especially valuable when studying marginalized populations or cross-cultural experiences (225).

Qualitative methodology, used in this research for interviews and open-ended survey questions, is particularly valuable in researching complicated issues, as it allows for researchers to acknowledge the paradoxes in the problem, policies, and solutions, which exist simultaneously. Through the use of open-ended questions and interviews, I was able to identify trends that could not as easily be identified with close-ended survey data. I also was able to get a closer look at the paradoxes that participants experience when they feel they are on two sides of a debate. Rubin and Rubin (2011) explains that in-depth qualitative interviewing allows for the researcher to explore, in detail, from a perspective other than their own, allowing them to put together different experiences to better understand complicated processes (3).

Inductive research and ethical choices are particularly important when discussing sensitive issues such as mental health. The COVID-19 pandemic had a marked impact on mental health across the world and the concern was greater

for members of vulnerable populations (Wang et al., 2020, p. 1). By asking DHH people questions about COVID-19, I am potentially asking the participants to reveal personal information and recall negative situations that could be detrimental to their mental health. This requires an approach of delicacy, careful consideration, and sensitivity.

Guillemin and Gillam (2004) describe two forms of ethics in qualitative research. The first is procedural ethics, the formal approval process to ensure ethical treatment of participants. The second is “ethics in practice,” the more informal ethical choices that a researcher makes during the research process (277). My research involved both procedural ethics and ethics in practice. My procedural ethics involved the formal dissertation proposal and defense process through my dissertation committee, the Boise State University Institutional Review Board (IRB), and multiple IRB modification requests. A list of IRB revision requests and reasons for submission can be found in APPENDIX A [15] (p. 241).

My ethics in practice involved a few different aspects. The disclosures before the survey and before the interview let participants know that the questions may cause emotional distress, let them know that they do not have to answer questions, and provided resources for counseling. The disclosures can be found in APPENDIX B [35] (p. 256) for the survey and APPENDIX C [9] (p. 292) for the interview. During the interviews, at times when a participant seemed uncomfortable, particularly emotionally distressed, or hesitant to answer a question, I would remind them that they did not need to answer if they didn't want to. Following the conclusion of the data analysis, I emailed each interview

participant to let them know their pseudonym and what quotes were being included, and provided them with the opportunity to inform me if they felt they were being misrepresented.

Since I am a hearing researcher researching a vulnerable population I am not a part of, this has the potential to impact my research. Shaw et al. (2020) explain that researcher status as an insider or outsider of the group being studied can impact all aspects of the research process (290). To be an ethical researcher, I have to recognize my internalized audism¹⁷ and ableism that could impact my research and my interactions with my participants. One of the ways I attempted to combat that was by being responsive to requests from the community.

After my survey went live, but before I began advertising it through paid advertisements, it was shared both by me and others in multiple Deaf community Facebook groups. Once it was being shared in those groups, I was asked via comments in the group, as well as via messages directly to me, to add ASL interpretation of the questions to the survey. I was able to get interpretation videos made by licensed Idaho interpreters to allow for the questions to be available in both written English and ASL. This was done both to increase the accessibility of my survey, as well as to increase trust in me as a researcher who is willing to listen to the requests and needs of my participants.

¹⁷ A form of discrimination based on hearing ability (Schallau, 2022, para. 2).

It was common for participants, both during interviews as well as in comments or messages, to ask me whether I was DHH. For some, this may have just been curiosity regarding my status in their community, but some specifically mentioned that they were asking because they are hesitant to participate in research done by hearing people about DHH people. This is an understandable concern from a vulnerable population and the choices I made regarding accessibility, language, and question types were made with the hope of easing the concerns of participants that I would be doing my best to represent their population well.

The Deaf community, like many marginalized communities, often feel exploited and used by researchers who do not take the time to understand their culture and feel that it would be better to have Deaf people doing research on Deaf people than hearing people researching them. As a hearing person who is studying a culture that I am not a part of, I am sensitive to this concern, and would not want to make participants feel uncomfortable or unwilling to trust me, as that would be harmful to those individuals to have those negative feelings surrounding research, as well as harmful for this and future of research on Deaf culture. In order to research a community effectively, you must respect that community and be willing to listen to and understand their concerns.

That being said, as an outsider and a member of the cultural majority, there are limitations in my capacity to predict what will be important to this population. The qualitative approach to my research is intended to mitigate the

impact of my hearing status on the results of my research, but there can still be missteps based on my approaching the world from a hearing perspective.

A real-world example of how a hearing perspective can impact choices is the story of Nyle DiMarco learning how to dance for *Dancing With The Stars*. In his book *Deaf Utopia*, Nyle (a Deaf man) recounts that he was being taught by his dance instructor and partner, Peta (a hearing woman), for weeks without music because their sound system would not go loud enough for him to recognize any sounds. Nyle had become accustomed to this, and was keeping count in his head and using cues from his partner to keep time, rather than relying on music cues. When in a different studio, Peta was excited to be able to crank up the music so Nyle could hear, as she thought this would help him. In reality, the noise made it more difficult for Nyle to keep time because he had never relied on his hearing for dancing before, so it was distracting. In this example, Peta was applying her own experience as a hearing dancer to Nyle, thinking about how relieved she would be to hear the music after practicing without it for weeks. Had she asked Nyle, he would have explained that he did not want to hear the music, but she had no frame of reference for this alternative world view (DiMarco and Siebert, 2022, p. 257-20).

With this limitation in mind, this study focuses on inductive research. While there was structure to the interviews and open-ended survey questions, the open-ended nature provided opportunities for the participants to share additional information that they felt was relevant. This allowed me to analyze their answers

and identify trends amongst them, without my being hearing holding as significant a sway.

Survey Methodology

Development of Survey Instrument

I split the survey into five (5) different blocks of questioning. The full survey, including disclosure and all question wording, can be found in APPENDIX C [9] (p. 292). The first two (2) blocks consisted of the study information and consent form and demographics to give context for analysis of the responses. The *Deaf Community Information* block (third) asked questions about hearing level, communication methods, deafness terminology, and identification with the Deaf community. These questions were asked to serve the research question: **who are DHH people?** Questions in this section allowed for classification of survey participants based on cultural identification (Deaf or CH-DHH) and linguistic categories (Linguistically Hearing or Linguistically Deaf).

The fourth block of questions were regarding vaccination status, whether the participant had contracted COVID-19, and whether the participant is considered a high-risk individual according to the CDC guidelines. I asked these questions to look for possible trends in this area and provide general survey context.

The fifth and largest block was the Pandemic Likert Scale Questions, which was split into four smaller sections about employment, use of masks, masks and communication, and mental health. The Pandemic Likert Scale Questions section asked questions primarily under the five (5) point Likert Scale

method. In a five-point Likert scale, participants are presented with a statement and asked to choose between five options on a scale such as (1) strongly disagree, (2) somewhat disagree, (3) neither agree nor disagree, (4) somewhat agree, (5) strongly agree. Following each section was an open-ended question about the previous Likert questions.

Joshi et al. (2015) explain that the Likert Scale was originally developed by Rensis Likert in 1932, who “discussed about the infinite number of definable attitudes existing in a given person with possibility of grouping them into ‘clusters’ of responses” (397). The use of the Likert scale allows for a more dynamic understanding of small differences by separating in categories that are more diverse than binary yes or no questions and is a common technique used for research of complicated issues. The Likert scale question model was selected as the appropriate method for this survey as it would allow for participants to express more difficult to define feelings on a scale to notice minute differences in a group whose members are significantly diverse, but who are likely all impacted by communication issues.

A limitation of using the Likert scale for this particular study, is that it does not allow for the level of nuance when it comes to paradoxes that open-ended questions do. A participant may both be uncomfortable when strangers are not wearing masks because they do not want to catch COVID-19, but they may also be uncomfortable when strangers are wearing masks because they want to be able to communicate more easily with them. This is why the analysis was not

limited solely to close-ended questions, and open-ended questions and interviews were conducted as well.

The Likert scale questions on the use of masks and masks and communication were asked specifically to get to the crux of answering the research question: **how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people?** The rest of the Likert questions were asked to look for possible trends, provide general survey context, and get participants thinking about their experiences to prompt more robust responses to the open-ended questions at the end of each section of Likert questions.

Survey Recruitment

The ASL-using Deaf community tends to be very connected through the use of social media and regular community events, which makes them a relatively accessible community to reach. However, many DHH people do not consider themselves part of the Deaf community, do not have a strong cultural or personal identification as DHH, and tend to not participate in social media groups or Deaf community events. This combination of factors makes them a more difficult population to reach. For this reason, I chose to primarily use social media advertisements, social media postings in various groups, and snowball sampling¹⁸ to reach my target population for survey and interview research.

¹⁸ While I was prepared to use snowball sampling for interview participants, I did not because I achieved the desired sample size with participants who signed up for further research.

The ASL-using Deaf community is known for being quite passionate about advocacy for accessibility, so I was concerned that being too open about the content of this research when combined with the snowball methodology of participant selection could lead to data being skewed. To combat this issue, I advertised my survey more generally, and did not specify that the primary focus of this research was to review masks and communication issues. Instead, it was advertised as about the impact of COVID-19 generally on DHH people.

Since the ASL-using Deaf community is viewed as culturally distinct from DHH people who do not use ASL, I was concerned about the survey being perceived as for either solely DHH people who use ASL or solely DHH people who do not use ASL. To ensure that I would not alienate either group, and that I could reach both groups, I ran four (4) different types of advertisements to reach participants. The four (4) advertisements can be seen in *Figure 1*. Following the initial advertisement run, I chose two (2) advertisements to run for longer. Details about the reasoning for the wording of these advertisements and the reasoning for the extended run for two (2) advertisements can be found in APPENDIX A [15] (p. 241).



Initially, I shared the advertisements at no cost in a public post on my personal Facebook account, in two Deaf community Facebook groups, in a general Facebook group, and on a Deaf community Reddit forum.¹⁹ Once the interpretation of the questions into ASL was completed and uploaded, I used fee-

¹⁹ Facebook groups included The Deaf Community of Idaho, Community for the Deaf and Hard of Hearing, and Adult Nerdfighters. The Reddit community is known as r/Deaf.

based advertisements on Facebook, which also pushed to Instagram. The timeline for running these advertisements and the social media reach statistics provided by Facebook can be found in APPENDIX A [15] (p. 241).

Demographics of Survey Participants

Of the three-hundred and thirty-one (331) responses received, one-hundred and ninety-eight (198) were ultimately used for analysis. Reasons for exclusion can be seen in APPENDIX B [35] (p. 256). Reasons for exclusion included lack of consent, lack of response to questions, and indicating that they were hearing. During the initial run of the survey, the consent question was not required. This meant that some responses had to be excluded due to lack of consent. This question was changed to required on August 9, 2022.

Of the one-hundred and ninety-eight (198) responses used for analysis, 95.69% were fully completed (174 responses) and 4.31% were partially completed (24 responses). Average time to complete the survey was thirty (30) minutes and thirty-two (32) seconds, a number that may have been skewed by some participants leaving the survey open and eventually being timed out of it. The median time for completion was eight (8) minutes and eight (8) seconds.

A limitation of this survey is that it was open for a long period of time, which is not ideal when researching an issue that is as rapidly changing, as the responses to COVID-19 have been. Originally, I was planning to run my advertisements much earlier, but a personal situation in my life, as well as

participant requests for the survey questions to be interpreted into ASL, delayed the advertisement run.

Wanting to honor the request for ASL interpretation of the questions, I chose to delay running the advertisements of the survey until after the interpretation was received. The interpretation was being conducted on a volunteer basis, which meant that it took a few months to receive the videos of ASL interpretation. *Table 2* shows the timeline of survey events and *Figure 2* shows when the survey was taken by participants broken down by month. Of the one-hundred and ninety-eight (198) responses used in analysis, one-hundred and thirty-three (133) surveys were completed in August and September after the ASL interpretation videos were added, the consent question was changed to a required question, and social media advertisements began running. More information about the survey timeline can be found in APPENDIX A [15] (p. 241).

Table 2 **Timeline of Survey Events**

Date	Action
January 26, 2022	Survey opened.
July 11, 2022	ASL interpretation of questions added to survey.
August 5, 2022	Paid social media advertisements begin.
August 9, 2022	Consent question changed to required.
September 5, 2022	Paid social media advertisements end.
September 13, 2022	Survey closed.

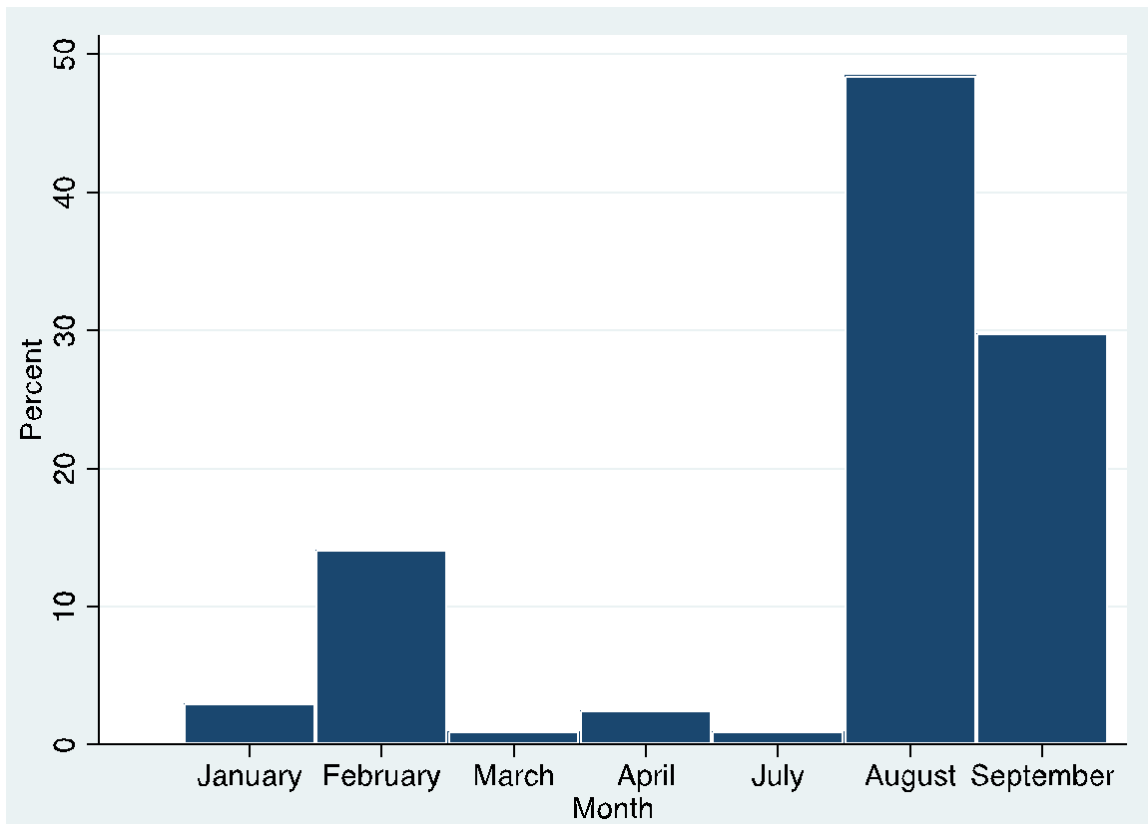
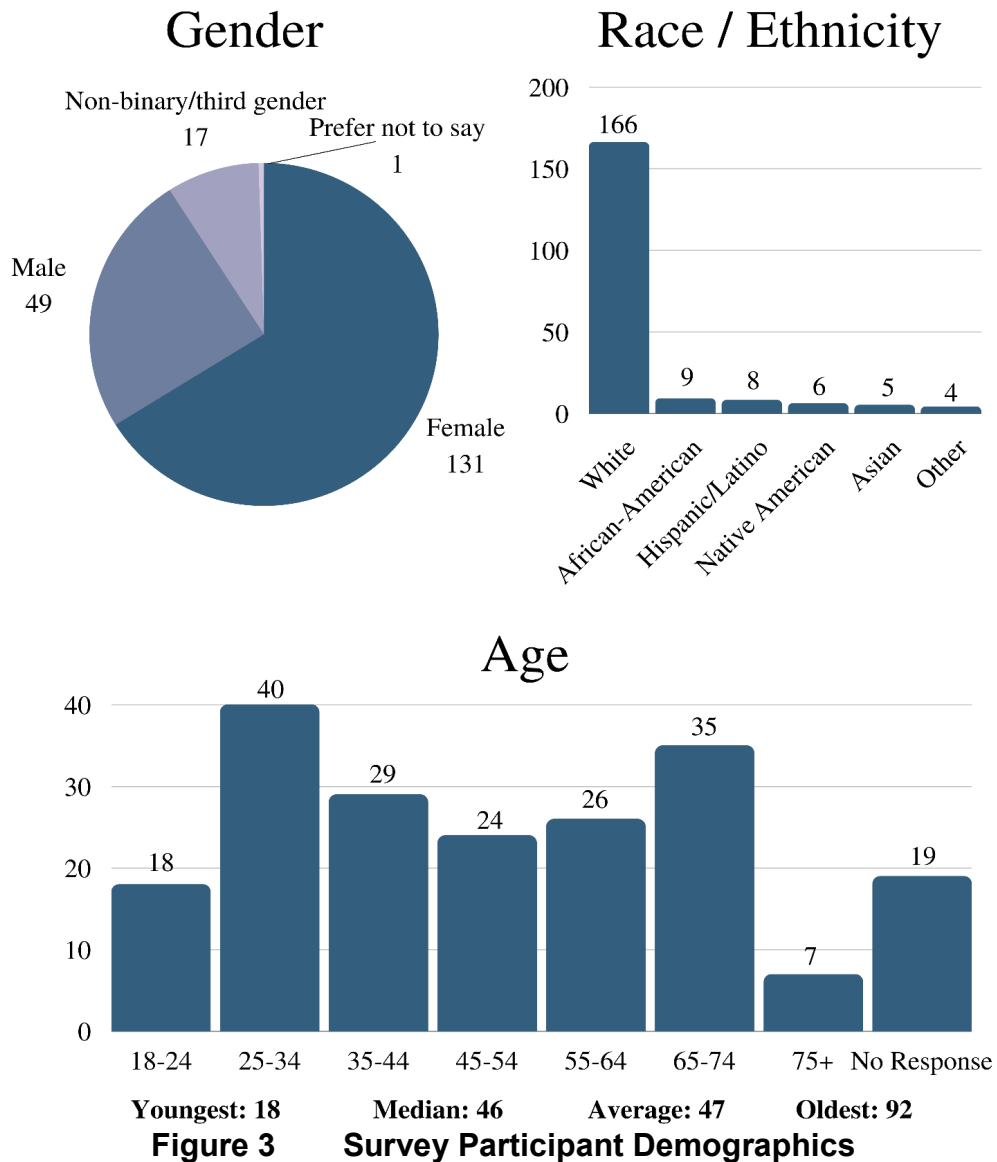


Figure 2 Survey Response by Month

Due to the small sample size, I chose not to control based on demographics. The majority of survey participants were both White and female. The most common age groups were twenty-five to thirty-four (25-34) and sixty-five to seventy-four (65-74). Gender, race/ethnicity, and age demographic information can be seen in *Figure 3*.

Demographics of All Survey Participants

Participant Identified



Female participants (66%) and nonbinary/third gender participants (8.59%) are overrepresented, while male participants (24.75%) are underrepresented. This is likely related to my use of social media advertising for participant selection. While there is some conflicting data on social media use by

gender, the majority of recent data suggests that more women use social media than men (Pew Research Center, 2022, para. 5).

White people (83.8%) are overrepresented, a ratio that is difficult to account for. Although Black and Hispanic people use Facebook and Instagram at higher rates (Pew Research Center, 2022), they were less likely to participate in this research than White people. One possible reason is mistrust of research participation stemming from the historical events of discriminatory medical research practices, such as the Tuskegee syphilis study, which have negatively impacted People of Color, primarily Black people (Scharff et al., 2010, p. 879). However, this is purely speculative and I am, overall, unable to account for my disproportionately high number of White people who took the survey. This is a limitation of the research.

The categories for age selected for the visual representation were used based on current statistics regarding “hearing loss” collected by the U.S. Department of Health and Human Services (2021). *Table 3* shows the percentage of the general population that report “disabling hearing loss” by age compared to the number of survey participants in that age category.

Table 3 Hearing Loss by Age Compared to Survey Participants

Age	% "Disabling Hearing Loss"	# of Part. in Survey	% Part. in Survey
18-24	No exact information.	18	9.09%
25-34	No exact information.	40	20.20%
35-44	No exact information.	29	14.65%
45-54	2%	24	12.12%
55-64	8.5%	26	13.13%
65-74	25%	35	17.68%
75+	50%	7	3.53%
No response	N/A	19	9.60%

Younger demographics are overrepresented in this sample when compared to the number of people who have "disabling hearing loss." This can be attributed to the use of social media for sampling.

Participants were primarily located within the United States with the largest numbers coming from Idaho (7.07%), Texas (6.06%), and California (6.06%). Six (6) participants (3.03%) were from outside of the United States.²⁰

²⁰ While I considered excluding the participants from outside of the United States, I ultimately decided to leave them because there was a small enough number that it would likely have a minimal impact on the results. Additionally, while there are many variations in DHH experiences across culture, the impact of masks on communication is a universal experience. The participants outside of the United States did not respond with their specific locations, but I could tell through

One participant did not answer Question Q5 (“In which state do you currently reside), but they did provide a ZIP code so I was able to infer their location. This was updated and they were included in the number of participants from their state. A map of survey participants can be seen in *Figure 4*.

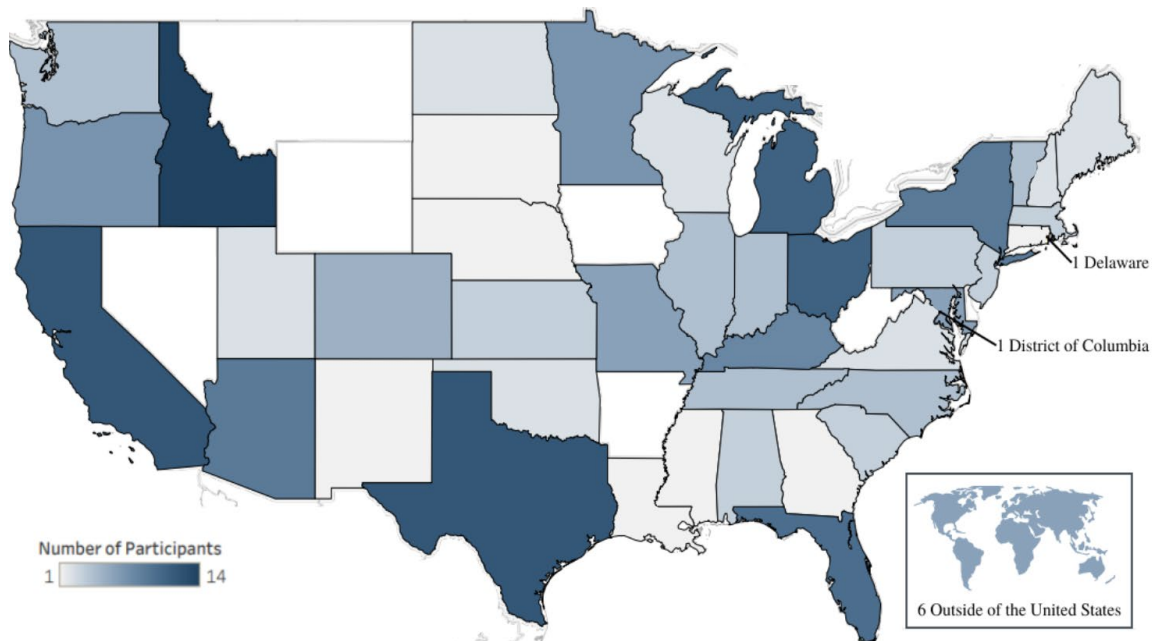


Figure 4 United States Map of Survey Participants

Another demographic question asked was regarding employment status. No data cleanup was done in the responses to this question. I split this demographic for comparison by Linguistic Category, which is explained further in the next section. *Figure 5* shows the percentages of participant responses to employment status.

Qualtrics survey data that five of them took the survey while in Canada and one of them took the survey somewhere in Europe.

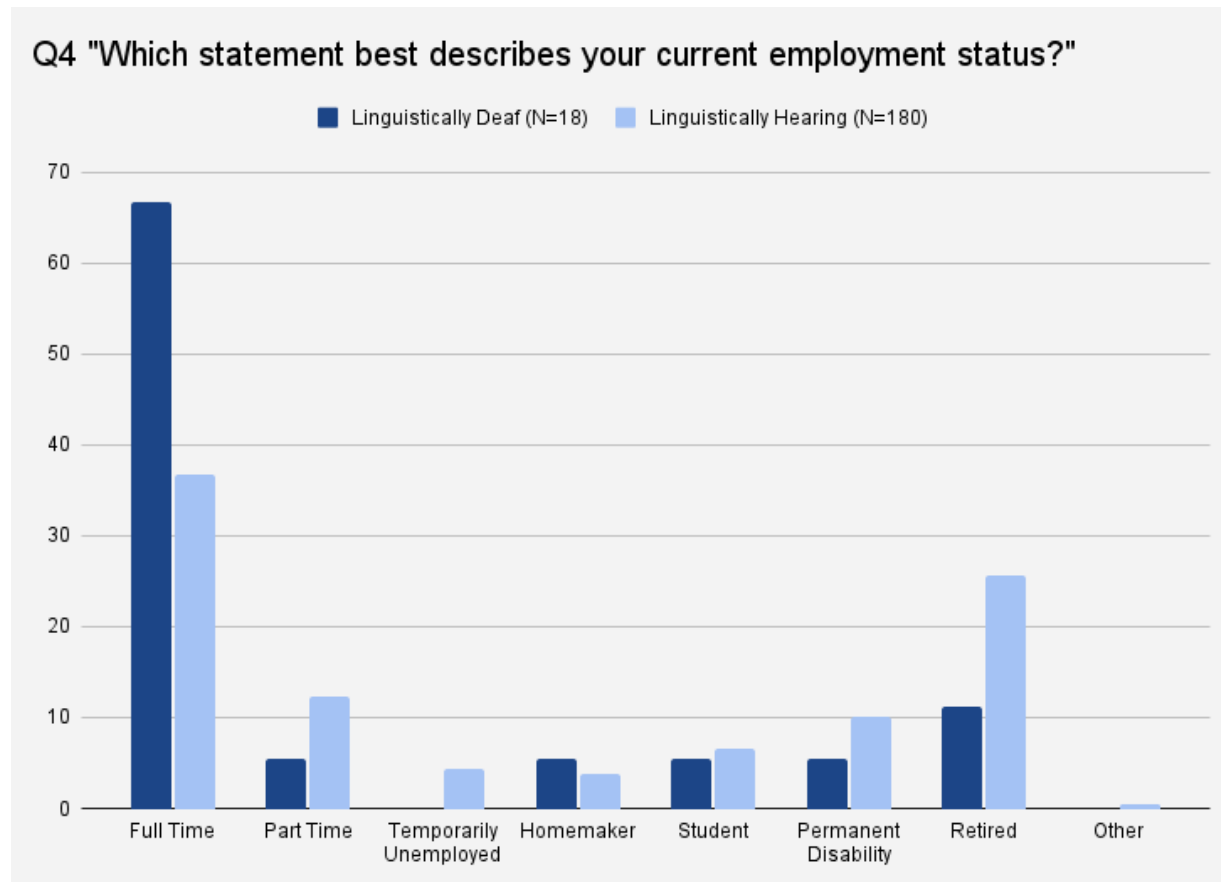


Figure 5 Survey Employment Status - Linguistic Category Comparison

The majority of participants in both linguistic categories work full-time, but a significantly higher percentage of Linguistically Hearing participants are retired. This aligns with the previously mentioned statistics regarding hearing loss percentages in older people. Someone who has been hearing all their life, and then loses the use of their hearing over the age of sixty (60), is less likely to use ASL since it is harder to learn a new language at that age, though some do (Drell, 2010).

Of the one-hundred and ninety-eight (198) survey participants used for analysis, 77.27% reported that they were fully vaccinated against COVID-19 and have received a COVID-19 vaccination booster. This is notable because

according to the USAFacts *US Coronavirus Vaccine Tracker* (2022), sixty-eight percent (68%) of the U.S. population was considered fully vaccinated as of August 31, 2022 (para.1). This is likely related to the higher number of female participants as well as the age of participants, as the tracker also notes that women and the elderly are vaccinated at higher rates (paras. 2-4).

The majority of survey participants (one-hundred and twenty-nine [129] 65.15%) indicated that they were considered high-risk by CDC standards for one or more reasons. A minority of participants (sixty-two [62], 31.31%) selected that they were not considered high-risk and very few (seven [7], 3.54%) chose not to respond. The number of participants who are considered high-risk according to CDC guidelines is notable because it is higher than the general public. Koma et al. (2020) found that 37.6% of U.S. adults “have a higher risk of serious illness if they become infected with coronavirus, due to their age (sixty-five [65] and older) or health condition” (1). The higher number of participants classified as high-risk can be somewhat accounted for by age (thirty-percent [30%] of participants are over sixty-five [65]), but not entirely.

Sample Categorization - Linguistic Classification

In order to split participants into linguistic categories for comparison, I analyzed responses to questions regarding language use. The goal of the linguistic categorization is to split people between those who primarily use ASL (Linguistically Deaf) and those who primarily use spoken English (Linguistically Hearing).

Although I was prepared to use more questions for analysis, I was ultimately able to place participants in one of the two linguistic categories based solely on answers to the questions on preferred communication methods (Q10), recently used communication methods (Q11), and a ranking of recently used communication methods from most to least used (Q12). Despite this, I still individually looked at each participant's other responses to make sure that the selection I had determined for them was an appropriate classification. The order in which I considered questions for categorizing individuals and the justification for its usage can be found in *Table 4* and the full list of categorization choices can be found in APPENDIX B [35] (p. 256).

Table 4 Order of Questions Considered in Linguistic Categorization

#	Question Wording	Justification
Q10	“Which of these is your preferred in-person communication method?”	<p>Selection of preferred is a strong indicator of what language will be used most often. However, it is not the only indicator so I did not base the categorization solely on this. It is possible that someone will prefer ASL, but not have others in their lives who use it.</p> <p>All participants categorized as Culturally Deaf selected ASL as their preferred method of communication, but not all participants categorized as Culturally Hearing selected Spoken English as their preferred method of communication.</p>
Q11	“Which of these communication methods have you used in person in the past 3 months? Check all that apply.”	<p>Selecting ASL as a communication method used in the past three (3) months indicates somewhat regular usage.</p> <p>All participants categorized as Culturally Deaf indicated that they had used ASL in the past three (3) months.</p>
Q12	“Please rank these communication methods, [one] 1 being the communication method you use most often in person, [six] 6 being the communication method you use least often in person.”	<p>Selecting ASL as the most common communication method used is a strong indicator of common usage.</p> <p>All participants categorized as Culturally Deaf selected ASL as 1st, 2nd, or 3rd.</p>
Q8	“Do you consider yourself to be part of the Deaf Community?”	<p>Use of ASL and identification with the Deaf community are strongly correlated, but it is not a perfect correlation. Many people who are DHH who do not use ASL identify as part of the Deaf community and some who do use ASL do not identify as part of the Deaf community.</p> <p>Although it would have been if the previous questions had not determined</p>

		categorization, this was ultimately not used.
Q19, Q21, Q23, Q25	[Qualitative open-ended questions.]	Qualitative questions occasionally mentioned use of language. Although it would have been if the previous questions had not determined categorization, this was ultimately not used.

Before beginning analysis of linguistic categories, I completed conventional content analysis of the responses to the “other” text options for the questions “Which of these is your preferred in-person communication method?” (Q10) and “Which of these communication methods have you used in person in the past 3 months? Check all that apply.” (Q11). This was done to consolidate similar “other” text options into single choices. These changes can be found in APPENDIX B [35] (p. 256).

Interview Methodology

Development of Interview Instrument

The interview questions were designed to answer the research questions: **who are DHH people?** and **how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people?** The interviews were semi-structured, with planned questions, but allowance for conversational additional questions and clarifications. I began with demographic questions, followed by initial open-ended questions to gather information about d/Deaf cultural identity and communication styles. Then came intermediate questions to gather narrative stories and a deeper understanding of the impact of masks on communication. The interviews concluded with ending questions to allow participants to share any additional information. This follows the Grounded Theory interview structure explained by Charmaz and Belgrave (2012, p. 352). The full list of interview questions can be found in APPENDIX C [9] (p. 292).

Interviews were selected as an appropriate method of analysis due to the vast diversity of this group, my position as a hearing researcher, and the complicated nature of this issue. I recognize that my position as a hearing researcher can have an influence on the outcomes of my research (a naturalist-constructionist approach), and the use of interviews allowed me to describe and explain a very complicated situation, without oversimplifying it (Rubin and Rubin, 2011, p. 16-17).

In total, fourteen (14) interviews were conducted, an acceptable number of interviews conducted to be considered having reached data saturation (the point at which no new data is being found). In their explanation of qualitative research

data saturation, Saunders et al. (2018) explain that research into the number of interviews needed to be considered saturated has found that the first five (5) to six (6) interviews lead to the majority of new data and eighty percent (80%) to ninety percent (90%) of new data is found in the first ten (10) interviews (2).

I knew that many of my participants would be proficient ASL users, and therefore prefer to use ASL over spoken English for their interviews. I was surprised to see how few preferred ASL, but realize now that this is generally representative of the community. Of the fourteen (14) interviews conducted, eleven (11) of them were held in spoken English, and three (3) of them were held in ASL, with the use of an ASL interpreter licensed in the state of Idaho. Although I am conversationally fluent in ASL and hold an Intermediate ASL Certificate, I am not interpreter-level proficient in ASL, and did not want my inefficiencies in signing to hinder the accuracy of the research. For this reason, I elected to hire an interpreter to interpret the interviews.

Knowing that COVID-19 was still a concern for myself and for others, I elected to hold the interviews over Zoom. This also provided multiple technological benefits, such as automatic transcription to aid in communication during the interview, as well as aid in my transcription cleanup as part of the analysis process. This is a similar interview format as used by other researchers investigating DHH people post-COVID-19. For example, Aljedaani et al. (2021) utilized video communication platforms in their interviews with DHH students on the accessibility issues they faced when COVID-19 led to a rapid change to online learning (16).

For most interviews, I provided the questions in the chat, in addition to asking them, for additional clarity. I failed to provide the questions in the chat for all of the interviews, not due to a methodological choice, but due to an error on my part, a recognized limitation of the research. If the participant asked me to repeat myself due to not understanding, or we had another form of miscommunication, and I realized I had forgotten to provide the questions in the chat, I then remedied the error.²¹ This happened with two (2) interviews.

Interview Recruitment

My intention for the interviews was to have open communication with participants and learn the personal stories of people with varying levels of deafness and communication styles to understand common themes and experiences amongst the target population.

In considering appropriate sample size, given the size of the DHH community, I selected a sample size similar to that of other researchers utilizing qualitative interviews of DHH people (e.g., James et al., 2022; Murray et al., 2007; Kersting, 1997). I had a goal of conducting interviews with at least ten (10) participants, at least three (3) who interviewed in ASL and at least seven (7) who interviewed in spoken English, so I could compare the differences between the groups.

²¹ This is an example of how accessibility by default is valuable, as the communication issues could have been avoided had I remembered to provide the questions for each interview.

This number of interview participants was selected based on the concept of information power as described by Malterud et al. (2016), the concept that when the information received from data is dense and directly relevant to the study, a lower number of participants is needed (1753). It was also based on recommended sampling for descriptive qualitative studies, selecting a sample size to fit what can sufficiently answer the research questions and be dense in information, rather than in quantity (Bradshaw et al., 2017).

This sample size was additionally selected because it was an anticipated attainable number based on the expected reach of my survey through social media advertising, and is generally representative of the U.S. DHH population, with ASL-using DHH people being a minority when compared with DHH people who use spoken English (Harrington, 2014). I was able to achieve the intended goal, interviewing three (3) participants in ASL and eleven (11) participants in spoken English. While the participants who interviewed were a desirable number and no further sampling was necessary, if this goal had not been achieved, I was prepared to take additional measures to reach the intended population.

The participants for the interviews self-selected following the conclusion of survey participation, utilizing both convenience sampling and purposive sampling (Malterud et al., 2016, p. 1755). At the end of the survey, there was a link to a separate survey that asked for participant name and email address for future research participation. This convenience and purposive sampling was selected as the appropriate recruitment method since this is an area of relatively new research and I wanted to ensure I was able to interview both those who use ASL

and those who do not. Kelly et al. (2010) explain that participants recruited through convenience sampling are likely to differ from the general population as they are likely to be more interested in the topic (317). To minimize this limitation, I did not disclose to participants that my research was specifically on masks and communication, stating only that the topic was on COVID-19 generally.

It is unclear why participants self-selected to participate in further research, but through analysis of the interviews, I noticed some common themes that provide some suggestions as to why they would participate in an unpaid interview research study. The most common theme was a desire for, or appreciation of, research on this topic, with multiple participants mentioning a desire to read my research when it was completed. Pauline,²² a White woman in her sixties (60s) interviewing in English, said:

I'm trying to be really honest because I'm hoping that you can do something really constructive with this because my hunch is, just the topic that you've chosen, the whole question about this, suggests that you have some insight into the nuances of this that I think the world needs to hear.

This suggests that some participants, possibly the majority since it was mentioned by eleven (11) of the survey participants, chose to participate in research specifically because they have a desire for further research into this topic. Additionally, some participants mentioned enjoying talking and answering questions, while others mentioned an interest in medical research and

²² All names used for interview participants are pseudonyms. I generally selected pseudonyms to match the age and gender presentation of participants.

participation in other research studies. One participant mentioned that education was a strong personal value of his, while another asked about compensation, thinking some was offered, and then stated that she was okay with there not being compensation, she was just glad to help.

Demographics of Interview Participants

The age of participants spans from twenty-six (26) to seventy-nine (79) with the average age being fifty-seven (57) and the median age being 62.5. There were more female participants than male, non-binary, or agender participants and there were more White participants than African-American or mixed-race participants. Participants were from across the continental United States, including the Northeast, Midwest, Northwest, South, and West.

While this sample skews older, white, and female, it is a relatively representative sample of DHH people. Since older people are more likely to be DHH, the participants skewing older is representative. Women are disproportionately represented compared with the general population, but since women, on average, live longer than men, this may also be representative of DHH people. A limitation in representation is the lack of racial diversity. Two (2) participants described themselves as African-American, one (1) described their race as mixed including Black and Hispanic, and the rest described themselves as Caucasian or White. While there is some racial diversity, the lack of Asian representation and limited Hispanic representation is a limitation.

To protect participant confidentiality, demographic information will be kept quite general when quoting participants, and only relevant demographic information will be connected with individuals.

Transcription and Quote Selection

Following the conclusion of the interviews, I began the analysis process by pulling the live transcription from Zoom and putting that into a word document. I then cleaned up the transcripts through making corrections where the live closed captioning wrote the wrong words or sounds, and adding or adjusting punctuation. Interviews were transcribed verbatim including verbal fillers (i.e. “um,” “like,” “you know,” etc.) and word or phrase repetition. Nonverbal sounds were added in asterisks (i.e. *cat meows* or *laughs*). Foul language, slang, grammatical errors, or misused words were transcribed as the speaker stated them. This cleanup method follows those outlined by McLellan et al. (2003) in their description of how qualitative interview data transcription should be completed (p. 77-78).

