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Patients' Perspective of Patient-Centered Approach vs. Biomedical Approach

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PATIENTS' PERSPECTIVE OF PATIENT-CENTERED APPROACH VS. BIOMEDICAL APPROACH

by

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To my professors, family, and friends,

for always supporting and encouraging me through my academic and personal endeavors. I could not be the person I am today without you. I am beyond grateful to have had multiple people impact me in such a positive and enlightening way.

Abstract

Evidence-based practice in audiology may consist of a patient-centered approach or a biomedical approach when offering individuals the results of hearing evaluations. Boisvert et al. (2017) and the Institute for Defense Analysis confirmed that audiologists preferred to select one approach. The question was if an audiology patient is presented with two options of explaining the hearing health issues, which model/approach will be his or her preference?

Participants may have had unconscious biases related to race or gender that could have unknowingly impacted their perception of the videos. The results of this research will facilitate clinical understanding of individual preferences regarding hearing aid recommendations, leading to improved health outcomes.

The author addressed the decisions patients and doctors may encounter specific to chosen approaches for interpreting hearing diagnostics to individuals. The question of preferred approaches for both patients and audiologists to hearing health care recommendations is emerging in the literature, and this study continues to address the preferences. Clinical implications, limitations, and future research needs were also discussed.

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Chapter One

Introduction

"Hearing loss is called an invisible disability because you cannot tell someone has hearing loss by looking at them...With no visible markers, it is easy for hearing loss to go unnoticed, and even those living with the disability do not realize how much of an impact hearing loss has on their lives." (Li-Korotky, 2018). An audiologist is typically expected to create a connection with the patient to help gain trust through the hearing loss journey. "Most medical encounters are time-limited. They involve people who do not know each other very well (or at all), and they take place under stressful conditions." (Blackstone, 2016). In addition to those conditions, there are two approaches that some audiologists may choose to select, and the approach they choose may not be the most compatible for each specific patient. The two treatment approaches that audiologists may utilize are the biomedical approach and the patient-centered approach. The Institute for Defense Analysis (IDA) described the biomedical approach as "authoritarian," "disease/impairment focused," and "does something *to* clients." In contrast, the patient-centered approach is described as "interactive," "person-focused," and "clinician does something *with* the patient." (Erdman and Hapsburg, n.d.).

This study was a topic of interest because the primary researcher, as a patient, did not have a positive experience in a previous audiology consultation. The researcher sought a degree in Communication Sciences and Disorders to find answers to hearing loss and was exposed to the two approaches that audiologists utilize. That led the researcher to want to study and better understand the patients' perspectives by introducing or bringing awareness of the approaches used in treatment to patients who may have hearing loss history, allowing them to determine

their preferred treatment style. It is useful to know if a patient is more comfortable in a biomedical or in a patient-centered approach before the consultation so that the person is not left with unanswered questions and ultimately lets their hearing loss go untreated. If the patient is aware of the different approaches, they can differentiate between audiologists that are better suited for them and possibly seek further appropriate treatment.

The literature review discussed patterns found throughout the search of the research, which consisted of challenges that arose for the doctor or the patient and how they affected treatment outcomes. The pattern of challenges is seen in Blackstone (2016) and other related articles. Articles such as Smith and Watkins (2016) presented a pattern of how specific patient settings could also affect the treatment process. Articles such as Charmel and Frampton (2008) contained a pattern of how a patient-centered approach was practical. There is a pattern where the biomedical approach was more effective seen in Bess (1995) and other related articles. Recurring data such as Siminoff (2013) showed how both approaches could be most effective when used together. The literature review also discussed the pattern of patient and doctor preferences seen in articles such as Boisvert et al. (2017). Most of the research reviewed in relation to this study did not address the patients' perspective and how it can change when presented with equal information of the two approaches. A patient may not always know what they need from an audiologist or any physician until they have experienced it. That is why it is imperative to present the different approaches and be conscientious of the different preferences of the individual patients.

If an audiology patient is presented with the two options used in treatment, what will be his or her preference? This research study presented two individual scripts, approximately three and a half minute videos, one with the audiologist offering the patient-centered approach and the

other video with the audiologist offering a biomedical approach. There were forty subjects; twenty female and twenty male non- Communication Sciences and Disorders college student majors, ages 18-25. The participants were asked to complete a five-question survey following their observation of both videos. The survey consisted of questions about their preference of approaches if each individual had hearing loss.

The study had clinical implications that will help audiologists further treatment plans to have a positive outcome by alternating the approach they, as audiologists, use between different patients. For example, this study found a correlation between gender difference and the approach the patient prefers and could potentially be the beginning of providing the best care for the individual patient. This research can also help patients navigate and find the most compatible physician approach because they know which approach to treatment matches their own personality. The anticipated results of the study were that there would be a significant difference in which approach the different individuals/ patients prefer. The study expected that females would favor a more patient-centered approach over the biomedical approach, and males would be more inclined to purchase hearing aids when presented with a biomedical approach over the patient-centered approach. Following recommendations using a patient-centered approach, hearing aid sales would elicit more effective sales. This literature will be reviewed in Chapter Two.

Chapter Two

Literature Review

A pattern of challenges arose throughout research literature. For example, Blackstone (2016) described consultation as two strangers coming together to solve a problem and not knowing where to start with limited time. Burns, Baylor, and Yorkston (2016) also found a challenge in that patients had difficulty following and understanding conversation, even though they so desperately wanted to be involved, leaving them few opportunities to express themselves. Yorkston, Baylor, and Burns (2016) discovered a challenge that students wanted to learn how to communicate and treat patients who have communication disorders. Still, there is no program to teach students how to do so effectively and consistently. Another challenge arose between specific demographics; Pereira and Fortes (2010) portrayed the clash between cultures within the deaf community and its effect on their healthcare. Barnett (1999) described the hearing loss community as their own culture, language, and lifestyle. Some people and even physicians do not fully understand what it means to be a part of the hearing loss and Deaf cultures, so finding a way to understand this population in terms of their culture is essential. Hussey (2012) found that the language barriers negatively affected healthcare, creating frustration and lack of time and empathy for the patient. The study intended to express the importance of good communication and research the positive impacts within the rural Madwaleni Hospital. Cheatham, Barksdale, and Rodgers (2008) focused on the more specific demographic of African American men and the healthcare barriers they face, including their masculinity, socioeconomic status, or their denial to need medical attention at all. The authors wanted to present a way to break those barriers and improve African American males' healthcare outcomes. Rawool (2018) focused on denial and

introduced identifying implicit and explicit aspects of denial. The author applied this concept to the hearing loss journey specifically: the patient denying their loss, the impact of their loss, need for hearing aids, or need to use their hearing aids—the stages of denial were presented as anger, bargaining, depression, and eventually acceptance. Rawool and Keihl (2008) described the challenging factors of denial by stating, "One possible reason for untreated hearing loss is that the loss is unknown to the individual" and "people can be in denial without being aware of it." For example, this study asked participants a series of questions referring to their acknowledgment of or denial of their hearing loss. Thirty participants had hearing loss, but only fifteen acknowledged their loss. Townsend, Kladder, Ayele, and Mulligan (2002) ran randomized controlled trials(RTCs) from the Canadian Medical Association Journals and examined those that met the inclusion criteria. The randomized control trials found that different religious beliefs have different impacts on treatment.

The recently discussed literature presented challenges that clinicians face and tried to offer ways to limit these challenges. However, some limitations could be addressed to further their studies into audiology. For example, Blackstone (2016) gave participants tools to start the conversation and the treatment process. The researchers provided the patients in the study with an excellent outline of essential questions they, as patients, should be asking their physicians. However it did not allow the patient to formulate their own questions, and still left a gap in the patient being able to be actively involved in the decision-making process. Burns et al. (2016) suggested that audiologists are not always adequately trained to communicate, so the patient must be prepared to step up and speak for themselves. This article introduced a PACT for preparations (prepare, ask questions, create a plan, and take away information). This PACT for preparations allowed patients to understand the importance of researching and formulating

questions and opinions before entering the consultation, but the patient should not have to do their own research before receiving a medical opinion; the physician should lead them and provide an adequate amount of information to fulfill questions they did not know they even had. Yorkston et al. (2016) introduced "FRAME-ing a conversation," which provided students with a proper and more consistent way to learn and treat vulnerable patients with better empathy and care. “FRAME-ing a conversation” to meet the needs of patients with communication disorders is vital; there could be further studies to reach patients with other disorders considering hearing loss. Pereira and Fortes (2010) provided background on misconstructs about the deaf community and introduced a guide to help physicians better understand and treat the patient to limit patient "prejudice in the course of treatment and information exchange, damage to their autonomy, limits on their access to services, and reduced efficacy of therapy." Barnett (1999) described the challenges within minority populations and focused on the Deaf Community. The author discussed how "teaching about the Deaf community as a linguistic and sociocultural minority group may help current and future physicians think more broadly about issues of culture and human diversity, as well as help them to be more culturally sensitive physicians." The Barnett study could further uncover how teaching about this culture ultimately relieves the patients' satisfaction, and the author could potentially research the effects knowledgeable physicians have on other minority groups. Hussey (2012) addressed the language barriers and poor communication within one rural hospital, but the study could further research the positive impact of good communication throughout a wider span of hospitals. Cheatham et al. (2008) strived to find a better way for practitioners to help get the African American minority group the care they need by mitigating the barriers to their improved care; this study could further into other minority groups as well. Rawool (2018) intended to further her research on denial throughout

different cultures and demographics by asking audiologists to look out for implicit and explicit denial indicators that may arise. Rawool and Keihl (2008) had limitations that arose within their survey questions like "do you think other people avoid talking to you because you have a hearing loss?" or “do most people enjoy talking to you?" These questions could have led to overgeneralization and possible bias if the patient was in denial. Townsend et al. (2002) showed that "randomized controlled trials showed that intercessory prayer might improve health outcomes in patients admitted to a coronary care unit but showed no effect on alcohol abuse. Islamic-based psychotherapy speeds recovery from anxiety and depression in Muslims. Non-Randomized Control Trials indicate that religious activities appear to benefit blood pressure, immune function, depression, and mortality." The study could further look at other means of spirituality aside from religion and determine its impact on treatment as well. The current research in today's literature expressed how crucial it is to understand that many challenges arise within the treatment process. Published research articles may have identified physicians and patients being strangers with limited time to get to know each other, the patient not being able to express themselves fully, and the audiologist not trained well enough to communicate with the patient. Demographics like certain cultures, religions, and even races had particular impacts on healthcare if the patient's demographic was not fully understood. Whether or not the patient was in denial or acknowledged their hearing loss also posed a problem.