Although the transcripts included verbal fillers and repetition, when selecting quotes from the interviews for use in the research, I used my judgment to eliminate fillers and repetition to improve readability. Some cases of repetition have been left if it was outside of that participant’s speech patterns seen otherwise in the interview, as that could indicate hesitation or struggling to find their words. This method follows that used by others when doing qualitative interview analysis (Clark et al., 2017, p. 1756). The quotes selected for use in

this research are ones that reflect multiple typical participant responses, unless otherwise noted as unique or uncommon. The use of ellipses is to represent the removal of text while the use of brackets represents a pause. For example: “I am [pause] tired.”

For the interviews interpreted by an ASL interpreter, I created clarity in the transcript by specifying whether something was said by the interpreter in English, or by the participant in ASL and then interpreted by the interpreter. None of the participants using ASL spoke aloud during the interviews, but two of them did sign small talk directly to me before the start of the interview, to which I responded in ASL. The interpreter did not speak on their own behalf often, only doing so a couple of times when clarifying something, introducing themselves, or greetings. During the cleanup process, I took further notes on situations of interest and possible emergent themes.

Analysis of Survey and Interview Data

In this research, I use Grounded Theory to identify common concepts and trends amongst participant responses by assigning codes to the responses received (Strauss and Corbin, 1990). Through multiple levels of coding procedure in the program NVivo, I identified common themes and responses from participants, as well as noted uncommon or unique responses. When I began the coding process, I did not have coding structure determined, as I wanted to allow for the common themes to emerge to ensure I was not superimposing my own expectations or hearing perspective onto the responses.

In this research, themes are common words, phrases, feelings, or topics mentioned by participants in their responses to questions.

My coding process involved three steps. My initial step involved listening to the interviews and reviewing the open-ended survey questions to identify emergent themes and begin building the coding structure, then revising the codes while reviewing the interviews and survey questions again, followed by the final review where I revised codes by merging and dividing them. This is similar to the thematic coding utilized by other researchers such as Aljedaani et al. (2021, p. 10). The full code list can be found in APPENDIX A [15] (p. 241).

By identifying codes inductively, rather than deductively, I was able to identify trends that otherwise may have been lost. This was particularly valuable for working toward the research question: **who are DHH people?** Through analysis of emergent themes, common and uncommon language usage, I was able to better understand who DHH people are and the location of each participant in the broad world of DHH identity.

Throughout the coding process, I took notes on emergent themes as they began to form a narrative, referred to by Charmaz (2006) as early memos (80). Following the conclusion of the coding process, I continued to utilize Charmaz's coding process with sorting the codes and refining the memos until the narrative structure of this research became clearer.

Limitations and Delimitations of Survey and Interviews

While it appears that I was able to reach many in my target population with both my survey and my interviews, there is a possibility that individuals would

self-select out of the research. While ASL interpretation of questions can provide accessibility for those who use ASL, it can also lead DHH people who do not use ASL to feel that the survey is not for them because they are not 'deaf enough'. Guth (2020) explains that struggling with identity and not feeling 'deaf enough' is something that numerous DHH people experience (para. 4). This is a limitation of my research that I attempted to mitigate through the use of multiple advertisements using different deafness and deaf identity terminology. However, there still are further limitations. For example, if someone has tinnitus that severely impacts their ability to process hearing, whether or not they consider themselves DHH is a personal choice, and they may choose to self-select in or out of my research for that reason.

DHH people are diverse and, while I have chosen in my research to split them into multiple categories, it is important to recognize that these lines are blurry, complicated, and not easily drawn. I decided on the categorization of individuals as either Linguistically Deaf or Linguistically Hearing because of the differences in communication between someone who primarily uses ASL and someone who primarily uses spoken English. However, the reality is that Deaf culture and hearing culture interact regularly, and there are many people who feel that they fit in both categories because they are able to comfortably interact in both communities with both ASL and spoken English. Others feel that they do not fit in either category because they are not able to comfortably interact in either community, and instead feel as if they are in a world of their own. Although in an ideal world, these lines would be drawn differently, allowing for further

classification to draw more distinctive conclusions, the reality is that the population being studied is already relatively small. To further divide it would begin to make the methodology untenable, and potentially do a disservice to DHH people by reducing the likelihood of being able to draw conclusions from my research.

Another challenge in researching DHH people is the vast differences in communication styles. This has been mitigated slightly by completing most of the research in written English form, and providing interpreters for qualitative interviews. However, for DHH people who use a sign language as their first language, written communication in English may be more difficult, and this could impact the results of the study by resulting in miscommunication. Additionally, English literacy for DHH people is, on average, lower than the hearing population (Garberoglio et al., 2013, p. 50). For this study, that implies that only getting responses from people with higher levels of English literacy due to their being more confident and comfortable with responding could result in skewed data, which is not giving an accurate snapshot of the population.

One of the ways this was mitigated in the written survey was by using simplified language whenever possible, so questions are clear and easier to understand for people whose English literacy is lower. In addition, once it was requested, survey questions were asked in both written English and with ASL interpretation provided as an additional option for further clarity, which most participants had the opportunity to see. For more accuracy and clarity of survey responses that would allow the participants to respond in their native language, it

would have been useful to accept ASL responses to the open-ended questions, but this was not feasible for this study due to budget and time limitations. Instead, the qualitative interviews were conducted with an ASL interpreter provided for those who were more comfortable with ASL, to aid in clarity and accuracy and help mitigate communication issues as much as possible.

Another limitation is that the majority of DHH people in the United States do not use ASL, and instead rely on alternative forms of communication and hearing aid devices in order to simulate or amplify sound and communicate through spoken language. These coping methods for communicating with others can be ineffective and result in communication issues during the interview, and an ASL interpreter would not be able to assist in that regard. To mitigate this complication and not further the communication issues, interviews were conducted on Zoom with automatic live closed captioning. For most participants, the questions were also placed into the Zoom call chat as well. By opening the research up to DHH people who do not use ASL, my research allows for a closer look at the population who often are not included in research on Deaf people, since they generally live between the Deaf community and hearing world.

In reviewing survey participant information for analysis, I noticed a potential limitation in regards to preference, frequency of language use, and communication output versus communication input. Survey Participant #40 listed ASL as their preferred communication method, but ranked it sixth (6th) (the lowest ranking) in most commonly used communication methods suggesting that, while they prefer ASL, they likely have limited interactions with other signers.

This suggests that the preferred communication methods of a participant do not always correlate with the communication methods they are actually using.

Additionally, Survey Participant #137 specified that spoken English was their preferred communication method and ranked ASL fifth (5th) in most commonly used communication methods. However, they ranked spoken English sixth (6th) and lipreading spoken English second (2nd). This possibly suggests that the participant does not speak aloud themselves, as is common for DHH people, but prefers when others use spoken English to them. This suggests that the communication methods that a DHH person prefers to use, or tends to use themselves, can differ from the communication that they prefer others use, or that others tend to use with them.

I mention preference, frequency of language use, and communication output versus communication input because these are limitations of the wording of these questions. The limitations in the wording of the questions can have an impact on the classifications of individuals, which should be considered and addressed in future research for more accurate classification and reduction of these limitations. Rather than asking “which is your preferred communication method?” it would perhaps be more valuable to ask “which of these communication methods do you prefer to use yourself when speaking to others?” and “which of these preferred communication methods do you prefer others use when speaking to you?” This would allow for a more dynamic and deeper understanding of communication methods being used by DHH people and

provide a fuller understanding of the impact mask use can have on communication for them.

A limitation of having an ASL interpreter for interviews is that interpreters unintentionally superimpose their own voice into the conversation, and some meaning can be lost. Nyle DiMarco describes this experience in his own life when attending a primarily hearing school by saying:

As an interpreter, she was an avatar for everyone in that classroom—the teacher and thirty [30] students—and thus superimposed her style on every single voice. And so, to steal a metaphor from the hearing world, instead of the beautifully distinct and varied melody of thirty different voices, I experienced each unique voice as filtered through the droning monotone of the interpreter’s signing. Most of the emotion, humor, nuance, *personality* of each voice was stripped away. (DiMarco and Siebert, 2022, p. 77-78)

Unfortunately, even though I was not in “active speaker” mode during the Zoom interviews, when I watched the recordings, I discovered that Zoom had only recorded the active speaker videos, meaning the ones that were making noise or had most recently made noise. For the videos conducted in ASL, this was usually the interpreter video or my own video, not the participant’s video. Because of this, my ability to analyze the nuance of the sign choices and expressions of participants using ASL was further limited, as I could only use what I remembered and what I had taken down as notes during the interview, and was unable to review the recordings for visual analysis.

Questions asked about employment were written without proper consideration of people who do not work or attend school, as I neglected to include a selection for those people to state that it was not relevant, thinking that they would choose not to answer or would select “Neither Agree Nor Disagree.” This wording misstep was brought up by a few participants in the open-ended question at the end of this group and, were research like this to be conducted again, it would be advisable to ensure that there was a selection for people who are retired, disabled, or otherwise not working or attending school. This misstep likely impacted the trust that participants had in my research, as evidenced by one participant’s complaint: “These questions disregard the fact I am disabled and are therefore off putting and annoying, not to mention my resulting inaccurate responses will reduce the quality of your data. Please remember the disabled when you design a study!” (Survey Participant #66)

While I knew before conducting the survey that this group of questions would not be directly relevant to my research as it was primarily included to direct a more detailed response on the open-ended questions, this participant is correct that I did not make proper allowances for people who do not work. As Survey Participant #182 mentioned, “Need N/A choice for us retired persons.” This would have allowed for more accurate data, which may have allowed this group of questions to have more analytical use in the quantitative data.

Statewide Mask Mandate Methodology

CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28] (p. 133) is different from the other two findings chapters in that it is not about the

feelings and experiences of DHH people, it is about whether DHH people were included in the exceptions of statewide mask mandates. This relates back to the research question: **how did statewide mask mandates address, or fail to address, the problem of masks and communication for DHH people?** To answer this question, I collected data from statewide mask mandates to analyze the timing of DHH exceptions as well as the language used that, either through specificity or ambiguity, provided exceptions for DHH people or those communicating with them. In the following sections, I will explain the methods used for statewide mask mandate data collection, analysis, and examine the limitations and delimitations thereof.

Data Collection

To collect data on statewide mask mandates, I began by determining which states had a statewide mask mandate. I included the District of Columbia and Puerto Rico, bringing the number of states considered to fifty-two (52). I reviewed only statewide mask mandates due to the ease of accessing statewide mask mandate orders, and the belief that I would be able to draw conclusions on these alone. I counted a state as having a statewide mask mandate if that mandate impacted the general public in private businesses that are generally open to the public, such as retail establishments.²³ I included statewide mask

²³ For example, if a mandate required that people entering government buildings wear masks, but not customers entering the grocery store, I would not include that. Further, if it was a recommendation rather than a requirement, that was also not considered a statewide mask mandate for the purposes of this research.

mandates issued by any legal government entity, though most were issued by an Executive Order by the Governor or Public Health Orders²⁴ issued by the state's health commission, and also signed by the State's Governor. The names of the entities that issued the orders varied by state.

I utilized the list developed by Jacobs and Ohinmaa (2020) of statewide mask orders, which provided links primarily to news articles explaining the mask mandates as they were imposed (5). I was able to get the date of implementation from the articles, but most did not include wording of the executive orders and, for many, the date was incorrect or slightly off by the lines that I have drawn regarding dates (explained later in this section). This list was also only included up to August 1, 2020, so I used Abbasi (2022) and Markowitz (2022) to determine which states had imposed mask mandates after the Jacobs and Ohinmaa article had been published. I was able to find the exact executive order, public health order, or other statewide order issuing a mask mandate for all forty-one (41) states that had them.²⁵

The full list of sources used for the start and end dates of statewide mask mandates, the sources for the mandates themselves, and more information about this process can be found in APPENDIX D [27] (p. 300).

²⁴ Some such orders go by a different name in different states. This is the phrase I will use for simplicity.

²⁵ Most of them were able to be located on the state Governor's website, but some took a bit more digging. For the state of Virginia, I was unable to find the order myself, and reached out to a representative at the Library of Virginia who sent me the order. I was also unable to find Oregon's order, and reached out to the State Library of Oregon and was sent the order. I was unable to find California and Texas' orders, and submitted public records requests to the Texas Office of the Governor and California Public Health and was sent the orders.

Data Analysis

I utilized conceptual content analysis to review the wording of DHH exceptions and ambiguous exceptions using NVivo. I developed codes using a combination of both deductive and inductive code development. Codes were based on Stone's discussion of ambiguity, membership in a policy group, and my research on preferred terminology for DHH people. This followed the quantitative content analysis process explained by Rose et al. (2014), of building codes on existing literature and initial review of the mandates in a deductive manner. The full wording of the mask mandate exceptions related to DHH people and more information can be found in APPENDIX D [27] (p. 300).

I coded each state mask mandate based on:

- a) Whether a DHH exception was made for the individual themselves (y/n).
- b) Whether an exception was made for those communicating with a DHH person (y/n).
 - i) Terminology used for DHH people (i.e. deaf or hard of hearing, hearing impaired).
 - ii) What a DHH exception was based on (i.e. need for visible communication, general need for communication, or deafness).
- c) Whether an ambiguous exception that could apply to DHH people was made (y/n).
 - i) Reason for exception (i.e. medical/health condition, disability, safety, activity that makes wearing a mask not feasible).

- ii) Level of tolerance identified in the exception (i.e. prevent, medically tolerate, inhibit, should not, complicated by).

I analyzed coded data by inputting the data into a spreadsheet and identifying trends regarding the use of terms and exceptions by time of implementation and frequency. Placing the orders within the context of implementation date categories allowed me to draw conclusions based on the way order types changed over time and what was happening around the time of implementation, such as a new CDC recommendation. This contextual analysis is similar to that used by Oliver (2001) when examining presidential executive orders (7).

Limitations and Delimitations

One of the concerns when pulling the mask mandate texts was that it was very difficult to find the original text because some states have changed governors or removed their Executive Orders and Public Health Orders from their websites to reduce confusion. This has created a limitation, since some of the orders required quite a bit of digging to find them. While I do believe that the orders I have found are the correct ones, human error of having received the wrong order is possible. I have attempted to mitigate this by saving every order as I find it, both keeping the link to where I found it and a PDF of the text to allow me to catch errors when reviewing, but there is no guarantee that I was successful and human error is a relevant limitation.

Analysis of the wording used in the orders leaves open the possibility of human error or my own personal history skewing data. I have attempted to mitigate this by considering what I have learned from my DHH participants in the survey and interviews when analyzing, to be as informed as possible.

CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51]

Introduction

Like all groups of individuals who share common traits, DHH people are not the homogeneous group that those outside of the group may expect them to be. An example of this is the different terminology used to describe DHH people. While hearing people can generally be described as “hearing” without much further clarification or disagreement, classification of DHH people around DHH identity is significantly more complicated. In this chapter, I will explore the research question: **who are DHH people?**

Expanding on existing research on DHH people and developing it further through my research of this group, I have developed subcategories of being DHH related to identification with the Deaf community, language use, and deafness terminology. Understanding these distinctions is important for creating a full picture of the broader implications of this research. By understanding DHH people, we can better understand how masks impact their communication, how mask mandate legislation did or did not attempt to address this issue, and how they should be considered in future legislation that may affect communication.

Understanding who DHH people are and what cultural values and practices they hold is important for shaping the way DHH people are communicated about in regards to public policy. It is also valuable for directing when disability policy should include or exclude them based on its relevance to

their deafness. My findings surrounding DHH identity have broader implications beyond the Deaf community. By taking a closer look at DHH identity, we can better understand people with physical, cultural, and language differences to advise on how to move policy language forward to ensure policies intended to protect are not also inhibiting liberties and welfare. For many DHH people, their hearing loss is an invisible disability, which they may choose to hide or disclose in different situations based on their needs. Understanding deafness as an invisible disability can help us understand other invisible disabilities and provide recommendations for future policies surrounding invisible disabilities.

Categorization I: Community Identification

Introduction to the Deaf Community

In this research, I use the word “Deaf” or the term “Big-D Deaf” (for additional emphasis when necessary) exclusively for members of the Deaf community who identify as such.²⁶ I use the word “deaf” to refer specifically to the medical condition of deafness, without regard for identification with the Deaf community or language use. According to Marschark and Humphries (2009), capitalization of the word Deaf is a written distinction used within the Deaf community, and emulated in my work for clarity, accuracy, and respect for the cultural preferences of DHH people (1). Stewardson (2016) explains that Deaf people in the United States generally are conversationally fluent in ASL or

²⁶ Some members of the Deaf community identify more with the term Hard of Hearing (HoH or HH) and will capitalize the phrase to emphasize their Deaf community connection. In this work, the word Deaf is meant to also include HoH people who identify as part of the Deaf community.

another sign language, attend Deaf community events, and have robust social connections with other Deaf people. It is unknown how many Deaf community members there are, but of the thirteen percent (13%) of people in the United States with a hearing issue, 1.3% to 5.2% of them use a sign language such as ASL (Harrington, 2014).

Sign language and Deaf culture has not always been accessible for DHH people, and has often been actively oppressed. “Oralism” is the use of lipreading and speech by a DHH person and the exclusion of using sign languages. In the mid-20th century, oralism was particularly popular in the United States and Canada as the proponents believed they were giving DHH people new access to language. However, that language development came at the expense of sign languages (Ellis, 2014, p. 372). In oralism, sign language is not used for infants and toddlers, and they instead must rely on spoken language using visual cues such as lipreading or manual cues, like feeling vocal cord movements through the throat. Since the language being presented to them is one they are unable to fully access, development of language happens later and at a slower pace which hinders progress. Suppression of sign language in DHH infants and children can have lifelong impacts on communication and language abilities.²⁷ The U.S. Department of Health and Human Services (2021) report that the vast majority of

²⁷ Hall (2017) explains that delaying or excluding the use of sign languages for DHH children under the age of five (5) in favor of solely using spoken language deprives them of important steps of language development (961). This is referred to as “language deprivation.” Missing those early milestones of language development because the language used was inaccessible can severely limit a child’s ability to develop language with lifelong repercussions. Lyness et al. (2013) found “Evidence from deaf people who have failed to develop spoken language in an oral environment suggests that when a sign language is learnt later in life, they will never display the typical neural circuitry of natively learnt languages” (2628).

DHH children, more than ninety percent (90%), are born to hearing parents (para. 2). That means that, for most of them, their parents do not already know a sign language when they are born and many have little or no knowledge of the Deaf community. The focus on speech for DHH children is detrimental to their education in other areas and is often pointed to as a potential reason DHH children lag behind in English literacy.²⁸

When someone is taught through oralism, they are more likely to rely on lipreading when someone is communicating with them in spoken English. Heavy reliance on lipreading can be extremely difficult and inaccurate. There are visual difficulties in spoken English that make lipreading an inaccurate form of communication processing. These visual difficulties are explained by Vernon et al. (1996), “of the forty-two [42] phonemes that make up the sounds of the English language, half either look just like some other sounds as formed on the lips or else are invisible” (123). This means that when you are only able to access half of the sounds (in visual form) accurately and the rest are invisible or may be one of multiple potential sounds, it is very difficult to follow and understand what is being said.

While lipreading is often considered a necessary tool for DHH people, particularly those who do not or cannot rely on ASL, it is a very difficult and

²⁸ When describing his decision to stop doing speech lessons, Nyle DiMarco said “I was trading a slim, snowball’s-chance-in-hell shot at speech for a better, stronger educational foundation ... I was conceding the ability to communicate in a specific way for an improved chance to maximize my mental dexterity, so I could think for myself—critically, openly, widely—about any topic in the wide world” (DiMarco and Siebert, 2022, p. 172).

inaccurate task. Lipreading is best used when combined with other communication cues like technological hearing devices such as cochlear implants or hearing aids. People who are profoundly d/Deaf and unable to hear nearly anything often have a far more difficult time with lipreading since they are unable to use auditory cues for additional guidance (Leigh and O'Brien, 2019, p. 354).

Lipreading is highly misunderstood by hearing people who believe it to be far more accurate than it is and that DHH people have a natural increased ability to understand lipreading.²⁹ M. T. & Associates (2017) explain that it is a common misconception that every DHH person can lipread and that it is an accurate form of communication, but that miscommunications are common, and the DHH person doesn't always realize there was a miscommunication (para. 1).³⁰ Lipreading is a valuable tool for DHH people, particularly Linguistically Hearing people, but it is not the fully accurate communication method it is often perceived as, and it is generally best used when combined with other communication methods.

In addition to language differences, cultural differences between the Deaf community and the hearing world also have an impact on communication. Skelton and Valentine (2003) explain that connection with the Deaf community is

²⁹ Altieri et al. (2011) studied the lipreading abilities of eighty-four (84) hearing participants and found that "the mean lip-reading score in visual-only sentence recognition was 12.4% correct" (2). When studying the lipreading abilities of both DHH and hearing children, Kyle et al. (2013) found that there was no significant difference between the capabilities of the two (2) groups.

³⁰ "In an extreme example, 'vacuum' and 'F&%! you' look the same when lip-reading" (M. T. & Associates, 2017, para. 1).

directly related to the use of a common language as well as Deaf culture and spaces that are specifically designated for the Deaf community (118). These spaces help define what community means for an individual and their inclusion, or exclusion, from either the Deaf community or the hearing world can have an impact on the development of communication styles utilized as well as on feelings of enrichment and safety.

Many current Deaf community scholars argue that the Deaf community is not just a group of people connected through their disability, they argue that the Deaf community, sometimes called sign-language minorities, should be recognized as an ethnicity. Lane et al. (2011) present this argument in *The People of the Eye*, explaining that Americans whose primary language is ASL are a separate ethnic group from those who communicate primarily in English or another oral language (3). In order to be an ethnicity, a group has to share a common history, experiences, traits, language, and other similarities, all of which are relevant to the Deaf community.

On the other end of the spectrum from the Deaf community is the hearing world, a world that holds the majority of people and is heavily reliant on hearing for communication, entertainment, and education. Many hearing people have never met a deaf person, let alone a Deaf person, and are unaware of the culture, history, values, languages, and the ways in which their everyday actions perpetuate audism. The hearing world, being the majority, generally lives without everyday consideration of their hearing ability because society is, on the whole, built with hearing people in mind. Hearing people are the majority and hearing

culture impacts and intertwines with Deaf culture, shaping it through the times when the communities come together.

An example of hearing culture impacting Deaf culture is the lifetime actions of Alexander Graham Bell. Bell (referred to in ASL as “AGB”) is best known in hearing culture for his invention of the telephone, but he also had a significant, and negative, impact on the Deaf community. Rather than focusing on making communication more accessible for DHH people, such as through the use of sign languages, Bell chose instead to focus on expanding the use of oralism and even banning the use of sign languages in deaf schools to further this pursuit. Ore (2021) explains that the practices to teach DHH children and adults spoken English were often abusive and traumatic, leading to trauma that still lingers today (para. 5). Bone et al. (2022) argue that these practices of removing DHH people from Deaf culture through oralism and assimilating them into hearing culture is a form of colonization (504). Bone et al. go on to explain that colonization of DHH people can lead to both individual trauma and intergenerational trauma, a term that describes the long-term impacts of colonization, usually associated with oppression of native peoples, but can also be applied to Deaf people (506).

Another ableist belief perpetuated by AGB was his arguments for DHH eugenics programs, to prevent DHH people from marrying each other, to lower the number of DHH people born in the United States. Bell’s hope was that communities like Martha’s Vineyard’s of the 1700s-1800s, with a higher percentage of DHH people and robust use of sign language among all residents

(including hearing residents) could not return (Greenwald, 2006, p. 24). Through the hard work of DHH people, Deaf stories, traditions, and languages were able to continue in the United States until, eventually, the focus on strict oralism has fallen out of favor amongst Deaf families. Today, many DHH children are still saddled with oralism teachings, and the Alexander Graham Bell Association is an organization that continues to promote oralism and discourage the use of sign language. While the oralism debate rages on, the Deaf community is faced with new controversial challenges from hearing influence such as cochlear implants.

Zeng et al. (2008) explain that cochlear implants are medical devices that are surgically implanted into the cochlea, to bypass issues of the inner ear, where most hearing difficulties are, and transmit electric stimulation directly to the brain to simulate hearing (118). Cochlear implants have an internal mechanism under the skin as well as an external mechanism that attaches magnetically to the person's head. The process to surgically implant a cochlear implant often removes existing hearing ability from the person's cochlea, rendering that ear deaf when the implant is not in use. Cochlear implants can improve hearing, but results vary and, for many people, it is not close to full hearing.³¹ An example of a cochlear implant on a child can be seen in *Picture 1*.

³¹ When a person has a cochlear implant, they can usually recognize sounds more easily, and some who have lost their hearing will describe sounds after receiving a cochlear implant as the same as natural hearing, but this is not always the case. For many people, the sound may still not be heard in the same way as a hearing person does and will often sound muffled or is described as more electronic than hearing without an implant. In a study of individuals who have a cochlear implant in one ear and traditional hearing in the other ear, Dorman et al. (2017) provided different simulations of speech to determine what was closest to that of hearing with a cochlear implant and the highest matches were muffled simulations of natural speech (1).



Picture 1 Example of Cochlear Implant

Source: Kent (2023).

Since cochlear implants are often given to prelingually DHH children under the age of five (5) born to hearing parents, some as young as ten (10) months, the use of cochlear implants is considered controversial within the Deaf community. Some view cochlear implants, particularly for children, as a technological and medical attack on Deaf culture, another form of colonization of DHH people by hearing people since they were designed by hearing doctors to “cure” deafness. Many Deaf people do not feel that deafness is an illness or that it needs to be cured. Further, there is controversy surrounding whether it is ethically acceptable to perform an elective, medically unnecessary major surgery on an infant, limiting the child’s future choices by excluding them from participation in full contact sports, scuba diving, and MRI scans.

By changing a DHH child's hearing ability at a young age and not immersing them in Deaf culture, they are being mainstreamed and segregated from the Deaf community without their consent before they are old enough to understand the cultural implications of that choice. This choice is often being made by hearing adults who are doing what they believe is in the best interests of their child, but without all of the information available, as many are not educated on Deaf culture (Crouch, 1997). Sparrow (2010) explains that these choices being made to give infants and children cochlear implants is viewed by many in the Deaf community as ethnocide, or "the destruction of a people's culture," as over time it will result in fewer members of the Deaf community and threatens the survival of Deaf culture in favor of hearing culture (459). These controversies between the hearing world and Deaf community are complicated cultural differences that are difficult to resolve.

The Deaf community, being a connected culture with shared ideals, has a strong voice and is able to speak quite clearly on their needs and desires, lobbying for improvements to accessibility.³² Returning momentarily to Stone (2012), the Deaf community is one that has paradoxes within their activism and

³² For example, Kruesi (2017) reports that the Deaf community in Idaho was able to advocate for the passing of a law requiring that ASL interpreters provided in situations protected under the ADA be licensed, a law intended to improve the quality of interpretation and remove unqualified interpreters from the interpreting profession (para. 1). This is not an easy feat considering that Idaho is a largely conservative state that values minimal regulation. In describing the reason Idaho resisted a statewide mask mandate, Governor Little was quoted by Decker (2020) as saying "There's a reason Idaho's the least-regulated state in the nation. It's what people expect," said Little. "It's what we do, is try to have the minimum amount of regulation." (para. 3). The Deaf community in Idaho being able to lobby for and get passed a requirement for ASL interpreters to be licensed, a requirement that was initially vetoed by former Governor Butch Otter and then was passed the following year, shows the persistence and power of the Deaf community's ability to advocate for themselves.

cultural values. Harvey (2008), explains the paradox that the Deaf community does not consider deafness a disability, but at the same time, they push for disability accommodations and benefit from the ADA, which requires ASL interpreters to be provided for DHH people in protected situations (42). This paradox is one in which the Deaf community is having a conflict between the community goals of equity and liberty, as outlined by Stone. The Deaf community greatly values their liberty as a cultural minority to live according to their values without being oppressed or eliminated by the hearing cultural majority. At the same time, they are calling for disability accommodations, which provide them with equitable treatment and access to the education, healthcare, and other rights that hearing people are naturally provided due to the world being designed, by default, for hearing people.

To consider the Deaf community as a separate and distinct minority from the hearing world is important to understanding the reasons my research, and other research, will choose to create a distinction between “Big-D” Deaf people and those who do not consider themselves part of Deaf culture, who I refer to as culturally hearing d/Deaf and hard of hearing (CH-DHH). This term has been used by others in relation to d/Deaf cultural identity (Bat-Chava, 2000, p. 420; Leigh et al., 2018, p. 167).³³

³³ This term should not be taken to imply that Deaf people are not involved in, culturally connected with, or socialized within the hearing world. It should also not be taken to imply that CH-DHH people are not d/Deaf or hard of hearing or cannot consider themselves culturally Deaf. The term CH-DHH is instead meant to make a clearer distinction between DHH people who identify as part of the Deaf community and those who do not. CH-DHH people are still DHH, and that characteristic should be acknowledged because it creates a culturally distinct difference between CH-DHH people, Deaf people, and hearing people. That being said, CH-DHH people may not feel a strong connection with any term regarding cultural connection based on deafness

Many researchers will choose to either exclude those who don't use ASL from their studies or to study them separately since the two groups, connected by hearing loss, are so culturally different. Lane (1999) creates this distinction along the lines of disability, describing Deaf people as a community and ethnicity and describing those who do not use ASL as "members of the hearing community who have a hearing disability" (22). This distinction is drawn because CH-DHH people are inherently different from Deaf people in their language as well as in their culture. Accepting the cultural and linguistic differences between the Deaf community and the hearing world, is to also accept the complicated reality that there are some people who may feel comfortable in both, or neither, of these worlds.

Two Worlds and Those Who Live Between Them

On one end of the spectrum is Deaf people, a cultural minority which strongly values ASL, accommodation activism, community involvement, does not consider deafness a disability, and does not desire immersion within the hearing world. On the other end of the spectrum is CH-DHH people, who are culturally part of the hearing world. The hearing world values oralism, lipreading for DHH people, medical hearing intervention, and DHH people assimilating within the hearing world. Many CH-DHH people may not value assimilation within the

and this should be recognized and respected when discussing DHH people and their cultural and deafness identification terms. In general, the cultural and disability identification terms used for an individual are often deeply personal and should always be asked about, rather than assumed, before being used.

hearing world themselves, but the design of the hearing world can lead to these tactics feeling like a necessity, rather than a choice. These are the people who are not fully hearing, but who interact primarily within the hearing world, use ASL³⁴ rarely or not at all, and primarily use spoken English for communication.

Leigh et al. (2018) explain that there are multiple theoretical frameworks which help explain d/Deaf identity. The two most relevant to this research are disability framework and social identity theory. Disability framework, developed by Weinberg and Sterritt (1986) is splitting d/Deaf people into one of three disability categories; hearing identification (able-bodied), Deaf identification (disabled), or dual identification (identification with both able-bodied and disabled worlds). Under this model, my participants who identify as “Big-D” Deaf are disabled while those who do not (CH-DHH people) would fall under the dual identification category. My research does not subscribe strictly to this theoretical framework as I recognize that many Deaf people do not identify with the term “disabled” and, unlike Weinberg and Sterritt, I also recognize that some DHH people do not have a dual identity in both worlds, they feel more like they have no identity with either world. Disability framework is generally reflective of the identity models referred to by Leigh and O’Brien (2019) as essentialism,³⁵ the idea that identity is rooted in “natural” characteristics, such as being deaf (1). This framework is generally considered in opposition to more socially rooted frameworks, such as social identity theory.

³⁴ Or another sign language.

³⁵ Also called primordialism.

Social identity theory, developed in the 1980s, is the idea that individual identity is an important factor in minority status (Leigh et al., 2018, 164). If a DHH person does not feel a connection with the Deaf community, they will not seek to join that group and will reject their identification with that group, thus opening up the identity of being between worlds. Leigh and O'Brien (2019) explain that non-essentialism is the idea that an individual's identity is socially rooted based on their social environment (1-2). This framework melds well with the social model of disability, with identity around disability being socially constructed based on experiences of the world, rather than based on physical characteristics.

My research and current literature on Deaf culture suggests that CH-DHH people are the ones most likely to use terminology rejected by the Deaf community such as "hearing impaired" or "disabled" because their ability to communicate freely with both the hearing world and the Deaf community is limited by their hearing and their language abilities. They are also more likely to use medical technology such as hearing aids or cochlear implants to aid them in communicating with hearing people, whereas Deaf people are more likely to use ASL interpreters or written communication such as passing a phone or paper back and forth.

Nested between and intertwined with both the Deaf community and the hearing world is a third population. This population is split into either CH-DHH or Deaf within this research, but they are referred to by Bat-Chava (2000) as having a bicultural identity. These individuals have distinct cultural values that connect them to both the Deaf community and the hearing world, or neither. *Figure 6*

provides a Venn diagram of the cultural values of the Deaf community, the hearing world, and those who live between them. I will expand further on this population and the complexities of their personal identifications in the next section.

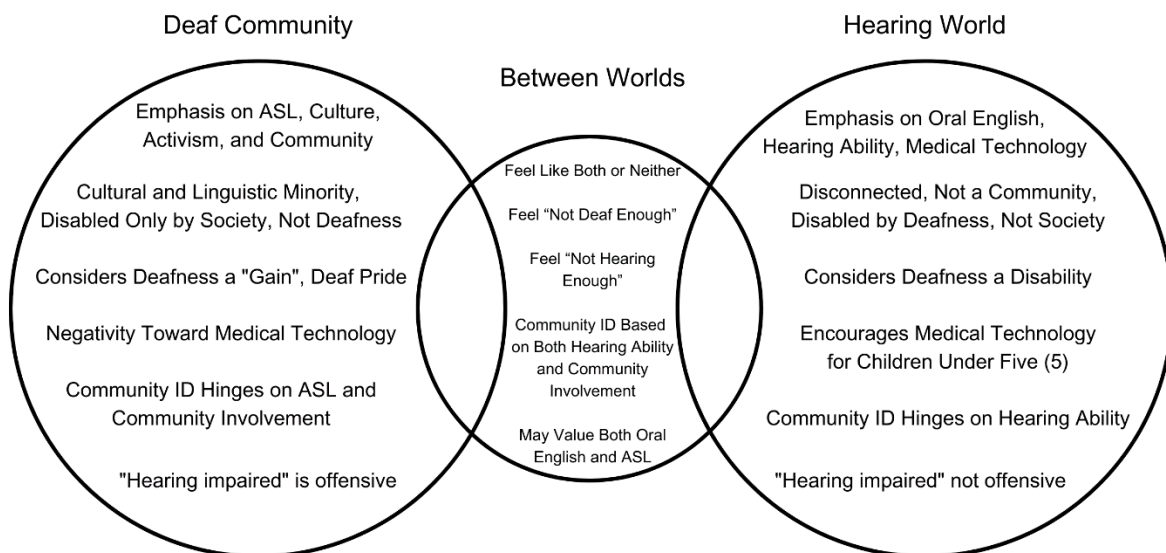


Figure 6 Deaf Community and Hearing World Cultural Values Diagram

This concept of being between worlds is not unique to DHH people and is seen in other minority communities. Lugones (2006) explains that liminality is a space which majority groups are largely ignorant of (75). Turner (2004) describes liminal personae ("threshold people") as those who are largely ignored, because they do not fit traditional classifications (79). Another community which experiences this liminal feeling of being neither or both is Latino communities. Ojeda et al. (2012) describe the experiences of Latino college students who feel both too Latino or not Latino enough and how these concerns can lead to ethnicity-related stress (16). Another researcher discussing this identity difficulty, specifically around language use, describes the position of Spanish as

paradoxical within the U.S. Latino community, explaining that use of Spanish is used as an index of Latino cultural identity (Blitvich, 2019). Those who do not speak Spanish often consider themselves Latinidad, a cultural identity that encompasses a wider range of identities and experiences (Blitvich, 2019). However, this term is controversial and, much like terminology amongst DHH people, personal identification terms for Latino people are personal, diverse, and socially-rooted (Pimentel, 2022).

Identification with the Deaf Community and the Hearing World

When I originally wrote my interview questions and my survey questions, I wrote a few specific questions intended on drawing conclusions on whether the participants were Deaf or CH-DHH, believing that these questions would also answer the question of whether they primarily use ASL or spoken English. What I didn't expect was how complicated and unpredictable the answers to these questions would be. In the survey I asked "Do you consider yourself to be part of the Deaf community?" and in the interviews I expanded these questions and asked about both identification with the Deaf community and with the hearing world.

I originally planned to divide the participants based on cultural identification (Deaf or CH-DHH), but after seeing the survey responses and conducting interviews, it became clear that cultural identification was not a good indicator of language use. Because of this, I developed terminology regarding language use as separate from cultural identity. Those who primarily use ASL

were classified as Linguistically Deaf and those who do not primarily use ASL were classified as Linguistically Hearing, most of them primarily using spoken English. This led to an important finding that, while there is a correlation between cultural identity and language, it is not a perfect correlation. Linguistically Deaf participants all identified as part of the Deaf community, while the responses for Linguistically Hearing people were far more varied. This comparison can be seen in *Figure 7*.

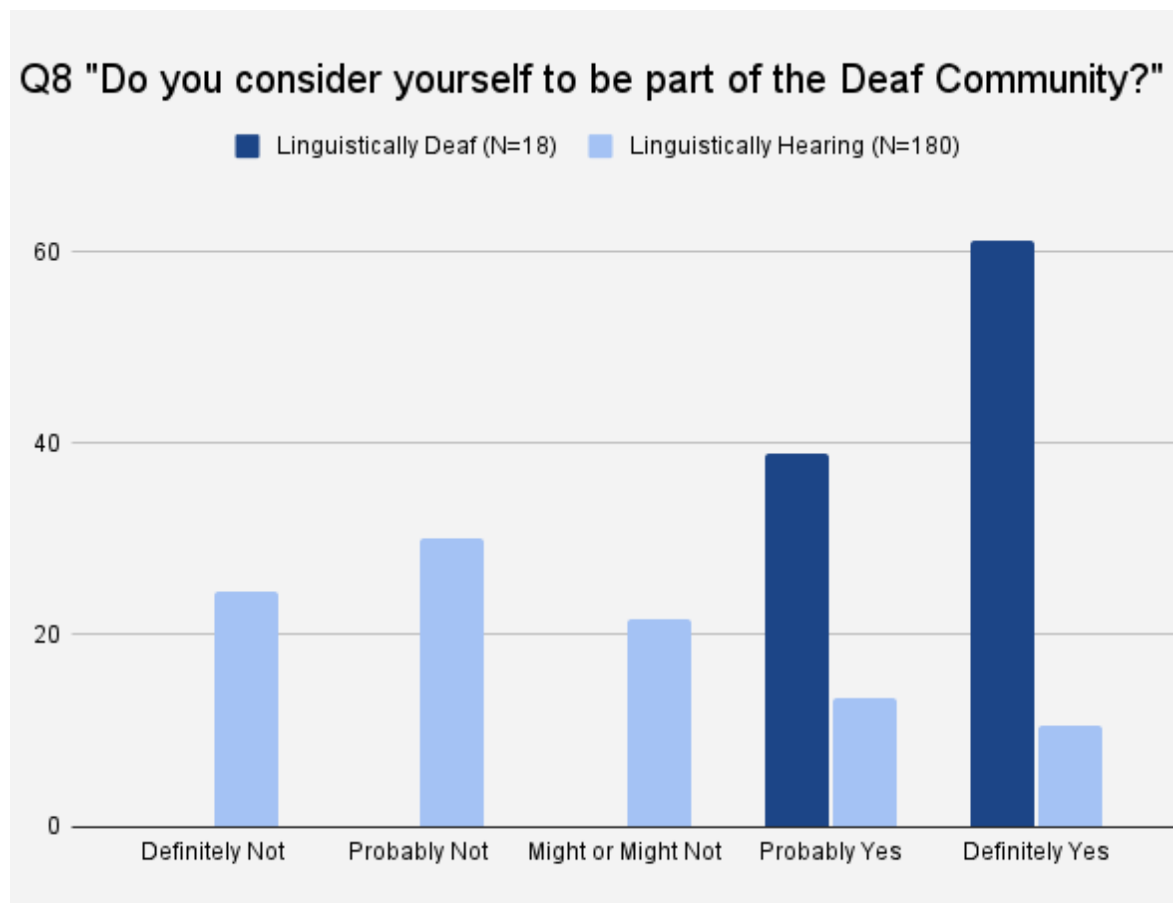


Figure 7 Survey Deaf Community Identification - Linguistic Comparison

From the qualitative analysis of the interview participants' answers to questions on identification with the Deaf community and hearing world, I was able to notice some common reasoning regarding cultural identity with, or

without,³⁶ the Deaf community and the hearing world. Cultural identification generally relied on a few different factors. The most common reasons cited were level of deafness, communication and language, and community involvement and relationships. To a lesser extent, additional reasons provided were struggling to function, audism, having grown up in a specific community, and feeling unwelcome in a community.

A notable finding from this analysis is that for both Linguistically Deaf participants and all participants who seemed to have awareness of the Deaf community, a reason why they did or did not identify as part of the Deaf community was their community involvement. In his study on d/Deaf identities, Bat-Chava (2000) found similar results, that identification with or outside of the Deaf community is related to numerous factors that result in either assimilating into hearing culture or having a social identity as a minority with ideals toward social change (420). In the following sections, I delve deeper into the reasons participants listed for identification with, or exclusion from, the Deaf community and hearing world.

Level of Deafness, Communication, and Language

The most common reason presented by interview participants for community identification was level of deafness. However, it is notable that this reason was only presented in regards to Deaf community identification by people

³⁶ Moving forward, when using the term “cultural identification,” I am referring to both cultural identification with a community as well as cultural identification without a community, unless otherwise specified. Similar themes and reasons were presented for both.

who interviewed in English, who I classify as Linguistically Hearing, and that this reason was less likely to be cited the more someone was aware of the Deaf community. This suggests that Linguistically Hearing participants are more likely to subscribe to essentialism (as previously mentioned by Leigh and O'Brien, 2019, p. 1-2), the idea that someone is part of a disabled community due to their physical characteristics, rather than their social environment.

A few participants responded with a clear and confident response. Confidence in this context refers to displaying certainty about the truth of their response through a lack of hesitation. One such example of this is Herbert, a Black man in his sixties (60s) interviewing in English, who when asked whether he considered himself part of the Deaf community stated, "No, I don't, because I can hear without needing any assisting devices." In this case, Herbert provided his level of deafness as the only reason for identification as part of the Deaf community. Dale, a White man in his sixties (60s) interviewing in English, provided a response with similar surety regarding identification with the Deaf community:

You know, I do not consider myself to be part of the Deaf community. I'm just not there yet. Meaning that I think there's people who are hearing impaired and I think there's people who are deaf and I can't give you more of a quantitative answer about that. I'm not using sign language. I can hear most things. So that's where I'm at. I do think I'm headed that way. My hearing seems to be degrading quite quickly.

Here, Dale provides multiple reasons why he does not consider himself part of the Deaf community, primarily centered on his level of deafness, but also mentioning his lack of sign language usage. He clearly and robustly explained his identity, showing confidence in his response that he is not.

Alternatively to the confidence presented by Herbert and Dale, it was more common for participants to give answers to these questions with hesitation or weak language, with longer pauses, an increased use of filler words like “um,” or phrases such as “I would say so” or “I guess.” When I asked Vanessa, a white woman in her forties (40s) interviewing in English, about whether she considered herself to be part of the hearing world, this portion of our conversation went as follows:

Vanessa: These are difficult questions for me. Um [pause]

Kym: You don't have to answer if you're not comfortable.

Vanessa: No, that's okay. I want to. [pause] Do I consider myself part of the hearing world? [pause] Yeah, because I can communicate. I can hear as long as I have my hearing aids on. So yeah, I'm gonna say yes.

In her response, Vanessa expressed hesitation, ultimately basing her identification as part of the hearing world on her ability to hear and to communicate. Her hesitation showed that this was a difficult and personal question for her to answer, and that it took some thought for her to determine her response.

A common response from participants was to imply that they were part of the hearing world, but that their hearing status made them not identify fully with

the hearing world. When asked whether she considered herself to be part of the hearing world, Maureen, a White woman in her sixties (60s) interviewed in English, responded with “Well, the impaired hearing world, I guess. I rely on hearing aids. I don’t know sign language.” Maureen then went on to mention that she had tried to learn sign language, but gave up due to the difficulty of learning through an app, and expressed that if she learned sign language, everyone else would need to learn it too. A desire to learn and for others to learn sign language was mentioned by multiple Linguistically Hearing participants. Similarly to Dale, Maureen’s response shows how level of deafness, as well as language, can impact identification with the Deaf community or hearing world and that the “impairment” that hearing loss causes to her communication leads her to not fully identify with the hearing world.

Christine, a white woman in her forties (40s) who interviewed in ASL, had a similar response that emphasized her not being fully part of the hearing world due to being Deaf. During a follow up email, she said:

This is a challenge for me to answer because I am always around hearing people and I always will be. So that is the hearing world that I will always live in but that I am definitely a member of a marginalized group which is the Deaf world. I guess I could say that I am in the hearing world but I am not part of it because I am not hearing.

For Christine, identification with the hearing world is complicated, but her level of deafness and marginalization due to it impacts her feelings of identification with that world.

Multiple participants referenced communication and language as reasons for their association with, or without, a community. Vicky, an agender person in their thirties (30s) interviewing in ASL, stated that they do not usually use ASL because they do not know many people who do, and they do not consider themselves part of the Deaf community. When asked whether they were part of the hearing world, they said “No. They don't use my language so communication is not fairly easy. So I don't consider myself part of the hearing world.” For Vicky, communication and language is extremely important to community identification.

Similarly, Evelyn, a White woman in her seventies (70s) interviewing in English, confidently shared “I consider myself part of the hearing world because that's my primary means of communication, face to face.” Evelyn's response that communication is why she identifies with the hearing world is parallel to that of Vicky, who shared that communication is why they do not. This type of sentiment was expressed by multiple individuals, both in regards to others using, or not using, their language or communication mode.

Community Involvement

There are two (2) interview participants in this research who both identify as part of the Deaf community and were identified by me as Linguistically Deaf because they use ASL as their primary form of communication. Interestingly, when asked about whether they considered themselves part of the Deaf community and why, both cited community involvement with events as the first reason they do, and neither expressed their level of deafness as a reason for

their identification with the Deaf community. Both are White women in their forties (40s) and completed the interview in ASL with the use of an interpreter. Linda responded “Yes, I do feel like I'm involved in different leadership roles and I'm involved with different events and hosting those.” Similarly, Christine said:

Oh, yeah, I go to events when I can. I've got friends and relations with many folks. I grew up within the Deaf community. ... I go to different events, workshops, conferences, et cetera. Yeah, I would say that's all inclusive in my participation in the Deaf community.

These quotes support the idea that for Linguistically Deaf people, inclusion in the Deaf community is directly tied to community involvement and relationships within that community, rather than based on hearing ability or other reasons more often cited by Linguistically Hearing participants. This suggests that Linguistically Deaf participants are more likely to hold a non-essentialist perspective, that their identity is rooted in their social environment.

In addition to Linda and Christine, participants who appeared to have more knowledge of the Deaf community, as evidenced by referencing “Big-D Deaf,”³⁷ were more likely to base their community identification with or without the Deaf community on participation in community events and less likely to base their community identification on hearing ability. While this finding is based on only a few responses, this connection between direct involvement and community identification is backed by current Deaf culture literature. For

³⁷ This includes participants who identified themselves as Big-D Deaf, participants who identified themselves as not Big-D Deaf, and participants who mentioned others who are Big-D Deaf.

example, Higgins (1979) describes this as “achieving” membership, rather than receiving natural membership based on being DHH and goes on to explain that community membership requires identification with the Deaf community, being DHH, and active participation within the community (6). This description of membership as being achieved, rather than naturally given, follows the non-essentialist perspective.

Between Worlds and Feeling Unwelcome

Multiple interview participants in this study expressed feeling like they were between worlds, described as bicultural by Bat-Chava (2000, p. 420). Clint, a White man in his seventies (70s) interviewing in English, expressed this feeling and explained that his lack of identification with both the Deaf community and the hearing world was related to feeling excluded from them:

Never really a part of the Deaf community. I wish I had been. But when I was a young man, there was a kind of a negativity toward people who use devices to get along, so I was really part of the general population, but I didn't fit in because I didn't hear properly. So it was a neverland.

Clint's quote emphasizes how being between worlds can be related to feeling different in both. Similar to Clint, Vicky also expressed a sentiment of being between worlds. After explaining that the hearing world does not use their language, Vicky said “I feel more [pause] kind of like a lone wolf in a sense. I am in my own world.” When asked about their identification with the Deaf community,

Vicky surprised me by stating: “So, yeah, no.”³⁸ Well, I haven't felt comfortable within the Deaf community, but I do identify as culturally Deaf. I identify with Deaf history, et cetera. But I [do not] know local Deaf people.” Wanting to learn more about Vicky's lack of identification with the Deaf community, despite their cultural identity as Deaf, I reached out by email and followed up. Vicky said:

I grew up in the hearing world. Whenever I attempted to associate with the Deaf community, I often was rebuffed because hm, I guess, I come off as being too Hearing³⁹ or something. Due to that, I have not developed the feeling of being comfortable within the Deaf community, even though I do identify as Deaf.

When asked whether their identification with the Deaf community may change in the future, Vicky said:

I think that would depend on whether I am able to become part of the Deaf community or not. Currently, I am in the process of attempting to become part of the Deaf community, however, it has not been very successful yet. So, I guess, acceptance of who I am would be what would lead me to identify as being part of the Deaf community.

Vicky and Clint are examples of how the cultural ideals of the Deaf community can lead to some DHH people self-selecting out of the community. The cultural ideals of the Deaf community, which counter the hearing world's focus on medical technology and oralism, can make people like Vicky and Clint

³⁸ Vicky is from the United States where “yeah, no” is often used to mean “no.” I took this to be their meaning here based on the context of the rest of their answer.

³⁹ The capitalization of Hearing was a choice made by Vicky in their email.

feel unwelcome in that community, creating paradoxes in their cultural identification.

Pauline responded with confidence on both questions regarding cultural identification, in ways which very clearly summed up what I have come to learn as true regarding the Deaf community and CH-DHH people. Although she responded that she is part of the hearing world, she also expressed a sentiment of feeling between the worlds. When asked about identification with the Deaf community she responded:

You know, I don't because it feels like there are two really distinct experiences here. But I think that there's the Deaf community, and that's the capital-D community, and those are the folks that communicate via ASL, and identify as Deaf, and have the Deaf pride⁴⁰ and all of that. And I'm part of the community that identifies with, I mean, we live in the hearing world, but we, you know, aren't. But we have to struggle. The people in the Deaf community, they get to have that community, and they've advocated really well for themselves. And I'm in that no-man's-land where my world is in the hearing world, and I struggle always to make that work.

When asked about identification with the hearing world she responded:

I am, and I'm definitely part of the hearing world because that's where my life is, that's where my community is. I don't have any community in the

⁴⁰ Deaf pride is a term that originated from the successful "Deaf President Now" movement at Gallaudet University in the 1980s. At this time, students protested the hiring of a hearing university president, leading to the first Deaf president. It is now used as a term to show pride in cultural Deafness.

Deaf ASL cultural world. My whole life is with hearing people. And, you know, again that's the painful struggle. It's so isolating to [pause] so what are my choices?

Pauline then went on to explain that it was difficult for her to function in the hearing world due to communication barriers, and that this difficulty is isolating, an issue that has increased for her since the COVID-19 pandemic due to mask use. Her account demonstrates that someone can feel like they are part of the hearing world, but that they can struggle to fully participate due to communication barriers. The impact of masks on feelings of isolation for participants will be explored further in CHAPTER SIX: FINDINGS III: MASKS AND COMMUNICATION [40] (p. 161).

Identity as Unpredictable and Personal

The reasons presented by participants for cultural identification had common themes but, overall, identification with the Deaf community and hearing worlds was different for each individual and difficult to predict based on personal identification terminology, hearing ability, or language use in the interviews.

Although I expected Vicky to identify as part of the Deaf community due to their use of ASL and their use of the term “Big-D Deaf” for themselves, they did not. Alternatively, John, a white man in his sixties (60s) interviewing in English, did identify as part of the Deaf community. John said “Yes, I do. Because I think the opposite of that is a hearing community and I am more deaf than I am hearing, I think.” Although he identified as part of the Deaf community, in his

response regarding his identification as part of the hearing world, he contradicted this answer in a later response stating “Well, yes, in that, you know I'm late-deafened, and I can still hear. So, yeah, I'm not on the big-D end of it.”

This difficulty predicting cultural identity based on language use and personal deafness terms implies that the lines between the Deaf community and CH-DHH are far more complicated than current research suggests. Identification with the Deaf community for people who traditionally would not be considered part of the Deaf community because they do not use ASL (like John), and the opposite for those who do use ASL and do not identify as part of the Deaf community (like Vicky), would be a valuable area of future research.

Understanding identification is important for this research because identification with or without a community is how people, and policy writers, determine what policies do or do not apply to them. People self-selecting in and out of marginalized groups for various reasons can have an impact on the implementation and impacts of policies.

Categorization II: Linguistic Classification

Introduction to Linguistic Classification

As I have presented in the previous section, someone may identify as part of the Deaf community despite not using ASL and someone may use ASL, but not identify as part of the Deaf community. Since the cultural lines are not drawn along language use as I expected, I have developed a separate classification for use in this research which I refer to as Linguistic Classification and the two categories are Linguistically Deaf and Linguistically Hearing. To put it simply,

Linguistically Deaf people are those who primarily use ASL and rarely, if ever, use spoken English. Linguistically Hearing people are those who primarily use spoken English, but may or may not also use ASL.

Participants were asked what their preferred in-person communication method was (Q10) and given the options of ASL, spoken English, and other (open text). Spoken English was the most common response (149). While this question was used to determine linguistic classification, it was not the only question considered. There were thirteen (13) Linguistically Hearing participants who selected ASL as their preferred communication method, but they were classified as Linguistically Hearing because their responses to other questions indicated that they do not regularly use ASL, despite it being their preference (similar to Vicky).

There were eighteen (18) participants⁴¹ who selected Other and their responses showed that “Spoken English” is not necessarily the most popular and that it comes with some caveats. For example, when someone does not speak aloud, but they read the lips of others, is this Spoken English communication? This classification distinction is one that would be interesting to explore in future research. The number of responses to this question can be found in *Table 5*.

⁴¹ There were actually nineteen (19) participants who selected Other, but one (1) was recorded as ASL. See APPENDIX B [35] (p. 262) for data cleanup choices.

Table 5 Preferred In-Person Communication

	# Linguistically Deaf	# Linguistically Hearing
ASL	18	13
Spoken English	0	149
Other - Lipreading	0	5
Other - Written	0	4
Other - Lipreading and Written	0	2
Other - Spoken English, ASL, & Lipreading	0	1
Other - Both English & ASL	0	1
Other - English & French	0	1
Other - SimCom	0	1
Other - Signed Exact English	0	1
Other - Unspecified	0	2

Participants were asked to rank communication methods that they used most often on a scale from one to six (1-6) with one (1) being the communication method they use most often in person and six (6) being the communication

method they use least often in person (Q12). Responses to this question split by linguistic category can be seen in *Table 6* and *Table 7*.

Table 6 **Ranked Communication Methods (Q12) - Linguistically Deaf**

Linguistically Deaf	% 1st	% 2nd	% 3rd	% 4th	% 5th	% 6th	% Not Rated
Spoken English	11.11	11.11	0.00	0.00	5.56	55.56	16.67
American Sign Language	83.33	5.56	11.11	0.00	0.00	0.00	0.00
Signed English	0.00	27.78	27.78	5.56	16.67	11.11	11.11
Written English (such as passing a piece of paper or digital device back and forth)	0.00	27.78	44.44	11.11	5.56	0.00	11.11
Lipreading Spoken English	5.56	11.11	0.00	38.89	33.33	0.00	11.11
Pantomiming	0.00	0.00	5.56	33.33	27.78	27.78	5.56

Table 7 Ranked Communication Methods (Q12) - Linguistically Hearing

Linguistically Hearing	% 1st	% 2nd	% 3rd	% 4th	% 5th	% 6th	% Not Rated
Spoken English	65.00	6.11	3.89	2.78	1.11	14.44	6.67
American Sign Language	3.89	5.00	6.67	8.89	16.11	28.89	30.56
Signed English	2.78	7.78	5.00	6.11	26.67	18.33	33.33
Written English (such as passing a piece of paper or digital device back and forth)	1.11	16.67	28.89	17.22	11.67	5.00	19.44
Lipreading Spoken English	11.67	36.11	12.22	11.67	7.78	2.22	18.33
Pantomiming	7.78	2.22	14.44	26.11	7.78	16.67	25.00

From this question, we can see that Linguistically Deaf people rank written communication higher on average, while Linguistically Hearing people rank lipreading higher, on average. This suggests that Linguistically Deaf people generally lean more heavily on forms of communication based on sign or writing, whereas Linguistically Hearing people generally lean more on forms of communication related to spoken English.

Linguistically Hearing people can be more difficult to reach for study, and for policy research, due to the lack of social connection between them. While there are Deaf community social media groups and events, Linguistically Hearing people are less likely to attend them and often feel that, since they do not use ASL, those spaces are not for them.⁴²

Linguistically Hearing people generally live within the hearing world, with little to no interaction with other DHH people, and therefore are culturally closer to hearing people and may have opinions that vastly differ from those of others like them or those in the Deaf community. Since they tend to live more closely with hearing people and do not always seek out others like them, they also are a more disjointed community, so much so that it is arguably inappropriate to describe them as a community at all.

⁴² There also is a perceived attitude of elitism and judgment from members of the Deaf community, which makes Linguistically Hearing people, such as interview participants Clint and Vicky, feel like they are not welcome. Kothesakis (2020) explains that there is a subculture referred to as the “Deaf elite,” people who are born into Deaf families so ASL is their native language (para. 4). Kothesakis explains “Those who are not part of the ‘elite’ are judged within the Deaf community based on ‘how deaf’ they are” (para. 4). This elite Deaf status can create a sense of not being ‘Deaf’ enough.

Linguistic Category Demographics

Linguistically Hearing people make up a diverse group that is distinctly different from Linguistically Deaf people. While Linguistically Hearing people are generally more culturally similar to hearing people, they still share many similarities with Deaf people. The cultural and linguistic lines drawn between these two groups are blurry, but they are relevant to my research. It is important to not treat all DHH people as homogenous when their needs, communication styles, reliance on hearing ability, and cultural priorities can be vastly different.

Although Linguistically Deaf people tend to be more visible, Linguistically Hearing people are far more vast in number. This was reflected in the breakdown of both survey participants and interview participants. Of the fourteen (14) interview participants, I categorized two (2) of them as Linguistically Deaf and twelve (12) as Linguistically Hearing; of survey participants, eighteen (18) were categorized as Linguistically Deaf and one-hundred and eighty (180) as Linguistically Hearing. *Figure 8* shows a visual representation of the linguistic categories of survey participants.

Linguistic Categories of All Survey Participants

Researcher Identified

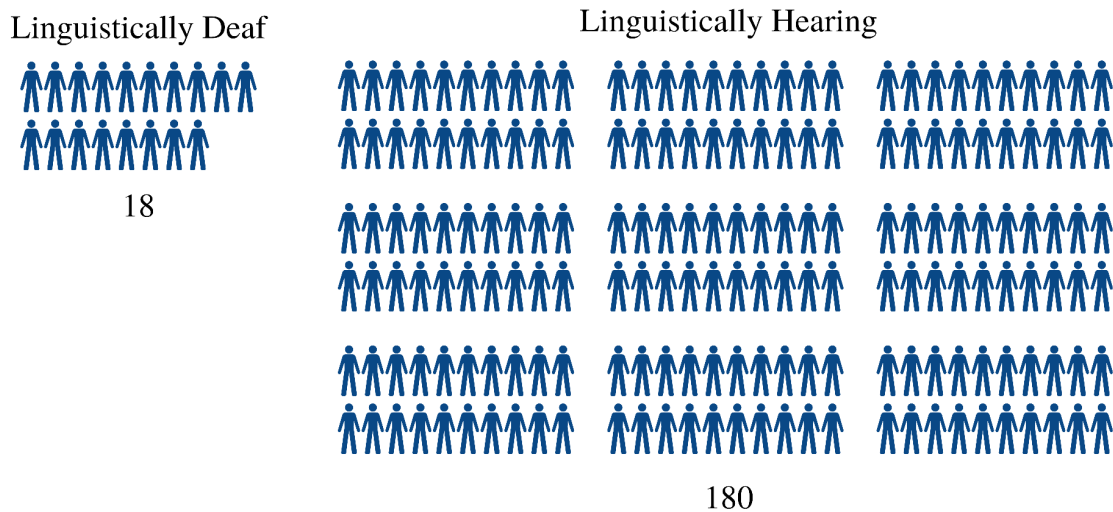


Figure 8 Linguistic Categories of All Survey Participants

Linguistically Deaf people tend to rate themselves as more deaf on a zero to one-hundred (0-100) scale from hearing to deaf, whereas Linguistically Hearing people had significantly more variety. This comparison can be seen in *Figure 9*.

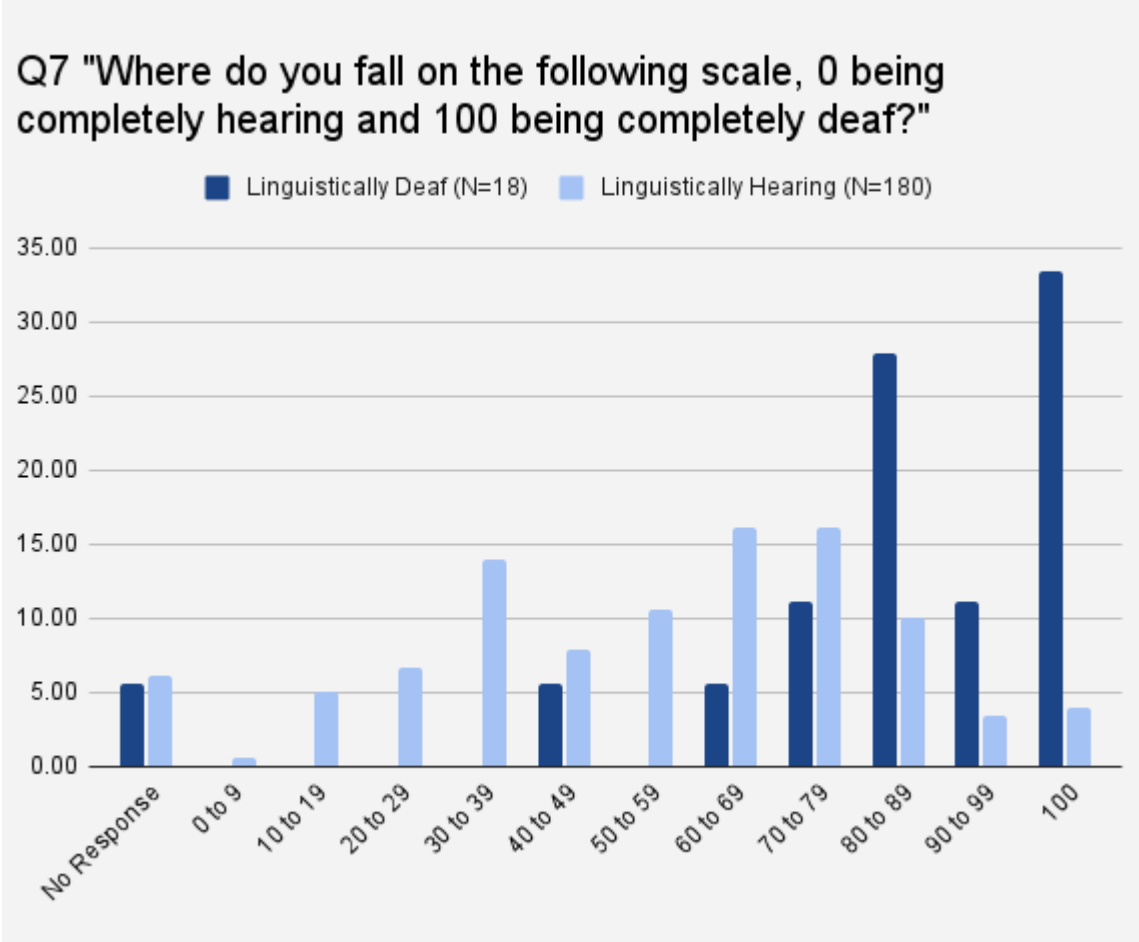


Figure 9 Survey Deafness Scale - Linguistic Comparison

As seen in the section of this chapter on community identification, Linguistically Hearing people also showed more diversity regarding their identification with the Deaf community. While all Linguistically Deaf people identified as part of the Deaf community, most Linguistically Hearing people did not, although many still did, as seen in *Figure 7* (p. 97).

Deafness as an Invisible Disability

An invisible disability is one which others are unaware of unless the disabled person discloses the disability. Santuzzi et al. (2014) explains that invisible disabilities are unique because the disabled person must make regular

choices regarding whether to disclose the disability or not, and disclosure can open them up to both positive and negative repercussions (206). Disclosing the disability is the only way to receive disability accommodations, unless accessibility is provided by default. At the same time, disclosing may lead to discrimination due to negative perceptions of DHH people, lack of understanding of DHH people, or audism.

Invisible disabilities hold parallels to concealable stigmatized identities (CSI). Quinn and Earnshaw (2013) explains that CSIs are “Identities that can be hidden from others and that are socially devalued and negatively stereotyped” (40). Invisible disabilities are often CSIs, but CSIs are broader and include identities such as being LGBTQIA+ or having a mental illness. Linguistically Hearing people differ from Linguistically Deaf people because their deafness is less visible to those around them. Since they generally use spoken language rather than signing, people may not realize that they are DHH, although there are some possible indications such as a hearing aid, cochlear implant, or a deaf accent.⁴³

If someone has a visible disability, those around them may make adjustments for that disability without being asked to. For example, if someone is

⁴³ A “deaf accent” is when a DHH person’s speech is different from a typical hearing person. Neef and Iwata (1985) explain that this is because there is less ability to hear themselves speak and compare that to the speech of others (290). Beck (2019) explains that a lack of understanding of what the DHH accent is leads many hearing people to assume a DHH person is an immigrant or non-native English speaker. If they do realize it, they may not realize the severity of their deafness because many hearing people equate speaking ability with hearing ability, which leads to frustration, embarrassment, and communication issues for the DHH individual. Many DHH people do not use hearing aids or cochlear implants or they have long hair that obscures them. Further, many hearing people do not know what a hearing aid or, especially, a cochlear implant is, so they may not see one and assume accommodations should be made.

in a wheelchair and is struggling to carry a bag or a cup of coffee, others around them will be aware of that visible struggle and may offer to assist. If someone knows that an attendee of their event will be coming in a wheelchair, they are more likely to make the event wheelchair accessible. Accessibility accommodations are often not made without it being requested, but not all DHH people are practiced in advocating for accessibility and, even if they are, they might not be comfortable doing so as it puts them in a position where they may seem rude, difficult, or less than.

People with invisible disabilities experience ableism⁴⁴ differently than people with visible disabilities do. Through interviewing fourteen (14) people with invisible disabilities, Kattari et al. (2018) identified common themes related to the ableism that this population experience, including people policing their choices, and frustration at the need to educate others on their disability, rights granted to them by disability policies like the ADA, and necessary accommodations for them (477). A Deaf participant in Kattari et al.'s study explained her experiences as someone with an invisible disability:

She spoke to how people either tend to underestimate her because she is Deaf, assuming that she cannot do anything for herself, including enjoy concerts, parent, and work at a full-time job, or that because she does not “look” or “act” disabled, people “assume she is normal” and refuse to

⁴⁴ More specifically, audism in the case of DHH people.

make accommodations or “make room for the disability.” (Kattari et al., 2018, p. 483)

Interestingly, this participant (pseudonym Ainsley) identifies as “Big-D” Deaf, uses cochlear implants, and uses spoken English (482). This further shows that the connection between Deaf cultural identity and language is not a perfect correlation because Ainsley identifies as Deaf, but were Ainsley a participant in my research, she would be classified as Linguistically Hearing, not Linguistically Deaf.

There can be social consequences to disclosing a disability, such as social stigma, which make it more difficult for someone to advocate for themselves (Santuzzi et al., 2014, p. 206). A desire to integrate in order to reduce stigma, audism, and discrimination can have a negative impact on individuals’ mental health. Beatty and Kirby (2006) explain that concealing an invisible identity takes additional active energy and leads to “fragmentation of the self and feelings of isolation” (33). People with invisible disabilities may also choose to expose their identity in some situations, but not in others. Skelton and Valentine describe this switch for DHH people:

The boundary between Deaf and deaf⁴⁵ can be fluid. At different times and in different geo-cultural spaces, people may choose to perform or present their d/Deaf identity in different ways. Someone might firmly define themselves as Deaf within their local Deaf Club but perform as deaf within

⁴⁵ Here Skelton and Valentine are using “deaf” to mean someone who does not identify as part of the Deaf community or use ASL.

their work-place where they use oral styles of communication within a hearing context. (Skelton and Valentine, 2003, p. 119)

This change in communication styles based on who is around is a form of “code-switching,” a term usually associated with Black Americans in regards to speech changes in different groups. Coulmas (2017) explains that code-switching is altering language, usually in bilingual communities, in order to fit the communication styles of the group you are in (217). Koch et al. (2001) explain that Black Americans often switch between African American Vernacular English (AAVE, also called Black Vernacular English, BE) and Standard English (SE) when in the company of White people (29). In the same way that a Black person might alter their language to communicate more effectively and not be quite as othered when outside of Black cultural spaces, a DHH person will often do the same to rely less on ASL and more on less effective communication methods, such as lipreading, to match the language skills and language culture of those around them. Code-switching and supplementary communication, such as lipreading, can result in a DHH person’s deafness being invisible to a hearing person. However, if the DHH person cannot rely on lipreading and facial cues due to masks, then their disability is amplified and may become visible again. This can have both positive and negative impacts on a DHH person as increased visibility can increase accommodations, but it can also increase disability discrimination.

Sometimes people who are DHH may not know themselves what would be a valuable accommodation. A participant in one of the interviews for my

research mentioned that she had difficulties understanding people in online work meetings and mentioned that my inclusion of live closed captioning and pre-typing the questions into the chat was very helpful. She told me that she was going to start requesting those accommodations after doing that interview with me. This brings us back to the Social Model of Disability, as if accommodations were provided by default (Accessibility By Default), DHH people would not need to advocate for them, reducing the impact of their deafness on their lives. Accessibility By Default eliminates the need for those with invisible disabilities to disclose their disability in order to benefit from accommodations, also reducing the negative effects of disclosing their disability.

The reality is that even the best advocates for disability may not know what accommodations to offer without being told that someone has a disability, unless they begin to provide accessibility across the board without consideration for whether or not they know that someone needs them, Accessibility By Default. This is a preferred ideal, but without an increase in awareness of the alternative forms of communication used by DHH people⁴⁶ and a priority on providing accessibility, it is an unattainable ideal.

⁴⁶ ASL, lipreading, and passing notes back and forth, to name a few.

Categorization III: Deafness Terminology

Identity-First Deafness Identification Terms

There are two types of terms generally used to describe disability. The first, and the options I provided in the survey, are examples of “identity-first language.” Identity-first language is language that comes before the noun “person” such as “deaf person” or “hearing impaired person” whereas person-first language is language that comes after the noun such as “person with deafness” or “person with hearing loss.” Dunn and Andrews (2015) explain that the American Psychological Association currently advocates for person-first language, but that many disability culture advocates currently argue for identity-first language (255). During my interview analysis, I noticed that participants predominantly used identity-first language, but that some participants used person-first language. Identity-first terms used by interview participants in this study included Deaf, deaf, hard of hearing,⁴⁷ and hearing impaired.

People who have very little hearing often refer to themselves as deaf, but if they consider themselves to be part of the cultural group known as the Deaf community, then they will generally use an uppercase D and refer to themselves as Big-D Deaf or simply Deaf. Someone who has very little hearing and does not consider themselves part of the Deaf community may refer to themselves as deaf with a lowercase D. However, the findings in this research suggest that this is not a simple identification method, as some people who do not use ASL or participate in Deaf community events may refer to themselves as Deaf, and

⁴⁷ No interview participants specified capitalization regarding the term “hard of hearing.”

some people who do use ASL and participate in Deaf community events may identify as deaf. The terminology gets even more muddled once you start including people who retain more of their hearing or use medical technology to simulate hearing quite effectively.⁴⁸ While many in this category identify with the term “hard of hearing,” others do not and the identification with these terms can be extremely personal based on cultural experiences, observations, or the implications they feel the terms present to the world.

The term “hearing impaired” is a particularly controversial identifying term for DHH people. Stewardson (2016) explains that hearing impaired is a commonly used term in the hearing world,⁴⁹ but a lot of DHH people don’t like that term and consider it outdated. The reason it is disliked is because they feel it implies a brokenness or impairment, which many people who identify culturally with the term Deaf do not feel they have. Stewardson goes on to explain that some deaf and hard of hearing people personally identify with that term, and that is their decision, but that it is best to avoid its usage when possible. This avoidance of the term “hearing impaired” by Deaf people is reflective of the modern Affirmation Model of Disability described by Swain and French (2000), where disability terms are a positive identification which hold pride, not a tragic identification (569).

⁴⁸ Such as hearing aids or cochlear implants.

⁴⁹ Stewardson calls the hearing world the “public world.”

Although there is a lot of information about the Deaf community's preferred terminology for themselves,⁵⁰ there is little information available about the terms preferred by CH-DHH people. This group is more diffuse and there is a variety of preferred terminology for them for various personal or cultural reasons. CH-DHH people may identify themselves as deaf, hard of hearing, hearing impaired, late deafened, or any number of other terms. The question of which terms are preferred by CH-DHH people is an interesting one and one that would be a useful and insightful area of future research.

Some CH-DHH people prefer the term hearing impaired because they do not feel that hard of hearing sounds extreme enough to describe their hearing loss, but similarly do not feel like "deaf" describes them because they do retain some hearing. Someone who uses hearing impaired for themselves may say that they prefer it because they do feel their hearing is impaired and do not feel that the term implies a brokenness, but rather a description of the differences in the same way that "deaf" or "hard of hearing" does. For others, they prefer the term hearing impaired because they argue that their hearing is an impairment, and to deny that is to further participate in discrimination by not acknowledging their disability and accessibility needs.

⁵⁰ The prevalence and ease of finding this information is likely related to the strong cultural value of promoting social change as a cultural minority.

Dale, who recently became DHH, was the only person I interviewed who used the term “hearing impaired” for himself.⁵¹ Wanting to learn more about why Dale prefers the term, I emailed him. He responded:

I suppose I say “hearing impaired” largely out of habit. As a former teacher, I do choose my language regarding disabilities very carefully. It’s extremely easy to offend a student or parent by using the “wrong” term. I may have picked up “hearing impaired” from the ever-evolving language known as “eduspeak.”

Deaf, to me, infers complete lack of hearing. That’s not me.

Hard-of-hearing strikes me as archaic. It also doesn’t roll off the tongue.

Hearing loss, in a sense, is very accurate for me because, psychologically, as a musician and audio engineer, my impairment is very much a loss for me and I am grieving while trying to find ways to enjoy life as my hearing rapidly disappears...⁵² That’s what goes on in the inside. On the outside, I don’t want people to think I’m any less of a person (I.e. I haven’t lost anything. It’s just a change.).

Dale’s response shows the paradoxes and diversity around deafness identification terminology, even within a single person. He recounts how institutions, like education, can shape our use of language as well as how his perception of loss informs his identification with the term “hearing impaired.” At the same time, he wrestles with a paradoxical and contradictory conception of

⁵¹ Interestingly, one participant used the term to describe others, but never herself. I did not ask that participant about her usage of the term.

⁵² This ellipsis was written into the email by Dale, it does not represent an omission of text.

the term because he does not want others to think less of him or view him as having lost something, while at the same time processing what he perceives as a loss. This is a reminder of how complicated and personal the opinions around disability terminology can be.

The division regarding terminology seen amongst DHH people is mirrored within other marginalized groups. Similar debates about terminology acceptability happen around the terms “queer,” “special needs,” and “disabled” in their respective communities. These discussions are founded on the division between those who focus on the negative associations with the terms, and those who desire to reclaim them because they feel it is an accurate descriptor.

Queer is a controversial term within the community due to its changing perception and a discussion on whether it is appropriate to be reclaimed by those within the LGBT+ (lesbian, gay, bisexual, transgender, and other sexual and gender minorities) community. Blakemore (2021) explains that the word “gay” was originally a slur that was reclaimed in the 1960s and now the word “queer” has followed the same trend, increasing in popularity as a reclaimed self-identification since the 1990s (paras. 6-12, paras. 15-16). Epstein (1994) explains that this is an “act of linguistic reclamation, in which a pejorative term is appropriated by the stigmatized group so as to negate the term’s power to wound” (195).⁵³

⁵³ Controversial self-identification terms for social minorities like “hearing impaired” and “queer” are often generational and changes to self-identification are possible over time, mostly in relation to social changes of the current era (Epstein, 1994, 195). This generational division regarding controversial terminology is reversed for DHH people, with older people being more likely to use

While the word “queer” has been reclaimed by gender and sexual minorities, the phrase “hearing impaired” has not seen a similar reclamation at this time. More study into the generational differences regarding terminology would be valuable for providing additional context and cultural sensitivity when researching this group.

Amongst Linguistically Deaf survey participants, there was less variation regarding terminology. Most of them identified as either Deaf (10) or deaf (6) with one selecting Hard of Hearing and one selecting None of the Above. Both Linguistically Deaf participants in the interviews identified as Deaf.

Amongst Linguistically Hearing survey participants, there was more diversity in self-identification terminology with most identifying as Hard of Hearing (eighty-four, 84) or Hearing Impaired (sixty-three, 63). Of the Linguistically Hearing participants interviewed, most specified that they used the term hard of hearing for themselves and multiple participants specifically stated (unprompted) that they do not use the word “deaf.” However, some identified as deaf, some identified with multiple terms, and many of them added qualifiers or clarifications, which I will discuss in the next section. Deafness terminology compared by linguistic category can be seen in *Figure 10*.

the term “hearing impaired” because it is the term they grew up with and they do not view it as negatively as others do.