Another pattern that arose within literature is the treatment setting and its impact on treatment outcomes. Providing an environment in which the patient is the most comfortable can be a challenge in itself. Smith and Watkins (2016) stated "not only to support and facilitate state of the art medicine and technology, patient safety, and quality patient care, but to also embrace the patient, family, and caregivers in a psycho-socially supportive therapeutic environment."

Certain factors laid out a comfortable setting for patients and positively impacted treatment. Jamshidi, Parker, and Hashemi (2019) evaluated factors influencing patient satisfaction, including "(1) form, (2) unit layout, (3) floor material, (4) room features, (5) medical equipment visibility, (6) nature, (7) lighting, and (8)music." Mazer (2010) suggested that a particular type of music affected the environment and how patients perceived the experience, which is an essential factor to consider in a healthcare environment. Sanford (2010) discussed how a person's environment directly affected their health and guided them to successfully accommodate their home according to their disabilities. It is essential to understand that if a person's home needs to adjust for the patient's preference, then other environments that the patient encounters daily may need to have those accommodations. Huisman, Morales, Hoof, and Kort (2012) also highlighted how factors including orientation, visual comfort, and acoustic comfort played a role in the patient's overall well-being and how it directly affected their healing process. Loavenbruck (2015) studied the working conditions as an environmental factor that may have impacted treatment outcomes. The study compared 15 hospital settings to private practices by analyzing key factors "autonomy, relationships with otolaryngology and administration, working conditions, caseloads, continuity of care, standard procedures in hearing aid evaluation and dispensing, turnover, pay scale, and job satisfaction." The factors within a setting took a toll on the treatment process; however, physical attributes to a treatment facility are not the only thing that needs consideration. Where treatment takes place has also been researched and showed significant effects on treatment outcomes. Ratanjee-Vanmali, Swanepoel, and Laplante-Lévesque (2020) created a hybrid clinic with a face-to-face treatment method and a telehealth method compared to traditional settings by patient satisfaction, organized by age and number of appointments. Boymans, and Drechsler (2011), also evaluated web-based encounters versus in-

person by how practical either approach was when instructing how to use hearing aids properly. Perron, Favrat, and Vannotti (2004) compared the differences and effectiveness of private practices versus university-funded care centers. The participants sought care from their designated facilities for over 15 years. The study wanted to determine why most patients remained with a physician. There was a preference for both settings because of the trust and bonds they have built with their physicians over the years, despite any evidence that showed one is superior to the other in terms of medical practice.

Some gaps and limitations arose in research about the setting of treatment. For example, Smith and Watkins (2016) suggested physical aspects applicable to improve treatment environments. The study could further investigate how setting preferences evolve before and after the proposed changes. Jamshidi et al. (2019) stated that many studies evaluated aspects in setting, and concluded that nature-driven elements reduced patient pain, anxiety, and depression. The Jamshidi authors stated that one of the limitations is "the evidence scale and does not include literature re- views, qualitative studies, and expert opinions." The author Mazer (2010) discussed the positive impact music had on patients. This study could further into audiology and review the anxiety levels of hearing loss patients because music in their treatment could be tremendously different if the music playing is not clear to every patient and might cause some anxiety. That could determine whether audiology clinics should play music at all. Sanford (2010) contained broad statements for all disorders needing home accommodation. It is very true for patients with hearing loss; their homes need accommodations, visual spacing, and so might the doctor's office one attends, restaurant, classroom, or work environment. Huisman et al. (2012) analyzed data within current research that has proved effective in the healing process and collaborated on a "healing environment" that could further into a wide range of healthcare

domains, including hearing loss. Loavenbruck (2015) used the top 15 hospitals to set an example of what to do in a hospital setting. Still, the results could further analyze less qualified hospitals and compare them to the top hospitals to potentially show what not to do in a hospital setting. Ratanjee-Vanmali et al. (2020) showed that 95% of participants preferred the hybrid clinic over the traditional setting. However, the number of participants who had received previous traditional treatment was only 65%. Also, the mean age was 66, which discouraged younger patients' preferences. Boymans and Drechsler (2011) found that 67% of participants wanted a setting with an audiologist that was assertive, on the other hand 18% of the participants preferred a setting that was patient-led, and 15% of participants did not have a preference. This research could further analyze the preference within a younger sample size other than age groups ranging from 60-70+. Perron et al. (2004) had implications because the consultations used in the study were not in-person and the participants had difficulty relating to the experience. The Perron study can further analyze a real-life consultation to produce a more relatable atmosphere which could, in turn, produce more authentic responses from the participants. How a treatment facility configured its setting took a toll on treatment and determined how comfortable a patient was at a particular center. There were preferences between web-based, in-person, and private or non-private practices. So how an audiologist approaches treatment, whether it be a biomedical or patient-centered approach, should be considered as well.

It is critical to understand how broad patient-centeredness is and how many researchers have attempted to break it down into more straightforward terms. Researchers do not always know which aspects of patient-centeredness need to be omitted or kept—creating various versions that may have a considerable effect. However, not knowing a consistent approach to patient-centeredness, channels limitations, and gaps that further research can fill. Charmel and

Frampton (2008) found that people tended to go to the clinics more often that use Plantree, which increased sales and quality of care. Plantree is a not-for-profit organization that introduced patient-centered care into hospitals and other healthcare facilities. Plantree is very effective, but it could have compared research to the clinics in the area that were not using the same care consecutively. Also, because the organization Plantree yielded such favorable results on patient satisfaction, it should be further implemented and analyzed in a considerable amount of facilities. Edwards, Davies, and Edwards (2009) found a rise in empowerment derived from shared decision-making within the consultations. The authors wanted to further this study to external research factors like how their model might have affected significant others or different physicians. Epstein et al.(2005) suggested that patient-centered care is a multi-faceted method, and the researchers used the counterparts to improve patient-centeredness in their own way. That was difficult to conduct because who decided which counterparts to use and how to use them? That could have led to overgeneralizing or stereotyping when determining which parts to use based on specific demographics. Hudon, Fortin, Haggerty, Lambert, and Poitras (2011) analyzed participants' perceptions of patient-centeredness within family medicine. The Hudon study conducted a systematic review to find relevant research on patient-centeredness in family medicine and found five articles that met the inclusion criteria and 21 articles that had some relevance. However, the five articles that met the inclusion criteria were visit-based, which limited applicability to the care process or treatment over time. Street, Makoul, Arora, and Epstein (2009) suggested that researchers can further the concept of clinician-patient communication; by finding connections between communication and treatment outcomes and creating measures that apply to future treatment. The Street study stressed the importance of communication and suggested other researchers study it further.

Many articles in current research stressed the importance of patient-centeredness and patient inclusion in the decision-making process. For example, Elwyn et al. (2003) reported there were no measures that record the extent of patient-centeredness within consultations, even though there were clear benefits that come with patient-centeredness. Five professionals in the field used the OPTION scale and calculated the duration of a patient's involvement in the conversation. The OPTION scale measured psychometric qualities, validity, and reliability in patient involvement and primary care consultations. Manchaiah, Bellon-Harn, Dockens, Azios, and Harn (2019) introduced the importance of communication and building rapport with the family and patient in the decision-making process. Manchaiah et al. (2019) analyzed the average consultation time using eight empirical studies. They found that the physician was talking for most of the consultations, and the researchers intended to find a way to minimize the time that doctors were talking and increase the duration of the patient speaking. Coleman et al. (2018) also evaluated consultations by recording and transcribing the patient and doctors' conversation by using conversation analysis and intended to enhance the communication process of doctors to patients. Herzfeld and English (2001) surveyed 20 audiologists and asked if they would have taken counseling classes or have taken counseling classes in the past to better connect with their patients. After the research, 40% answered yes; more people wanted to seek further counseling training. Treatment outcomes had significant results by issuing a more patient-centered approach. For example, Dillon, James, and Ginis (1997) studied how treatment outcomes are affected by the mere instruction of wearing hearing aids. The participants were given a Likert scale from 0-100 to see how easy it is to take hearing aids off/put them on when properly instructed. Another study also suggested the importance of introducing or showing in a patient-centered manner. "A visual representation offers a guide that depicts shared decision-making as a

process taking place during a healthcare encounter with implications for the continuation of shared decisions over time, offering patients an opportunity to return to the nurse for reconsiderations of past shared decisions" (Saba et al., 2006). More specifically, Poost-Foroosh, Jennings, Shaw, Meston, and Cheesman (2011) focused on how the client and clinicians' interaction affected hearing aid adoption. In this experiment, thirteen patients and ten audiologists recorded statements that formulated eight concepts showing how client-based treatment influenced the decision-making process. Even breaking bad news to a patient using a patient-centered approach had a positive impact on treatment outcomes, according to Creagan (1994).