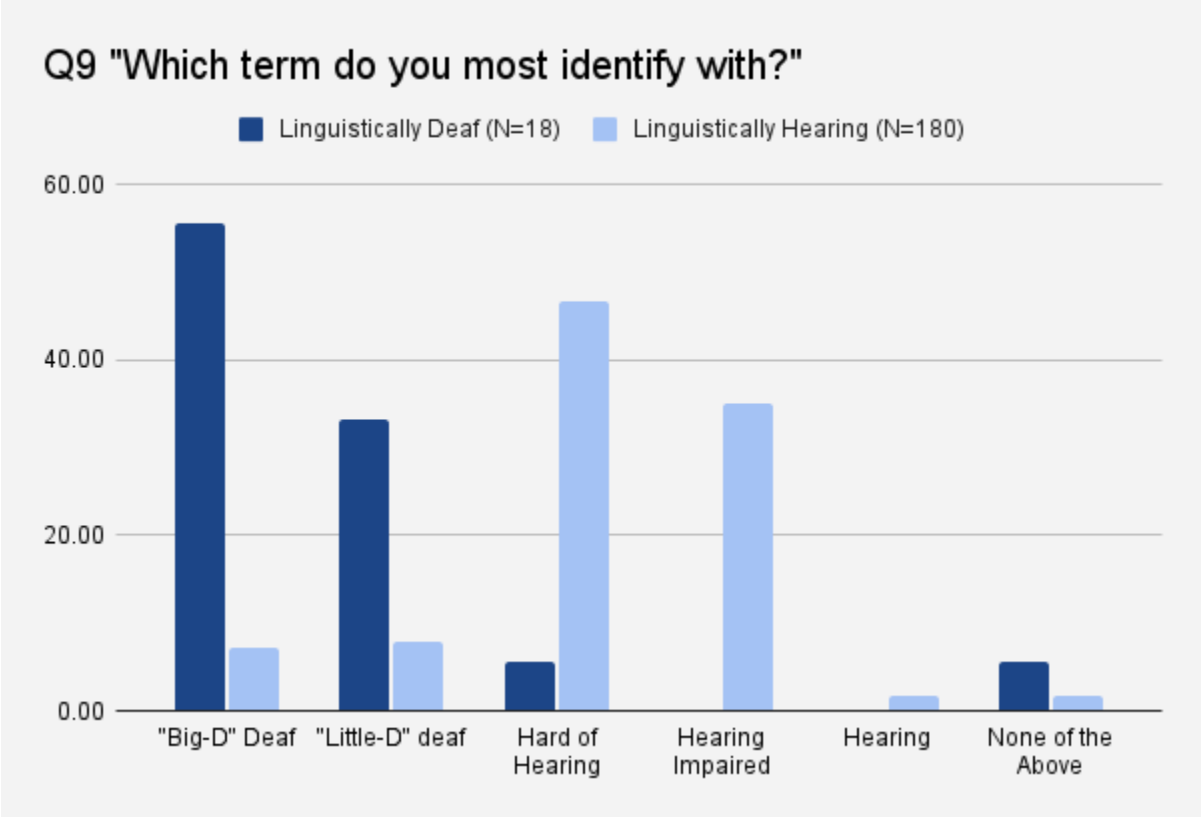


Figure 10 Survey Deafness Identification Terms - Linguistic Comparison

Qualifiers and Descriptions of Hearing

When asking interview participants about their level of deafness, the terms they use for themselves, and analyzing the terminology used during other questions, I began to notice patterns regarding qualifying terms. While participants generally had one or two self-identification terms (usually identity-first) they identified with themselves, they often had different terminology or qualifiers that they would add. The qualifiers generally fell into four categories: ear difference, medical technology, level of deafness, and time.⁵⁴

⁵⁴ Time was the least-mentioned qualifier and not particularly relevant for this research. This included phrases like late-deafened, hard of hearing from birth, grew up deaf, or other similar

When asked about their hearing terminology, multiple participants used qualifiers related to their level of deafness. Some of the qualifiers reflected those often used in the medical field when discussing deafness such as severe, profound, and moderate. When asking participants to rank their level of hearing on a scale from zero to one-hundred (0-100), some would specify based on ear. Katie provided a numbered response, but then added the qualifier that one ear is worse than the other. Linda provided separate numbers based on ear, saying “In one ear, it's probably like ninety and the other ear is like seventy-five.” This is also reflective of medical evaluations, suggesting that the language and qualifiers used are often based on medical assessments.

Another qualifier, mentioned by multiple interview participants, was whether description of deafness should be based on with or without medical technology. If someone wears their medical technology whenever they interact with others, perhaps their medical technology should be considered when assigning a number to their deafness. However, when they are not wearing their medical technology due to being in water, getting repairs, a dead battery, or simply because they don't want to, perhaps a separate number should be considered for studies in which level of deafness is accounted for.

Opposing the medical terminology used to describe deafness, others used less formal words in their qualifiers such as “extremely,” “a lot,” “totally,” and “super.” Teri, a Black and Hispanic woman in her thirties (30s) interviewing in

terms. As mentioned previously, being late-deafened can have an impact on the types of communication used due to language development being so important in early years.

English, said “Hard of hearing. Or I will say super hard of hearing. Or like, a lot,” followed by a laugh. A few of the participants also made jokes about their hearing when describing their terminology or level of deafness. Vicky said “I tend to say deaf. That's usually what I say. But on my business card it actually says ‘Delightfully Deaf.’ With a capital, so Big-D Deaf.” Evelyn responded with “Hard of hearing. And ‘huh?’” before laughing. These quotes show a common use of humor in describing deafness.

It is possible that some of these qualifiers are presented to emphasize their level of deafness to make their disability more visible to those around them. By adding “profoundly” or “severe,” someone can expect those around them to make more accommodations for their deafness. A majority of participants mentioned situations where hearing people would either not believe that they were DHH, or would assume that they had more hearing ability than they do. Herbert, when discussing how his “hearing deficit” is a recent discovery, said “I always ask ‘what you say?’ and they think I’m joking, but I wasn’t joking.” Here, Herbert describes how some DHH people, particularly those who have more hearing ability, are sometimes not believed, a reflection of their disability being invisible. When discussing whether they identified as part of the Deaf community, Katie, an African American nonbinary person in their twenties (20s) interviewing in English, also mentioned being questioned on whether they were actually DHH.

By adding qualifiers that emphasize their deafness, DHH people are able to make their disability more visible, and preemptively defend against perceptions

of their level of deafness. This may be a step, whether conscious or subconscious, toward advocating for accommodations.

Short Summary of Findings

The Deaf community is a distinct cultural group that has shared ideals, language, history, and customs. The Deaf community has strong cultural values surrounding their deafness and does not consider deafness a disability, subscribing to both the Social Model of Disability and the Affirmation Model of Disability. Unlike originally expected, language use by individuals is not a fully accurate indicator of Deaf community identification. A DHH person may identify as part of the Deaf community, or not, regardless of their use of ASL, and that identification is deeply personal.

Some DHH people feel excluded from the Deaf community due to a perceived negativity toward those who are “not Deaf enough” or who use hearing medical devices such as hearing aids and cochlear implants. Those who do not attend Deaf community events tend to be more diffuse and interact primarily with the hearing world, separating them from Deaf culture. This places them in a social position as disabled individuals in the hearing world, rather than a cultural group connected through social events, cultural ideals, and language as the Deaf community is. This gives many DHH people a complicated identity, feeling like part of both groups, or neither.

This complicated view of disability and personal identification terms advises policies like mask policy because terms such as “disabled” may cause individuals to self-select in or out of policy inclusion, despite the original intent of

the policy. The vast diversity amongst this relatively small group of people also suggests that policies that rely more heavily on ambiguity can be more valuable for ensuring the intended effect of the policy is not having unintended consequences that create additional harms. In the next chapter, I will further explore the policy implications of these findings when applied directly to statewide mask mandate policies. Further implications of this chapter's findings can be found in CHAPTER SEVEN: CONCLUSIONS [11] (p. 201).

CHAPTER FIVE: FINDINGS II: STATEWIDE MASK MANDATES [28]

Introduction

In response to COVID-19, decision-makers were having to act quickly and make difficult decisions to work toward the community goal of security.

Numerous strategies were implemented to prevent the spread of COVID-19, the most notable for this research being mask mandates. In this chapter I will explore the research question: **how did statewide mask mandates address, or fail to address, the problem of masks and communication for DHH people?**

I begin by briefly exploring the progression of mask mandates to control the spread of COVID-19 and pandemic strategies from previous pandemics before taking a closer look at the statewide mask mandates implemented in the United States. I will then examine the policy narratives contained within statewide mask mandates. Following narratives, I review the exceptions made for DHH people in mask mandate policies, as well as the ambiguous medical exceptions that may or may not be considered relevant to DHH people based on their specificity.

Janssen and Helbig (2018) explain that the policy cycle involves five (5) main steps, with the policy development phase including five (5) additional steps, which can be seen in *Figure 11*. In this chapter, I am primarily discussing policy implementation, while also occasionally discussing problem definition and policy development. This research is an example of policy evaluation.

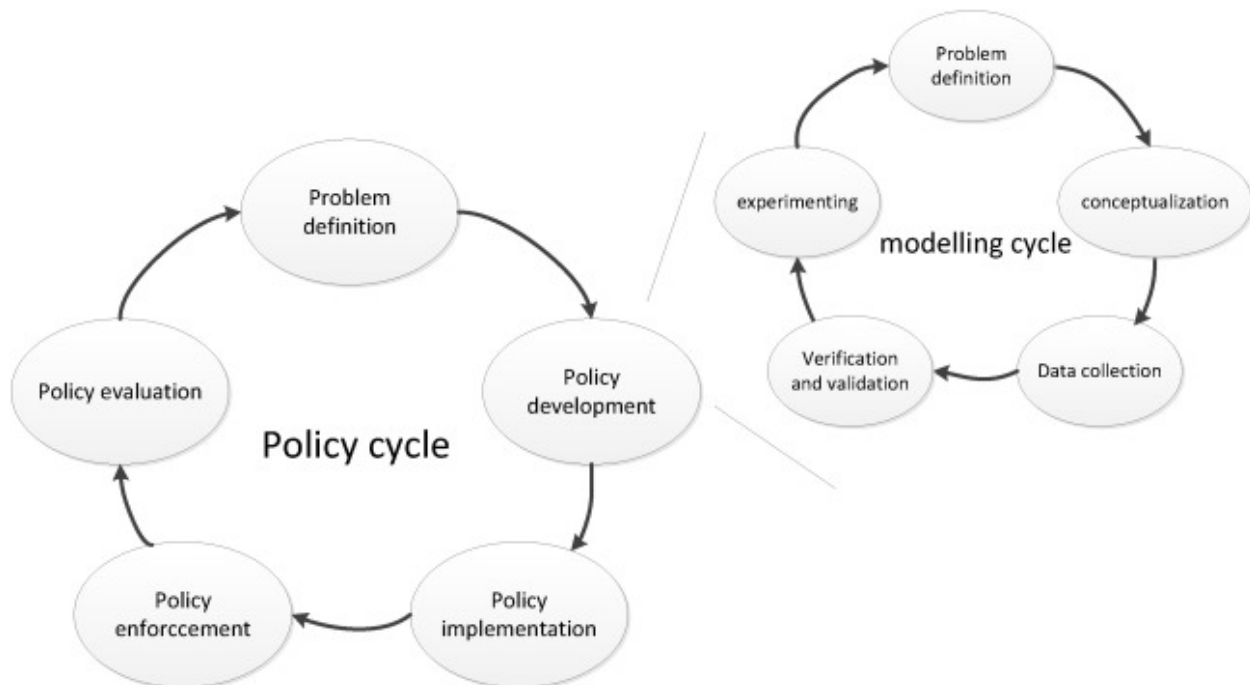


Figure 11 The Policy Cycle

Source: Janssen and Helbig (2018)

Petridou (2014) describes policy narratives as the “strategic stories” used by decision-makers to gather support or opposition for policies (S24). Stone explains that successful policy narratives often lean on community goals like security, liberty, and welfare. When analyzing the statewide mask mandates, I found that they generally follow the principles of Stone. Earlier statewide mask mandates heavily prioritized the community goal of security, providing narratives to reflect that, and provided fewer exceptions or more ambiguous exceptions. Statewide mask mandates implemented later were more likely to provide exceptions for DHH people and those communicating with them, closing ambiguous gaps left open by the earlier mandates. However, in closing the ambiguous gaps, some of them have been closed in such a way as to render them essentially useless.

The broader implications of these findings imply that diverse communities can be difficult to write policies on and can't be covered in a single stroke. For these groups, ambiguity can be a valuable tool for policy-makers, to aid in accessibility and reduce the unintended consequences of policies. Balancing ambiguity with specificity, leaning more toward ambiguity allows for more individual decisions to be made on the everyday implementation level of policy, without policy makers needing to know the minute details of each community that may be affected.

The Progression of Mask Recommendations in the United States

Masks are a physical barrier intended to create a disruption between a person's water vapor expulsions and other people around them by using cloth or plastic to prevent the water vapor from escaping. O'Kelly et al. (2020) explain that fabric face coverings are able to successfully filter ultrafine particles thirty-five percent (35%) to forty-five (45%), depending on the number of layers and materials used (1). Cloth face masks can help reduce the likelihood that someone will spread COVID-19 or any other airborne illness, as well as reduce the likelihood that someone will contract COVID-19 from someone else because particles from another person are filtered on the outside of the mask (Hendrix et al., 2020; Liao et al., 2021).

COVID-19 led to fast-moving policy using techniques for public health that we had not seen publicly mandated in the United States in over one hundred (100) years. Although this is not the first pandemic in that timeframe, the concerns around COVID-19's death toll, the rapid transmission rate, and political

actions of our leaders combined to result in bold actions instead of reserved actions. The last epidemic where masks were mandated for citizens regardless of whether they were sick was the American Influenza Epidemic of 1918-1919 (Kellogg, 1919, p. 6). When taking a closer look, a notable difference between the masks of 1918 and the masks of today is the increase in their effectiveness. Kellogg (1919) wrote that a previous report completed by the California State Board of Health found that requiring masks “does not affect the progress of the epidemic” (11). However, Burnett (2021) explains that medical professionals in 1918-1919 were advising that people wear masks made of “gauze,” intending that medical gauze would be used. Instead, the layperson understood that to mean a different kind of gauze, which had a looser weave than medical gauze and was therefore less protective. Kellogg’s own 1919 report also reflects that, saying that the masks being worn by the general public were poorly constructed, only one (1) or two (2) layers of a coarse, mesh gauze, or were “undeniably too light and coarse in texture to do more than afford a comfortable feeling of safety on the part of the wearer” (13).

In addition to issues of mask quality, there also were issues of mask compliance in 1918-1919. Much like was seen from public officials in 2020, Burnett (2021) reports that during the American Influenza Epidemic, there was significant mask skepticism from public health government officials (para. 8). This type of state-sanctioned skepticism, combined with the other factors, led to low mask compliance, which Burnett concludes is ultimately what resulted in the California State Board of Health not advising for universal masking (para. 12).

There have been more recent respiratory epidemics than the American Influenza Epidemic such as SARS, Severe Acute Respiratory Syndrome, caused by the SARS Coronavirus that emerged in 2002. However, the response to COVID-19 in the United States was much more drastic than the response to SARS, likely due to the much higher case numbers and transmission rate. Knobler et al. (2004) explain that there was a low number of laboratory-confirmed cases of SARS in the United States and no community transmission (76). Knobler et al. recall the use of masks during the SARS epidemic and note that the focus around masks was primarily about protecting frontline healthcare workers and preventing spread in healthcare settings, not on preventing community spread (18).⁵⁵

The World Health Organization (WHO) and the CDC developed pandemic guidelines, prior to COVID-19, based on what has been learned from previous pandemics and epidemics. *Pandemic Influenza Preparedness and Response: A WHO Guidance Document* (2009) mentioned masks only twice. The first mention was a footnote to say that masks may be considered for symptomatic people if it is both feasible to train them on their use, and masks are readily available (43). The second mention stated “[the WHO] in general, does not encourage ... the use of masks in the community by well persons” (43). However, the CDC’s *Interim Pre-Pandemic Planning Guidance* (2007) document had significantly

⁵⁵ Knobler et al. (2004) present infection control recommendations; “During periods of increased respiratory infection in the community, healthcare facilities should offer procedure or surgical masks to persons who are coughing and encourage coughing persons to sit at least [three] 3 feet away from others in waiting areas” (p. 297).

more mention of the use of masks, mentioning that the effectiveness and “role in preventing the transmission of influenza are currently unknown” (19). The document also mentioned that guidance on community face mask use would be forthcoming (35) and recommended future research measuring the effectiveness of PPE in community settings (59). A more recent CDC document (2017) on recommendations for mitigating a pandemic influenza recommended masks numerous times for the sick and healthcare workers, but did not recommend masks for well persons except in certain situations such as a high-risk individual being in a crowded setting (14-15).⁵⁶ When describing the recommendations the CDC would be likely to make during a pandemic, the document did not include universal masking as a recommendation, even in the highest level pandemic on their scale (32).

Healthcare professionals knew early on that the COVID-19 pandemic was going to be bigger and more devastating than recent epidemics and there was an early call for intervention through the same types of pandemic control measures that were utilized during the 1918-1919 American Influenza Epidemic. As early as February 2020, medical professionals in China such as Yang et al. (2020) were providing recommendations such as quarantine, canceling or postponing large gatherings of people, and implementing home quarantine for everyone who was able (537). In March 2020, the CDC was recommending against universal masking because there was concern about the availability of masks for

⁵⁶ “CDC does not routinely recommend the use of face masks by well persons in the home or other community settings as a means of avoiding infection during influenza pandemics except under special, high-risk circumstances” (CDC, 2017, p. 15).

healthcare professionals who needed them and limited information about how COVID-19 was transmitted (CDC, 2020a, para. 14).⁵⁷ However, as evidence suggested that people could be contagious while asymptomatic and there was an increase in availability of cloth face masks, Megerian et al. (2020) reported that on April 3, 2020 the CDC changed their stance and began recommending masks for everyone, regardless of their symptoms (para. 1-4). This is an example of the problem identification step in the policy cycle. In a July CDC Newsroom Release (2020b), the CDC cited additional research showing that universal masking policies reduced the transmission of COVID-19 (para. 4) and that acceptance of face mask guidance was increasing with seventy-six percent (76%) endorsing mask mandates in May, compared with sixty-two percent (62%) in April (para. 12).

While this apparent flip-flopping of attitudes was often confusing for the general public, it showed that public health organizations were carefully monitoring the available research, available supplies, and current state of the pandemic and responding accordingly with different recommendations. State decision-makers were quick to update their recommendations for their state based on CDC recommendations and just seven (7) days after the CDC changed their stance on universal masking, New Jersey instituted the first statewide mask

⁵⁷ Premier Inc. (2020) conducted a survey on hospital supply levels and published the results, finding that most respondents had fewer than one-thousand (1,000) surgical masks on hand at their hospital and that twenty-six percent (26%) reported that they used that number each day, meaning that many locations had fewer than a day or two supply of masks on hand (para. 10).

mandate. This was the first portion of the policy implementation phase in the policy cycle.

Statewide Mask Mandate Implementation Dates

A total of forty-one (41)⁵⁸ statewide mask mandates were instituted between April 10, 2020 and January 21, 2021. Eleven (11) states never instituted statewide mask mandates.⁵⁹ The mask mandates began being lifted permanently, beginning in January 2021, with the last lifted in March 2022.⁶⁰ *Figure 12* shows a timeline of statewide mask mandate effective dates as well as the two (2) major CDC timeline points; when the CDC endorsed universal masking and when the CDC published studies showing that universal masking is effective against COVID-19 and again urged Americans to wear masks.

⁵⁸ Including the District of Columbia and Puerto Rico.

⁵⁹ Alaska, Arizona, Florida, Georgia, Idaho, Missouri, Nebraska, Oklahoma, South Carolina, South Dakota, and Tennessee. Unless otherwise stated, references for this section can be found in APPENDIX D [27] (p. 307).

⁶⁰ The average length of mandates was four-hundred and two (402) days with the longest mandate being Massachusetts, Seven-hundred and fifty-three days (753), and the shortest being North Dakota, sixty-five days (65). Some states (Delaware, Illinois, Louisiana, New York, Oregon, and Rhode Island) had breaks in their mask mandates where they were lifted and then reinstated later (Ballotpedia, 2022).



Figure 12 Timeline of Statewide Mask Mandates

To analyze mask mandates based on implementation date, I have classified states as an early, middle, or late implementer. These implementation categories were developed based on the natural clusters and lulls of statewide mask mandate implementation. **Early Implementer** mandates began requiring masks shortly following the CDC's recommendation endorsing universal masking (April 10, 2020 - May 15, 2020), followed by a lull of two (2) weeks. **Middle Implementer** mandates were implemented in the following three (3) months (May 29, 2020 - August 5, 2020). There was a one-hundred and one (101) lull between the mandate implemented on August 5, 2020 and the following mandate, implemented on November 14, 2020. **Late Implementer** mandates are those that became effective after November, 2020 (November 14, 2020 - January 22, 2021). The number of days between each statewide mask mandate implementation date can be viewed in APPENDIX D [27] (p. 300). *Figure 13* shows a map of statewide mask mandates, color coded by implementation category.

Mask Mandates By State and Implementation Date

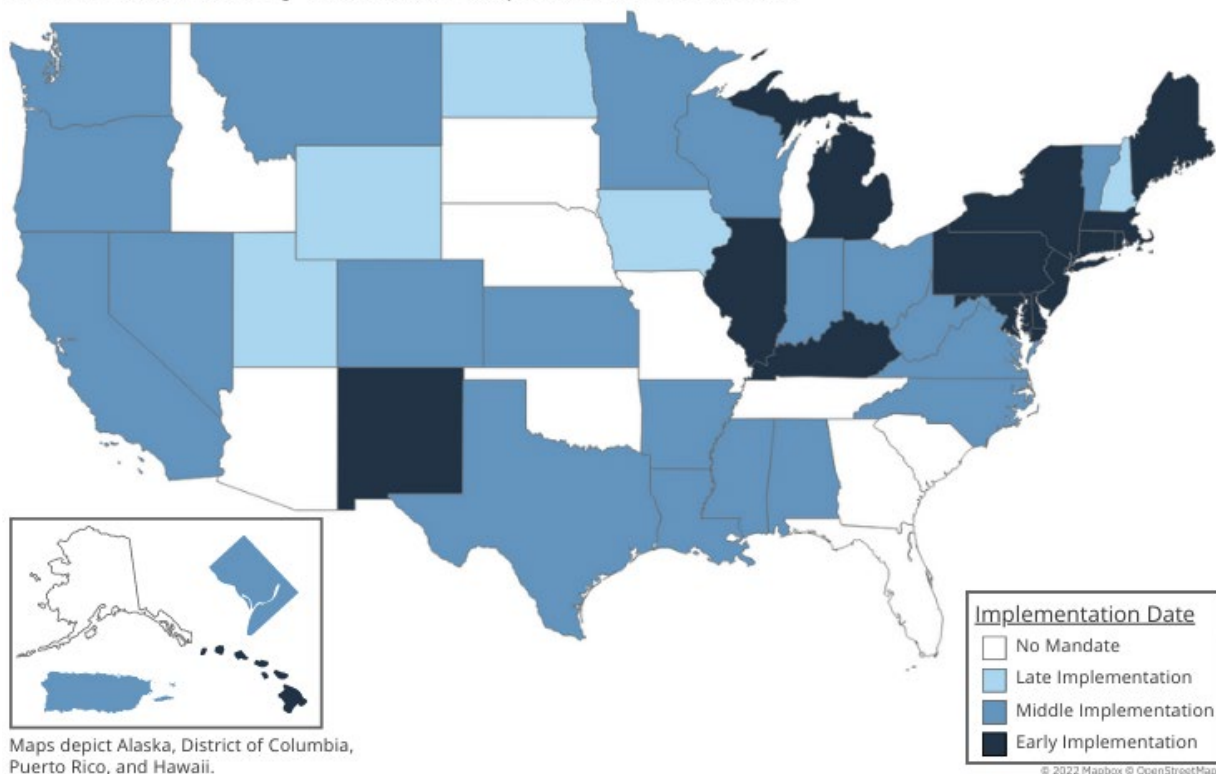


Figure 13 Map of Mask Mandates by State and Effective Date

As studies in 2021 showed the effectiveness of vaccines, American Hospital Association News (2021) reports that the CDC updated their guidance regarding masking to reflect that, and was no longer recommending masks for fully vaccinated individuals (para. 1). By September of 2022, Weixel (2022) reported that the CDC was no longer recommending universal masking even in healthcare facilities unless they “are in areas of high COVID-19 transmission” (para. 1). At that time, all statewide mask mandates had already been lifted.

Narratives of Statewide Mask Mandates and Rights of DHH People

While analysis of the narratives used in these mandates is not the focus of this research, a limited examination of a few randomly selected mandates

revealed that the narrative focus of statewide mask mandates was one of security. Most executive orders begin with a formal explanatory section with justifications for the order, most of which begin with “Whereas.” Roach (2001) explains that this section is called the preamble and it provides a narrative to back the legitimacy of the order by explaining the origins and purposes of the legislation (131). In the case of mask mandates, the preambles were helpful as they provided evidence to demonstrate that the reasoning presented for the mask mandates was the community goal of security.

By randomly selecting a few and reading them, I was able to see some common terms such as “safety” and “protect,” thus showing the narrative framing being one of Stone’s community goal of security. Some states titled their mask mandate orders with titles that gave evidence toward a narrative. Maine’s Executive Order No. 49 19/20 was officially titled *An Order to Stay Safer at Home* and New Mexico’s public health order directed people to read the guidance titled *All Together New Mexico: COVID-Safe Practices for Individuals and Employers*. Thus, a clear connection between mask mandates and the community goal of security was presented as a narrative. It would be a valuable area of research to delve further into the narratives presented by statewide mask mandate orders, perhaps through content analysis of common terms, to provide a fuller understanding of the narrative focus.

This is where the policy paradox, as described by Stone, came into play for mask mandates, because they were being developed and published to protect community security, while at the same time negatively harming the liberty

and welfare of DHH people. Stone presents that a potential solution to policy paradoxes where community goals compete is the establishment of rights. Stone (2012) explains that there are two types of rights; positive rights are those protected by the state while normative rights are philosophical and morality-based rights that everyone in a society should have (333). Under the ADA, access to effective communication for DHH people is a protected, and therefore a positive, right (ADA.gov, 2014, para. 3).⁶¹ Statewide mask mandates that did not provide exceptions for communicating with DHH people infringed upon the right to effective communication protected by the ADA. In the next section, I will discuss the exceptions that were provided for DHH people and the level to which they were effective, or ineffective, at protecting this right.

Exceptions for Communication with DHH People

In total, eighteen (18) out of forty-one (41) (43.9%) of statewide mask mandates provided exceptions that specifically mentioned someone who is DHH. All of these provide exceptions for someone who is communicating with a DHH person. Five (5) of forty-one (41) (12.16%) included exceptions for the DHH person themselves, in addition to the person communicating with them.

Most Early Implementation statewide mask mandates did not include exceptions mentioning DHH people, the first and only one (1) being Kentucky on May 5, the thirteenth (13th) mask mandate to be implemented, second-to last in

⁶¹ The ADA specifically defines this right as for those with “communication disabilities,” which is defined as “people who have vision, hearing, or speech disabilities” (ADA.gov, 2014, para. 2).

the Early Implementation category. As time passed, DHH exceptions were more likely to be included in statewide mask mandates with one-hundred percent (100%) of late implementation mandates including DHH exceptions. Most statewide mandates, regardless of time of implementation, included ambiguous medical exceptions that may or may not relate to DHH people or those communicating with them. I will explore these exceptions further in the next section.

Table 8 shows the percentage of mandates in each implementation category that included exceptions for DHH people, those communicating with them, or ambiguous exceptions that could include DHH people or those communicating with them.

Table 8 Statewide Exceptions Relevant to DHH People by Time

	Percent with Exception for Communicating with DHH Person	Percent with Exception for DHH Person	Percent with Ambiguous Medical Exception That May Include DHH Person
Early (N=14)	7.14%	7.14%	78.57%
Middle (N=22)	54.54%	4.54%	95.45%
Late (N=5)	100%	60%	100%

DHH Terminology Used in Exceptions

Of the eighteen (18) statewide mask mandates that provided exceptions for DHH people, eight (8) of them (44.44%) referred to DHH people as “deaf or hard of hearing” without capitalization of the word Deaf. Nine (9) of them referred to DHH people as “hearing impaired,” “hearing-impaired,” or “has a hearing

impairment” (55.60%).⁶² The DHH terminology used in policy is notable considering that the majority use the term “hearing impaired,” rather than “deaf or hard of hearing,” despite the fact that DHH has been the recommended term by The World Federation of the Deaf since 1991 (Merriam-Webster, n.d., para. 1). While many DHH people use the term “hearing impaired” for themselves, literature about the Deaf community, as well as the findings in this research, suggest that the majority of DHH people do not prefer that term and some find it actively offensive. There was a correlation between period of implementation and language used as later statewide mask mandates were less likely to use a variation of “hearing impaired” and more likely to use “deaf or hard of hearing.” *Table 9* shows these percentages of DHH terminology of statewide mask mandates by time.

Table 9 DHH Terminology of Statewide Mask Mandates by Time

	Variation of “hearing impaired”	“deaf or hard of hearing”
Early (N=14)	100% (1)	0% (0)
Middle (N=22)	63.64% (7)	36.36% (4)
Late (N=5)	20% (1)	80% (4)

⁶² One statewide mask mandate (Alabama) referred to DHH people as someone who “has a hearing impairment.” I mention this specifically because it uses person-first language, which is often frowned upon in the disabled community, though the debate regarding use is ongoing.

While I cannot speculate with much accuracy as to why “hearing impaired,” “hearing-impaired,” and the person-first option of “has a hearing impairment” were included over the more common and less offensive term of DHH, the use suggests a lack of awareness and research into DHH people before writing these exceptions. Even by doing a quick internet search, a decision maker would come across information that suggests that DHH is the more preferred terminology for this group. These findings suggest that these very specific exceptions for DHH people were written into the policies without even a base level understanding of DHH people, a necessary prerequisite for writing policy exceptions specifically mentioning them.

Possible Connection with DHH Commissions

There are thirty-eight (38) states that have state agencies (DHH Commissions)⁶³ for DHH people recognized by the National Association of State Agencies of the Deaf and Hard of Hearing (NASADHH, n.d.). These state agencies are located within the Executive Branch of the state’s government and many of them report directly to the Governor’s Office (e.g. Maryland) or the state’s Department of Health (Hawaii), which also report to the Governor’s Office. This is also where most Statewide Mask Mandates were issued from, either as

⁶³ I refer to these agencies as DHH Commissions as all of them use the word “Deaf” in their name and most also use the term “Hard of Hearing.” Fourteen (14) of them use the word “commission,” the most common agency title style. It is notable that none of them use the term “hearing impaired” in their title.

an executive order from the Governor's Office or as a public health order from the Department of Health, which was also signed by the governor.

After taking a cursory look at the states which have DHH commissions and comparing with the states that have DHH exceptions in their statewide mask mandates, there appears to be a correlation, as states which have DHH commissions are more likely to have DHH exceptions across all three (3) implementation categories. This can be seen in *Table 10*.

Table 10 Mask Mandates with DHH Exceptions and DHH Commissions

	Percent with Commission, With DHH Exception	Percent Without Commission, With DHH Exception	Percent with Commission, Without DHH Exception	Percent Without Commission, Without DHH Exception
Early (N=14)	7.14%	0.00%	0.00%	0.00%
Middle (N=22)	40.91%	13.64%	36.36%	9.09%
Late (N=5)	60.00%	40.00%	0.00%	0.00%

This suggests that the existence of a commission has a positive effect on whether a statewide mask mandate would include an exception for DHH people, though it is unclear whether this is due to direct action from the commission or another reason.

I also took a cursory look at the terminology used in the DHH exceptions to see if there was a correlation between that and the existence of a DHH commission. While the correlation is less strong than seen between the existence

of a commission and DHH exceptions, there does suggest a correlation between the existence of a commission and the terminology used. This can be seen in *Table 11*.

Table 11 DHH Terminology and DHH Commissions of Mask Mandates

	Percent with Commission, Uses "hearing impaired"	Percent with Commission, Uses "deaf or hard of hearing"	Percent Without Commission, Uses "hearing impaired"	Percent Without Commission, Uses "deaf or hard of hearing"
Early (N=1)	100.00%	0.00%	0.00%	0.00%
Middle (N=12)	41.67%	33.33%	25.00%	0.00%
Late (N=5)	0.00%	60.00%	20.00%	20.00%

While Middle Implementers with DHH commissions were more likely to use “hearing impaired,” it is notable that only Middle Implementers with commissions used “deaf or hard of hearing.” The correlation is more pronounced (although with a smaller sample size) when looking at Late Implementers, as none with DHH commissions used the term “hearing impaired” while those without DHH commissions equally used both terms.

This suggests that the existence of a DHH commission can have a positive effect on whether exceptions are made for DHH people in this emergency legislation. It also suggests that, while there were still missteps in later mandates, it is possible that later mandates were working more closely with DHH commissions or other DHH lobbying groups on the language used in the

policies. However, this is only a cursory look and more research into the processes leading to these policies and exceptions, including who was involved in the processes, is needed.

Membership Criteria for DHH Exceptions

Through analysis of the mask mandate DHH exception language, I compiled a list of reasons for providing exceptions for DHH people and those communicating with them. Stone (2012) describes this as membership criteria, explaining that when you say that something should be applicable to a specific group, the next question becomes “who is in that group?” (50). I was able to determine that there are three main membership criteria that are the determining factors in whether someone is included in the exception, or excluded in the exception. The three membership criteria identified are: being DHH, general communication, and visual communication.

Basing membership solely on being DHH was the most basic, and least popular, of the three (3) membership criteria. Of the eighteen (18) statewide mask mandates that provided DHH exceptions, two (2) of them based membership solely on being DHH (11.11%). They both used the phrase “seeking to communicate with someone who is hearing impaired.”

General communication was the middle of the three (3) criteria in popularity. Seven (7) statewide mask mandates that provided exceptions for being DHH based membership criteria on communication, in addition to being DHH (38.89%). This category used phrases like “not wearing a face covering is

essential to communication” and “makes communication with that individual while wearing a face covering difficult.” Two (2) mandates in this category required an alternative safety measure. Utah (Late Implementer) required either a face shield or plexiglass barrier for the person communicating with a DHH person and Minnesota (Middle implementer) required that social distancing be maintained “to the extent possible.”

The most popular membership criteria was a need for visual communication. Of the eighteen (18) mask mandates that provide DHH exceptions, nine (9) referenced visual communication (50%). This criteria had mandates that used phrases like “where the ability to see the mouth is essential to communication” and “requires the mouth to be visible.” The District of Columbia mandate specifically mentioned lipreading: “a deaf or hard of hearing person needs to read the lips of a speaker.” As I have discussed, visual communication is not the only way that masks disrupt communication for DHH people. Many do not lipread, but they may use facial expressions for additional context. Further, masks impact the audibility of speech, which is detrimental to DHH people who rely more on audio than visual communication. This means that most popular membership criteria in DHH exceptions in statewide mask mandate policies actually excludes many of the people who the exceptions are written to help, rendering them ineffective at addressing the issue of masks affecting communication.

Two (2) mandates specifically mentioned that masks could only be removed if “communication cannot be achieved through other means” (Utah and

Wisconsin). This is interesting because there are numerous alternative methods of communication used by DHH people every day. These include passing a piece of paper or phone back and forth, ASL, talk-to-text programs, and many others. If someone were to ask a DHH person “could communication have been achieved in another way?” when in a situation where masks impeded communication, they would almost assuredly respond with “yes.” It would be difficult, virtually impossible, to defend in court that you fell under this exception as a DHH person, because this exception has been rendered useless by this inclusion. However, hearing people are not as used to using alternative forms of communication, so this likely did not occur to the decision-makers who wrote this wording into the policies in Utah and Wisconsin. This is a stark reminder of how ambiguity can be a positive tool for policy makers to lean on when referencing a group with extreme diversity. By providing more ambiguous exceptions, the issue of membership criteria excluding more people than intended is less likely. Ambiguity also can reduce the need for a full understanding of all possible effects of a policy on minority groups, as they can be covered in more ambiguous exceptions.

Ambiguous Medical Exceptions

Thirty-seven (37) statewide mask mandates (90.24%) provided general ambiguous exceptions for people with medical, health, or disability considerations. These were interesting because many of them were written in a way that could be interpreted as including DHH people or those they are communicating with.

Although some DHH exceptions specifically mention an exception for the DHH person themselves, little benefit is provided to communication if the DHH person removes their mask, the majority of benefit is derived from the other person removing their mask. That being said, most of the ambiguous medical exceptions could be argued to apply to DHH people. To analyze ambiguous medical exceptions, I looked at the membership criteria for the exceptions as well as the specificity of the exceptions.

The majority of ambiguous medical exceptions said some variation of “Persons with a medical condition, mental health condition, or disability that prevents wearing a face covering.” The first half of the sentence makes membership criteria for DHH people simplistic as, even if not all agree to having a disability, most would agree to having a medical condition. However, the specificity of the second half makes it less clear, and that is why I chose to analyze specificity separately. I have identified three membership criteria used in ambiguous medical exceptions for statewide mask mandates: medical condition/disability, health and safety, or other.

Medical condition/disability exceptions based membership solely on a medical condition, health condition, or disability, all of which arguably could apply to DHH people. Of the thirty-seven (37) mask mandates that provided ambiguous medical exceptions, thirty (30) fell into this category (81%).

Mandates with health and safety membership criteria based membership both a medical condition, health condition, or disability as well as safety, using phrases like “has a disability or physical or mental impairment, that prevents

them from safely wearing a face covering." Communication can impact someone's safety, or feelings of safety, which means these criteria could arguably apply to DHH people. Of the thirty-seven (37) mask mandates that provided ambiguous medical exceptions, four (4) fell into this category (10.81%).

Some ambiguous medical exceptions did not fit into the previous two (2) categories and were notably different. Of the thirty-seven (37) mask mandates that provided ambiguous medical exceptions, three (3) fell into this category (8.10%).

New Mexico went a more specific route of, not basing membership on a medical condition specifically, but on medical authority. This specified that everyone was to wear masks "unless otherwise advised by a health care provider." This specificity would make it more difficult, though not impossible, for a DHH person to claim the exception applied to them. Massachusetts also had more specificity, requiring an appeal to authority in addition to a medical condition membership criteria. The Massachusetts mandate states "except where a person is unable to wear a mask or face covering due to a medical condition or the person is otherwise exempted by Department of Public Health guidance."

Puerto Rico had the most ambiguous of all medical exceptions that could apply to DHH people. Puerto Rico included a paragraph on allowing for situations to be handled on a case-by-case basis.

Hence, it is important to consider the needs of each person who visits authorized establishments when rendering services. We encourage each employer to make the necessary adjustments to fulfill the needs of

persons with disabilities and the elderly including, but not limited to, the need to allow their guardians or caretakers to enter said establishments.⁶⁴

Puerto Rico's ambiguous exception may be as close as we can get to Stone's mentioned impossible perfect rule, both specific and ambiguous. It provides specificity regarding who it is discussing ("persons with disabilities and the elderly"). It also is ambiguous to allow for individual interpretation ("make the necessary adjustments to fulfill the needs"). This allows individuals the freedom of interpretation to address situations decision-makers may be unaware of, but specific enough that a DHH person could still argue their need and point to it as an exception. We can learn from the ambiguity of Puerto Rico's exception and apply this to future policies, outside of the scope of pandemics, by including ambiguous exceptions to reduce the likelihood of unintended consequences on marginalized and misunderstood populations like DHH people.

Specificity of Exceptions

The ambiguous medical exceptions provided language that implied a severity of level to impact that masks have on the person with a medical condition or disability. Some were more specific, with an implied higher severity of impact needed before the person can achieve membership criteria. I have split them into three categories: high specificity, medium specificity, and low specificity.

⁶⁴ Although the original mandate was written in Spanish, Puerto Rico provided an official interpretation into English on their website.

High specificity exceptions are more specific, and therefore less likely (though not impossible) to be arguable as applicable to DHH people. High specificity includes mandates with words and phrases like “medical condition or disability that prevents wearing a mask.”

Medium specificity exceptions are equally likely to be arguable as applicable or not applicable to DHH people. These include phrases such as “except where doing so would inhibit that individual’s health,” “should not wear a face covering,” or “contrary to his or her health or safety.” These may or may not be applicable to DHH people, but I have deemed them more applicable than high specificity, and less applicable than low specificity.

Low specificity exceptions are more ambiguous, and therefore more likely to be arguable as applicable to DHH people. These include phrases such as “a medical or developmental issue or challenge that is complicated or irritated by a facial covering” and “disability that makes it unreasonable for the individual to maintain a face covering.” These are more easily arguable as applicable to DHH people than the other two categories. All three (3) specificity types by percent can be seen in *Table 12*.

Table 12 Ambiguous Medical Exceptions by Specificity

	Low Specificity	Medium Specificity	High Specificity
Ambiguous Medical Exceptions (N=37)	10.81%	21.62%	67.57%

This suggests that, while most statewide mask mandates provided ambiguous medical exceptions which could potentially apply to DHH people, only 10.81% of them are easily argued as applicable to DHH people. Further, this still only provides exceptions for the DHH person themselves, not those communicating with them, limiting the applicability of the exceptions further.

Ambiguous Non-Medical Exceptions

There were ambiguous non-medical exceptions that could be interpreted as applying to DHH people. While these were not the focus of my research, there are still a few notable ones to include here.

Multiple statewide mask mandates provided exceptions based on specific activities. Many were specific about the activities (i.e. working out), but some were so general as to be applicable to almost any situation in which a DHH person is communicating with someone. Oregon’s mandate says:

Masks, face shields or face coverings are not required when at a business or in an indoor space open to the public and engaged in an activity that makes wearing a mask, face shield or face covering not feasible, such as strenuous physical exercise, or performers singing or playing an instrument if at least six (6) feet of distance is maintained from others.

The term “not feasible” could be applied to situations where a DHH person is trying to communicate with someone and wants to see their face or hear them, without the obstruction of masks.

Arkansas has a similarly ambiguous exception that could apply to retail workers in a store when a DHH person is a customer. The Arkansas mandate exempts “Persons performing job duties where a six (6) feet distance is not achievable, but a mask is inhibitory to the ability to safely and effectively perform the job duty.” In the case of a retail worker in a store, being unable to communicate with a customer who has a question could be argued as inhibiting the ability to effectively perform their job duties.

Short Summary of Findings

Of the forty-one (41) states⁶⁵ that implemented statewide mask mandates, eighteen (18) (43.90%) included exceptions for people communicating with DHH people. Later mandates were far more likely to provide exceptions for DHH people. Membership criteria for the exceptions were based solely on deafness, on general communication, or on visual communication. Two (2) of these exceptions specifically mentioned that the exception only applied when “communication cannot be achieved through other means,” which may have rendered the exceptions unusable. Statewide mask mandates that allowed for DHH-specific exceptions favored variations of the term “hearing impaired” over the more socially acceptable term “deaf or hard of hearing,” implying an

⁶⁵ Including the District of Columbia and Puerto Rico.

ignorance of DHH people. The majority of statewide mask mandates (90.24%) provided exceptions for medical conditions or disabilities that were written in an ambiguous way that may have allowed for interpretation of applicability to DHH people. However, after analysis of their wording, only ten percent (10.81%) of ambiguous medical exceptions were deemed likely to be applicable to DHH people, meaning the specificity rendered them less valuable for DHH people.

These findings show how specificity in policy, when combined with ignorance of the issue the exceptions are trying to solve, can be harmful to the communities it is trying to serve. For this reason, ambiguity can be a valuable tool for policy makers to lean on when preparing legislation for which the unintended effects are relatively unknown. Ambiguity in exceptions with broad applications, which also include specificity of when to apply the exceptions, are likely to be more effective in reducing the unintended consequences of policy. Puerto Rico's ambiguous medical exception provides a good example of this balance of specificity and ambiguity, allowing for broader applicability without the need for a deep understanding of all potentially affected communities. A longer summary of this chapter's findings and the implications can be found in CHAPTER SEVEN: CONCLUSIONS [11] (p. 201).

CHAPTER SIX: FINDINGS III: MASKS AND COMMUNICATION [40]

Introduction

When mask mandates and social pressure to wear masks increased, DHH people faced new challenges due to masks impacting their communication. In this chapter, I present the findings related to masks and communication that emerged from quantitative analysis of the survey as well as qualitative analysis of the combined interviews and open-ended survey data using grounded theory. I will also meld these findings with current research, Stone's policy paradoxes, the Social Model of Disability, and the concept of Accessibility By Default. This is done in service of the research question: **how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people?**

Findings in this chapter show that masks diminished communication for DHH people by muffling speech and blocking visual cues. The impact on communication was higher for Linguistically Hearing participants over Linguistically Deaf participants, though both groups reported an impact. Diminished communication due to masks led to an increased awareness of hearing loss and coping methods for participants. The impact of masks on communication also led participants to change their behavior, relying more heavily on coping methods, changing their coping methods, and taking actions that increased their risk of contracting or spreading COVID-19. This last behavior is particularly concerning considering masks are intended to increase security,

but their impact on liberty and welfare led to their reduced use for people who otherwise support the use of masks.

I will demonstrate how the effect of masks on communication had a negative emotional impact for participants. This led them to have paradoxical support of masks, both supporting them for their security, but lamenting them for their impact on communication and their lives (liberty and welfare). Finally, I will conclude with relevant information about what participants would like to see for the future and how similar effects can be mitigated in future policy considerations.

Masks Diminished Communication

It is no surprise that masks obscure communication for everyone, or that this is an area of particular difficulty for DHH people, who already deal with communication issues. In explaining how masks impact communication, Fridland (2020) presents that there is a connection between what we see and what we hear when it comes to processing information, and that those visual cues are part of the “speech chain” between a speaker and a listener (para. 4). Traditional surgical masks disrupt visual communication by blocking access to see the mouth, nose, and cheeks of the speaker, where many facial expressions and morphemes⁶⁶ are displayed. They also muffle speech, which impacts communication processing for DHH people who use residual hearing, hearing

⁶⁶ A unit of language.

aids, or cochlear implants. A photo of a standard surgical mask can be seen in *Picture 2*.



Picture 2 Example of a Surgical Mask

Source: Askari (2022).

Long before COVID-19 was on the radar, Mendel et al. (2008) studied thirty (30) adults, fifteen (15) hearing and fifteen (15) hard of hearing people, and found that there was a decrease, although slight, in understanding communication when masks were present. However, when there was background noise, the decrease in understanding was much more pronounced (693). In a more recent study, Homans and Vroegop (2022) studied forty-two (42) DHH patients in a hospital setting and found that there was a significantly lower speech perception score for situations involving masks versus no masks (365).

The survey for this research included Likert questions where participants were asked to select on a five (5) point scale their level of agreement or disagreement with a statement. Questions 22.1 to 22.5 were specifically about masks and communication. Participant responses to these questions, split by linguistic category, can be seen in *Figure 14*.

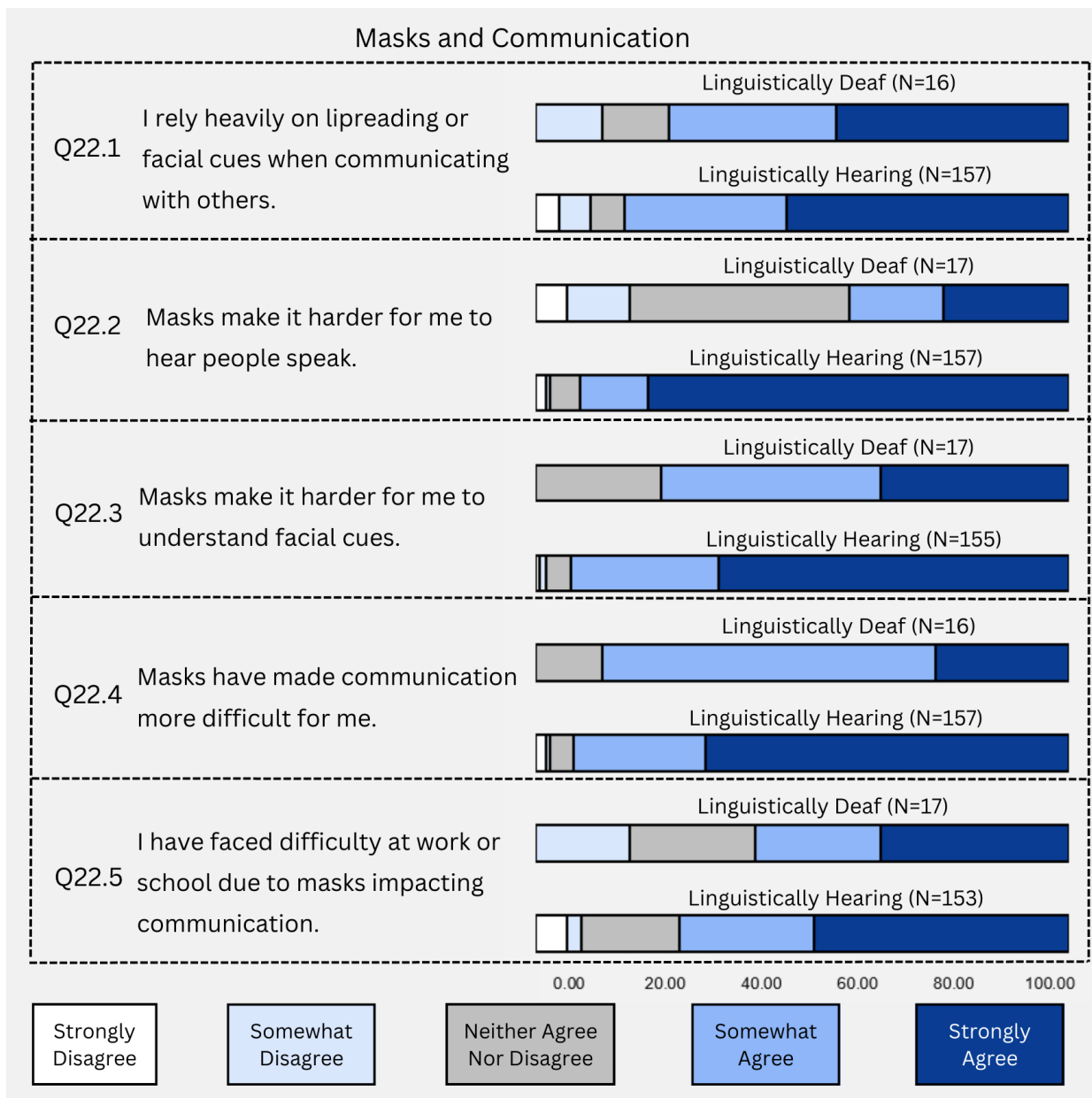


Figure 14 Masks and Communication Likert - Linguistic Comparison

The main finding from this section of survey questions is that most participants report a reliance on lipreading and facial cues, both when using ASL and when using spoken English, and that masks affect communication for most participants. These results also suggest that the impact of masks on communication is higher for Linguistically Hearing participants than on Linguistically Deaf Participants. This is evidenced by the lower percentage of strong positive responses from Linguistically Deaf participants in all questions of this section.

All interview participants and most survey participants reported that masks impact their communication by blocking visual cues (lipreading or facial expressions), auditory cues, or both. Participants referenced masks impacting Spoken English as well as ASL. An example of a typical response is Evelyn, who said:

Well, I do tend to do some level of lip reading to augment my lower level of hear—my hard of hearing issue—and I can't see anybody's lips. Also, the masks inhibit the sound to some extent, so it is harder to hear and I lose the opportunity to do some lipreading.

Participants generally spoke about masks impacting communication in the same ways, referencing the way they affected visual cues using terms like “facial cues” and “lipreading.” Multiple participants also referenced masks impacting their ability to see due to fogging glasses or causing them to slide down, further limiting the use of visual cues.

Participants referenced the way masks affected audio cues using terms like “muffling” and “harder to hear.” John described the impact on hearing, saying “I still have trouble understanding what somebody says sometimes with masks because it's like, put your hand in front of your face and—” At that point, John put his hand over his mouth and mumbled behind his hand to demonstrate the muffled speech and laughed. Participants referenced common locations that resulted in communication issues for them, most often retail establishments, places of employment, healthcare settings, and social situations. Other locations mentioned included churches, pharmacies, public transit and air travel, and school.

A notable complaint around the impact of masks and communication was the fact that communication interactions can take longer. This is notable because it is not something that I have seen mentioned in other studies on this issue, and further study would be valuable. Evelyn said, in a cheery voice with a laugh, “It's harder to get the information I need from the doctors and from the pharmacist. And it takes longer. And you get tired of it.” Evelyn’s positive attitude around the situation does not diminish that difficulty in getting information and delay of information can have detrimental effects on the healthcare of DHH people. Erma described a healthcare situation where miscommunication could have been life-threatening for her. She said:

I remember one time at the doctors he was prescribing, but had prescribed an antibiotic that didn't seem to be working. So, he said “and I'm going to give you—” and I couldn't understand him. ... and I went “did

you say [medication]⁶⁷?” And he said yes, and I said, “I’m allergic to [medication]” and he goes “you are?” I said “it’s on my chart” and it kind of took us a while to get the fact across that I couldn’t take what he was telling me to take.

Erma’s experience provides an example of how communication issues, particularly in medical situations where masks are most prevalent, can be very dangerous. Further implications of masks affecting communication will be discussed in the following sections.

Another notable impact on communication mentioned by a few participants is an impact on the speech of the speaker, in some cases the participant. Although this was mentioned by relatively few participants, it points to an important relationship between speech and hearing, which is backed by current literature, but has yet to be connected to masks.⁶⁸ During an explanation of the impact that masks have on their communication, Vicky said “my speech feels worse with wearing a mask”. When asked at the end of the interview if there was anything else on the subject that they wanted to share, Vicky said “Masks affect our voices. I cannot vocalize or verbalize through masks clearly and I can’t lipread through masks either. So, all in all, I feel like masks just are a barrier in general for communication.” Survey Participant #18 said that their inability to

⁶⁷ Medication name has been removed for participant privacy.

⁶⁸ Survey Participant #124 mentioned the work they do with children who have Autism Spectrum Disorder (ASD), a disorder that hinders communication, and said that masks impact their speech as well. “With wearing masks some have harder time understanding instructions or struggle more with speech goals.” This suggests an area of future research to consider, on the impact that masks have on communication and speech for people with other disorders that affect communication.

communicate, including difficulty hearing themselves, led to them quitting their job. “I’ve had to quit waitressing because I can’t lip read people wearing masks and I struggle to hear myself while wearing one.” It is interesting that when discussing this issue, it was always mentioned by participants in situations where they also discussed their ability to hear. Although Vicky made a point to mention it multiple times, the other participants who mentioned it, did so as an afterthought.

As mentioned in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81), ability to hear yourself speak is one of the things that makes speech inaccessible or very difficult for many DHH people (Neef and Iwata, 1985, 290). Seguara (2022) explains that the inaccessibility of sound and the auditory feedback loop leads to the deaf accent, and that removing access to that feedback loop by removing her cochlear implant makes her deaf accent more pronounced. This is likely what Vicky was referring to when they said that masks make their speech “feel worse.” Stepping away from Vicky and into current discussions on the deaf accent, Drexler (2018) explains her feelings about her deaf accent, saying “I questioned the intelligibility of my speech and felt embarrassed to speak in front of a group” (para. 10). This embarrassment around not being able to hear or speak like a hearing person is common amongst DHH people, and masks impacting participant speech may have increased those concerns. Additionally, a more pronounced deaf accent could contribute toward making someone’s deafness a visible disability, rather than an invisible one, as it could lead others to realize they are d/Deaf without being told.

Another way that masks impacted communication was by interfering with hearing aids or cochlear implants, which was mentioned by two (2) interview participants and ten (10) survey participants. Some complaints about interference were about the minor annoyance of the ear straps of masks being uncomfortable with hearing aids, but other participant complaints were of a more serious nature. Multiple survey participants reported that removing the mask could result in the hearing aid falling off or being “launched across the room,” an expensive, inconvenient, and potentially debilitating issue when hearing aids can be quite costly, especially in the United States. Survey Participant #69 explained that masks actually interfered with the signal that their hearing aid would get, making it “impossible for my hearing aids to work.” Affecting the quality of sound due to interfering with the hearing aid signal is another way that masks impact communication for DHH people

While most participants responded affirmatively to questions regarding masks impacting their communication, there were a few survey participants who did not. Some participants responded negatively or neutrally to “Masks have made communication more difficult for me” (Q22.4).⁶⁹ In the open-ended response on masks and communication (Q23), Survey participant #10, classified as Linguistically Deaf, said “Masks has no impact on me since I use 100% ASL.” This participant selected “Neither Agree Nor Disagree” on all questions in the

⁶⁹ A total of thirteen (13) participants responded negatively or neutrally to this question. Of them, four (4) responded negatively, all Linguistically Hearing. Nine (9) responded neutrally, two (2) Linguistically Deaf and seven (7) Linguistically Hearing. However, nine (9) of these thirteen (13) participants responded affirmatively to Q22.2 or Q22.3, suggesting that masks either make it harder for them to hear people speak or make it harder for them to understand facial cues.

“Masks and Communication” block of the Likert questions (Q22.1 - Q22.5). This does not mean that other ASL users also felt that masks did not impact their communication, but it is notable that this participant did, considering it is such an outlier from the majority of the participant responses. This participant response supports the hypothesis that those who primarily use ASL (Linguistically Deaf) are less affected by masks than those who use spoken English (Linguistically Hearing).

Increased Awareness of Hearing Loss and Coping Methods

An unexpected impact of masks on communication for DHH people was masks leading a participant to learn something new about themselves. This increased awareness generally came in two forms: increased awareness of their own hearing loss or increased awareness of their own reliance on coping methods to supplement lack of hearing, such as lipreading or asking people to repeat themselves.

There are two (2) possible reasons mentioned by participants for why they (or those they knew) became aware of their hearing loss during the COVID-19 pandemic. The first is that having contracted COVID-19 may have led to hearing loss. There is evidence to suggest that a rare, but statistically significant, side effect of COVID-19 is hearing loss or tinnitus (Jafari et al., 2022). Another reason is that the impact of masks on communication may have led them to realize that they were previously relying more on coping methods than they expected, which led to awareness of their hearing loss. It is also possible that they were able to

hear at the decibel typical of unmasked speech, but not at the lower decibels of unmasked speech, thus making them aware of the issue.

There were two interview participants, Herbert and Teri, who mentioned that they did not know they were hard of hearing before the COVID-19 pandemic. Herbert, when discussing his own realization of his hearing loss, also mentioned that a friend of his recently noticed hearing issues and believed that his hearing loss had come on as a side effect of COVID-19. Herbert mentioned that he was unsure whether he had a “hearing deficit” before contracting COVID-19, but that masks were a contributing factor in his discovering his hearing deficit; “Some people don't even know it, like me. I don't know whether this was going on for me before COVID or not, because I never paid any attention to it, didn't have a reason to.”

Survey Participant #183, who describes themselves as a “Hearing Impaired Audiologist” mentioned an increase in patients visiting their workplace. “I am swamped with patients due to tinnitus from COVID and because of the masks people realizing they have more hearing loss than they thought.” Teri was one such person, who only discovered her hearing loss due to masks impacting communication for her, and also mentioned having tinnitus.

Someone wearing a mask would be so muffled. That's when I started thinking ... do I have a hearing problem? Or I would dismiss it and go “it's just because of the mask.” But then, when the mandate was [lifted in my state], I was still having trouble, and so that's when I told my doctor something's going on.

These quotations from Herbert, Teri, and Survey Participant #183, combined with the research on COVID-19 impacting hearing ability, suggests that there has been an increase in DHH people, either due to COVID-19 leading to hearing loss, or due to mask use leading someone to notice that they were struggling to communicate with masks, while others around them weren't.

Multiple participants, whose hearing loss did not coincide with COVID-19, mentioned in both the survey and interviews that they became aware that they were more reliant on coping methods for communication than they had realized before those methods were impacted by mask use. For example, Erma, a white woman in her seventies (70s) interviewing in English, expressed that visuals were part of the entire communication process for her, but that she didn't realize it. Erma said "I don't realize until people's faces are covered, but it's hard for me to hear if I couldn't see their lips move, and facial expression is all part of understanding what's being said. So, yeah, it definitely impaired."

The frequency of this being mentioned by participants suggests that this has occurred with some level of commonality for DHH people. Since this is not something that I directly asked about, but it still came up with relative frequency, this suggests that this realization has significance for these individuals. Learning something new about how you process communication can lead to changed behavior.

Changed Behavior Because of Masks

Regardless of masks, DHH people often rely on various coping methods to be able to communicate with others effectively without the use of ASL. That

being said, participants brought up that they altered their behavior and use of coping methods due to masks impacting their communication. Some of the coping methods mentioned by participants included avoiding specific situations, technology such as closed captioning or medical technology, changing communication methods, and advocating for their needs. In this section I will outline the behaviors that participants mentioned altering because of masks and discuss the implications of those changes.

Reduction of Practicing COVID-19 Safety Measures

Multiple participants mentioned coping methods that could increase their risk of contracting COVID-19, or spreading it if contagious and unaware. These coping methods included asking others to remove their masks, getting closer than social distancing, or removing their own mask, while keeping social distancing. This is particularly concerning since half of DHH people are over the age of sixty-five (65) and at higher risk of complications from COVID-19, so a reduction in practicing safety measures because of masks could harm them, the opposite of the intended goal of masks.

Some participants, like Pauline, said that they would ask people to remove their masks when talking to them. Alternatively, Maureen expressed that she would not request that someone remove their mask, but she described a situation where she was grateful when a restaurant server removed their mask unprompted. Erma explained that she would sometimes get closer than social distancing so she could better hear people. Erma said “It's kind of funny, with the

social distancing, because I don't hear well, I find the six [6] feet to be a little too far in one-on-one conversations, so I tend to sneak in a little bit, and then they back up." Erma's explanation shows how she would take actions to aid in communication, which also reduced safety, and that choice was not always considered acceptable by others.

Some participants expressed frustration with people who *wouldn't* remove their masks to speak to them, while other participants expressed frustration with people who *would*. There was also frustration expressed about those who came closer than social distancing recommendations to communicate, which directly counters Erma's saying that she would "sneak in a little bit" to communicate. Survey Participant #28 wrote "Some people pull off their masks and lean towards me to try to communicate- ugh!"

This paradox of opinions is because some people were more concerned about contracting COVID-19, and were therefore uncomfortable with the increased risk, despite the communication issues they were facing due to masks. Survey Participant #43 expressed this by saying "As much as I miss the ease of lip reading when out running errands, the risk of dying is never worth others pulling their masks down."

Advocacy

The most commonly-mentioned coping method was participants advocating for themselves to cope with the communication difficulties exacerbated by masks. Advocacy generally took three (3) forms, listed in order of prevalence: asking others to repeat themselves, educating others on their needs (such as requesting they speak louder, look directly at them, or remove their mask), and an appeal to authority. Some participants mentioned that, at the start of the pandemic, they were not comfortable with self-advocacy, but that they got more comfortable with it as the pandemic went on. Dale said:

My hearing loss has come on quite quickly, and when it did at first, I was sort of embarrassed to say to people, “Hey, I’m hearing impaired, slow down, look at me, speak up” but with masks I finally, you know, I’m just like “look I’m hearing impaired. Speak up, look at me” and people, a lot of times, they’re like “Oh.”

At this point Dale showed visible shock, indicating that that is how people react when he provides this advocacy direction to them. This quote shows that the widespread use of masks forced some DHH people to make their deafness more visible and practice their advocacy skills to access communication.

Multiple participants mentioned that they made appeals to authority to improve their communication circumstances. These appeals to authority were not always successful, though some were. Linda described a specific situation where she appealed to authority to advocate for communication, but that it took some time and was an uncomfortable situation. She described working in an office

setting and asking a coworker to remove his mask so she could communicate. The coworker, not understanding what was being asked of him, put the mask over his nose, exposing his mouth, but still blocking much of his face. After repeatedly asking this coworker to accommodate her, she eventually asked her supervisor to intervene, who required that the coworker begin using an online chat technology to communicate with her, which he previously had declined to use.

Linda was successful in her self-advocacy, first attempting to resolve the issue on a personal level with her coworker and then appealing to authority when that was unsuccessful. However, advocacy is not always successful for individuals. It is likely that experience in self-advocacy, communication methods, and visibility of deafness can have an impact on participants' experiences with success of self-advocacy, since Linda is a Linguistically Deaf participant who primarily communicates through ASL, which coworkers and her supervisor in a close office setting would know. Alternatively, Dale is Linguistically Hearing and uses English, which means that his hearing loss is an invisible disability and could lead to less understanding of his communication needs. He also likely has less experience with self-advocacy, since his hearing loss happened later in life and he does not have experience with requesting interpretation (another form of advocacy), as Linda does.

Situational Avoidance, Changing Communication Methods, and Technology

One of the most commonly mentioned coping methods for DHH people regarding communication issues exacerbated by masks was to avoid situations entirely. Multiple participants reported that they would avoid situations where they knew they would be required to wear masks because of concern or anxiety around the communication issues. Erma explained:

To be honest, I tended to not want to go places if I knew I'd have to be wearing a mask so I stayed home more. It was easier watching church on [streaming], plus there was some captioning with that, than going to church and not being able to communicate with people anyway. So, for a while there I was tending to stay home and watch it on TV.

Erma's experience is an example of how some DHH people would change attendance methods to avoid communication difficulties exacerbated by masks. When describing a situation where they were having difficulty communicating with someone at the pharmacy because of masks, Vicky explained that they have since found a pharmacy that delivers instead of going in person to pick up medications. Vicky also mentioned that these choices sometimes resulted in delaying access to medication they needed. Vicky said:

I had to make specific choices that felt like between getting what I needed or delaying what I needed. So, one example of this is the pharmacy. ... I have felt like I had a choice to go, get my medicine, try and communicate, or leave it and wait until a hearing friend could come with me to then navigate that communication situation.

In this quote, Vicky mentions both situational avoidance and changing communication methods, switching to having an unofficial interpreter instead of trying to communicate on their own. Vicky was not the only participant who mentioned delaying medical services due to communication barriers caused by masks.

A specific type of situational avoidance referenced by participants was avoiding situations with loud background noise or crowds. Similar to the findings of Mendel et al. (2008), who found that masks in addition to background noise affected speech perception, participants would often mention that the difficulty in understanding was greater with more people around and more background noise. When asked about their preferred method of in-person communication, multiple Linguistically Hearing interview participants used phrases that suggested they preferred low background noise such as “quiet background” and “in a quiet room with just a few people.”

However, a few participants mentioned that this coping method is not always possible. Pauline described a situation where her work planned to hold a retirement party for her, and she requested an alternative, setting up one-on-one lunches with coworkers, but that request was denied. Pauline recalls the party, which was thrown for her, as being painful and embarrassing because she couldn't hear people talking to her. In this example, Pauline attempted self-advocacy, including an appeal to authority, to avoid situations with loud background noise, but her request was denied.

Technology is an increasingly common method of communication, as well as a coping method for communication issues. There were a few different kinds of technology referenced by participants as valuable for their communication. This included medical technology, live transcription apps, and virtual attendance. While these technologies were often used by DHH people before COVID-19, multiple participants described an increase in their use of technology as a response to masks impacting their communication. For example, in the open-ended question about how COVID-19 has impacted their employment or job (Q19), Survey Participant #7 said:

I'm non-ASL fluent HOH and as a graduate student, I taught/attended classes during the pandemic. Masks changed the classroom environment so much that typical strategies like lip reading are impossible and so I have come to rely more on hearing assistance devices to navigate the classroom environment.

Multiple participants clarified that they use technology that is able to connect to their medical hearing devices, which then reduced the impact of masks on their communication. However, some specified that it was not very helpful or not possible to assist in all circumstances.

Emotional Impact of Masks

Participants provided statements that alluded to the emotional impact that masks had on them generally throughout the pandemic. Participants reported that masks led to increased feelings of isolation, frustration, embarrassment, and worsened mental health. Understanding the emotional impact of masks on DHH

people is important for understanding the scope of this issue and the ways that unintended consequences of policy can negatively harm individuals.

The most common emotion expressed by participants was that masks increased feelings of isolation, exclusion, and being disconnected from others. Prior to the pandemic, isolation was already a well-documented feeling many DHH people experience due to the nature of communication barriers (Munoz-Baell and Ruiz, 2000, p. 41). However, multiple participants expressed that these feelings were intensified by masks. Survey Participant #186 explained this by saying:

I don't think policy-makers fully understand the negative impact masks have on communication for hard of hearing people. There seems to be an assumption that there are no downsides to masks, when in reality masks have exacerbated the isolation hard of hearing people already experience due to hearing loss.

Feelings of isolation surrounding the COVID-19 pandemic are not unique to DHH people, as many hearing people have experienced these feelings as well (Dahlberg, 2021, p. 1161). However, the connection between masks and isolation that participants specifically mentioned is something that may be more pervasive among DHH people or felt at a higher rate than hearing people. A comparison between DHH people and hearing people and the frequency of masks being referenced in relation to isolation due to COVID-19 by each group would be a valuable area of future research.

Vicky and Christine both mentioned that they felt people were less likely to try to communicate with them. This reduced social connection increased their feelings of isolation. Vicky said “I have fewer people who try to communicate with me with masks. It makes me work harder and it's harder on them to communicate with me.” When asked how communication issues related to masks impacted her life, Christine expressed a similar sentiment. She said:

Before COVID and wearing masks, I always felt like there was a connection with folks. Obviously, I know I'm Deaf and they're hearing, I'm used to that aspect, but wearing masks felt like there was an added layer of isolation. I definitely felt lonely and felt like the bridge between the hearing and the Deaf world, I definitely feel like the bridge was there, but there was a disconnect there. There was no symbiosis there, there's no harmony there, so that disconnect definitely created a lonelier feeling. I've got family and friends here, at home, but it's not the same as just being out in the community and out in society. I feel absolutely like a hermit, like I was disconnected. No people would, essentially, come up to try and connect with me.

Here, Christine explains that feelings of isolation were intensified by masks and COVID-19 generally. These participant responses suggest that people were either less social in general during COVID-19, or they were less social, specifically, with DHH people.

Participants expressed frustration or impatience at trying to communicate with masks on. Sometimes this frustration or impatience was at the situation, but

other times it was directed at the person they were communicating with. Linda said “I’m having to be more patient with people. At the same time, they need to have patience and learn to have patience with me.” Teri described a specific situation where she was frustrated and upset with a government official in a customer service position. She explained that she was being asked for a long list of documentation needed and that the worker had a negative reaction to her request to write things down. Teri’s example shows how communication issues and an unwillingness to use alternative forms of communication can lead to frustration.

A few participants mentioned feeling embarrassed or humiliated by being in situations where they were unable to communicate effectively. Survey Participant #186 said “It is utterly humiliating to be in others’ company and unable to hear/understand; lip reading is necessary.” It is notable that mentions of embarrassment were only brought up by participants who were classified as Linguistically Hearing. It is possible that there is a correlation between the type of communication being used and whether a participant feels embarrassed by being unable to communicate, but this connection is inconclusive at this time. Further research into this area of study is recommended.

One survey participant brought up that masks increased their need to disclose being DHH. Survey Participant #2, classified as Linguistically Hearing, said:

Overall, the use of masks and recorded lectures has required me to disclose my HoH status in most formal settings, which was only occasionally necessary before. Because we live in a society pervaded by ableism, this

puts me at risk of being dismissed as a “needy” student and trainee, and a professional “liability” in the workforce.

Survey Participant #2 is an example of a Linguistically Hearing person who, before the pandemic, was living with their deafness as an invisible disability. This choice, or as they describe it, “requirement,” to disclose their DHH status to advocate for their needs can open them up to negative audist assumptions about their intelligence or, as mentioned by this participant, concerns of being dismissed due to their requests.

The emotional impact of masks was referenced by some as a reason for increased anxiety or depression. Survey Participant #32 mentioned that they have had to make changes to their mental health treatment to compensate, stating “My use of medications and therapies has increased dramatically because of face masks.” Survey Participant #22, a teacher of the Deaf, said “The extreme isolation that is completely multiplied by fellow employees wearing a mask has great impacted my depression, worsening it. I dread general public now.” Based on what has been described by participants regarding the emotional impact of masks, it is evident that masks and the corresponding communication issues may have led to an increase in mental health difficulties for some DHH people.

One (1) survey participant provided great detail into how masks and communication impacted their life since the pandemic began. In their response to the open-ended question on how the use of masks affected their communication (Q23), Survey Participant #9 provided a detailed description of how

communication barriers led to increased anxiety and depression and that they delayed medical care due to that anxiety. This participant said:

I put off doctors appointments for my family because I had extreme anxiety with trying to understand and communicate my needs. Also being masked myself made it even more difficult for people to understand me. My children would feel responsible to help me and sometimes I was stuck and had to rely on them. Which I do not like doing. They are not responsible for my communication.

When responding to the open-ended question on mental health, this participant provided a fuller picture of the extent to which COVID-19 and communication issues impacted them. They said:

I had a baby right at the start of the pandemic before everything shut down. As the mask mandates increased, I didn't go to doctors appointments or make any appointments for a long time because my anxiety was so high. I felt very isolated and alone. I homeschooled my three older kids because I didn't want to deal with zoom calls and masked teachers and the isolation was extremely hard on my children and increased my guilt and stress. I became extremely depressed. I also suffered from postpartum depression from lack of support.

Survey Participant #9 provides a poignant reminder of just how deeply communication difficulty can impact an individual, and in this case their family, and the difficult choices they may make to avoid negative communication issues for the sake of their mental health.

Paradoxical Support of Masks

Masks create a significant barrier to communication for DHH people and they are a source of negative feelings and experiences. However, it is important to note that there was an internal paradox surrounding the use of masks amongst DHH participants. The vast majority of participants expressed that they supported the use of masks and recognized their effectiveness, but that they also disliked masks personally due to the communication issues they presented.

These participants provide us a clear example of how complicated the paradoxes of Stone's community goals such as security, welfare, and liberty can be. Although Stone described these community goals in the context of narrative framing of policies, they can also be applied on an individual level. Most participants expressed their paradoxical understanding of the societal need for masks for security, as well as their dislike of masks due to the impact they have on their personal liberty and welfare. In this section I will outline the participants' paradoxical or neutral feelings on masks, support, and opposition.

The majority of participants in both linguistic categories (84%) reported that they agreed with the statement that masks are important for protecting against COVID-19 (Q20.6) and that they feel more comfortable when everyone around them is masked (60.81%) (Q20.4). However, the majority of participants (92.49%) also reported that masks have made communication more difficult for them (Q22.4) and that masks make it harder for them to understand facial cues (91.86%) (Q22.3). Responses to Likert questions on masks and communication (Q22.1 - Q22.5) can be seen in *Figure 14* (p. 164) and responses to Likert questions on the use of masks (Q20.1 - Q20.6) can be seen in *Figure 15*.

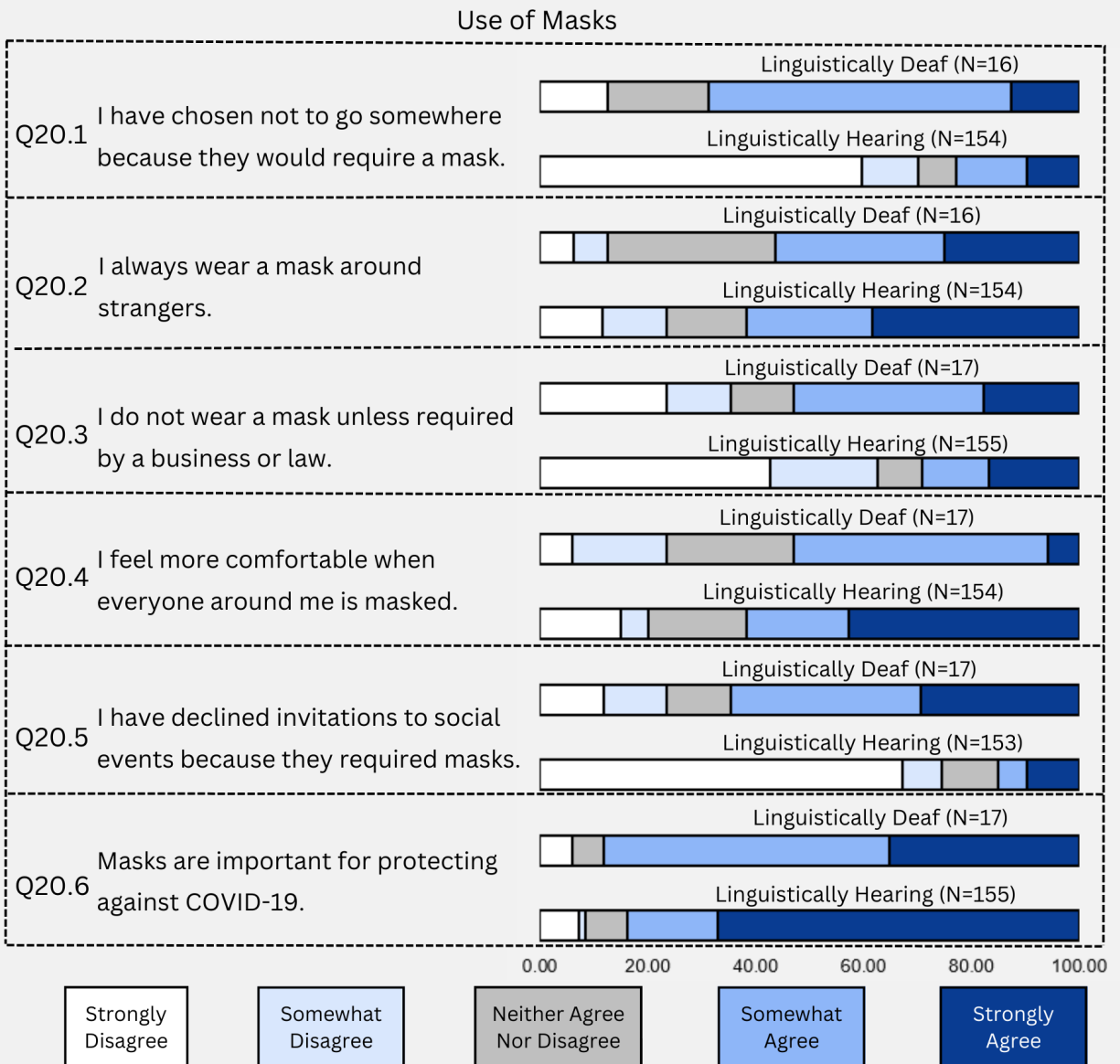


Figure 15 Use of Masks Likert Questions - Linguistic Comparison

Understanding the importance of masks in protecting against COVID-19, while also recognizing that masks impacted them negatively, was by far the most commonly displayed response amongst participants, both in the survey and in interviews. Survey Participant #29 expressed their paradoxical support by saying “They have greatly impacted my ability to communicate, but I am still grateful for

them and prefer me and others to stay masked.” Maureen described her paradoxical support saying:

If I have to give up a little bit of my communication ability for masks when it's necessary, then I guess that's the way it's got to be. I might not like it, but that's what you do. You don't want to get sick. You don't want to make other people sick. Well, of course I'm not going to run around if I'm if I test positive for COVID, but you don't know who else is running around.

Maureen's quote shows how someone, particularly someone who is DHH, can both support masks for their safety, but also be unhappy about the impact on communication, showing the conflict between the community goal of security and the community goal of liberty and welfare on an individual level.