The articles mentioned earlier in this chapter introduced the importance of patient-centeredness but also contained limitations. For example, Elwyn et al. (2003) discussed the implication of more than one problem-solving scenario within the consultation. The researchers intended to revise the OPTION method by introducing an "index problem" to further the study. Manchaiah et al. (2019) introduced limitations by not using the Colour Association method (CA method) traditionally. The Colour Association method was questionnaire-based research that consisted of colors, related words, images, or videos. Immediately after the participant finished, these results were collaborated to answer specific questions or problems. In the Manchaiah study, the sample size could have exceeded more than eight audiologists, and there should have also been a demonstration of an audiologist practicing the presented technique. Coleman et al. (2018) introduced a great way to record and analyze how much the doctor talked per the patient. Still, many vital details could have surfaced within the conversation if the recorded consultations went beyond audio so that the viewer could have seen expressions and body language. Herzfeld and English (2001) discussed how, after the study, more audiology students wanted counseling

in their training; however, the study could further by following the students receiving counseling and see how it improved their training and success with patients. Dillon et al. (1997) had limitations because of the broad Likert scale. Perhaps a narrower range could be more effective. Saba et al. (2006) also provided a guide for better patient and physician discussion; however, a limitation could have been that there were ten different physicians in the study that could have yielded different results due to external factors. The study could be replicated using one audiologist to limit variation. Poost-Foroosh et al. (2011) could benefit from expanding their research to demonstrate other hearing-assisted devices using a patient-centered approach. Creagan (1994) provided a general statement that derived from past research that delivering bad news impacts a patient's treatment. The study could further analyze the relationship between how a physician diagnoses hearing loss might lead to denial or further treatment.

Research has also shown how effective biomedical practice or clinical expertise can be when using the evidence-based model. For example, Meyer, Barr, Khan, and Hickson (2017) recorded consultations and analyzed the patient-doctor conversation. Typically, the first half of the visit consisted of a biomedical approach, and 80% of the dialogue took longer than expected because they were using terms that the patient did not understand. The clinical expertise is essential in terms of consultation, and the study tried to implicate a way to use evidence and maintain patient understanding. Bess, in 1995 portrayed the importance of evidence-based audiology on the credibility of an audiologist and stressed that programs teaching audiology students focused on credible evidence based guidelines that were credible rather than a popular view. "Despite its widespread adoption in other health-related professions, implementation of evidence-based principles is not frequently seen in amplification practices at this time, which is partly because many practitioners are not familiar with the methods of evidence-based practice

and critical appraisal of evidence" (Cox, 2005). The interpretation of this was that some audiologists were not suggesting hearing aids based on their clinical expertise, and the article stressed the importance of information within a biomedical or evidence based approach. Bentler et al. (2014) also elaborated that audiologists have an explosion of evidence and research updating at accelerating rates. Lemoncello and Hess (2013) discussed a complementary approach to the evidence approach called the practice-based approach and intended to validate current research when the evidence-based practice was too broad, and the clinician was unsure of the research's validity. The Lemoncello and Hess research tried to find an effective way to keep up with current evidence in audiology. Eastern Illinois University (2018) studied how evidence enabled nurses to understand and evaluate diagnosis to create a treatment plan, all the while keeping the patient involved in how they want to pursue treatment. Vishwanath and Hakemzadeh (2012) showed that being aware of evidence has made decision-making easier and raised sales. Even though this article is from a managerial standpoint, it confirmed the importance evidence has in business. A business aspect of audiology is selling hearing devices.

The articles noted in this chapter conducted sufficient research to confirm the biomedical model within evidence-based practice is necessary; however, some gaps and limitations arose. For example, Meyer et al. (2017) found that consultations needed terminology the patient understood. The study could analyze the patient's satisfaction in consultations with the revised method. Bess (1995) suggested that "we must resist the temptation of teaching what is popular and focus on teaching procedures that are supported by evidence." Cox (2005) discussed that audiologists did not tend to stay up to date with known medical information, and if they were, evidenced-based practice would be a lot more effective. The Cox study claimed evidence was better in practice but did not yield the results or patient satisfaction when the biomedical

approach was introduced into treatment. Bentler et al. (2014) described ways to speed up validating current research and increase clinicians' interaction, like emphasizing evidence in training, attending conferences, and more. Lemoncello and Hess presented a practice-based approach to treatment that provided evidence during the decision-making process; however, their suggested approach only focused on SLPs and could further analyze the effects of this approach within audiology. Eastern Illinois University (2018) insisted that evidence is vital in the decision-making process, and the patient needed to be included in treatment. The article focused on nurses in one hospital and could further their research into a variety of hospitals and healthcare facilities. Vishwanath and Hakemzadeh (2012) focused on managerial/ business aspects rather than a healthcare standpoint; however, the Viswanath and Hakemzadeh study showed that applying evidence in business practices has shown success and increased sales and customer satisfaction. There are business aspects in the field of audiology, and the Viswanath and Hakemzadeh study could further into audiology and analyze the effect on hearing aid sales when evidence is presented during audiology consultations.

Further studies have shown how the patient-centered approach and the biomedical approach were effective when both approaches were applied to practice; or when a health care provider could rotate between the two methods. For example, Engle et al. (2019) found that facilities that used a more evidence-based/biomedical approach and a patient-centered approach outperformed facilities that implemented one or the other. Siminoff (2013) also stressed how imperative it is to have both strategies when carrying out a treatment plan. The research showed how to apply both within the patient-doctor relationship and even to the family. Godolphin (2009) came up with a model known as Shared Decision Making (SDM), which used a biomedical approach with patient choice and essentially provided both approaches concurrently.

The Shared Decision Making model asked physicians to follow a set of guidelines during their consultations. This approach intended to keep things informational with the patient's autonomy still intact, and the research proved effective in the cases that could maintain the Shared Decision Making model. Fiscella and Epstein (2008) portrayed how physicians could alternate between the different quality of care to meet the needs of their socially disadvantaged patients to get more than a fifteen-minute consultation and better resources. Safeer and Keenan (2005) provided audiologists with a set of indicators for health literacy issues which guided them to determine health literacy issues in patients that do not typically admit to having these problems. This tool enabled physicians to stay current on health literacy evidence and addressed a problem that patients may not feel comfortable otherwise sharing. The American Medical Association in 2006 addressed a "business case" outline instead of meeting a required quota. That ensured audiologists were not pressured to make a commission on sales or to suggest what was popular. They focused on the patient's needs and referred to current research to make a sound decision for the patient.

Limitations arose throughout these studies; for instance, Engle et al. (2019) suggested that the study can be replicated in other settings besides a veteran's home to see if the other settings will yield similar results. Siminoff (2013) stated, "illness is a biological and social process," after determining that both approaches are necessary for treatment, the authors made suggestions for physicians to use in their treatment settings. These suggestions need to be studied to reveal how practical the proposals were in practice. The author Godolphin (2009) presented a challenging model to enforce and is only applied accurately 10% of the time. The research could further analyze why this method is so difficult to use so the researchers can tweak their method for more accessible application. The Safeer and Keenan (2005) study addressed how to slow

down and ask patients with health literacy problems if they understand the diagnosis. The American Medical Association (2006) found that sales improved when audiologists did not feel pressured to make a commission.

There was a pattern of how physicians had a preference to which approach, and in turn, patients had a preference to which approach to treatment they receive. People do not typically know what they want until they see it firsthand, which does not stop at the treatment model they prefer. It is essential to provide an option to the patient to ensure they are receiving their most ideal experience, whether that is a biomedical or patient-centered approach. For example, Boisvert et al. (2017) studied ninety-six audiologists at the World Congress of Audiology by giving them a questionnaire to determine which perspective each doctor preferred. Most of the results pointed to a biomedical approach, with some sort of patient-centeredness applied. Some relied heavily on evidence, and others relied heavily on the patients' values and beliefs. Doyle, Lennox, and Bell (2013) went directly to the source and asked some patients about their experiences. The Doyle researchers combined the two main types of studies and found most of the evidence through systematic reviews. The data provided a positive correlation between "patient safety and clinical effectiveness that appear consistent across a range of disease areas, study designs, settings, population groups, and outcome measures." (Doyle et al., 2013). Elwyn, Edwards, Kinnersley, and Grol. (2000), tried to provide a basis of what appropriate patient-centeredness is in terms of doctors' perspective. Most physicians in the study stated they wanted to include their patients (using patient-centeredness) in the decision-making process regardless of time being one of the biggest concerns. Swenson et al. (2004) also questioned which approach was preferred and abstracted data from the patient's perspective (versus the doctors' perspective). The Swenson research consisted of video simulations that depicted each treatment

style and found that people chose the biomedical approach because it seemed like the patient was receiving the most information with this approach. Hickson, Laplante-Lévesque, and Wong (2013) concluded that 43% choose hearing aids as a treatment after being presented with extensive information about them. Eighteen percent chose a more patient-centered approach, and 39% chose no option for treatment.

Boisvert et al. (2017) should look further into how effective the audiologists' preferred method is in practice. Doyle et al. (2013) could further research the effectiveness of patient-centeredness in consultations without time constraints. Elwyn et al. (2000) can benefit from showing how effective it is to include the audiologists' patients as they preferred. Swenson et al. (2004) could further the study by creating a consultation in person; to provide a more realistic simulation. Hickson et al. (2013) showed the highest percentage was people choosing evidence-based practice. Still, almost the same percentage did not choose, so if the patient had been given more information about the patient-centeredness approach, they might have furthered their treatment.

This literature review concluded by providing a basis for the patient-centered approach and the biomedical approach to the reader. The articles discussed how some researchers share the challenges that either the doctor or patient faced in the treatment process. Another pattern that was identified in the literature is the impact of treatment settings on patient satisfaction and outcome. Many researchers tried to divide the broad term of patient-centeredness into their own definitions or approaches. There is a pattern in research of how the patient centered approach is proved effective in treatment. The biomedical approach is similarly proven effective by research. Many studies analyzed the effectiveness of both the patient-centered approach and the biomedical approach being used concurrently. There was also an underlying pattern between the

preferences audiologists might have when providing care to a patient and the preference for treatment based on patient preference. These articles gave support to each approach and showed that they could potentially be better when combined. The proposed study intended to provide patients an option for both the patient-centered approach and the biomedical approach to evaluate their preference of either approach had they been recently diagnosed with a hearing loss and needed hearing aids.

Research Questions in Null Hypothesis:

a) Individuals purchase more hearing aids when purchase recommendations are made, using the biomedical approach over the patient-centered approach.
b) Females purchase more hearing aids when the biomedical approach to purchase recommendations is used over the patient-centered approach.
c) Males purchase more hearing aids when the patient-centered approach to recommendations is used over the biomedical approach.

Chapter Three

Methodology

Purpose of the Study

Two audiologists from the University of Mississippi, one as the audiologist and one as the patient, played roles in the simulated video consultations of the patient-centered and biomedical approaches. The participants were to view two videos, representing the consultations, and judge his or her preference by completing questions in a Qualtrics survey.

Subjects/Participants

The participants were retrieved by the participants volunteering to participate. The introduction email was sent out to achieve the sample size of forty subjects, twenty women and twenty men. The inclusion criteria included (a) must be students from the University of Mississippi, (b) non-Communication Science and Disorders majors, and (c) an age range of 18-25 years old.

Materials and Equipment

The materials used in this experiment consisted of two videos and a survey. Video A contained a biomedical approach and lasted 3 minutes and 28 seconds. This video was presented to the participants as Video A and can be located in Appendix A. The second video (Video B)

was a patient-centered approach lasting 3 minutes and 19 seconds and referred to in Appendix B. The survey consisted of five closed-ended questions regarding Videos A and B and a question that allowed consent from the participants. The survey questions are located in Appendix C. The video simulations of the two approaches consisted of differences between the two without motivating the participants to choose one over the other. The videos were the most comparable way to get a patient's perspective without being in a real-life scenario considering covid restrictions at the time of this study.

Survey

The first round of introduction emails to obtain subjects began November 30, 2021. The second round of emails was sent December 23, 2021. New potential participant emails were obtained and sent January 4, 2022. A total of one hundred and two potential participants' emails were obtained with fifty-five females and forty-seven males to ensure the forty responses of twenty females and twenty males.

Procedure

The participants received an email introducing the study. They were directed to watch Video A, then Video B, and answer the 5 question survey where they consented to participate and answered questions regarding the two videos. The survey closed on January 9, 2022, for the data to be analyzed using Qualtrics analyses. The statistical analysis of this research had central

tendencies to include minimum, maximum, mean, standard deviation, and variance of responses among male and female participants.

The anticipated results of this experiment were that one approach would be more appealing than the other. It was assumed that hearing aid recommendations using a patient-centered approach would elicit more willingness to purchase hearing aids. The study anticipated that females would favor a more patient-centered approach over the biomedical approach and that males would favor a biomedical approach over the patient-centered approach when it came to how the need for hearing aids was presented to them and how willing they were to purchase them.

Chapter Four

Data and Analysis

The purpose of this study was to determine which of two communication approaches the participants would prefer if the audiologist confirmed that the patient had hearing loss and needed hearing aids. The three research study questions were:

(a) Individuals purchase more hearing aids when recommendations are made, using the biomedical approach(BM) (vs. the patient-centered approach PCC),

(b)Females purchase more hearing aids when the biomedical approach to recommendations is used (vs. the patient-centered approach),

(c) Males purchase more hearing aids when the patient-centered approach to recommendations is used (vs. the biomedical approach).

The anticipated results were that the majority of participants, male and female, would prefer a patient-centered approach over a biomedical approach, that females would prefer a patient-centered approach to treatment, and males would prefer a biomedical approach. The study measured female and male preferences after participants watched videos A and B and answered the survey questions regarding the two videos.

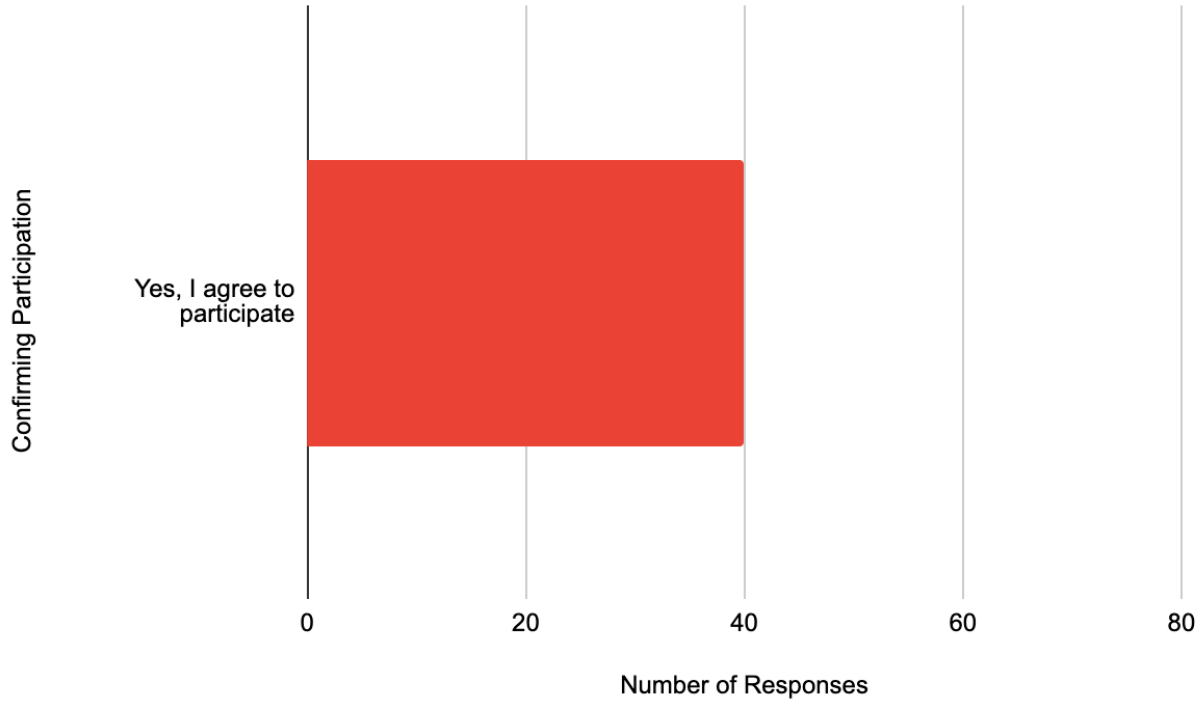
The student participants were acquired by volunteering to participate when recruited. The participants then received an email introducing the study, confirming the Institutional Review Board (IRB) approval (see Appendix E) and requesting the students to follow the links to Video A, Video B, and the five-question survey. The results were analyzed using central tendencies.

Question One was to obtain consent from the participants for participation and to ensure they met the inclusion criteria. **Figure 1** shows that one hundred percent of the 40 participants chose “Yes, I agree to participate.” Twenty of the 40 participants (50%) were females. Twenty of

the 40 participants (50%) are males. The Qualtrics analysis concluded that the female and male responses were 100% affirmative in favor of meeting the requirements and participating.

Figure 1

Survey Question One



Note. 1.) The requirements of participation are:

- You must be in college at the University of Mississippi.
- You must be seeking a degree other than Communication Sciences and Disorders.
- You must be between the ages of 18-25 years old.

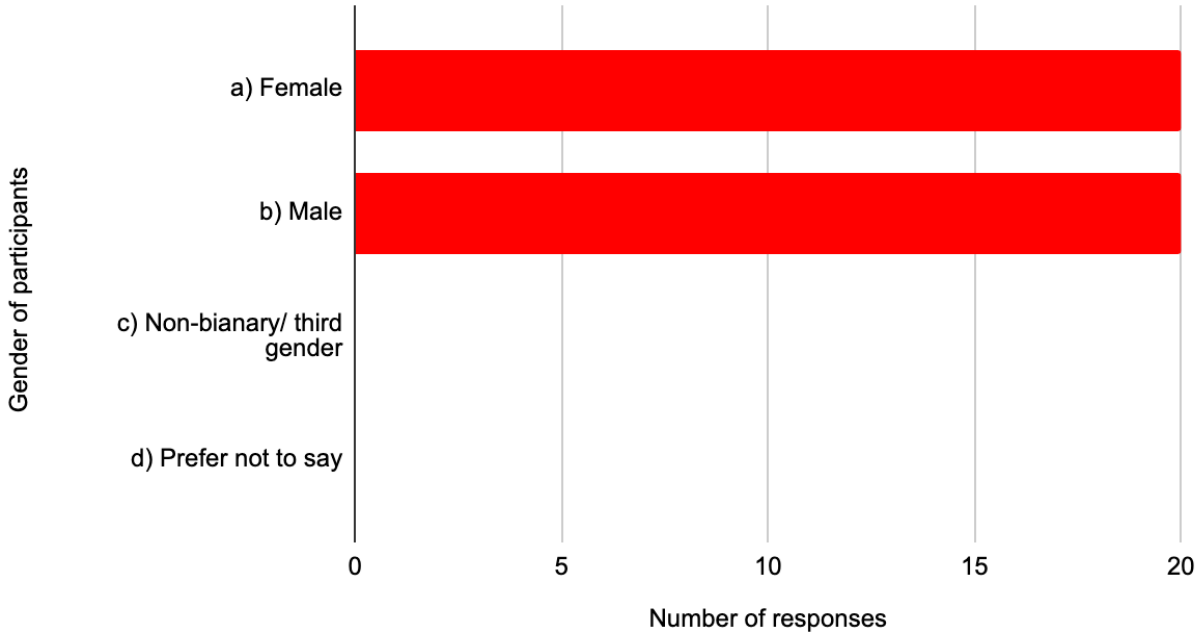
  By choosing yes, I agree to participate; you confirm that you fulfill the participation criteria requirements and consent to be a part of this study.