Although most participants expressed paradoxical support, some expressed a strong support for masks without reservations or exceptions regarding their communication issues. When asked about how he felt about the use of masks in general, Clint said:

Oh, they're absolutely necessary. We had a medical health crisis. People were dying, and I'm in the right age group that I would have been a prime candidate, so thankfully I'm still alive. Yes, masks were important and the politicians can wipe, yeah, with them.

I understood the last sentence of this statement to imply a negativity toward politicians who were against masks. Participant responses such as this implied that they held a higher regard for the community goal of security over their liberty and welfare in regards to communication access.

Survey Participant #163, who also indicated a high impact of masks on their communication, placed the community value of security much higher than the community value of welfare or liberty and implied that others should do the same. They said “People who have decided masks don’t matter think my life doesn’t matter. They think it’s okay if I die because I am disabled. I don’t have an option to stay at home. I need to survive like everyone.” This participant response provides evidence that, even with an impact on communication, paradoxical support is not a given, and some people will still lean more towards one community value over others based on their personal experiences or disabilities.

A small minority of participants expressed strong opposition to masks due to disbelief in their ability to work or another reason. Pauline and Linda expressed opposition to mask mandates specifically because of the complexities of the situation for people like themselves and a preference for personal choice, placing the values of liberty and welfare over the value of security.

Where Do We Go from Here?

Throughout the interviews and the open-ended survey questions, participants expressed desires for societal changes that they feel would make things easier for them. These desires generally fell into three (3) categories: accessibility accommodations, more research, and public awareness. In this section I will review these participant desires.

Accessibility Accommodations

Many interview participants desired more accessibility accommodations related to communication. Accommodations such as accessibility of clear masks

were commonly mentioned, as was the desire for more people to use ASL. Some noted that new technologies, especially those pushed forward due to COVID-19 mitigation tactics, are helping with regard to communication, but these have farther to go in terms of implementation. For instance, Survey Participant #168 said “Zoom meetings: why aren’t live transcriptions the default?! Poor etiquette for HOH.”⁷⁰ As others have observed regarding Accessibility By Default, participants in this research mentioned that increased accessibility would help everyone, not just DHH people (Case, 2003, p. 2).

There have been some attempts to resolve the issue of masks obscuring communication, particularly through advancements in mask styles. Clear masks allow for the wearer’s lips to be visible, sometimes with visibility for the entire face. Clear mask options are popular amongst audiologists, interpreters, and others who work regularly with DHH people. Five (5) different types of clear masks can be seen in *Figure 16*.

⁷⁰ During the course of this research, I also felt the desire for accessibility improvements to Zoom meetings. When watching back interviews conducted in ASL, I discovered that, despite it not being the setting I was on when I was in the Zoom call, the recording only recorded the “active speaker.” In Zoom, the active speaker is based on audio, not visuals, so the interpreter or myself were usually shown on the screen in the recordings and I was unable to review visual cues for analysis.



Homemade Clear Mask.
Source: Noguchi (2020).



Safe 'N' Clear Mask
Source: Thorpe (2018).



The ClearMask
Source: ClearMask, (n.d.).



Face Shield
Source: Horvath (2020).



Optrel N95 Clear Mask
Source: O'Neill (2022).

Figure 16 Examples of Clear Masks

Sources: Noguchi (2020), Thorpe (2018), ClearMask (n.d.), Horvath (2020),

O'Neill (2022).

The Safe 'N' Clear mask is an FDA approved level one⁷¹ surgical mask that began development in 2002 (Atcherson et al., 2020, p. 23).⁷² The ClearMask is another FDA approved clear mask option that began development in 2015. The ClearMask provides more visibility as it lacks any fabric and has foam around the edges. The foam is able to provide a good seal to prevent transmission very effectively and Atcherson et al. (2020) explain that in April, 2020 it was approved by the FDA as a level three surgical mask, the maximum level of protection (23).⁷³

Face shields were another attempt at addressing communication barriers, often mentioned as an option as an alternative to masks, even written as an alternative in the Utah statewide mask mandate for communication situations involving DHH people (State Public Health Order 2021-3, 2021, p. 7).⁷⁴ The CDC does not recommend face shields as an alternative to masks because they are completely open around the edges, including around the chin where a lot of

⁷¹ Sante Group (2020) explains that level one is the lowest level of protection for general use, level two is for moderate protection, and level three provides maximum protection for more high-risk scenarios (para. 5).

⁷² Thorpe (2018) explains that Dr. Anne McIntosh, a hard of hearing entrepreneur, began development of the Safe 'N' Clear mask after having an emergency c-section where she was unable to understand her medical team due to their masks (para. 1). Interestingly, in discussing the increased demand for homemade clear masks, Noguchi (2020) described a situation where a d/Deaf woman, who has a cochlear implant and relies on lipreading, was giving birth and could only understand her nurse because her nurse was wearing a mask with a clear window, homemade by a volunteer (para. 3). This suggests that birth and surgery situations are common times for communication issues due to masks for DHH people, particularly women.

⁷³ Unfortunately, The ClearMask was completely sold out very quickly at the beginning of the pandemic and then unavailable to the public for quite a while after that because they were, understandably, prioritizing the release of them to healthcare professionals.

⁷⁴ This reference can be found in Statewide Mask Mandate References (p. 321).

water vapor can escape and there is limited evidence about their effectiveness (Chan, 2021, para. 2).

The newest clear mask to enter the public conversation is Optrel's N95 Clear Mask released in December 2022, the first clear mask to be approved by the CDC with an N95 rating (O'Neill, 2022, para. 2).⁷⁵ Not much is known about Optrel's newest mask besides that they are rated by the CDC as N95, their country of origin is Switzerland, and they are currently being sold for forty dollars (\$40) USD for a pack of twenty (20) masks (Project N95, n.d.). This is notably twice as expensive as traditional N95 masks that are sold for twenty dollars (\$20) USD for a pack of twenty (20) masks (3M 9205..., n.d.).

Clear masks have been shown to improve communication for DHH people. Atcherson et al. (2017) found that clear masks had little impact on understanding communication for hearing people, but that there was a significant improvement for DHH people (66). Homans and Vroegop (2022) found that, although sound is more muffled in clear masks than in cloth masks, DHH participants in the study still had improvement in speech perception when the speaker was wearing a clear mask. When background noise is added, the improvement in speech perception is even higher (365).

In a recent study, Atcherson et al. (2020) compared the auditory impact of different types of masks, including a few different types of clear masks, as well as each mask type when combined with a face shield. They found that homemade

⁷⁵ Howard et al. (2021) explain that the ninety-five (95) means that, when tested, the material will block ninety-five percent (95%) of small particles (7). This means that they are able to provide a higher level of protection than the previously mentioned options or standard surgical masks.

transparent cloth masks had the highest impact on sound and that traditional surgical masks had the lowest impact on sound (23). Their findings can be seen in *Table 13* with high dB numbers meaning more sound was blocked and lower dB numbers meaning less sound was blocked.

Table 13 Auditory Impact of Masks by Type

Source: Atcherson et al. (2020).

Device	Mask Only	Mask + Shield
Surgical Mask	5.0 dB	20.0 dB
KN95 Mask	8.7 dB	29.2 dB
N95 Mask	10.9 dB	28.7 dB
FaceView Mask (transparent window)	12.0 dB	24.9 dB
Safe 'N' Clear Mask (transparent window)	13.3 dB	24.7 dB
Transparent Cloth Mask	21.2 dB	29.2 dB

The biggest problem with clear masks as a solution to communication issues is that there are simply not enough people wearing them for it to be helpful for most DHH people. There has been some notoriety around clear masks, a few viral videos and news stories, but that didn't make them become the most common, or even a very well-known, option. Clear masks were not specifically mentioned in the initial version of any statewide mask mandate and, although the majority of interview participants had heard of them, two (2) participants had not heard of clear masks before I brought them up. Four (4) interview participants had heard of them, but mentioned that they had never seen them worn before.

Both Clint and Erma mentioned that people would bring up that they should wear clear masks, but that this was not helpful because they needed the other person to wear the clear mask. Clint said, with a laugh, “during the height of the pandemic it was like, ‘deaf people can wear clear masks’, it’s like, yeah, great. I can’t see you [to] read lips, though.” Erma expressed similar, saying:

I would say something with a mask so people would say “why don’t you get the clear one? I said “well, the clear one is fine for me, but I need everybody else to wear the clear ones.” ... If no one else is wearing the clear masks, it’s not really helping me any.

These suggestions from hearing people toward Clint and Erma show that there is a misunderstanding about the communication needs for DHH people amongst some hearing people. This is reflective of how mask mandate policies also implied a lack of understanding of DHH people, by providing exceptions for DHH people themselves and by using language often considered offensive by DHH people.

Linda and Christine, both Linguistically Deaf participants, are the only two (2) who expressed a regularity of use of clear masks by themselves and those around them. It is possible that the prevalence of use of clear masks for those around them is related to their connection with the Deaf community or with their use of ASL, but questions were not asked about this so it is inconclusive.

Linda described her frustration with the fact that medical facilities were generally not prepared for communicating with someone who is DHH. She stated

that she put off doctor or dentist appointments during 2020, but began going to them again in 2021. She said:

I was really frustrated with those folks in the office. They're health care workers and so I feel like they should already be comfortable with using shields, etc. So, now they know how to interact with me, but the first time, they were like, "oh, I didn't know where to find it, I don't know where this is" so I had to wait for them to be prepared. Because I had asked specifically for interpreters and the interpreter was there, but the doctor and the assistant, I wanted them also to have clear shields or clear masks, it's just nice. And it would be nice if they were all prepared for those instances, and aware of how to include folks. Especially the Deaf community, with a mask, there's no connection to be made. So, with a clear mask, it's an improvement.

In this instance, Linda had to self-advocate and teach others about her communication needs and, even though they had clear masks or shields available, their lack of regular use led to difficulty and frustration for her. Other participants expressed similar frustration at people's reluctance to wear clear masks. Pauline described multiple situations where clear masks were offered to others for her benefit, but people declined to wear them. Survey Participant #2 said "Accessible masks for people who rely on lip reading would be very helpful,

but they would have to be both required AND supplied free of cost by academic and medical *institutions.*⁷⁶

All interview participants expressed that clear masks would, or do, help them on some level with communication and were generally supportive. Survey Participant #45 said “I will almost always choose my physical safety over my ability to lipread and understand. But I love clear masks because I get both!” Vicky said “They’re much better and that’s because I’m able to lipread them through the mask. I’m able to understand them much better. Communication goes smoother. It’s definitely more comfortable in the interaction.”

In describing how clear masks were a better experience for her than traditional masks, Christine mentioned that someone wearing clear masks made her feel valued and closer to others. She said:

I definitely feel like it's an improvement. I feel better about clear masks compared to cloth masks or any mask that inhibits the sight. You can definitely see facial cues a little bit better. Sometimes the light reflection can be distracting or cause visual barriers. So, in the beginning, I was kind of iffy about it. But then I got used to it, and those absolutely feel like it allows for more connection. ... I feel like folks recognize my needs with having clear masks. And I recognize that other folks wear clear masks for the benefit of me. And so, it feels like I'm valued and it's a step closer to a connection with folks.

⁷⁶ Asterisks were added by the participant, not by me. I am not sure what was intended to be conveyed through the use of asterisks in this instance.

This quote from Christine suggests that for her, there is a positive emotional impact from others wearing accessible mask options.

Another concern about clear masks, mentioned by three (3) participants, was their effectiveness at protecting against COVID-19. While clear masks can be valuable in helping this issue of communication, there is still a desire for them to achieve the community goal of security.

Other participant concerns included clear masks being uncomfortable, fogging up, high costs, and that people were not allowed to wear them due to protocols. It is notable that, although participants mentioned communication and physical grievances presented with clear masks, all interview participants still expressed that they felt clear masks would be an improvement over traditional masks, or that they were an improvement in the case of those who had used them.

Future Research and Public Awareness

Many participants mentioned a desire for more research, both into the impact of masks on communication for DHH people and, to a lesser extent, into improvements on mask types. Participants also mentioned a desire for public awareness on DHH communication needs and how masks impact communication. Vanessa said “I wish there was a universal way of notifying people that I read lips. I don’t know, like some sort of a public awareness campaign on the importance of speaking clearly and loudly.” Vanessa’s quote specifically expressed public awareness around how to communicate with DHH

people generally. On the other hand, Katie's desire for public awareness was about communicating with masks on. Katie said:

I honestly think that there should be more awareness about how masks affect people who are—who have—who deal with deafness.⁷⁷ Because sometimes it'll come up a little bit in the news, and then it'll just disappear and we never hear about it again, but it's affecting so many people. It's affecting so many people, to the point where it kind of needs to be more eyes on this topic.

Katie's quote is more on public awareness around the issue of masks impacting communication, implying a desire for action to solve this issue. While only three (3) interview participants mentioned the desire for public awareness, multiple participants expressed frustration at having to educate others or advocate for their needs, which also implies that they would appreciate people knowing this information without having to educate them directly.

Short Summary of Findings

The vast majority of participants reported that masks had a significant impact on their ability to communicate due to impacting visual communication and auditory communication. This impact had a negative effect on participants emotionally, but the vast majority were still supportive of masks and mask mandates due to the security they provide. This provides an example of Stone's

⁷⁷ It is interesting how Katie struggled in her terminology here, beginning with identity-first, then changing to person-first, and ultimately landing on a somewhat negative "deal with deafness" phrasing.

policy paradoxes on an individual level, where someone is both supportive of something because of one community value, but not supportive due to another conflicting community value.

Some participants reported that, to accommodate communication issues, they would reduce COVID-19 safety measures by asking people to remove their masks or not social distancing. However, there were conflicting opinions on these actions, as some expressed frustration when someone was not willing to remove their mask, while others expressed frustration when someone would remove their mask to communicate. This is another example of how complicated this issue is, implying that ambiguity, rather than specificity, in policies would be valuable in allowing for individual choices and preferences to be used to cover more possible scenarios.

Communication issues due to masks led some participants to learn new things about themselves, either realizing that they were DHH or realizing that they rely more on visual communication than they thought they did. This means that masks had an impact on the number of people considered to be DHH due to their increased awareness of their hearing loss. Participants reported that masks impacted their choices, leading to changed behavior like adjusting the coping methods they relied on most often.

Participants expressed desires for the future including accessibility accommodations, more research, and more public awareness of this issue. There are currently numerous types of clear masks available to aid in communication, but they are not in widespread use and some participants

reported never having seen them. All interview participants reported that they felt that clear masks did or would help, but many reported reservations about others' willingness to wear them and their effectiveness. If clear masks were more widely available and the social default, the impact of masks on communication would be diminished and Linguistically Hearing people could reap the benefits of accessibility, without needing to disclose their invisible disability unless desired.

More information on this chapter's findings and the implications can be found in CHAPTER SEVEN: CONCLUSIONS [11] (p. 201).

CHAPTER SEVEN: CONCLUSIONS [11]

Introduction

Widespread mask usage and statewide mask mandates in the United States provided an example of how well-meaning policies, intending on bringing society closer to a specific community goal (security), can have negative consequences that bring society further away from other community goals (liberty and welfare).

In this chapter, I will begin by outlining the key findings and areas for future research under each research question; who are DHH people?, how did statewide mask mandates address, or fail to address, the problem of masks and communication for DHH people?, and how has the widespread use of masks in response to the COVID-19 pandemic impacted DHH people? I will then discuss the Social Model of Disability and Advocacy By Default before concluding with some final thoughts.

Key Findings and Areas for Future Research

Who Are DHH People?

In the introduction of this research, I presented the research question: who are DHH people? The findings of this research suggest that DHH people are extremely diverse in their culture, their terminology surrounding their deafness, and their use of language and communication methods. Identification with the

Deaf community and hearing world is deeply complicated, personal, and difficult to predict. Similarly, language use and language preferences do not equate to cultural identification as some DHH people who identify as “Big-D” Deaf do not use ASL, and some DHH people who use ASL do not identify as “Big-D” Deaf. This diversity, particularly language diversity, impacted the effect that the widespread use of masking had on DHH people. It also has policy implications, which I will discuss in the next section.

DHH people use a variety of terminology for themselves, and there is disagreement about the acceptability of terms, particularly the term “hearing impaired.” While some find the term offensive, others prefer this term for themselves because they feel it is an accurate descriptor of their disability in a world that prioritizes hearing. However, the majority of DHH participants in this study favor terms such as Hard of Hearing, Deaf, or deaf. Interestingly, while the majority of DHH participants in this study do not use the term hearing impaired, variations of this term were favored within statewide mask mandates that provided specific exceptions mentioning DHH people.

When you research terms used by DHH people, the majority of information is about the preferred term “deaf or hard of hearing” and the negative connotations associated with “hearing impaired” or, to a lesser extent, “hearing loss.” While these feelings are strongly associated with members of the Deaf community, this research suggests that many CH-DHH people personally identify with the term “hearing impaired.” More research into why there is such a division in language among DHH people, as well as the statistical prevalence of preferred

terminology, would be valuable to advance cultural sensitivity in terminology use by hearing people, and understanding of DHH people.

How Did Statewide Mask Mandates Address, or Fail to Address, the Problem of Masks and Communication for DHH People?

Based on my analysis of the statewide mask mandates, it appears that some decision-makers made an effort to address the issue of masks and communication by writing exceptions for DHH people into COVID-19 mask mandate policy, but the content of the policies implied that policy-makers did not have a full understanding of DHH people. Most of the early and middle implementation statewide mask mandates did not mention DHH people at all, and the ones that did used a variation of the term “hearing impaired.” This suggests a lack of baseline knowledge of DHH people, since many find that term offensive and it is less commonly used than the more widely accepted “deaf or hard of hearing.”

I found that there was a positive correlation between whether a statewide mask mandate had a DHH exception and whether the state had a DHH commission, a state agency dedicated to advocacy for DHH people. I also found that there was a positive correlation between whether a DHH exception used “deaf or hard of hearing” instead of “hearing impaired.” This suggests that perhaps the DHH commissions were consulted on some statewide mask mandates, but it is unclear from this research alone and more research into the

involvement of DHH commissions in statewide mask mandate legislation is recommended.

The ADA establishes the right to effective communication for DHH people, but many mask mandates did not provide exceptions for communication situations with DHH people, which may have infringed upon that right. Earlier mandates were less likely to provide exceptions for DHH people, which follows Stone's explanation that laws tend to be more ambiguous at the beginning, and then get more specific. However, more specificity was sometimes a detriment, rendering some DHH exceptions essentially useless in practice because they were so specific that they could arguably not apply to anyone.

Mask mandates with DHH exceptions generally provided membership criteria based on three categories; solely on being DHH, being DHH and needing masks removed for general communication, and being DHH and needing masks removed for visual communication. The specificity of the "visual communication" exceptions implies a lack of understanding that many DHH people also rely on auditory communication, and this specificity could potentially exclude those who do not lipread or otherwise rely heavily on visual communication.

Many mask mandates provided ambiguous medical exceptions that could arguably be applied to DHH people. I have determined that the majority of ambiguous exceptions would be difficult to argue as applicable to DHH people due to the specificity of the language further limiting the membership criteria. However, around ten percent (10%) may be applicable to DHH people, and the ambiguity of those mandates could work in their favor. Unfortunately, those apply

to the DHH person themselves, not those communicating with them, which further limits their applicability in practice.

The diversity of DHH people and the lack of awareness of their needs and values suggests that ambiguity can be a valuable tool for policy makers in considering them and other groups with significant diversity. Puerto Rico's ambiguous medical exception provides an example of a rule that is close to Stone's mention of a perfect rule, nearly perfectly ambiguous and nearly perfectly specific. It is ambiguous by allowing for all possible scenarios to be considered on a case-by-case basis, and it is specific by mentioning disabled people and the elderly, to show that it is not intended to apply to all people.

Ambiguous exceptions that allow for individual analysis are a valuable ideal as they allow for consideration of disability situations that decision-makers are unaware of. The nature of disability is that it is uncommon, and the more common a disability is, the less likely it is to be deemed a disability due to accommodations being made for it by default or increasing in prevalence. This concept is reflective of the Social Model of Disability, societal choices that dictate when a physical difference crosses the line into a disability. Policies that allow for individual case-by-case decisions, but provide guidelines on the types of situations that apply, may be a positive step toward accessible policy writing. They can be particularly valuable in emergency situations when swift action is needed, which may limit the time needed for relevant advocacy groups to be involved in the policy writing process.

How Has the Widespread Use of Masks in Response to the COVID-19 Pandemic Impacted DHH People?

DHH people reported that masks impacted communication for them and that masks had a negative impact on them emotionally, increasing feelings of isolation, frustration, and embarrassment. Linguistically Hearing participants generally reported a higher level of impact on their communication than Linguistically Deaf participants, though nearly all participants reported an impact. This is possibly due to the fact that Linguistically Hearing people are more likely to rely on residual hearing ability and lipreading, which masks negatively affect. The reduced effectiveness of these coping methods because of masks pushed some of them from having an invisible disability, into needing to change their behavior to use alternative communication methods and make their disability visible.

More research into the impact that the widespread use of masks had on DHH people is recommended. This research suggests that it has had a significant negative impact on DHH people, but further research would be valuable for learning more about the prevalence and side-effects of this impact. Specific areas of future research into masks and communication include the impact of masks and communication on mental health, the impact of masks on the speech of DHH wearers, the impact of different mask types on communication compared by linguistic category (Linguistically Deaf or

Linguistically Hearing), and the impact of different mask types on communication compared by level of deafness (more or less deaf).

Masks led some participants to learn something new about themselves, either that they were hard of hearing, which they did not know previously, or that they rely more on visual communication than they had realized. There is also some research to suggest that COVID-19 has led to hearing loss or tinnitus for some people who have contracted it. In addition to their own acceptance of their hearing loss, some were also likely exposed to discrimination or microaggressions based on their hearing status for the first time. People who previously lived with an invisible disability were suddenly more visible. Some reacted by getting more assertive in their personal advocacy, while others reacted through avoidance.

More research into those who have recently learned that they are hard of hearing is recommended to try to determine whether they had signs of being hard of hearing before masks, and masks exacerbated it, they had an unrelated onset of hearing loss, or they had hearing issues as a side effect of COVID-19. The research presented here suggests that it is likely a combination of these issues, but thus far is inconclusive.

While masks impacted communication for DHH people, the vast majority held a paradoxical support of masks, both supporting them for their security, but lamenting their use because of the impact on liberty and welfare. Stone (2012)

presents in Policy Paradox that there are five (5) community goals⁷⁸ which we all strive toward, and that paradoxes arise in politics when there is tension between these goals. Stone presents these goals to describe on a policy level, but this research suggests that these paradoxes and conflicts also exist within each of us. This is an area of research that is currently underdeveloped.

When masks began being mandated in the United States, DHH people were put in a difficult position because, while most support the use of masks and recognize their value for the community goal of security, they also have difficulty with the impact that they have on their personal liberties and welfare. Decision-makers present narratives surrounding policy along one of the community goals outlined by Stone to garner support, but this focus will often boil them down to a simplistic view of complicated issues. Further study into the paradoxes presented by community goals on an individual level can help us have a more dynamic view of complicated issues.

Participants brought up some ways in which the COVID-19 pandemic, separate from masks, impacted them, both positively and negatively. These impacts included both a positive and a negative view of the accessibility advancements, or lack thereof, made toward accessibility for DHH people as a side-effect of quarantine efforts during COVID-19. More research into the scope and prevalence of these accessibility advancements, and whether they will persist beyond the COVID-19 pandemic, is recommended.

⁷⁸ Security, liberty, welfare, equity, and efficiency.

The Social Model of Disability and Accessibility By Default

The Social Model of Disability is the idea that what elevates a natural human variation to a disability, is society's acceptance and accommodation of that variation. If masks were Accessible By Default prior to the COVID-19 pandemic, it is likely that some DHH people would not consider themselves DHH or disabled because their deafness had a minimal impact on their lives prior to the widespread use of masks.

Clear masks are a potential step toward an accessible future, but their lack of prevalence and current high cost creates a barrier to accessibility. Some people, particularly medical professionals, keep clear masks as an option, but by not wearing it all of the time, someone whose deafness is not obviously apparent would have to communicate that they are DHH in order to get the accessibility they need, opening them up to potential prejudice.

People with disabilities are often used to requesting accessibility options because they live in a world where accessibility is not the norm, but some DHH people are new to this self-advocacy because their deafness is a recent discovery noticed because of masks. If accessibility were the default, the self-identification of a disability to a stranger would not be necessary, and they would not be put in an awkward social position of self-advocacy with every interaction with someone in a new setting. This would not be necessary if accommodations for natural human variations were written into the fabric of our society by default. Masks are a clear example of that because, if those developing masks were aware of the communication issues that masks present, they would have been developing more clear mask options much sooner, getting them vetted by the

FDA for approval in medical settings sooner, and we may not have had the shortage of clear masks that was seen in 2020.

Although clear masks show an improvement in speech perception for DHH people, people who are less experienced with lipreading and people who rely more heavily on their remaining hearing ability may find them less valuable than a surgical face mask due to their increased impact on obscuring sound. This further supports the idea that ambiguity is a valuable policy tool because decisions can be made on an individual level based on what someone needs, not assumptions of what they need based on generalizations about others like them.

If there was more awareness of the communication differences of DHH people before the pandemic, then perhaps the fast-moving mask policies would not have forgotten or misrepresented them. Perhaps innovations surrounding accessible mask options would have happened earlier and an N95 clear mask would have been CDC approved and available to the public before mask mandate policies were implemented. Perhaps policies would already have been in place to require accessible mask options in hospital settings. This would increase the availability of these options because medical sites would already have the masks on site, rather than scrambling to try to find them. Perhaps many DHH people would still be unaware of being DHH and not consider themselves disabled because masks would have had a reduced impact on their communication.

If communication issues due to masks had been addressed when they were previously raised by DHH people in medical settings, perhaps we would

have already solved some of these problems before we had a major pandemic on our hands, putting people's lives at risk and impacting their mental health due to increased isolation and communication issues. If we, as a society, were considering Accessibility By Default across all choices, perhaps we wouldn't be impacting the liberty and welfare of DHH people when the time comes to make social changes for the sake of public safety.

Final Thoughts

To conclude this research, I felt it important to highlight the voice of a DHH person, rather than solely my own voice, for some final thoughts that reiterate the findings of this work. Survey Participant #56 put it well when they said:

I find it much harder to communicate with many people in in-person settings while conversants are masked (I rely significantly on lip-reading for comprehension), but also understand the need for them in the context of Covid and other infectious diseases. In an ideal scenario, people would understand that not everyone communicates the same way(s), and perhaps accommodations/compromises could be made to allow mutual comprehension without sacrificing public health needs.

It is possible to achieve the community goal of security, without sacrificing the community goals of liberty and welfare. Bringing awareness to communication differences and considering accessibility by default in all situations, would lessen the impact of mask use on communication for DHH people. Allowing for ambiguity in emergency policy legislation could allow for similar issues to be prevented, without the need to predict what they might be.

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⁷⁹ Photo taken for this work and emailed to the author. Has not appeared in other published work.

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APPENDIX A [15]

General Additional Information

Institutional Review Board (IRB) Submissions

Table A.1 Institutional Review Board Submissions

Submitted	Approved	Name	Reason for Submission
12/14/2021	1/5/2022	Application	Initial IRB submission including survey instrument, recruitment scripts, survey information, and consent question.
12/21/2021	1/5/2022	Additional Information	IRB requested more information.
1/6/2022	1/18/2022	Modification #1	Request to add one additional question.
4/19/2022	5/9/2022	Modification #2	Change of Principal Investigator due to committee chair change and request for approval of interview questions.
5/10/2022	5/12/2022	Modification #3	Request for update to advertisement plan.
8/29/2022	9/1/2022	Modification #4	Request for change of platform for interviews from Google Meet to Zoom.
11/3/2022	12/8/2022	Modification #5	Add Dr. VanDusky-Allen as Key Personnel.
11/3/2022	12/8/2022	Annual Renewal	Annual renewal.
12/12/2022	12/14/2022	Modification #6	Request to use additional software for data analysis.

Explanation of Advertisement Wording and Extended Run Selection

The first advertisement was intended to target the ASL-using Deaf community. It asked “DEAF OR HARD OF HEARING?” Capitalization of the word “Deaf” implies cultural identity as part of the Deaf community whereas lowercase “deaf” refers more generally to the medical condition of deafness and, to a lesser extent, refers to those who do not identify as part of the Deaf community (Marschark and Humphries, 2009, p. 1). By putting this title into all capital letters, it reduced the likelihood of alienating people by removing the emphasis on capitalization of the word “deaf/Deaf.” The first line on each advertisement is the only thing that was different between the four advertisements.

The second and third advertisements were written in a way intended to target DHH people who do not use ASL. The second advertisement asked “DO YOU HAVE HEARING LOSS?” The third advertisement asked simply “HEARING IMPAIRED?” The term “hearing impaired” is considered controversial amongst DHH people, particularly members of the Deaf community, because many DHH people do not feel that they are impaired or harmed by not having hearing, they feel that they have gained something by being born into or otherwise becoming part of the Deaf community (Leigh et al., 2018, p. 22). However, others still prefer this term for various reasons. This term was controversial on my Facebook advertisements and actually struck a discussion amongst different Facebook users, one arguing that the term is offensive and should not be used, and another arguing that they prefer that term for themselves because they do not feel “hard of hearing” conveys a serious enough lack of hearing and similarly do not identify with the term “deaf” because they do retain some of their hearing.

More information on preferred terminology for DHH people can be found in CHAPTER FOUR: FINDINGS I: DEAF IDENTITY AND COMMUNICATION [51] (p. 81).

The final advertisement was selected because I recognize that many of my target population are elderly, since people are more likely to become DHH later in life. Because of this, the fourth advertisement is intended to target family members, friends, coworkers, and acquaintances of DHH people who are likely to send the advertisement to those individuals, even if they are not on social media themselves. It questioned “KNOW SOMEONE WITH HEARING LOSS?” The term “hearing loss” was selected on this advertisement because it is a term that both describes a lack of hearing and is more culturally neutral as it does not refer to the person themselves as being impaired.

Following the initial run, I took a look at responses and advertising social media reach statistics to determine which two should have a longer run. In the responses, I saw that many people, both those who use ASL and those who do not, use the term “hard of hearing” for themselves. For that reason, I selected Advertisement 1 (“DEAF OR HARD OF HEARING?”) as one of the advertisements to run longer because it was one that successfully targeted a broader audience of my target population. Looking at the social media reach statistics, I saw that Advertisement 4 (“KNOW SOMEONE WITH HEARING LOSS?”) had the highest engagement rate of the four advertisements. For that reason, I selected it as the second advertisement to run for longer.

Social Media Recruitment Script

I am Kym Couch, a Public Policy and Administration PhD student at Boise State.

I am currently running a research study about the COVID-19 pandemic from the perspective of deaf and hard of hearing individuals.

To complete the survey please click the following link: [LINK]

You must be 18 years of age or older to participate in this study. Your name and survey responses are not connected in any way.

Social Media Advertising Reach Statistics

Table A.2 Social Media Advertising Reach Statistics

	Deaf or hard of hearing (a)	Hearing impaired	Do you have hearing loss	Know someone with hearing loss (a)	Deaf or hard of hearing (b)	Know someone with hearing loss (b)
Dates	Aug 5 to Aug 19 14 days	Aug 5 to Aug 19 14 days	Aug 5 to Aug 19 14 days	Aug 5 to Aug 19 14 days	Aug 30 to Sep 5 6 days	Aug 30 to Sep 5 6 days
Spent	\$81.22	\$80.22	\$79.57	\$82.08	\$77.31	\$99.99
Reach	41,547	34,243	40,575	32,972	16,364	21,728
Engagement	172	191	188	222	168	276
Link Clicks	160	172	172	195	154	239
Comments	5	5	1	8	3	7
Shares	3	5	1	10	4	11
Reactions	3	8	13	7	5	16

List of Codes for Interviews and Survey

Below is a list of all codes created during the qualitative analysis process to identify emerging themes. While I have included file and reference numbers, these should not be considered numbers of participants or even numbers of

times mentioned as some instances may have been included or excluded for various reasons such as inclusion in another area. It is important to keep in mind that these codes are used for qualitative analysis and attempting to assign quantitative analysis techniques to them would hold significant limitations.

<u>Code Name</u>	<u>Files</u>	<u>References</u>
● Additional questions.....	0	0
○ Direct clarification.....	7	12
○ Follow-up.....	6	6
○ Pleasantries.....	6	7
● Communication - general.....	0	0
○ Coping methods.....	0	0
■ Asking to repeat.....	1	4
■ Avoid crowds/avoid background noise.....	5	6
■ Favoring one side.....	1	3
■ Technology.....	0	0
● Closed captioning.....	2	2
○ Specifies inaccurate.....	2	2
● Cochlear implant.....	2	2
● Hearing aids.....	1	1
○ Connect to digital/mic.....	2	4
● Turn volume up in digital.....	3	3
○ In interviews.....	0	0
■ Miscommunications.....	8	11
● Interpreter miscommunication.....	1	2
■ Nervous - hesitant.....	2	2
■ Technical issues.....	4	4
○ Types of Communication.....	0	0
■ ASL.....	3	4
● Desire to learn.....	2	2
○ Desire for others to learn.....	1	1
● Forgot to mention ASL.....	1	1
● Interpreter.....	2	3
● Specifies not ASL.....	6	6
● Specifies only some ASL.....	4	4
■ French - Spanish.....	1	3
■ Lipreading.....	4	18

● Specifies not good at - not true.....	5	5
■ Pantomime.....	1	1
■ Phone call.....	2	2
● Specifies not phone.....	4	5
● Voice messages.....	1	1
■ SEE/Bringing ASL skills down to level.....	2	2
■ SimCom.....	1	1
■ Spoken English.....	13	19
● Forgot to mention/unclear on question.....	5	5
■ Transcription/text to speech/CART/Zoom CC.....	5	14
■ Written.....	4	7
● Email.....	2	4
● Passing paper - phone.....	4	8
● Text messages.....	4	8
● Community Identification.....	0	0
○ Alone/between worlds.....	3	3
○ Desire to join Deaf community.....	3	3
○ Might or might not.....	2	2
■ Hesitation.....	2	3
■ Qualifiers.....	2	2
■ Weak language.....	5	6
○ Strong do not identify.....	5	6
○ Strong identification.....	6	6
○ Why.....	0	0
■ Communication/language.....	5	5
● Struggle to communicate.....	2	2
■ Community/relationships/support.....	5	7
● Events.....	2	2
● Facebook groups.....	2	2
■ Exclusion from group/not welcome/don't fit in.....	3	3
■ Grew up in community.....	2	2
● With hearing.....	2	2
■ Hearing ability.....	8	12
■ Struggle to function/audism.....	3	3
● Deafness.....	0	0
○ Deaf Pride.....	2	3
○ Joking about.....	4	4
○ Recent discovery.....	0	0
■ Didn't know DHH.....	3	9
■ Didn't know relied on lipreading.....	2	5

○ Terms.....	0	0
■ Describe hearing/person first.....	0	0
● CD/communication disability.....	1	1
● Hearing deficit.....	1	3
● Hearing impairment.....	1	1
● Hearing issue.....	1	2
● Hearing loss.....	6	7
● Impaired hearing.....	1	1
● Trouble hearing.....	1	1
■ Describe others.....	0	0
● Hearing disability.....	2	2
● Hearing impaired.....	1	1
■ Describe self - identity first.....	0	0
● Big-D Deaf.....	3	3
● Deaf.....	3	3
○ Specifies not deaf.....	5	5
● Hard of hearing.....	10	11
○ Specifies not hard of hearing.....	1	1
● Hearing impaired.....	3	4
● Specifies multiple terms.....	4	4
■ Qualifiers.....	0	0
● Ear difference.....	4	5
● Hearing aids/cochlear implant.....	5	5
● Level of hearing.....	5	6
● Time.....	4	4
■ Visibility.....	2	2
● Disability.....	0	0
○ Benefits.....	3	5
○ Concept of.....	3	4
● Mandate participant support.....	0	0
○ Mixed.....	0	0
■ Communication is safety.....	1	1
■ People/part. wouldn't wear without.....	4	4
■ Support at the beginning/don't need now.....	1	1
■ Support if not political.....	2	2
■ Weak language.....	5	5
○ Negative.....	0	0
■ Changing stances.....	1	2
■ Contributes to exclusion/isolation.....	2	3
■ No because of communication.....	3	3

■ People will rebel.....	1	1
● Surprised people didn't rebel.....	1	1
■ Personal choice.....	4	4
○ Positive.....	0	0
■ In our best interest.....	1	1
■ People wouldn't wear without.....	1	1
■ Should still have.....	1	1
● Masks.....	0	0
○ Coping methods.....	0	0
■ Advocacy.....	0	0
● Appeal to authority.....	2	3
● Asking to repeat.....	6	9
● Educating others.....	5	6
■ Changing communication method.....	3	3
● Bringing friend/interpreter/child/spouse.....	2	5
■ Favoring one side.....	1	1
■ Foregoing COVID-19 safety.....	0	0
● Asking to remove mask.....	3	7
○ Won't ask, but grateful if do.....	1	1
● Getting closer than social distancing.....	1	1
● Removing own mask.....	2	2
■ Pretending to understand.....	3	4
● Smiling.....	1	2
■ Situational avoidance.....	8	15
■ Technology.....	0	0
● Cochlear implant.....	1	1
○ Connect to digital.....	1	1
● Hearing aids.....	1	2
○ Connect to digital.....	2	3
● Hearing assistance devices.....	1	1
● Increase volume in digital.....	1	1
● Live transcription app.....	1	2
● Phone and apps.....	1	1
● Virtual attendance.....	3	3
○ Grievances communication.....	1	2
■ Locations with issues.....	0	0
● Church.....	2	3
● Healthcare.....	7	10
● Other/Car repair/restaurant.....	1	2
● Pharmacy.....	2	2

• Public transit/travel/airport.....	3	4
• School.....	1	3
• Social situation/wedding/funeral.....	6	7
• Store.....	8	13
• Work.....	4	13
■ Obscure ASL.....	1	2
■ Obscure facial expression/cues.....	6	10
■ Obscure lipreading/movements/morphemes.....	9	34
■ Obscure speaker speech/muffle.....	9	27
■ Obscure participant speech.....	2	3
• Cannot hear self.....	1	1
■ Specific examples of communication issues.....	10	13
■ Takes longer.....	1	1
■ Uncomfortable socially.....	1	1
○ Grievances physical.....	0	0
■ Breathing difficulty.....	5	5
■ Hot.....	3	3
■ Interfere with glasses/fogging/slide down.....	4	7
■ Interfere with hearing aids.....	3	12
■ Moisture/sweat.....	3	3
■ Other.....	0	0
• Affects heart rate.....	1	1
• Causes claustrophobia.....	1	1
• Impacts vision.....	1	1
• Makeup.....	1	1
• Touch face more (ASL).....	1	1
○ Participant feelings.....	0	0
■ Mixed - neutral.....	0	0
• Responsible for communication.....	1	1
■ Negative.....	0	0
• Depressing/discouraging/painful.....	2	4
• Destroy comm./impossible/devastating/paralyzing....	4	7
• Difficult/challenging/hard/struggle/magnified issues..	9	29
• Disconnected/less social/talking to wall.....	4	6
• Embarrassing/humiliating.....	4	6
• Frustrated/upset/impatient.....	5	11
• Hated/despised/horrible/terrible.....	4	7
• Isolating/world smaller/left out/miss out/excluded....	5	16
○ Lonely.....	3	3
• Nervous/anxious/scared/terrified/stressed.....	2	5

● Other.....	0	0
○ Annoying.....	1	2
○ Bullshit.....	1	1
○ Confusing.....	1	1
○ Dangerous.....	1	1
○ Impractical.....	1	1
○ Less than.....	1	1
○ What's the point.....	1	1
● Relief at not wearing anymore.....	3	4
● Tiring/exhausting/tired of/fatigue.....	3	6
○ Participant support.....	0	0
■ Mixed/paradox.....	12	43
■ Negative.....	4	6
■ Neutral.....	7	9
■ Positive.....	7	24
■ Why.....	0	0
● As needed for safety/situational.....	7	7
● Case numbers up/down.....	2	3
● Communication.....	7	25
● Effectiveness (pos or neg).....	4	5
● Emotional impact/isolating.....	2	2
● Evidence of responsibility/non-risky behavior.....	1	1
● Important/necessary/good idea/ethical.....	9	25
○ Prevents spread of non-COVID disease.....	3	5
○ Protect others.....	4	6
○ Protect self.....	6	15
● Interferes with immune system.....	1	1
● Medical exemptions.....	1	1
● Not concerned about COVID.....	2	2
● Only if others do.....	1	1
● Personal choice.....	2	2
● Physically annoying.....	2	2
● Should wear if sick.....	4	4
● Spit when talk.....	1	1
● Trust or distrust others.....	4	6
● Vaccination status.....	4	6
● Masks clear.....	0	0
○ Face shields.....	4	4
○ Grievances communication.....	0	0
■ Glare distracting/obscures.....	1	2

■	Obscure speaker speech.....	2	2
■	Obscures wearer's vision.....	1	1
○	Grievances physical.....	0	0
■	Difficult to clean.....	1	1
■	Foam sweaty.....	1	1
■	Fogging up.....	2	2
■	Uncomfortable.....	1	1
○	Part. Awareness.....	0	0
■	Aware/seen for sale/heard of.....	5	5
■	Provided and others still wouldn't wear.....	1	1
■	Provided for others who wore.....	1	1
■	Seen others wear.....	3	3
■	Worn.....	2	2
■	Never seen others wear.....	4	4
■	Not aware.....	2	3
○	Part. Feelings.....	0	0
■	Negative.....	0	0
●	Bizarre/crazy/ridiculous/weird.....	2	2
●	Can't wear due to protocol.....	1	1
●	Concern about cost.....	2	2
●	Concern about protectiveness.....	3	3
●	Not helpful unless others wear.....	3	3
●	Other people won't/don't want to.....	2	3
■	Positive.....	0	0
●	Good/great/nice idea/love it.....	7	10
●	Improvement/easier/better/prefer/helps/connected... ..	11	14
●	Sign someone recognizes needs/valued.....	1	1
●	Motivation for participation.....	0	0
○	Compensation.....	1	2
○	Desire for/appreciation of research on topic.....	11	20
○	Enjoy talking/answering questions.....	2	3
○	Interest in medical research.....	2	2
○	Participates in other research.....	2	2
○	Raise awareness.....	1	1
○	Values education.....	1	1
●	Other people's actions/feelings.....	0	0
○	Microaggressions.....	0	0
■	Assume DHH person stupid.....	1	1
■	Don't believe DHH.....	2	2
■	Ignoring needs of DHH person.....	3	4

■ Not understanding needs of DHH person.....	5	8
● Assume can understand.....	2	2
● Not understand lipreading.....	1	2
● Recommend clear mask.....	2	2
■ Shocked part. is DHH.....	1	1
○ Negative.....	7	15
■ Annoyed	1	1
■ Ignore DHH person.....	1	1
■ Toward being asked to repeat.....	1	1
■ Toward passing paper-pen-phone.....	1	3
■ Toward people not wearing masks.....	2	2
■ Toward people wearing masks.....	1	1
■ Toward wearing clear mask.....	2	2
■ Unwilling to try to communicate.....	2	2
○ Neutral.....	5	14
■ Don't want to wear masks.....	3	3
■ Fewer try to communicate.....	3	3
■ Move closer to communicate.....	2	2
■ Remove mask without being asked.....	3	6
■ Uncomfortable removing mask.....	1	2
● Participant desires.....	0	0
○ Accessibility accommodations.....	3	3
■ Live transcription by default on Zoom.....	1	1
■ Notes things have improved.....	3	5
■ Notes accommodations help hearing people.....	4	5
○ Better writing of my questions.....	2	7
○ More hearing screenings.....	1	2
○ More research.....	0	0
■ Development of mask types.....	4	5
■ Masks and communication.....	11	20
○ Public awareness.....	0	0
■ How masks affect communication for DHH.....	1	1
■ Of DHH in general.....	2	2
○ Reduce mask litter.....	1	1
● Participant medical conditions.....	3	5
○ Mental health.....	2	4
● Politics.....	0	0
○ Politicians abusing authority.....	1	1
○ Politicians should listen to scientists.....	1	1
○ Politicization of masks/pandemic.....	6	9

● Questions for me.....	0	0
○ About my research.....	0	0
■ Can they see the research.....	3	3
■ Why this topic.....	1	1
○ DHH Status.....	3	3
○ Interview logistics.....	0	0
■ Do I need to see them.....	1	1
■ Do I want part. to wear hearing aids.....	1	1
○ Is this what you're looking for.....	1	1
○ What is my degree.....	6	6
■ What will I do with my degree.....	1	1
○ Where do I live.....	2	2

APPENDIX B [35]

Survey Additional Information

Survey Instrument

Start of Block I: Study Information Sheet

Boise State School of Public Service Study – Spring 2022

The study is being conducted by Kym Couch, Public Policy and Administration PhD student in the School of Public Service at Boise State University under the advisement of her committee chair Dr. Krista Paulsen. The purpose of this study is strictly for research purposes. The researchers are not affiliated in any way with any organization other than Boise State University.