Question Two was to determine the gender of the participants but also allowed participants the option not to identify gender. **Figure 2** shows that twenty of the 40 participants (50%) chose female as their answer, twenty of the 40 participants (50%) chose male as their

answer, and no participants chose either non-binary/third gender or preferred not to say. One hundred percent of the participants indicated female or male gender.

Figure 2

Survey Question Two



Note. 2.) With what gender do you most closely identify?

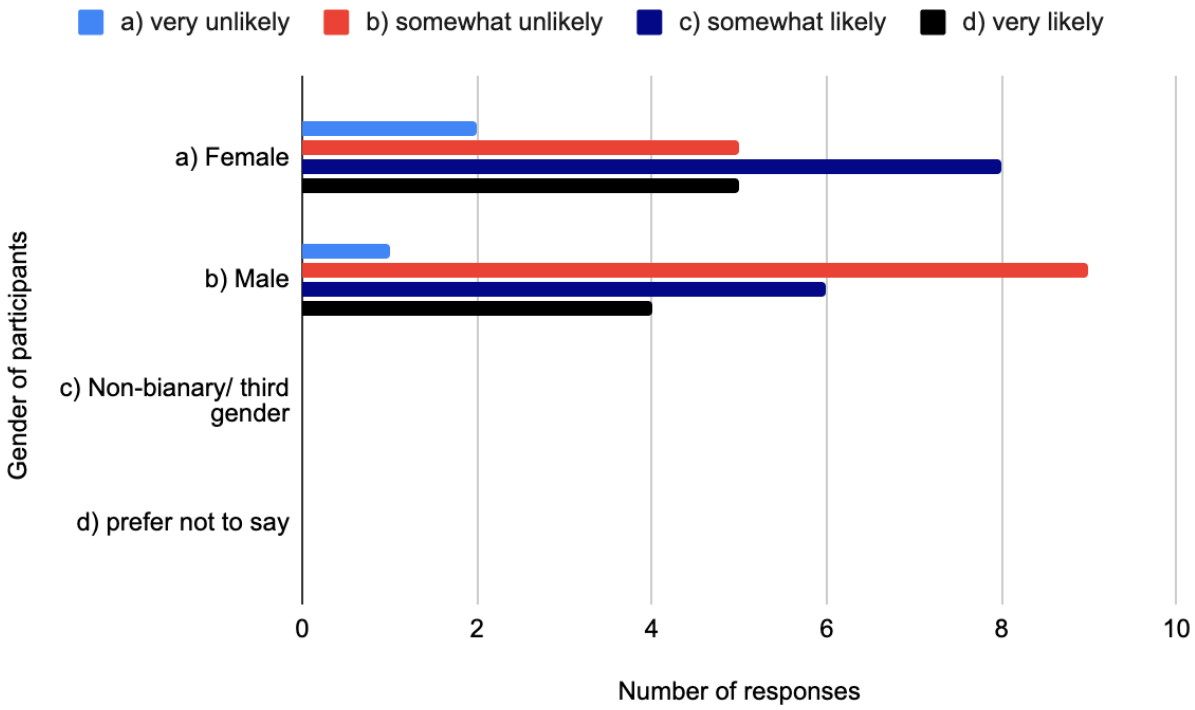
In **Figure 3.1,** Question Three on the survey is shown. This figure confirmed the 40 participants' responses divided into twenty females and twenty males and concluded each individual's choice to purchase hearing aids when the biomedical model(Video A) is being used. The twenty females of the 40 participants answered with the following responses. Two of the 20 female participants (66.67%) chose “very unlikely” for Video A, five of the 20 female participants (35.71%) chose “somewhat unlikely” for Video A, eight of the 20 female participants chose “somewhat likely” for Video A, and five of the 20 female participants chose

"very likely" for Video A. Analysis of the female responses yielded a minimum (1.00), maximum (4.00), mean (2.80), standard deviation (0.93), and variance (0.86).

The twenty males of the 40 participants answered with the following responses. One of the 20 male participants (33.33%) chose "very unlikely" for Video A, nine of 20 male participants (64.29%) chose "somewhat unlikely" for Video A, six of the 20 male participants (42.86%) chose "somewhat likely" for Video A, and four of the 20 male participants (44.44%) chose "very likely" for Video A. Analysis of the male responses yielded a minimum (1.00), maximum (4.00), mean (2.65), standard deviation (0.85), and variance (0.73).

Figure 3.1

Survey Question Three

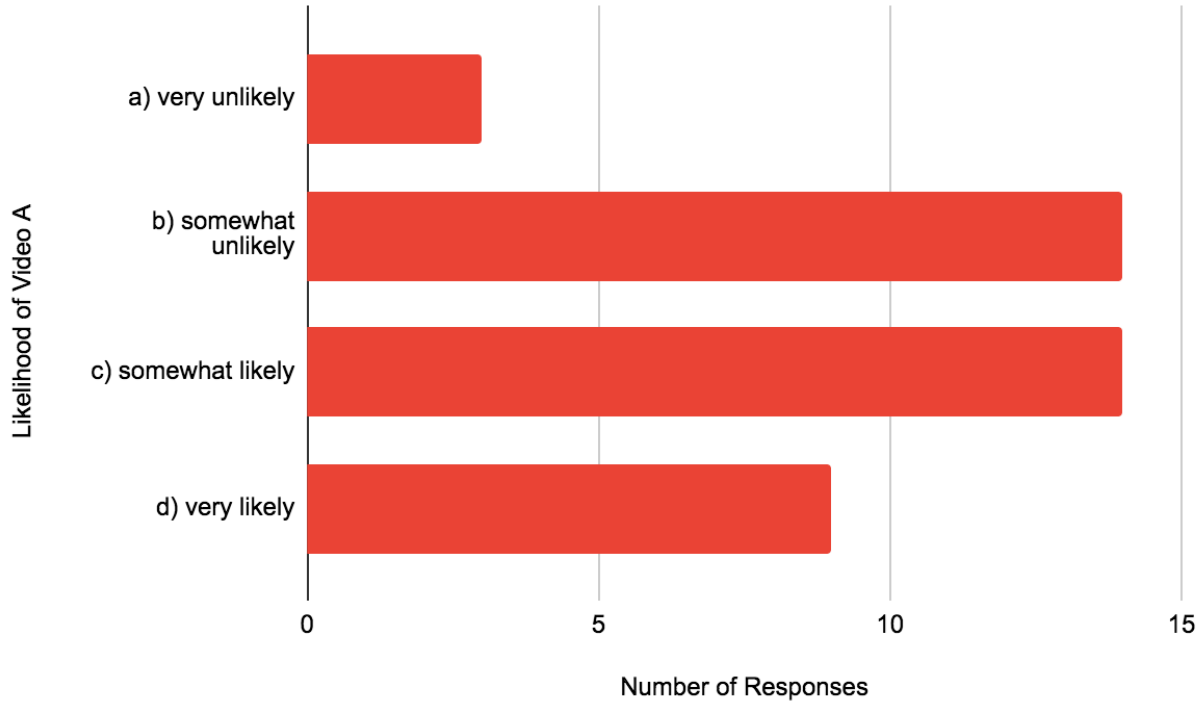


Note. 3.) After watching *Video A*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 3.2 shows additional data for question three on the survey. The data presented in this figure does not address any of the research questions for this study. This figure analyses the overall responses of all 40 participants instead of separating the responses according to gender. All 40 participants answered with the following responses. Three of the 40 participants (7.50%) chose "very unlikely" for Video A, fourteen of 40 participants (35.00%) chose "somewhat unlikely" for Video A, fourteen of the 40 participants (35.00%) chose "somewhat likely" for Video A, and nine of the 40 participants (22.50%) chose "very likely" for Video A. Analysis of all 40 responses for question three on the survey yielded a minimum (1.00), maximum (4.00), mean (2.73), standard deviation (0.89), and variance (0.80).