The purpose of this research is to study the COVID-19 pandemic from the perspective of d/Deaf and Hard of Hearing individuals. During the study, you will answer some survey questions, write responses and read texts. This survey should take you approximately 30 minutes to complete. By participating in this survey, you may receive extra credit in your courses at the discretion of your professors. You must be at least 18 years of age or older to participate in this study.

At the very end of the survey, an additional link will be provided which will lead to a form. If you would like to be contacted for further research on this topic, please complete that form.

If you are under the age of 18, or do not want to participate in this study, you can earn extra credit by participating in an alternative activity. Please contact me at KymCouch@u.boisestate.edu for more details on the alternative activity, which will involve a reading and a summary of the reading.

Some questions on this survey may cause emotional distress. You are free to skip any of these questions if answering them makes you uncomfortable.

If these questions make you feel any emotional distress, we recommend you contact Boise State counseling services at

<https://healthservices.boisestate.edu/counseling/> or 208-426-1459.

You may discontinue the study at any time. Your responses are completely anonymous and cannot be linked to you in any way.

For this research project, we are requesting demographic information. Due to the make-up of the d/Deaf and hard of hearing population, the combined answers to these questions may make an individual person identifiable. The researchers will make every effort to protect your confidentiality. However, if you are uncomfortable answering any of these questions, you may leave them blank.

CONTACTS FOR QUESTIONS OR PROBLEMS

Contact Information: If you should have any questions about this research study, please contact Kym Couch at KymCouch@u.boisestate.edu. For additional information about your rights as a research participant in this study, please feel free to contact the Boise State University Institutional Review Board Office. You may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138.

In consideration of all of the above, I give my consent to participate in this research study.

In consideration of all of the above, I DO NOT consent to participate in this research study [EXIT IF NO CONSENT]

Start of Block II: Demographic Info

Q1 What is your age in years? _____

Skip To: End of Survey If Condition: What is your age in years? Is Less Than or Equal to 17. Skip To: End of Survey.

Q2 What gender do you identify as?

Male (1)

Female (2)

Non-binary / third gender (3)

Prefer not to say (4)

Q3 What racial or ethnic group best describes you?

Asian (1)

African-American / Black (2)

Hispanic / Latino (3)

Native American (4)

White (5)

Other (6) _____ (Open text - Q4.1)

Q4 Which statement best describes your current employment status?

Working- full time (1)

Working- part time (2)

Temporarily unemployed (3)

Homemaker (4)

Student (5)

Permanent disability - Unable to work (6)

Retired (7)

Other (8) _____ [Open text - Q4.2]

Q5 In which state do you currently reside?

Alabama (1)	Louisiana (19)	Oklahoma (37)
Alaska (2)	Maine (20)	Oregon (38)
Arizona (3)	Maryland (21)	Pennsylvania (39)
Arkansas (4)	Massachusetts (22)	Puerto Rico (40)
California (5)	Michigan (23)	Rhode Island (41)
Colorado (6)	Minnesota (24)	South Carolina (42)
Connecticut (7)	Mississippi (25)	South Dakota (43)
Delaware (8)	Missouri (26)	Tennessee (44)
District of Columbia (9)	Montana (27)	Texas (45)
Florida (10)	Nebraska (28)	Utah (46)
Georgia (11)	Nevada (29)	Vermont (47)
Hawaii (12)	New Hampshire (30)	Virginia (48)
Idaho (13)	New Jersey (31)	Washington (49)
Illinois (14)	New Mexico (32)	West Virginia (50)
Indiana (15)	New York (33)	Wisconsin (51)
Iowa (16)	North Carolina (34)	Wyoming (52)
Kansas (17)	North Dakota (35)	I do not reside in
Kentucky (18)	Ohio (36)	the United States
		(53)

Q6 What is your current zip code? _____

End of Block: Demographic Info

Start of Block III: Deaf Community Info

Q7 Where do you fall on the following scale, 0 being completely hearing and 100 being completely deaf?

Completely Hearing

Completely Deaf

0 10 20 30 40 50 60 70 80 90 100

Q8 Do you consider yourself to be part of the Deaf Community?

Definitely not (1)

Probably not (2)

Might or might not (3)

Probably yes (4)

Definitely yes (5)

Q9 Which term do you most identify with?

"Big-D" Deaf (1)

"Little-D" deaf (2)

Hard of Hearing (3)

Hearing Impaired (4)

Hearing (5)

None of the above (6)

Q10.1 Which of these is your preferred in-person communication method?

American Sign Language (1)

Spoken English (2)

Other (3) _____ [Open text - Q10.2]

Q11.1 Which of these communication methods have you used in person in the past 3 months? Check all that apply.

Spoken English (1)

American Sign Language (2)

Signed English (3)

Written English (such as passing a piece of paper or digital device back and forth) (4)

Lipreading Spoken English (5)

Pantomiming (6)

Other (7) _____ [Open text - Q11.2]

Q12.1 - Q12.6 Please rank these communication methods, 1 being the communication method you use most often in person, 6 being the communication method you use least often in person.

Spoken English (1)

American Sign Language (2)

Signed English (3)

Written English (such as passing a piece of paper or digital device back and forth) (4)

Lipreading Spoken English (5)

Pantomiming (6)

End of Block: Deaf Community Info

Start of Block IV: Vaccination and Medical Risk

Q13 Are you fully vaccinated against COVID-19? You are considered fully vaccinated 2 weeks after your second dose of Pfizer or Moderna vaccine OR 2 weeks after a Johnson & Johnson vaccine.

No, I have not received any COVID-19 Vaccinations (1)

No, I have received a single dose of Pfizer, but not the second dose (2)

No, I have received a single dose of Moderna, but not the second dose (3)

Yes, I am fully vaccinated with Pfizer (two doses) (4)

Yes, I am fully vaccinated with Moderna (two doses) (5)

Yes, I am fully vaccinated with Johnson & Johnson (one dose) (6)

Q14 Have you received a COVID-19 booster vaccine?

No (1)

Yes, Pfizer (2)

Yes, Moderna (3)

Yes, Johnson & Johnson (4)

Q15 Are you considered high risk according to CDC guidelines? Check all that apply.

No - I am not considered high risk (1)

Yes - Cancer, kidney disease, and/or liver disease (2)

Yes - Chronic lung disease and/or asthma (3)

Yes - Depression, schizophrenia, Down syndrome, Dementia, and/or Alzheimer's (4)

Yes - Overweight or obesity (5)

Yes - Current or former cigarette smoker (6)

Yes - Other not listed (7) _____ (Open text - Q15.1)

Q16 Have you ever tested positive for COVID-19?

No (1)

Yes (2)

No, but I believe I have had COVID-19 due to symptoms or known exposure (3)

End of Block: Vaccination, COVID-19 Status, and Medical Risk

Start of Block V: Pandemic Likert Scale Questions

Q17 - Employment

Rate the extent to which you agree or disagree with this statement.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
I became unemployed as a direct result of COVID-19. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COVID-19 has made my job more difficult. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had a desire to change careers because of COVID-19. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I began working from home due to COVID-19. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The nature of my job has changed because of COVID-19. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 How has the COVID-19 pandemic affected your annual salary?

Decreased a lot (1)

Decreased slightly (2)

Stayed the same (3)

Increased slightly (4)

Increased a lot (5)

Q19 Is there anything you would like the researchers to know about how COVID-19 has impacted your employment or job? (Leave blank if no.)

Q20 - Use of Masks

Rate the extent to which you agree or disagree with this statement.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
I have chosen not to go somewhere because they would require a mask. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always wear a mask around strangers. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not wear a mask unless required by a business or law. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more comfortable when everyone around me is masked. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have declined invitations to social events because they required masks. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masks are important for protecting against COVID-19. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 Is there anything you would like the researchers to know about your use of or feelings about masks? (Leave blank if no.)

Q22 - Masks and Communication

Rate the extent to which you agree or disagree with this statement.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
I rely heavily on lipreading or facial cues when communicating with others. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masks make it harder for me to hear people speak. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masks make it harder for me to understand facial cues. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masks have made communication more difficult for me. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have faced difficulty at work or school due to masks impacting communication. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 Is there anything you would like the researchers to know about how the use of masks has impacted communication for you? (Leave blank if no.)

Q24 - Mental Health

Rate the extent to which you agree or disagree with this statement.

	Strongly Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Strongly Agree (5)
I struggled with my mental health before the start of the COVID-19 pandemic. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mental health has worsened since the start of the COVID-19 pandemic. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt more isolated since the start of the COVID-19 pandemic. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have spent less time with friends and family than I did before the start of the COVID-19 pandemic. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have sought help for my mental health since the start of the COVID-19 pandemic. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have lost a close friend or family member to COVID-19. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 Is there anything you would like the researchers to know about how the COVID-19 pandemic has impacted your mental health? (Leave blank if no.)

End of Block: Pandemic Likert Scale Questions

Responses Excluded from Quantitative Survey Analysis

Table B.1 Responses Excluded from Quantitative Survey Analysis

# of Responses	Reason for Exclusion
41	No response to survey consent question.
1	Selected "I do not consent" on the survey consent question.
33	No answers given beyond survey consent question (Block I).
9	Indicated "0" on 0-100 deafness scale.
49	No answers given beyond survey consent question (Block I) and demographic information (Block II).

Use of Interpreted Videos in Survey

The ASL interpretation videos were added on July 11, 2022. Of the one-hundred and ninety-eight (198) responses ultimately used in quantitative analysis, forty-one (41) survey responses were received before the ASL interpretation was added and one-hundred and fifty-seven (157) were received after the ASL interpretation was added. It is unclear how many people used the videos, but the highest viewed video, the study information and consent question, had twenty-six (26) views while the rest of the interpretation videos ranged from eleven to one (11 to 1) views, receiving fewer views as the survey went on. Although the videos were not viewed much, they still provided value to the study

by reassuring members of the Deaf community that I was listening to their concerns, and receptive to the Deaf community.

Survey Participant Pseudonyms

Rather than assign pseudonyms to all survey participants who provided responses to the open-ended questions, I chose to assign them numbers. While I recognize that numbers can be dehumanizing when compared to a name, this choice was made because, in total, one-hundred (100) participants provided answers to the open-ended questions and many of these answers are quoted within this research, which would be a lot of participants to assign pseudonyms to, accounting for appropriateness of gender and age. The numbers were assigned one to one-hundred and ninety-eight (1-198) in order of when the participant began their survey. This was done to provide context, since the smaller numbers mean the participant took the survey earlier in 2022 and the larger numbers mean the participant took the survey later in 2022. Numbers one to forty-one (1-41) are surveys taken between January 24 and April 25, 2022. Numbers forty-two to one-hundred and ninety-eight (42-198) are surveys taken between July 26 and September 5, 2022.

Data Cleanup in Survey Responses

Below is a list of data cleanup choices made to responses to quantitative survey questions. Changes were made through content analysis of open-text or other answers provided by individuals and adjusted in order to use responses in a more accurate and quantifiable manner.

Q5 In which state do you currently reside?

Options were each of the 50 U.S. States, District of Columbia, Puerto Rico, and “I do not reside in the United States.

One participant did not include their state, but they included their zip code so I was able to infer their state and include them in the number of participants from their state.

Q10 Which of these is your preferred in-person communication method?

American Sign Language (1)

Spoken English (2)

Other (3) _____ (Open text - Q10.1)

Eighteen (18) participants selected “other” to this question that was then cleaned up to consolidate similar answers. See the table below for cleanup choices and justification.

Table B.2 Data Cleanup for Survey Question 10

# of Part	Other Text	Recorded As	Justification
1	"Not ASL fluent, but prefer ASL"	American Sign Language	ASL is preferred. Proficiency is not relevant to this question.
4	"I read lips" "Lip reading" "Lip reading spoken English" "I read lips mostly." "Spoken English with lip reading"	Other - Lipreading	Lipreading is preferred.
4	"email" "Texting/writing" "Written" "reading/writing/texting"	Other - Written	A form of written communication is preferred.
2	"Lip reading & notes" "Written lip read"	Other - Lipreading & Written	Both lipreading and a form of written communication is preferred.
1	"Both & lip reading"	Other - Spoken English, ASL, & Lipreading	Stated "both," which implies both ASL and Spoken English as they were the two options listed. Also stated lipreading.

1	“Both English & ASL”	Other - English & ASL	Both English and ASL. Did not specify whether English was spoken or written.
1	“English and French”	Other - English & French	Both English and French. Did not specify whether these languages were spoken or written.
1	“SimCom”	Other - SimCom	SimCom means “simultaneous communication” and is using both spoken English and signed ASL simultaneously.
1	“SEE”	Other - Signed Exact English	SEE stands for “Signed Exact English.” A form of sign language that follows English grammar exactly.
2	[None]	11 - Other - Unspecified	Did not list other text.

Q11 Which of these communication methods have you used in person in the past 3 months? Check all that apply.

Spoken English (1)

American Sign Language (2)

Signed English (3)

Written English (such as passing a piece of paper or digital device back and forth) (4)

Lipreading Spoken English (5)

Pantomiming (6)

Other (7) _____ (Open text - Q11.1)

Fifteen (15) participants selected “other” to this question, which was then recorded as appropriate. See the table below for data cleanup choices and justification.

Table B.3 Data Cleanup for Survey Question 11

# of Part	Other Text	Recorded As	Justification and Notes
7	“Captioning and live transcribe apps” “CART” “Live captioning apps” “Transcribe on my phone” “Transcription app” “Transcriptions” “Voice to text app on iPhone”	Other - Live Transcription / Closed Captioning	All forms of transcription or closed captioning. ⁸⁵ “CART” stands for “Communication Access Realtime Translation” (HLAA, 2021, para. 4).
2	“Texting”	Other - Texting	Specified texting.
2	“Interpreter” “Interpreters”	Other - Interpreter	Specified interpreter. Did not specify whether a Certified Deaf Interpreter (who generally uses means other than ASL to communicate with the DHH person) or an ASL interpreter. Cannot be determined.

⁸⁵ Transcription and closed captioning mean slightly different things, but the distinction is primarily made in relation to video. They are colloquially used to mean the same thing and it is not a large enough distinction to separate them into different categories for the purposes of this research. “Transcription refers to the process by which audio is converted into written text, whereas captioning divides that transcript text into time-coded chunks, known as ‘caption frames’” (Mahoney, 2021, para. 2).

4	“French” “I speak Spanish too” “Email” [None]	Other	Non-English languages, email, and unspecified. Since each of these had only one instance, they were combined for a general other as it was not relevant to distinguish between them.
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Full Likert Responses to Survey

Below is a table of the responses to the Likert questions on the survey followed by figures of the Employment and Mental Health questions split by Linguistic Category. While I have included this information for context and to identify trends for future research, it is important to note that there are limitations to drawing conclusions solely from this data. Some of the questions were written in a way that did not mention masks while others were written in a way that did not allow for a “not applicable” selection, leading to limitations of drawing conclusions about masks from these questions.

Likert questions were answered on the following scale:

- 1: Strongly Disagree 2: Somewhat Disagree
 3: Neither Agree Nor Disagree 4: Somewhat Agree 5: Strongly Agree

The exception to this is Question 18, which was answered on the following scale:

- 1: Decreased A Lot 2: Decreased Slightly 3: Stayed The Same
 4: Increased Slightly 5: Increased A Lot

On the table below, Resp. stands for Response.

Table B.4 Full Likert Responses to Survey

		1: Strongly Disagree	2	3	4	5: Strongly Agree	No Resp.
Employment							
17.1	I became unemployed as a direct result of COVID-19.	55.05	3.54	8.08	13.64	5.56	14.14
17.2	COVID-19 has made my job more difficult.	15.66	2.53	16.16	25.76	22.73	17.17
17.3	I have had a desire to change careers because of COVID-19.	32.83	6.06	19.70	13.64	11.62	16.16
17.4	I began working from home due to COVID-19.	32.83	1.01	14.14	17.17	19.70	15.15
17.5	The nature of my job has changed because of COVID-19.	19.19	2.53	15.66	31.31	15.15	16.16
18	How has the COVID-19 pandemic affected your annual salary?	11.11	12.12	50.00	10.61	3.03	13.13
Use of Masks							
20.1	I have chosen not to go somewhere because they would require a mask.	47.47	8.08	7.07	14.65	8.59	14.14
20.2	I always wear a mask around strangers.	9.60	9.60	14.14	20.71	31.82	14.14
20.3	I do not wear a mask unless required by a business or law.	35.35	16.67	7.58	12.63	14.65	13.13

20.4	I feel more comfortable when everyone around me is masked.	12.12	5.56	16.16	18.69	33.84	13.64
20.5	I have declined invitations to social events because they required masks.	53.03	6.57	9.09	7.07	10.10	14.14
20.6	Masks are important for protecting against COVID-19.	6.06	1.01	6.57	17.68	55.56	13.13
Masks and Communication							
22.1	I rely heavily on lipreading or facial cues when communicating with others.	3.54	5.56	6.06	26.77	45.45	12.63
22.2	Masks make it harder for me to hear people speak.	2.02	1.52	8.08	11.62	64.65	12.12
22.3	Masks make it harder for me to understand facial cues.	0.51	1.01	5.56	25.25	54.55	13.13
22.4	Masks have made communication more difficult for me.	1.52	0.51	4.55	24.75	56.06	12.63
22.5	I have faced difficulty at work or school due to masks impacting communication.	4.55	3.54	16.16	21.72	39.90	14.14
Mental Health							
24.1	I struggled with my mental health before the start of the COVID-19 pandemic.	24.75	9.60	7.07	21.21	24.75	12.63

24.2	My mental health has worsened since the start of the COVID-19 pandemic.	16.16	12.12	12.63	20.20	26.77	12.12
24.3	I have felt more isolated since the start of the COVID-19 pandemic.	8.08	5.05	15.15	30.30	29.29	12.12
24.4	I have spent less time with friends and family than I did before the start of the COVID-19 pandemic.	5.56	6.57	11.11	26.26	38.38	12.12
24.5	I have sought help for my mental health since the start of the COVID-19 pandemic.	33.33	9.09	15.15	10.10	19.70	12.63
24.6	I have lost a close friend or family member to COVID-19.	36.36	11.11	11.62	10.10	18.18	12.63

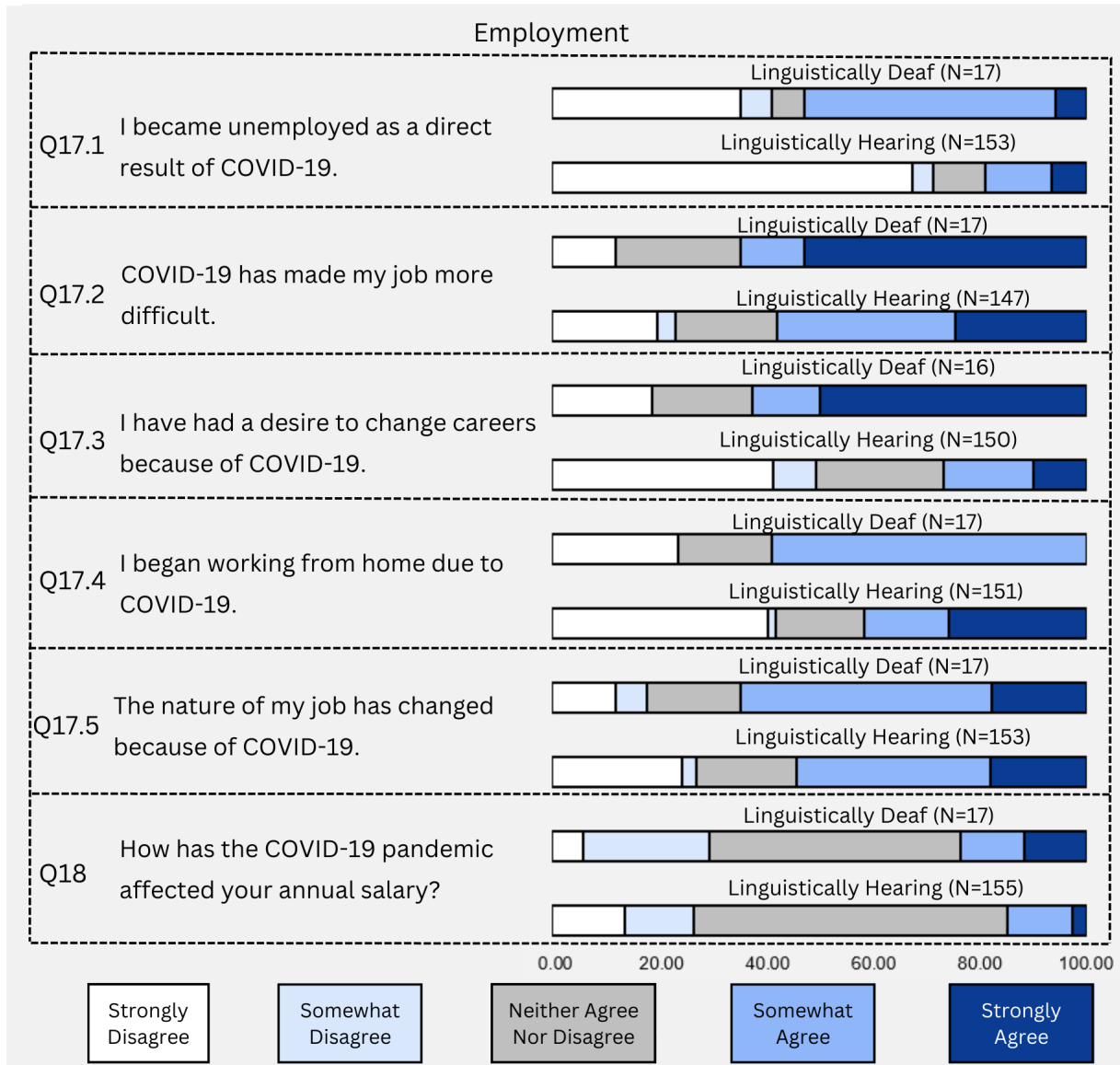


Figure B.1. Employment Likert Questions - Linguistic Comparison

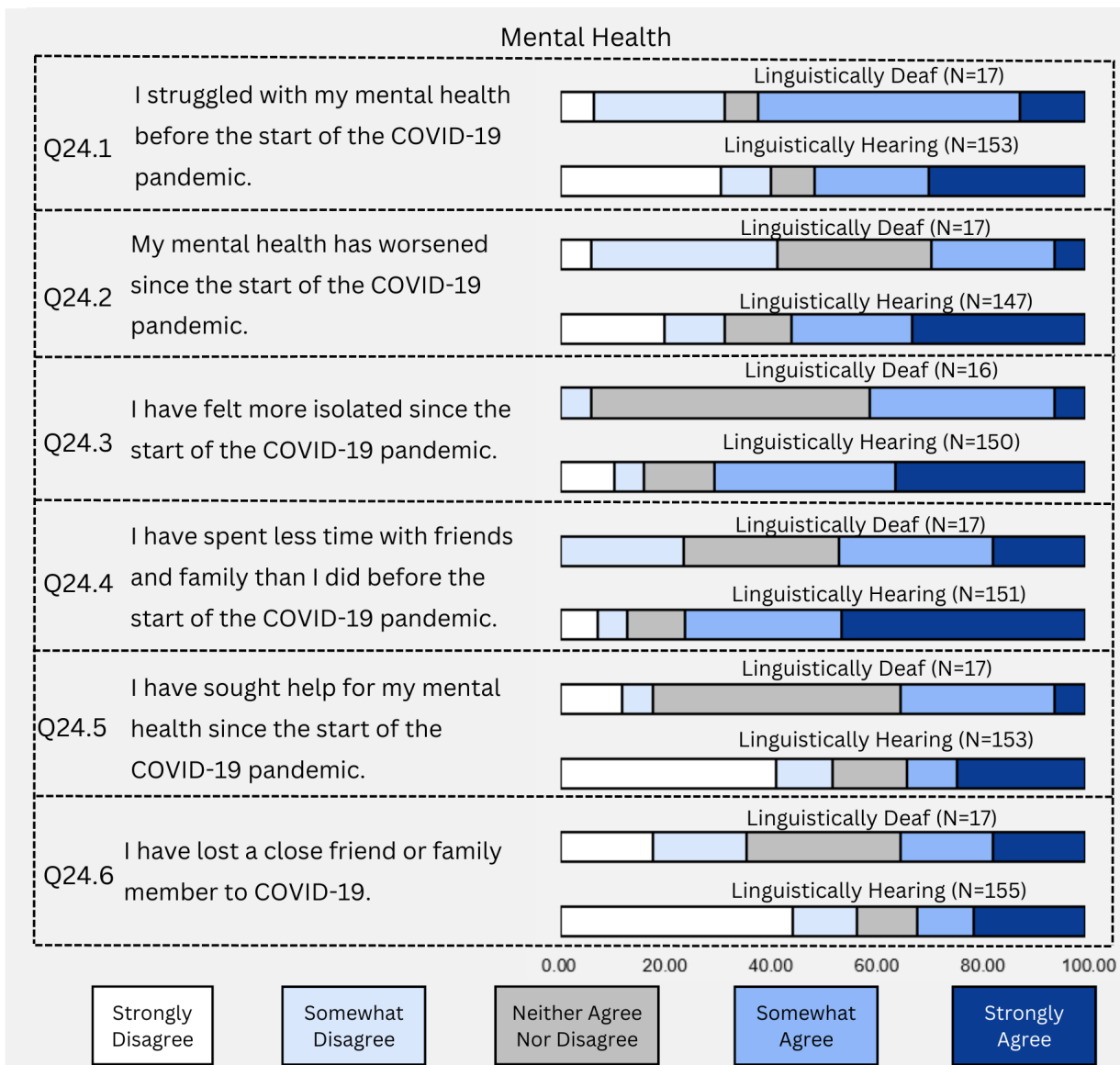


Figure B.2. Mental Health Likert Questions - Linguistic Comparison

Linguistic Classification Decisions - Linguistically Deaf

If a participant indicated that ASL was their preferred communication method (Q10), they have used ASL in the past 3 months (Q11), they ranked ASL as 1st, 2nd, or 3rd in their communication rankings, and they indicated “probably yes” or “definitely yes” as their identification with the Deaf community (Q8), they were categorized as Linguistically Deaf.

There was one participant who met all of the criteria mentioned above, with the exception of indicating “may or may not” on their connection with the Deaf community (Q8). Since this participant ranked ASL as 3rd after “Lipreading Spoken English” and “Spoken English,” and did not have a strong cultural connection with the Deaf community, I determined that, although they preferred using ASL, they were more likely to be utilizing English in their everyday life therefore making them Linguistically Hearing under this categorization system.

Below is a table with detailed information on the survey responses from those who were categorized as Linguistically Deaf. These decisions should not be considered reflective of where the individual would choose to categorize themselves.

Table B.5 Linguistic Classification Decisions - Linguistically Deaf

# of Part	Preferred Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
14	ASL	ASL used.	ASL 1st in rankings.	Def. Yes (9) Prob. Yes (5)	Big-D Deaf (7) Little-D deaf (5) Hard of Hearing (1) None of Above (1)
3	ASL	ASL used.	ASL 2nd or 3rd in rankings.	Def. Yes (1) Prob. Yes (2)	Big-D Deaf (2) Little-D deaf (1)
1	Other - "Not ASL fluent, but prefer ASL"	ASL used.	ASL 1st in rankings. No other rankings.	Def. Yes.	"Big-D" Deaf

Linguistic Classification Decisions - Linguistically Hearing

Below is a table with detailed information on the survey responses from those who were categorized as Linguistically Hearing. These decisions should not be considered reflective of where the individual would choose to categorize themselves.

Table B.6 Linguistic Classification Decisions - Linguistically Hearing

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
86	Spoken English	No ASL used.	Spoken English 1st. Variety of responses for ASL trending toward low usage. No ranking (32) 6th (39) 5th (11) 4th (3) 3rd (1)	Variety of responses. Trending toward no. Def. not (32) Prob. not (30) Might or might not (14) Prob. yes (7) Def. yes (3)	Variety of responses. Hearing impaired (42) Hard of hearing (38) Little-D deaf (3) Hearing (2) None of above (1)
22	Spoken English	No ASL used.	Variety of responses for Spoken English. Trending toward low usage. No ranking (6) 6th (9) 3rd (1) 2nd (6) Variety of responses for ASL. Trending toward low usage. No ranking (14) 6th (3) 5th (4) 4th (1)	Variety of responses. Trending toward no. Def. not (5) Prob. not (8) Might or might not (7) Prob. yes (1) Def. yes (1)	Variety of responses. Hard of hearing (13) Hearing impaired (6) Little-D deaf (2) None of above (1)

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
18	Spoken English	Variety of responses, all included ASL.	<p>Variety of responses for Spoken English No trend. No ranking (1) 6th (7) 3rd (1) 2nd (2) 1st (7)</p> <p>Variety of responses for ASL. Trending toward medium usage. No ranking (2) 5th (3) 4th (4) 3rd (9)</p>	<p>Variety of responses. Trending toward yes. Prob. not (5) Might or might not (4) Prob. yes (6) Def. yes (3)</p>	<p>Variety of responses. Hard of hearing (10) Hearing impaired (4) Big-D Deaf (2) Little-D deaf (2) None of above (1)</p>
12	ASL	Variety of responses, most (11) included ASL.	<p>Variety of responses for Spoken English No trend. No ranking (3) 6th (1) 4th (3) 3rd (3) 2nd (1) 1st (1)</p> <p>Variety of responses for ASL. Trending toward low usage. No ranking (1) 6th (6) 5th (4) 4th (1)</p>	<p>Variety of responses. Trending toward yes. Prob. yes (2) Def. yes (10)</p>	<p>Low variety of responses. Big-D Deaf (9) Little-D deaf (2) Hearing impaired (1)</p>

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
10	Spoken English	Variety of responses, all included both ASL and spoken English.	Ranked Spoken English 1st. Variety of responses for ASL. Trending toward low usage. No ranking (1) 5th (4) 4th (5)	Variety of responses. Trending toward no. Def. not (1) Prob. not (4) Might or might not (5)	Low variety of responses. Hearing impaired (6) Hard of hearing (4)
7	Spoken English	Variety of responses, 1 included ASL, all included spoken English.	Answers contradictory with language usage answers. Due to this, I relied instead on community identification. Ranked spoken English 6th (6) or 1st (1). Ranked ASL 1st (5) or 2nd (2).	Low variety of responses. Trending toward no. Def. not (3) Prob. not (4)	Low variety of responses. Hard of hearing (5) Hearing impaired (1) Hearing (1)

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
5	Other - Lip-reading	Variety of responses, 1 included ASL. All included spoken English.	Variety of responses for spoken English. Trending toward medium and high usage. 4th (2) 3rd (1) 1st (2) Variety of responses for ASL. No trend. 6th (1) 5th (1) 4th (1) 2nd (1) 1st (1)	Def. not (1) Might or might not (2) Prob. yes (2)	Hard of hearing (3) Little-D deaf (1) Hearing impaired (1)
4	Spoken English	Variety of responses including ASL (2) and spoken English (3).	Variety of responses for spoken English. No trend. 4th (2) 3rd (1) 1st (2) ASL 1st (1) or 2nd (3).	Might or might not.	Hard of hearing.
4	Other - Written	No ASL used.	Spoken English 1st (3) or 3rd (1). ASL 6th (3) or 5th (1).	Variety of responses trending toward no. Prob. yes (1) Might or might not (1) Prob. no (1) Def. no (1).	Little-D Deaf (2) Hard of hearing (2)

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
2	Spoken English	ASL and spoken English used.	Spoken English ranked 1st. ASL ranked 2nd.	Prob. yes.	Hard of hearing.
2	Other - Lip-reading & Written	No ASL used.	1st: ASL (1). Not ranked: ASL (1).	Prob. yes (1) Prob. not (1)	Little-D deaf.
2	Other - Unspecified	No ASL used.	Not ranked: ASL	Prob. yes (1) Prob. not (1)	Hearing impaired.
1	Other - Spoken English, ASL, & Lipreading	ASL and spoken English used.	3rd: Lipreading 4th: ASL 5th: Spoken English 6th: Lipreading No other rankings.	Prob. yes.	"Big-D" Deaf
1	Other - Both English & ASL	ASL and spoken English used.	1st: Spoken English 2nd: ASL 3rd: Lipreading No other rankings.	Def. yes.	Hard of hearing.
1	Other - English & French	ASL and other used. Other text "French".	1st: Spoken English 5th: Pantomiming 6th: Lipreading No other rankings	Def. not.	None of the above.

# of Part.	Pref. Comm. (Q10)	Comm. Used Past 3 Months (Q11)	Comm. Rankings (Q12)	Deaf Community ID (Q8)	Deafness Term ID (Q9)
1	Other - SimCom	ASL and Spoken English both used.	1st: Lipreading 2nd: Spoken English 3rd: ASL 4th: Signed English 5th: Written 6th: Pantomiming	Might or might not	Hard of hearing.
1	ASL	ASL, spoken English, and Lipreading used.	1st: Lipreading 2nd: Spoken English 3rd: ASL 4th: Signed English 5th: Written 6th: Pantomiming	Might or might not	Hard of hearing.
1	Other - Signed Exact English	ASL and Spoken English both used.	1st: Pantomiming. 2nd: Written. 3rd: Lipreading. 5th: Signed English. 6th: Spoken English. No other rankings.	Def. yes.	"Big-D" Deaf

APPENDIX C [9]

Interview Additional Information

Secondary Survey for Email Collection

Start of Block: Default Question Block

Q1 What is your name? This will only be used for additional research purposes and will not be tied to your survey response.

Q2 What is your email where we may contact you? This will only be used for additional research purposes and will not be tied to your survey response.

End of Block: Default Question Block

Email for Interview Participant Scheduling

When a participant provided their email to indicate that they would be interested in participating in further research, I emailed them the following email to get more information on preferred communication methods:

Hello!

Thank you for completing my survey and indicating that you want to participate in further research.

As part of this research project, I will be conducting interviews to get a more one-on-one view of how the COVID-19 pandemic has impacted the lives of d/Deaf and hard of hearing people.