Figure 3.2

Survey Question Three- Additional Data



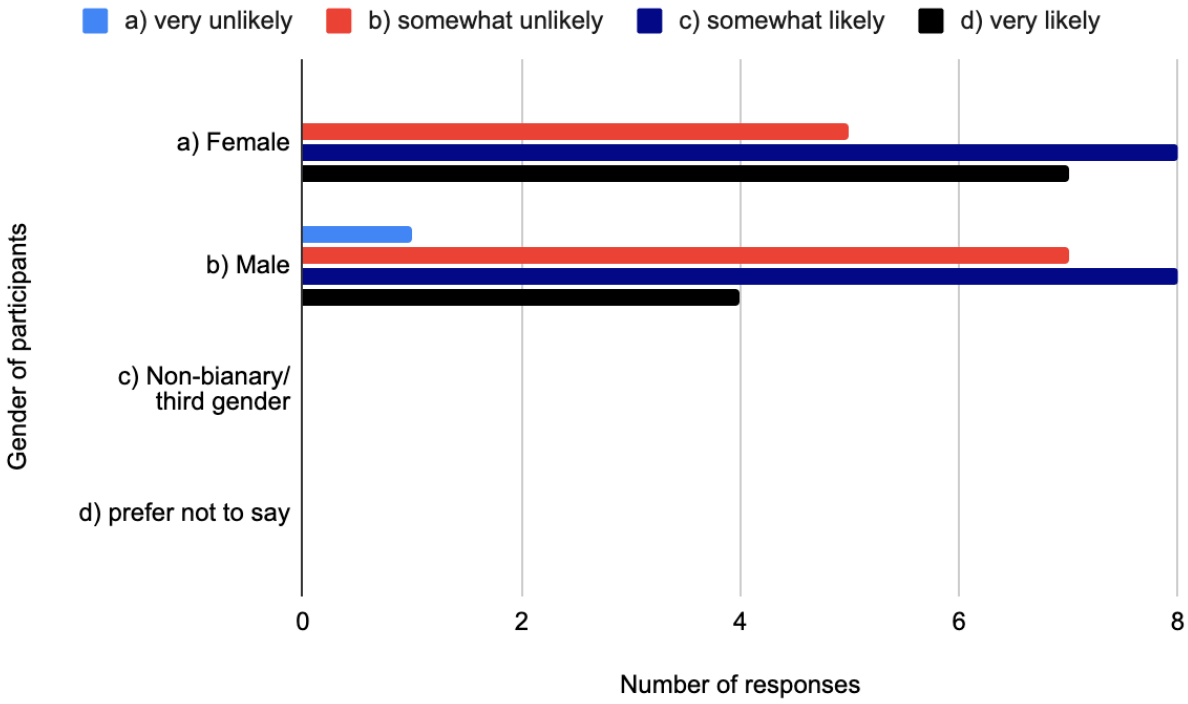
Note. 3.) After watching *Video A*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

In **Figure 4.1,** Question Four on the survey is shown. This figure shows the 40 participants' responses divided into twenty females and twenty males and concluded each individual's choice to purchase hearing aids when the patient-centered approach(Video B) was used. The results concluded the following: zero of the 20 female participants (0%) chose “very unlikely" for Video B, five of the 20 female participants (41.67%) chose “somewhat unlikely” for Video B, eight of the 20 female participants (50.00%) chose “somewhat likely” for Video B, and seven of the 20 female participants (63.64%) chose “very likely” for Video B. Analysis of the female responses yielded a minimum (2.00), maximum (4.00), mean (3.10), standard deviation (0.77), and variance (0.59).

The results of the twenty males of the 40 participants are represented. One of twenty male participants (100.00%) chose “very unlikely” for Video B, seven of the 20 male participants (58.33%) chose “somewhat unlikely” for Video B, eight of the twenty male participants (50.00%) chose “somewhat likely” for Video B, and four of the 20 male participants (36.36%) chose “very likely” for Video B. Analysis of the male responses yielded a minimum (1.00), maximum (4.00), mean (2.75), standard deviation (0.83), and variance (0.69)

Figure 4.1

Survey Question Four



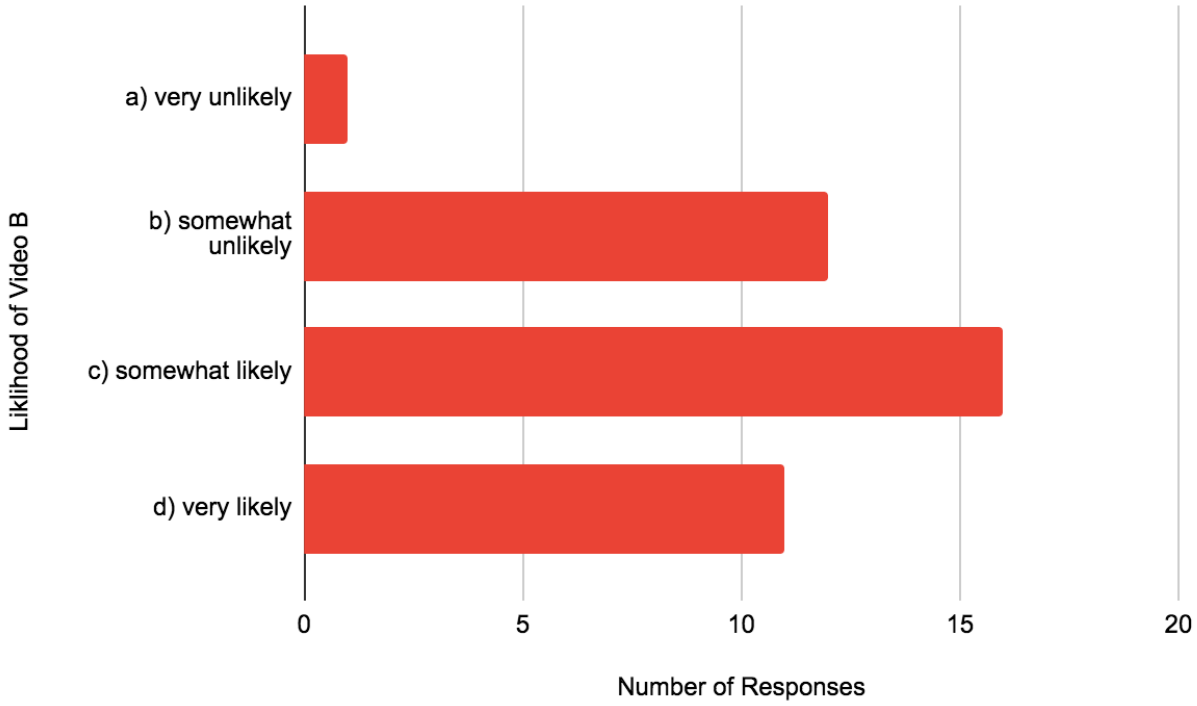
Note. 4.) After watching *Video B*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 4.2 shows additional data for question four on the survey. The data presented in this figure does not address any of the research questions for this study. This figure analyses the overall responses of all 40 participants instead of separating the responses according to gender. All 40 participants answered with the following responses. One of the 40 participants (2.50%) chose “very unlikely” for Video B, twelve of 40 participants (30.00%) chose “somewhat unlikely” for Video B, sixteen of the 40 participants (40.00%) chose “somewhat likely” for Video B, and eleven of the 40 participants (27.50%) chose “very likely” for Video B. Analysis of

all 40 responses for question three on the survey yielded a minimum (1.00), maximum (4.00), mean (2.92), standard deviation (0.82), and variance (0.67).

Figure 4.2

Survey Question Four- Additional Data



Note. 4.) After watching *Video B*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

A pie chart is shown in **Figure 4.3** to provide a better visual of the data in **Figures 3.1 and 4.1** The twenty females of the 40 participants answered question three regarding Video A (biomedical) with the following responses: 30% of the female participants chose “very unlikely” for Video A, 25% of the female participants chose “somewhat unlikely” for Video A, 45% of the female participants chose “somewhat likely” for Video A, and 25% of the female participants chose “very likely” for Video A.

The results for the twenty males of the 40 participants regarding Video A(biomedical) yield the following results. Five percent of the male participants chose “very unlikely” for Video A, 45% of the male participants chose “somewhat unlikely” for Video A, 30% of the male participants chose “somewhat likely” for Video A, and 20% of the male participants chose “very likely” for Video A.

The twenty females of the 40 participants answered question four regarding Video B (patient-centered approach) in the following manner. None of the female participants chose “very unlikely” for Video B, 25% of the female participants chose “somewhat unlikely” for Video B, 40% of the female participants chose “somewhat likely” for Video B, and 35% of the female participants chose “very likely” for Video B.

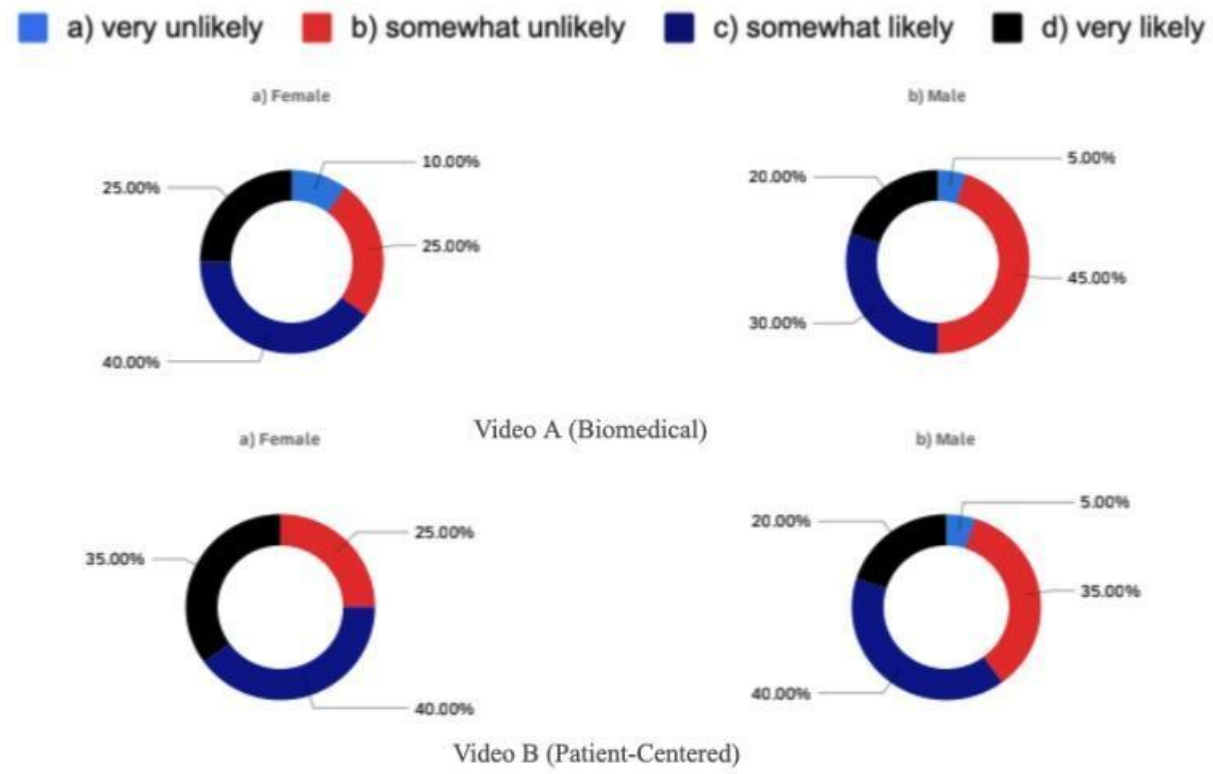
The twenty males of the 40 participants answered question four regarding Video B (patient-centered approach) with the following responses. Five percent of the male participants chose “very unlikely” for Video B, 35% of the male participants chose “somewhat unlikely” for Video B, 40% of the male participants chose “somewhat likely” for Video B, and 20% of the male participants chose “very likely” for Video B.