Under my current schedule, these interviews will be conducted via video call between the months of September and October.

While I am conversationally fluent in ASL, I am not qualified to conduct interviews entirely in ASL myself. If ASL is your preferred communication method, I will provide an ASL interpreter for myself so I can communicate the questions in ASL and ensure I fully understand your responses. Other interpretation methods may also be available so please let me know what would be the most helpful for you.

If you are interested in participating in an interview, please let me know so we can set one up! Please also let me know your preferred communication method, whether that be spoken English, written English, ASL, or another method entirely.

Please let me know if you have any questions I can answer!

Thanks,

Kym

--

-Kym Couch, MPS

PhD Candidate in Public Policy and Administration

School of Public Service

Boise State University

Interview Disclosure

Before conducting the interviews, the participants were asked to agree to the following disclosure via email. 13 participants agreed via email. One

participant did not respond to the email disclosure before the interview. That participant confirmed that they had read the disclosure and agreed to it before the start of the interview:

The study is being conducted by Kym Couch, Public Policy and Administration PhD student in the School of Public Service at Boise State University under the advisement of her committee chair Dr. Krista Paulsen. The purpose of this study is strictly for research purposes. The researchers are not affiliated in any way with any organization other than Boise State University.

The purpose of this research is to study the COVID-19 pandemic from the perspective of d/Deaf and Hard of Hearing individuals. During the study, you will answer some questions. This interview should take you approximately one hour to complete. The interview will be recorded with both video and audio. You must be at least 18 years of age or older to participate in this study.

Some questions in the interview may cause emotional distress. You are free to skip any of these questions if answering them makes you uncomfortable. If these questions make you feel any emotional distress, we recommend you contact Boise State counseling services at <https://healthservices.boisestate.edu/counseling/> or 208-426-1459.

You may discontinue the study at any time. This is a confidential interview. Only research personnel and authorized university staff will be able to see the names of participants. Your responses will be presented in the research in a way which protects your confidentiality, such as assigning you a pseudonym or

describing you in general terms (such as “a man in his fifties who identifies as Deaf,” or similar).

Interview Questions

Below is the list of initial interview questions. Depending on the subjects and the responses, some follow ups with additional prompts or clarifying questions were presented to ensure a question was answered sufficiently or I choose to skip questions if it had been answered in another section.

Demographic Questions:

- What is your age?
- What gender do you identify as?
- What are your pronouns?
- What is your race?
- What is your current employment status?
- In which state do you reside in?

Deaf Community Questions:

- Can you describe your level of hearing on a scale of 0-100, 0 being completely hearing and 100 being completely deaf?
- What terms do you use for yourself when describing your hearing abilities?
- Tell me about your preferred types of in-person communication?
- Do you consider yourself to be part of the Deaf community? Why or why not?
- Do you consider yourself to be part of the hearing world? Why or why not?

Mask Questions:

- Tell me about your mask wearing practices during the height of the pandemic.
- Have masks had an impact on your communication?
 - (If no) Why haven't they?
 - (If yes) In what ways do masks impact your communication?
 - (If yes) Can you tell me about a specific time when masks have impacted your communication?
 - (If yes) In what ways have communication issues related to wearing masks impacted your life?
- How do you feel about clear masks which allow for the wearer's lips to be visible?
- How do you feel about the use of masks?
 - (Possible follow up question) How do you feel about masks being required by the government?
 - (Possible follow up question) How do you feel about using masks in everyday life?
 - (Possible follow up question) Do you prefer others around you to be masked? Why or why not?
- Is there anything else you would like us to know about your feelings on masks and communication?
- Can I contact you if I have follow up questions?
- Do you have any questions for me?

Follow-up questions asked during interviews:

- General pleasantries such as “how are you?”
- Direct clarifications of previously-asked questions such as providing examples when the participant did not understand the question.
- Do you happen to know the name of the book?
- I'm curious when you got the news that you could go back to no masks. Did all of your students opt to not wear masks, or did some still choose to wear them?
- I'm curious. Can you tell me a little bit more about taking away the hearing aids?
- It's interesting, you use the term hearing deficit a lot. Do you think that that is the way that you describe yourself most?
- Do you know ASL?

Follow-up questions asked in emails:

- Why do you use the term "hearing impaired" for yourself over other terms such as "deaf", "hard of hearing", or "hearing loss"?
- Do you consent to my using that email in my dissertation?
- I noticed a disproportionate number of participants from your state and am trying to see if it's just a coincidence or if there's a reason it happened. Could you tell me, if you remember, how you heard about this research?

- You mentioned that you don't identify with the Deaf community because you haven't felt comfortable within the Deaf community. Can you elaborate on that? Why have you not felt comfortable within the Deaf community?
- Do you think you might identify as part of the Deaf community in the future? What circumstances would lead you to identify as part of the Deaf community?
- I had asked you in the interview whether you consider yourself part of the hearing world. Your answer was a bit unclear to me. Could you answer this question again for me? Do you consider yourself to be part of the hearing world? Why or why not?
- I had asked you in the interview whether you consider yourself part of the Deaf community. Your answer was a bit unclear to me because you spoke about what you felt before you discovered your hearing deficit, but you didn't tell me what you think now. Could you answer that question again for me?
- To that same point, I realized I have the same question for you regarding the hearing world because you also answered that in the past-tense. Do you consider yourself to be part of the hearing world? Why or why not?

APPENDIX D [27]

Statewide Mask Mandates Additional Information

Statewide Mask Mandate Exception Coding

Below is a list of exceptions relevant to DHH people in statewide mask mandates ordered by start date. References for this table can be found later in this appendix. In the tables below, the following abbreviations are used:

- DHH: Deaf or Hard of Hearing
- Exc: Exception
- Term: Terminology
- Amb: Ambiguous
- Spec: Specificity
- Pers: Person
- Reas: Reason
- Comm: Communicating or Communication

The following columns have binary options with 0 for no and 1 for yes.

- DHH Exc.: Exceptions made for someone communicating with a DHH person.
- DHH Pers.: Exceptions made for DHH person.
- Amb. Exc.: Ambiguous medical exceptions that may or may not apply to a DHH person.

Below is a list of plural options and the explanation of the numbers assigned.

Table D.1 Plural Statewide Mask Mandate Exception Coding

DHH Term.	DHH Reas.	Amb. Reas.	Amb. Spec.
0: No exc. for DHH people or those comm. with them.	0: No exc. for DHH people or those comm. with them.	0: No exc. or exc. are unambiguous.	0: No exc. or exc. are unambiguous.
1: DHH. “deaf or hard of hearing”	1: Visual comm. “needs to read the lips of a speaker” “the ability to see the mouth is essential” “the ability to see the person’s mouth is essential” “in a way that requires the mouth to be visible” “for which the mouth needs to be visible”	1: Solely health, medical, disability. Solely based on medical ability or disability. Listed in no particular order. “able to medically tolerate” “cannot medically tolerate” “medical condition or disability” “medical condition” “medical or behavioral condition” “medical condition, mental health condition, or disability” “medical condition or disability” “medical conditions, intellectual or developmental disabilities, mental health conditions, or other sensory sensitivities”	1: High specificity. “unable” “able” “prevent(s)” “cannot” “precluding” “unless otherwise advised”

		<p>“medical condition that makes it hard to breathe or a disability”</p> <p>“medical condition, mental health condition, or intellectual or developmental disability”</p> <p>“medical, mental health, or developmental disability”</p> <p>“inhibit that individual’s health”</p> <p>“medical condition including those with respiratory conditions that restrict breathing, mental health conditions, or disability”</p> <p>“health would be damaged thereby”</p> <p>“medical condition, mental health condition or disability”</p> <p>“medical or developmental issue or challenge”</p>	
<p>2: Hearing impaired.</p> <p>“hearing impaired”</p> <p>“hearing-impaired”</p> <p>“hearing impairment”</p>	<p>2: General comm.</p> <p>“not wearing a face covering is essential to communication”</p> <p>“makes communication with that individual while</p>	<p>2: Safety.</p> <p>Mentions safety in relation to medical need.</p> <p>“disability or physical or mental impairment, that prevents them from safely wearing”</p>	<p>2: Medium specificity.</p> <p>“should not”</p> <p>“contrary”</p> <p><i>Note: Virginia included both “prohibit” and “contrary.” It was coded as a 2 as the</i></p>

	wearing a face covering difficult” “communication cannot be achieved through other means”	“medical condition precluding the safe wearing” “contrary to his or her health or safety because of a medical condition”	<i>additional ambiguity would allow the argument to be made in a court.</i> “inhibit” “damaged thereby” “contraindicates”
	3: General deafness. “seeking to communicate with someone who is hearing impaired”	3: Medical authority. Requires an appeal to authority. “unless otherwise advised by a health care provider”	3: Low specificity. “makes it unreasonable” “make the necessary adjustments to fulfill the needs” “complicated or irritated by”
		4: Very ambiguous. Puerto Rico has a very ambiguous inclusion regarding disability. "make the necessary adjustments to fulfill the needs of persons with disabilities and the elderly"	
		5: Multiple reasons. Massachusetts had an exception which listed two possible avenues of reasoning, medical need as well as medical authority.	

		“medical condition or the person is otherwise exempted by Department of Public Health guidance”	
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Statewide Mask Mandate Exception Statistics

Below are the coded statistics for statewide mask mandate exceptions.

Abbreviations used:

- Impl: Implementation date.
- Days Since: Days since the previous mandate was implemented.
- DHH: Deaf or Hard of Hearing
- Exc: Exception
- Pers: Person
- Term: Terminology
- Reas: Reason
- Amb: Ambiguous
- Spec: Specificity

Table D.2 Statewide Mask Mandate Exception Statistics

State	Impl.	Days Since	DHH Exc.	DHH Pers.	DHH Term.	DHH Reas.	Amb. Exc.	Amb. Reas.	Amb. Spec.
New Jersey	4/10/20	0	0	0	0	0	1	1	2
Hawaii	4/17/20	7	0	0	0	0	0	0	0
New York	4/17/20	0	0	0	0	0	1	1	1
Maryland	4/18/20	1	0	0	0	0	0	0	0
Pennsylvania	4/19/20	1	0	0	0	0	1	1	1
Connecticut	4/20/20	1	0	0	0	0	1	2	2
Michigan	4/26/20	5	0	0	0	0	1	1	1
Delaware	4/28/20	2	0	0	0	0	1	1	2
Illinois	5/1/20	3	0	0	0	0	1	1	1
Maine	5/1/20	0	0	0	0	0	0	0	0
Massachusetts	5/6/20	5	0	0	0	0	1	5	1
Rhode Island	5/8/20	2	0	0	0	0	1	1	2
Kentucky	5/10/20	2	1	0	2	1	1	2	1
New Mexico	5/15/20	5	0	0	0	0	1	3	1
Virginia	5/29/20	14	1	0	2	1	1	2	2
California	6/18/20	20	1	0	2	1	1	1	1
Nevada	6/25/20	7	0	0	0	0	1	1	1
Washington	6/26/20	0	1	0	1	2	1	1	1

State	Impl.	Days Since	DHH Exc.	DHH Pers.	DHH Term.	DHH Reas.	Amb. Exc.	Amb. Reas.	Amb. Spec.
North Carolina	6/26/20	1	1	0	2	1	1	1	2
Oregon	7/1/20	5	0	0	0	0	1	1	1
Kansas	7/3/20	2	0	0	0	0	1	1	1
Texas	7/3/20	0	0	0	0	0	1	1	1
West Virginia	7/7/20	4	0	0	0	0	0	0	0
Louisiana	7/13/20	6	1	0	2	3	1	1	1
Montana	7/15/20	2	1	0	2	3	1	2	1
Alabama	7/16/20	1	1	0	2	1	1	1	1
Colorado	7/16/20	0	0	0	0	0	1	1	2
Puerto Rico	7/17/20	1	0	0	0	0	1	4	3
Arkansas	7/20/20	3	0	0	0	0	1	1	1
District of Columbia	7/22/20	2	1	0	1	1	1	1	1
Ohio	7/23/20	1	1	0	2	1	1	1	2
Minnesota	7/24/20	1	1	0	1	2	1	1	3
Indiana	7/27/20	3	0	0	0	0	1	1	1
Wisconsin	8/1/20	5	1	0	1	2	1	1	1
Vermont	8/1/20	0	0	0	0	0	1	1	3
Mississippi	8/5/20	4	1	0	2	1	1	1	1

State	Impl.	Days Since	DHH Exc.	DHH Pers.	DHH Term.	DHH Reas.	Amb. Exc.	Amb. Reas.	Amb. Spec.
North Dakota	11/14/20	101	1	0	1	2	1	1	3
Iowa	11/17/20	3	1	1	1	2	1	1	1
New Hampshire	11/20/20	3	1	1	1	2	1	1	1
Wyoming	12/9/20	19	1	1	2	1	1	1	1
Utah	1/22/21	44	1	0	1	2	1	1	1

Statewide Mask Mandate Exception Language

Below is a list of the wording of exceptions relevant to DHH people in statewide mask mandates. References for this table can be found later in this Appendix.

Table D.3 Statewide Mask Mandate Exception Language

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
NJ	4/10/20	[None]	[None]	"except where doing so would inhibit that individual's health"
HI	4/17/20	[None]	[None]	"able to medically tolerate a face-covering"
NY	4/17/20	[None]	[None]	[No exceptions.]
MD	4/18/20	[None]	[None]	[No exceptions.]
PA	4/19/20	[None]	[None]	"individuals who cannot wear a mask due to a medical condition"
CT	4/20/20	[None]	[None]	"contrary to his or her health or safety because of a medical condition"
MI	4/26/20	[None]	[None]	"Cannot medically tolerate a face mask"
DE	4/28/20	[None]	[None]	"except where doing so would inhibit that individual's health"
IL	5/1/20	[None]	[None]	Unambiguous. "Trouble breathing or related medical conditions"
ME	5/1/20	[None]	[None]	"able to medically tolerate a face-covering or a mask"
MA	5/6/20	[None]	[None]	"except where a person is unable to wear a mask or face covering due to a medical condition or the person is otherwise exempted by Department of Public Health guidance."

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
RI	5/8/20	[None]	[None]	"those whose health would be damaged thereby"
KY	5/10/20	"Any person who is hearing impaired, or communicating with a person who is hearing impaired, where the ability to see the mouth is essential to communication"	"is hearing impaired"	"Any person with disability or physical or mental impairment, that prevents them from safely wearing a face covering"
NM	5/15/20	[None]	[None]	"unless otherwise advised by a health care provider"
VA	5/29/20	"Any person seeking to communicate with the hearing impaired and for which the mouth needs to be visible"	"the hearing impaired"	"Persons with health conditions that prohibit wearing a face covering. Nothing in this Order shall require the use of a face covering by any person for whom doing so would be contrary to his or her health or safety because of a medical condition."
CA	6/18/20	"Persons who are hearing impaired, or communicating with a person who is hearing impaired, where the ability to see the mouth is essential for communication"	"is hearing impaired"	"Persons with a medical, mental health, or developmental disability that prevents wearing a face covering"

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
NV	6/25/20	[None]	[None]	"cannot wear a face covering due to a medical condition or disability, or who are unable to remove a mask without assistance. Persons exempted under this provision should wear a non-restrictive alternative, such as a face shield."
NC	6/26/20	"Is seeking to communicate with someone who is hearing-impaired in a way that requires the mouth to be visible"	"is hearing-impaired"	"Should not wear a Face Covering due to any medical or behavioral condition or disability"
WA	6/26/20	"When any party to a communication is deaf or hard of hearing and not wearing a face covering is essential to communication"	"is deaf or hard of hearing"	"Persons with a medical condition, mental health condition, or disability that prevents wearing a face covering."
OR	7/1/20	[None]	[None]	"Individuals who have a medical condition that makes it hard to breathe or a disability that prevents the individual from wearing a mask, face shield or face covering can request an accommodation to enable full and equal access to services, transportation, and facilities open to the public."

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
KS	7/3/20	[None]	[None]	"an individual with a medical condition, mental health condition, or intellectual or developmental disability, that prevents the individual from wearing a face mask"
TX	7/3/20	[None]	[None]	"Persons with a medical condition, mental health condition, or disability that prevents wearing a face covering"
WV	7/7/20	[None]	[None]	Unambiguous. "anyone who has trouble breathing"
LA	7/13/20	"Any individual seeking to communicate with someone who is hearing impaired"	"is hearing impaired"	"any individual with a medical condition that prevents the wearing of a face covering"
MT	7/15/20	"persons seeking to communicate with someone who is hearing impaired"	"is hearing impaired"	"persons who have a medical condition precluding the safe wearing of a face covering"
AL	7/16/20	"Any person who is seeking to communicate with another person where the ability to see the person's mouth is essential for communication (such as when the other person has a hearing impairment)"	"has a hearing impairment"	"Any person with a medical condition or disability that prevents him or her from wearing a facial covering"

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
CO	7/16/20	[None]	[None]	"except where doing so would inhibit that individual's health."
PR	7/17/20	[None]	[None]	"Hence, it is important to consider the needs of each person who visits authorized establishments when rendering services. We encourage each employer to make the necessary adjustments to fulfill the needs of persons with disabilities and the elderly including, but not limited to, the need to allow their guardians or caretakers to enter said establishments."
AR	7/20/20	[None]	[None]	"medical condition or disability that prevents wearing a face covering"
DC	7/22/20	"A deaf or hard of hearing person needs to read the lips of a speaker"	"a deaf or hard of hearing person"	"unable to wear a mask due to a medical condition or disability"
OH	7/23/20	"The individual is communicating or seeking to communicate with someone who is hearing-impaired or has another disability, where the ability to see the mouth is essential for communication;"	"is hearing-impaired"	"A medical condition including those with respiratory conditions that restrict breathing, mental health conditions, or disability contraindicates the wearing of a facial covering"

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
MN	7/24/20	"While communicating with an individual who is deaf or hard of hearing or has a disability, medical condition, or mental health condition that makes communication with that individual while wearing a face covering difficult, provided that social distancing is maintained to the extent possible between persons who are not members of the same household."	"is deaf or hard of hearing"	"Individuals with a medical condition, mental health condition, or disability that makes it unreasonable for the individual to maintain a face covering."
IN	7/27/20	[None]	[None]	"any person with a medical condition, mental health condition or disability which prevents wearing a face covering."
WI	8/1/20	"When communicating with an individual who is deaf or hard of hearing and communication cannot be achieved through other means."	"is deaf or hard of hearing"	"Individuals with medical conditions, intellectual or developmental disabilities, mental health conditions, or other sensory sensitivities that prevent the individual from wearing a face covering."

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
VT	8/1/20	[None]	[None]	"any child or adult with a medical or developmental issue or challenge that is complicated or irritated by a facial covering"
MS	8/5/20	"Persons seeking to communicate with someone who is hearing-impaired in a way that requires the mouth to be visible"	"is hearing-impaired"	"Cannot wear a face covering due to a medical or behavioral condition"
ND	11/14/20	"While communicating with an individual who is deaf or hard of hearing or has a disability, medical condition, or mental health condition that makes communication with that individual while wearing a face covering difficult, provided that physical distancing is maintained to the extent possible between persons who are not members of the same household."	"is deaf or hard of hearing"	"Individuals with a medical condition, mental health condition, or disability that makes it unreasonable for the individual to maintain a face covering."

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
IA	11/17/20	"Any person who is deaf or hard of hearing, and any person while communicating with an individual who is deaf or hard of hearing or has a disability, medical condition, or mental health condition that makes communication with that individual while wearing a mask or face covering difficult;"	"is deaf or hard of hearing"	"medical condition or disability that prevents wearing a mask or other face covering"
NH	11/20/20	"Any person who is deaf or hard of hearing, and any person while communicating with an individual who is deaf or hard of hearing or who has a disability, medical condition, or mental health condition that makes communication with that individual while wearing a mask or face covering difficult; "	"is deaf or hard of hearing"	"Any person with a medical condition or disability that prevents wearing a mask or other face covering;"

St.	Start	DHH Exceptions	DHH Language	Medical Ambiguous Exception
WY	12/9/20	"Individuals who are hearing impaired, or communicating with an individual who is hearing impaired, where the ability to see the mouth is essential for communication."	"are hearing impaired"	"If a person has a medical condition, mental health condition, or disability that prevents him or her from wearing a Face Covering."
UT	1/22/21	"when communicating with an individual who is deaf or hard of hearing if: A. communication cannot be achieved through other means; and B. the speaker wears a face shield or uses alternative protection such as a plexiglass barrier;"	"is deaf or hard of hearing"	"an individual with a medical condition, mental health condition, or intellectual or developmental disability, that prevents the individual from wearing a face mask"

Coding for Statewide Mask Mandate Exceptions

Below is a list of all codes created during the analysis process of statewide mandates. While I have included file and reference numbers, these should not be considered numbers of mandates as some instances may have been included or excluded for various reasons such as inclusion in another area. It is important to keep in mind that these codes are used for qualitative analysis

and attempting to assign quantitative analysis techniques to the codes alone would hold significant limitations.

List of Codes for DHH Exceptions

<u>Code Name</u>	<u>Files</u>	<u>References</u>
● Deafness.....	1	2
● General communication.....	0	0
○ Cannot be achieved through other means.....	1	2
○ Makes difficult.....	1	4
○ No mask essential to.....	1	1
● Other.....	0	0
○ Exception for DHH Person.....	1	4
○ Requires social distancing/face shield/plexiglass.....	1	2
● Visual communication.....	0	0
○ Lipreading.....	1	1
○ Mouth needs/essential to be visible.....	1	8

List of Codes for Ambiguous Exceptions

<u>Code Name</u>	<u>Files</u>	<u>References</u>
● Reason.....	0	0
○ Authority.....	1	2
○ Disability.....	1	14
○ Health.....	1	7
○ Medical/health condition.....	1	25
○ Safety.....	1	4
○ Unambiguous.....	1	3
○ Very ambiguous.....	1	1
● Specificity.....	0	0
○ High Specificity.....	0	0
■ Can/cannot/able-to/unable-to wear.....	1	5
■ Can/cannot medically tolerate.....	1	3
■ Prevent/prohibit/preclude.....	1	17
■ Unless otherwise advised by health care provider.....	1	1
○ Low Specificity.....	0	0
■ Complicated/irritated by.....	1	1
■ Unreasonable.....	1	2

■ Very general.....	1	1
○ Medium.....	0	0
■ Inhibit/contrary/damaged-thereby/contraindicates.....	1	6
■ Should not.....	1	1

Statewide Mask Mandate References

Some states had multiple orders that worked congruently to require masks. For example, New Mexico had an order clarifying health orders unrelated to masks, and referencing a second public health document titled “*All Together New Mexico: COVID-Safe Practices for Individuals and Employers*” in which the wording of the mask mandate was placed. In instances such as this, both orders were used for analysis and sourced.

From the orders, I was able to pull the effective date. Some began “effective immediately” while others began at a specific time on a specific date such as 5:00 p.m., 11:59 p.m., or 12:01 a.m.. For the purposes of this research, the effective date was coded as that written in the executive order by calendar date and time. Time zones were not considered. For example, Nevada was given an effective date and time of 11:59 p.m. on June 25, 2020 and was therefore coded as June 25, 2020 rather than June 26, 2020. End dates were coded similarly, though the dates were pulled primarily from Abbasi (2022) and Markowitz (2022) with the occasional from news articles rather than the executive orders themselves. This was due to their lesser relevance to these findings when compared with the start dates, which are more relevant and therefore accuracy is more important.

Due to the number of citations regarding mask mandates, rather than including them all in the full reference list, they are listed in the table below. The end date sources are included in the full reference list as well and included as in-text citations here.

Table D.4 Statewide Mask Mandate References

State	Start	End	Mandate Source	End Date Source
AL	7/16/20	4/19/21	State Health Officer. (2020). <i>Order of the State Health Officer Suspending Certain Public Gatherings Due to Risk of Infection by Covid-19</i> . State of Alabama. https://governor.alabama.gov/assets/2020/07/Safer-at-Home-Order-Mask-Amendment-7.15.2020-FINAL.pdf	Abbasi, 2022, para. 3.
AR	7/20/20	3/30/21	Exec. Order No. 20-43. (2020). <i>Executive Order Pursuant to the Public Health Emergency Concerning COVID-19, as Declared in Executive Order 20-37, for the Purpose of Requiring Face Coverings</i> . State of Arkansas. https://governor.arkansas.gov/images/uploads/executiveOrders/EO_20-43.pdf	Abbasi, 2022, para. 6.

CA	6/18/20	3/1/22	Office of Public Affairs. (2021). <i>California Public Health Officials Release Guidance Requiring Californians to Wear Face Coverings in Most Settings Outside the Home</i> . State of California. https://www.cdph.ca.gov/Programs/OPA/Pages/NR20-128.aspx	Abbasi, 2022, para. 7.
CO	7/16/20	5/14/21	Exec. Order No. D 2020 138. (2020). <i>Executive Order Amending and Extending Executive Orders D 2020 039, D 2020 067, D 2020 092, and D 2020 110 Ordering Individuals in Colorado to Wear Non-Medical Face Coverings</i> . State of Colorado. https://www.colorado.gov/governor/sites/default/files/inline-files/D%202020%20138%20Mask%20Order.pdf	Abbasi, 2022, para. 8.
CT	4/20/20	2/28/22	Exec. Order No. 7BB. (2020). <i>Protection of Public Health and Safety During Covid-19 Pandemic and Response – Use of Facemasks or Cloth Face Coverings, Rescheduling of Presidential Preference Primary to August 11</i> . State of Connecticut. https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7BB.pdf	Abbasi, 2022, para. 9.

DE	4/28/20	2/11/22	<p>Thirteenth Modification of the Declaration of a State of Emergency for the State of Delaware Due to a Public Health Threat. (2020). State of Delaware.</p> <p>https://governor.delaware.gov/wp-content/uploads/sites/24/2020/04/Thirteenth-Modification-to-State-of-Emergency-April-25-2020.pdf</p>	Markowitz, 2022, para. 17.
DC	7/22/20	3/1/22	<p>Mayor's Order 2020-080. (2020). <i>Mayor's Order 2020-080: Wearing of Masks in the District of Columbia To Prevent the Spread of COVID-19</i>. District of Columbia.</p> <p>https://coronavirus.dc.gov/maskorder#:~:text=of%20this%20Order%3A-1.,person%20is%20wearing%20a%20mask.</p>	Markowitz, 2022, para. 18.
HI	4/17/20	3/26/22	<p>Fifth Supplementary Proclamation. (2020). <i>Office of the Governor State of Hawai'i Fifth Supplementary Proclamation</i>. State of Hawai'i.</p> <p>https://www.hawaiinewsnow.com/2020/04/17/governors-emergency-order-requires-everyone-wear-face-masks-essential-businesses/</p>	Markowitz, 2022, para. 22.
IL	5/1/20	2/28/22	<p>Exec. Order No. 2020-32. (2020). <i>COVID-19 Executive Order No. 30</i>. State of Illinois.</p> <p>https://coronavirus.illinois.gov/resources/executive-orders/display.executive-order-number-32.2020.html</p>	IDPH, n.d., para. 1.

IN	7/27/20	4/6/21	Exec. Order No. 20-37. (2020). <i>For: Face Covering Requirement.</i> State of Indiana. https://www.in.gov/gov/files/Executive-Order-20-37-Face-Covering-Requirement.pdf	Abbasi, 2022, para. 17.
IA	11/17/20	2/7/21	State of Public Health Disaster Emergency. (2020). State of Iowa. https://governor.iowa.gov/sites/default/files/documents/Public%20Health%20Proclamation%20-%202021.01.07.pdf	Abbasi, 2022, para. 18.
KS	7/3/20	4/1/21	Exec. Order No. 20-52. (2020). <i>Requiring Masks or Other Face Coverings in Public.</i> State of Kansas. https://governor.kansas.gov/wp-content/uploads/2020/07/20200702093130003.pdf	Markowitz, 2022, para. 30.
KY	5/10/20	6/11/21	Exec. Order No. 2020-586. (2020). <i>State of Emergency.</i> Commonwealth of Kentucky. https://www.google.com/url?q=https://governor.ky.gov/attachments/20200709_Executive-Order_State-of-Emergency.pdf&sa=D&source=editors&ust=1672001540329704&usg=AOvVaw1Se3X0a-j3E8fOaGgmtTaS	Abbasi, 2022, para. 21.

LA	7/13/20	10/27/21	<p>Proc. No. 89 JBE 2020. (2020). <i>COVID-19 Public Health Emergency Additional Phase 2 Mitigation Measures</i>. State of Louisiana.</p> <p>https://gov.louisiana.gov/assets/Proclamations/2020/modified/89-JBE-2020-State-of-Emergency-COVID-19-Face-masking-order.pdf</p>	Abbasi, 2022, para. 22.
ME	5/1/20	5/24/21	<p>Exec. Order No. 49 FY 19/20. <i>An Order to Stay Safer at Home</i>. State of Maine.</p> <p>https://npr-brightspot.s3.amazonaws.com/legacy/sites/mpbn/files/202004/an_order_to_stay_safer_at_home.pdf</p>	Abbasi, 2022, para. 23.
MD	4/18/20	5/15/21	<p>Order of the Governor. No. 20-04-15-01. (2020). <i>Requiring Use of Face Coverings Under Certain Circumstances and Requiring Implementation of Certain Physical Distancing Measures</i>. State of Maryland.</p> <p>https://governor.maryland.gov/wp-content/uploads/2020/04/Masks-and-Physical-Distancing-4.15.20.pdf</p>	Abbasi, 2022, para. 24.
MA	5/6/20	5/29/21	<p>COVID-19 Order No. 31. (2020). <i>Order Requiring Face Coverings in Public Places Where Social Distancing is Not Possible</i>. Commonwealth of Massachusetts.</p> <p>https://www.mass.gov/doc/may-1-2020-masks-and-face-coverings/download</p>	Abbasi, 2022, para. 25.

MI	4/26/20	6/22/21	Exec. Order No. 2020-59. (2020). <i>Temporary Requirement to Suspend Activities That Are Not Necessary to Sustain or Protect Life</i> . State of Michigan. https://www.michigan.gov/whitmer/news/state-orders-and-directives/2020/04/24/executive-order-2020-59	Abbasi, 2022, para. 26.
MN	7/24/20	5/14/21	Emergency Exec. Order No. 20-81. (2020). <i>Requiring Minnesotans to Wear a Face Covering in Certain Settings to Prevent the Spread of COVID-19</i> . State of Minnesota. https://mn.gov/governor/assets/EO%2020-81%20Final%20Filed_tcm1055-441323.pdf	Markowitz, 2022, para. 37.
MS	8/5/20	9/30/21	Exec. Order No. 1516. (2020). Exec. Order No. 1518. State of Mississippi. https://www.sos.ms.gov/content/executiveorders/ExecutiveOrders/1516.pdf	
MT	7/15/20	2/12/21	Order of the Governor. (2020). <i>Directive Implementing Executive Orders 2-2020 and 3-2020 and Providing for the Mandatory Use of Face Coverings in Certain Settings</i> . State of Montana. https://ewscripps.brightspotcdn.com/e9/68/0336407b4dd58e675a6d9f129405/mask-directive-final.pdf	Abbasi, 2022, para. 30.

NV	6/25/20	2/10/22	Decl. of Emergency. (2020). <i>Directive 024: Face Coverings</i> . State of Nevada. https://nvhealthresponse.nv.gov/wp-content/uploads/2020/06/Directive-024-Face-Coverings.pdf	Abbasi, 2022, para. 32.
NH	11/20/20	4/16/21	Emergency Order No. 74. (2020). <i>Emergency Order #74 Pursuant to Executive Order 2020-04 as Extended by Executive Orders 2020-05, 2020-08, 2020-09, 2020-10, 2020-14, 2020-15, 2020-16, 2020-17, 2020-18, 2020-20 and 2020-21. An Order Requiring Persons to Wear Masks or Cloth Face Coverings When in Public Spaces Without Physical Distancing</i> . State of New Hampshire. https://www.governor.nh.gov/sites/g/files/ehbemt336/files/documents/emergency-order-74.pdf	Abbasi, 2022, para. 33.
NJ	4/10/20	5/28/21	Exec. Order No. 122. (2020). <i>Executive Order No. 122</i> . State of New Jersey. https://www.nj.gov/infobank/eo/056murphy/pdf/EO-122.pdf	Abbasi, 2022, para. 34.

NM	5/15/20	2/17/22	<p><i>The New Mexico Public Health Order required that citizens follow the directives in the document “All Together New Mexico: COVID-Safe Practices for Individuals and Employers.” Both are cited for accuracy.</i></p> <p>Public Health Order. (2020). Public Health Emergency Order Clarifying that Current Guidance Documents, Advisories, and Emergency Public Health Orders Remain in Effect; and Amending the March 23, 2020, April 6, 2020, April 11, April 30, 3030, and May 5, 2020, Public Health Emergency Orders Closing all Businesses and Non-Profit Entities Except for Those Deemed Essential and Providing Additional Restrictions on Mass Gatherings Due to COVID-19. State of New Mexico. https://cv.nmhealth.org/wp-content/uploads/2020/05/5-15-2020-PHO.pdf</p> <p>All Together New Mexico. (2020). <i>All Together New Mexico: COVID-Safe Practices for Individuals and Employers.</i> State of New Mexico. https://cv.nmhealth.org/wp-content/uploads/2020/05/All To gether New Mexico.pdf</p>	Abbasi, 2022, para. 35.
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NY	4/17/20	2/10/22	Exec. Order No. 202.17. (2020). <i>Continuing Temporary Suspension and Modification of Laws Relating to the Disaster Emergency</i> . State of New York. https://www.governor.ny.gov/sites/default/files/atoms/files/EO_202.17.pdf	Abbasi, 2022, para. 36.
NC	6/26/20	5/14/21	Exec. Order No. 147. (2020). Extension of Phase 2 Order and New Measures to Save Lives in the COVID-19 Pandemic. State of North Carolina. https://drive.google.com/file/d/1PD5b7SLTbT8PnrX1Or4fSPvsJvNRCUgL/view	Abbasi, 2022, para. 37.
ND	11/14/20	1/18/21	State Health Officer Order No. 2020-08. (2020). <i>State Health Officer Order Relating to Disease Control Measures to Prevent the Spread of 2019-ncov/covid-19 Pursuant to North Dakota Century Code § 23-01-05(12)</i> . State of North Dakota. https://www.governor.nd.gov/sites/www/files/documents/executive-orders/SHO%20Order%202020-08%20Signed.pdf	Markowitz, 2022, para. 48.
OH	7/23/20	6/2/21	Director's Order. (2020). <i>Re: Director's Order for Facial Coverings throughout the State of Ohio</i> . State of Ohio. https://coronavirus.ohio.gov/static/publicorders/Directors-Order-Facial-Coverings-throughout-State-Ohio.pdf	Abbasi, 2022, para. 39.

OR	7/1/20	3/12/22	Statewide Mask, Face Shield, Face Covering Guidance. (2020). <i>Statewide Mask, Face Shield, Face Covering Guidance</i> . State of Oregon. https://digital.osl.state.or.us/islandora/object/osl%3A948536	Markowitz, 2022, para. 51.
PA	4/19/20	6/28/21	Order of the Secretary of the Pennsylvania Department of Health. (2020). <i>Order of the Secretary of the Pennsylvania Department of Health Directing Public Health Safety Measures for Businesses Permitted to Maintain In-person Operations</i> . Commonwealth of Pennsylvania. https://www.governor.pa.gov/wp-content/uploads/2020/04/20200415-SOH-worker-safety-order.pdf	Abbasi, 2022, para. 42.
PR	7/17/20	3/10/22	Administrative Bulletin Number: OE-2020-054. (2020). <i>Executive Order of the Governor of Puerto Rico, Hon. Wanda Vázquez-Garced, in Order to Repeal Administrative Bulletin No. OE-2020-048 and Adopt More Restrictive Measures to Control the Spreading of Covid-19 in Puerto Rico</i> . Commonwealth of Puerto Rico. https://basecero.ogp.pr.gov/apex/f?p=161:15	Abbasi, 2022, para. 43.

RI	5/8/20	2/11/22	Exec. Order No. 20-30. (2020). <i>Twenty-seventh Supplemental Emergency Declaration - Requiring Cloth Face Coverings in Public</i> . State of Rhode Island and Providence Plantations ⁸⁶ . https://governor.ri.gov/executive-orders/executive-order-20-30	Abbasi, 2022, para. 44.
KS	7/3/20	3/10/21	Exec. Order No. GA 29. (2020). <i>Relating to the use of face coverings during the COVID-19 disaster</i> . State of Texas. https://lrl.texas.gov/scanned/govdocs/Greg%20Abbott/2020/GA-29.pdf	Abbasi, 2022, para. 48.
UT	1/22/21	4/10/21	State Public Health Order 2021-3. (2021). <i>Updated Statewide COVID-19 Restrictions</i> . State of Utah. https://coronavirus-download.utah.gov/Health/UPH O-2021-3-Updated-Statewide-COVID-19-Restrictions.pdf	Abbasi, 2022, para. 49.
VT	8/1/20	6/15/21	Addendum 2 to Amended and Restated Exec. Order No. 01-20. (2020). <i>Strengthening the Use of Facial Coverings</i> . State of Vermont. https://governor.vermont.gov/sites/scott/files/documents/ADDENDUM%20%20TO%20AMENDED%20AND%20RESTATED%20EXECUTIVE%20ORDER%20NO.%2001-20.pdf	Markowitz, 2022, para. 62.

⁸⁶ This Executive Order was issued in May of 2020 when Rhode Island was still officially “State of Rhode Island and Providence Plantations.” Stelloh (2020) reports that it has since been renamed to “State of Rhode Island” following a vote in November, 2020 (para. 1).

VA	5/29/20	5/14/21	<p>Exec. Order No. 63. (2020). <i>Order of Public Health Emergency Five: Requirement to Wear Face Covering While Inside Buildings.</i> Commonwealth of Virginia. http://rosetta.virginiamemory.com:1801/delivery/DeliveryManagerServlet?dps_pid=IE3440426&fbclid=IwAR1uEPd9X3ql6GermZFvcKN56GTEAS6UNQEScliLTOyxh7nvDalwHV_2Ahw</p>	Abbasi, 2022, para. 51.
WA	6/26/20	3/12/22	<p>Order of the Secretary of Health 20-03. (2020). <i>Face Coverings - Statewide.</i> State of Washington. https://www.governor.wa.gov/sites/default/files/Secretary_of_Health_Order_20-03_Statewide_Face_Coverings.pdf</p>	Abbasi, 2022, para. 52.
WV	7/7/20	6/20/21	<p>Exec. Order No. 50-20. (2020). <i>Exec. Order No. 50-20.</i> State of West Virginia. https://governor.wv.gov/Documents/2020%20Executive%20Orders/EO%2050-20.pdf</p>	Abbasi, 2022, para. 53.
WI	8/1/20	3/31/21	<p>Emergency Order No. 1. (2020). <i>Relating to Preventing the Spread of Covid-19 by Requiring Face Coverings in Certain Situations.</i> State of Wisconsin. https://content.govdelivery.com/attachments/WIGOV/2020/07/30/file_attachments/1507337/EM001-FaceCoverings.pdf</p>	Markowitz, 2022, para. 66.

WY	12/9/20	3/16/21	Statewide Public Health Order No. 4. (2020). <i>Statewide Public Health Order No. 4: Requiring Face Coverings in Certain Places, With Exceptions</i> . State of Wyoming. http://www.johnsoncountywyo.org/jcco/wp-content/uploads/2020/12/Order_4_StatewideFaceCoveringOrder_Dec72020.pdf	Abbasi, 2022, para. 55.
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