The data displayed is to be noted because many participants that ultimately chose one approach in question five had varying responses when considering the opposite approach in questions three and four. For example, none of the twenty female participants (0%) ruled out the patient-centered approach in question four. It is interesting that some of the female participants who ultimately chose the biomedical model in question five did not completely rule it out in question four. The same pattern is found within the male responses. For example, in question three, 45% of males would “somewhat unlikely” purchase hearing aids when the biomedical approach to treatment is used. In contrast, in question four, only 35% would “somewhat

unlikely" purchase hearing aids when the patient-centered approach is being used. That led the researchers to consider that male participants would be less likely to purchase hearing aids under recommendations being made using the biomedical model(vs. the patient-centered approach) even though the majority of male participants ultimately chose the biomedical model in question five. Furthermore, in question four, 40% of males would "somewhat likely" purchase hearing aids when the patient-centered approach is being used. Whereas, in question three, only 30% of male participants would "somewhat likely" purchase hearing aids when the biomedical model is being used. That could mean that more men would purchase hearing aids when the patient-centered approach is being used (vs. the biomedical model), even though the majority of male participants ultimately chose the biomedical model in question five.

Figure 4.3

Survey Questions Three & Four- Pie Charts



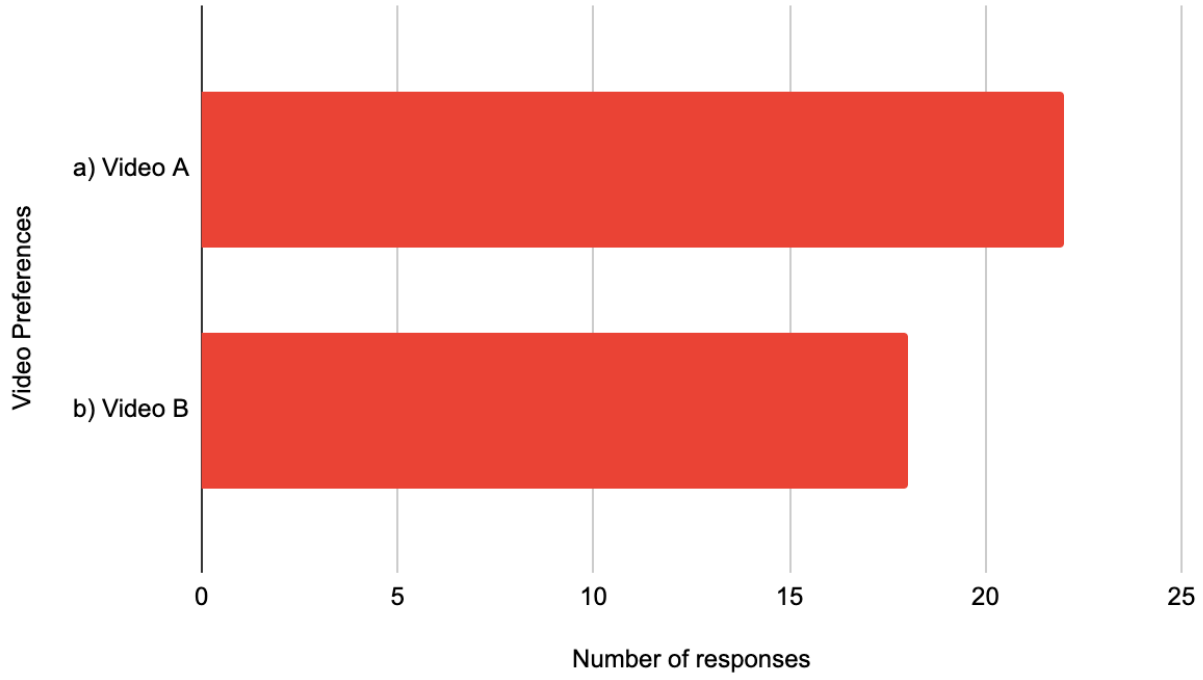
Note. The top two pie charts represent Video A (Biomedical) and the bottom two pie charts represent Video B (Patient-Centered).

The purpose of question five was to evaluate the overall preference for either a biomedical approach or a patient-centered treatment approach. **Figure 5.1** represents the female and male responses combined, to indicate the overall preference of all 40 participants. Twenty-two of the 40 respondents (55.00%) chose Video A. Eighteen of the 40 respondents (45.00%) chose Video B. Analysis reported a minimum (1.00), maximum (2.00), mean (1.45), standard deviation (0.50), and variance (0.25).

According to the results of question five shown in **Figure 5.1**, the first research question (Individuals purchase more hearing aids when purchase recommendations are made, using the biomedical approach over the patient-centered approach.) was proven. All participants answered question number five, with the majority (22 of 40) participants (55%) choosing the biomedical approach in video A and (18 of 40) participants (45%) preferred a patient-centered approach in Video B. However, only four more participants chose the biomedical approach over the patient-centered approach, so the difference of only four participants was not significant enough to rule out the first research question completely. The difference may have been statistically significant if the sample size had been larger. There is an overall preference that appears in **Figure 5.1**. Some of the participants' responses that did not choose the most popular opinion (biomedical) needed to be recognized for their preference as well. The clinical significance of this may be that audiologists could choose a combination of the two treatment approaches to meet the needs of individual patient preferences.

Figure 5.1

Survey Question 5



Note. 5.)After watching the two video consultations, which consultation do you feel might meet your needs over the other if you were a patient that just found out they have hearing loss and need hearing aids?

Question five was intended to evaluate the overall preference for either a biomedical approach or a patient-centered communication approach to treatment recommendations. **Figure 5.2** shows the Qualtrics report analyzing the 40 participant responses *separate* from one another, dividing them into 20 female and 20 male respondents to reveal gender differences in treatment interpretation preferences.

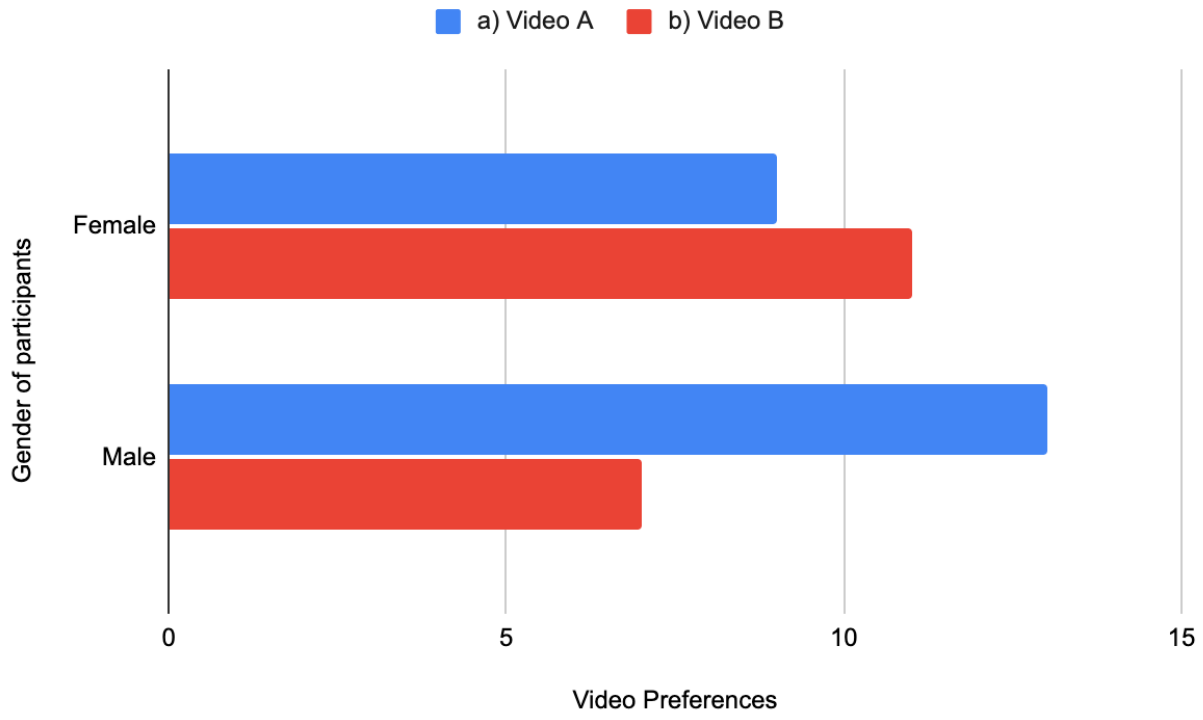
Among the twenty females of the 40 participants, nine of the 20 female participants (40.91%) chose Video A, a biomedical approach. Eleven of the 20 female participants (61.11%)

chose Video B, a patient-centered approach. Females chose the patient-centered approach over the biomedical approach. For female responses, Qualtrics analyzed a minimum (1.00), maximum (2.00), mean (1.55), standard deviation (0.50), and variance (0.25).

In the cohort of twenty males of the 40 participants, thirteen of the 20 male participants(59.09%) chose Video A, containing a biomedical approach. Seven of the 20 male participants (38.89%) chose Video B containing the patient-centered approach, confirming that males preferred the biomedical approach over the patient-centered approach. This investigator found that male responses have a minimum (1.00), maximum (2.00), mean (1.35), standard deviation (0.48), and variance (0.23).

Figure 5.2

Survey Question Five- Gender Preferences



Note. The figure demonstrates the responses to Survey Question Five relative to gender; dividing the forty participants into twenty females and twenty males.

In **Figure 5.3**, the results are the same as **in Figure 5.2.** This figure, however, is in pie chart form, totaling one hundred percent to provide a better visual for the reader. The twenty females of the 40 participants chose Video A (BM) 45% of the time and Video B (PCC) 55% of the time. On the other hand, the twenty males of the 40 participants chose Video A (BM) 65% of the time and Video B (PCC) 35% of the time.

The researchers disproved the second and third research questions (females purchase more hearing aids when the biomedical approach to purchase recommendations is used over the patient-centered approach), and (males purchase more hearing aids when the patient-centered approach to recommendations is used over the biomedical approach). The question was not proven true because more females chose a patient-centered approach (vs. the biomedical approach), and more males chose a biomedical approach (vs. the patient-centered approach).

Figure 5.3

Survey Question Five- Pie Chart

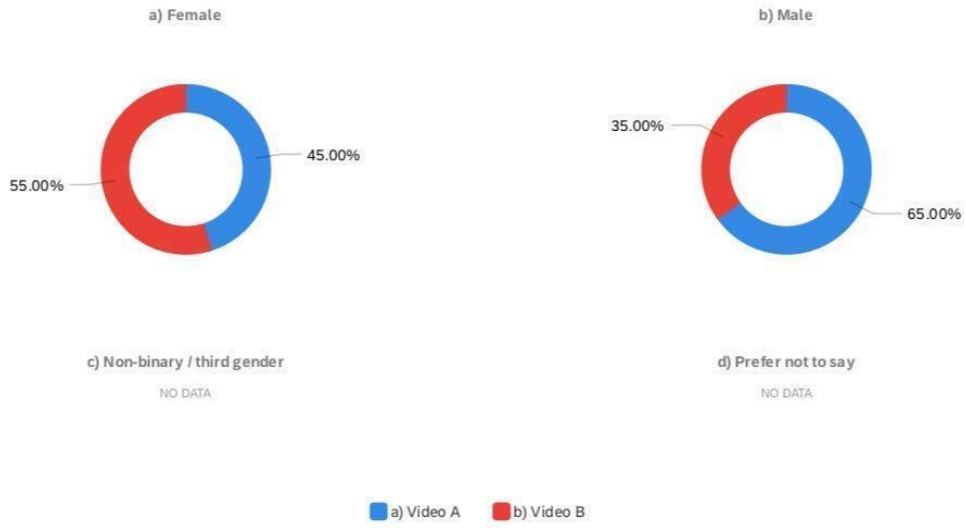


Figure 1 confirmed the percentage of participants that agreed to participate and met the inclusion criteria. **Figure 2** identified the gender of the forty participants and the analysis of the responses. **Figure 3.1** addressed the likelihood of each gender to purchase hearing aids when the biomedical model (Video A) was being used. **Figure 3.2** showed additional data regarding the collective 40 participants' likelihood to purchase hearing aids when the biomedical model (Video A) was being used. **Figure 4.1** addressed the likelihood of each gender to purchase hearing aids when the patient-centered approach (Video B) was being used. **Figure 4.2** showed additional data regarding the collective 40 participants' likelihood to purchase hearing aids when the patient-centered approach (Video B) was being used. **Figure 4.3** showed that, despite ultimately choosing one approach over the other, some participants may be open to both approaches when hearing aid recommendations are made. In **Figure 5.1,** the researcher discussed how the first research question was proven true according to the responses to question five made by all 40

participants. **Figure 5.2** showed the analysis of gender preferences for survey question five. **Figure 5.3** was in pie chart form to give the reader a different visual perspective.

Chapter Five

Discussion and Conclusion

Summary

This chapter presents the summary and conclusions of this study. The study looked at individuals' preferences related to the two approaches used to communicate treatment recommendations. The patient-centered approach and the biomedical approach were presented to the participants, giving them the option to decide their preferred approach to receiving treatment recommendations. Although these two approaches may not be the only approaches used, these are given the strongest support in the literature.

The participants were University of Mississippi students from non-Communication Sciences and Disorders majors between 18-25 years old creating a cohort of forty participants (20 female, 20 male). They were recruited by word of mouth and provided a personal email with links to the videos and the survey. An introduction email instructed participants to watch Video A, watch Video B, then answer a five question survey. The responses were analyzed in minimum, maximum, mean, standard deviation, and variance.

The first research question (individuals purchase more hearing aids when recommendations are made, using the biomedical approach(BM) (vs. the patient-centered approach(PCC)) was proven true, which was not consistent with the anticipated results that the majority of the 40 participants would prefer a patient-centered approach. According to the data, the majority of the 40 participants would purchase hearing aids if the biomedical approach was used to make the hearing aid recommendation.

The study intended to disprove this research question (females purchase more hearing aids when the biomedical approach to recommendations is used (vs. the patient-centered approach). and succeeded. The anticipated results and the findings correlate in that females will purchase more hearing aids when the treatment recommendation is made using the patient-centered approach.

The study intended to disprove the research question (males purchase more hearing aids when the patient-centered approach to recommendations is used (vs. the biomedical approach) succeeded in accomplishing this outcome. The anticipated results and the findings correlate in that males purchase more hearing aids when the treatment recommendation is made using the biomedical approach.

Relevance to current clinical treatment

This research is relevant to current audiological clinical treatment. This study yielded results from specific population criteria and found that males prefer a biomedical approach and females prefer a patient-centered approach. A greater number of subjects may produce different results. Still, audiologists should know the importance of both approaches and know that some individuals prefer one over the other. Hence, audiologists should understand and know how to implement either the biomedical approach or the patient-centered care approach to tailor it to the needs of the individual patient, aside from gender preferences.

When an audiologist does not know what approach to communicate treatment recommendations the patient prefers, he or she may overgeneralize or guess what the patient needs from the audiologist. The approach an audiologist uses might work for the majority of patients, but some patients may not feel comfortable with the approach the audiologist is using.

When a patient does not feel comfortable in the consultation setting, it is difficult for the audiologist and patient to create a trustworthy bond, and these patients may be left feeling neglected and alone on their hearing loss journey. Rawool (2018) discussed how some patients go through a stage of denial after being diagnosed with hearing loss, which caused many untreated hearing loss cases. The individuals that go through denial may be the ones that experienced a consultation communication approach that was not compatible with their preference and left them with many unanswered questions.

If audiologists had the tools to associate particular patient demographics such as gender with their preferred treatment, It would be significant because, from the initiation of the consultation, the audiologist could cultivate a setting where the individual patient is comfortable with the hearing recommendations and how these recommendations were communicated. When patients are comfortable with the communication style of the audiologist, the possibility of creating the patient-doctor bond and beginning the treatment process with a firm foundation increases. The patient may be more willing to share their hearing loss experiences. Patients may have been more motivated to be included in the decision-making process, ultimately resulting in a more favorable treatment outcome. Having the compatibility from the beginning, could potentially decrease the number of patients that go into that denial stage, discouraging them to seek further treatment.

Consider that audiologists can identify the patients' preferred communication treatment approach initially when meeting the patient, a greater number of patients will be satisfied because they are receiving the quality of care they deserve and prefer. Understanding the patients' perspective will allow a greater number of patients to have positive treatment outcomes

because the audiologist is aware of the individual patients' needs rather than using only one treatment approach that is only compatible for a select few patients.

Future Research Agenda

This study has implications for future research. For example, only four more participants chose the biomedical approach than the patient-centered approach; however, the results may vary with a larger population and varying demographics in future studies. Furthermore, some participants who ultimately chose one approach in question five did not rule out the opposite approach in questions three and four. The overlap in data between questions three through five may suggest that some participants may have a similar preference for either approach or would have preferred an option for a combination of the two approaches. This study could further introduce an additional third approach to treatment by implementing a Video C portraying a treatment approach with elements of both the biomedical and patient-centered approaches.

Further limitations of the study are that it may have been challenging to determine what a patient preferred based on a video simulation. It is beneficial to further this study with real-life scenarios using live actors to provide the participants with options. There was a limitation of internal validity because the participants were college-aged students that did not have hearing loss and did not experience the consultation in person. The study could increase the clinical significance by identifying patients with hearing losses for the study. Actual patients with hearing losses may have yielded different results than participants with normal hearing because hearing loss patients may have experienced a real-life consultation prior to the study, and as patients, the approach used in treatment is personal to them.

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Appendix A

Script for Video A involving Biomedical approach

https://olemiss.box.com/s/letsgq22ktf9ntodh3fumrdc52rv0vi8

Audiologist: All right, so we've finished your hearing test. I wanted to sit down and go over the results with you.

Patient: Wow! That was just like, oh my life; I can't believe it, I mean especially when you got to the noise, to be perfectly honest, I really didn't want to come here; you know, my husband has been complaining about the T.V. I feel like I've been asking him to repeat himself, and he's just tired of it, and I was like okay fine.

Audiologist: Ha-ha, well, I'm glad you came in. Let me go over the results with you, so this is a graph we make of hearing. It's called an audiogram. When we look at this graph, just like in any

scientific graph, we have a horizontal and a vertical, and so that's what we're looking at. -- Horizontally were looking at the different pitches, So low pitches to high pitches, kind of like the keys on a piano. All those different beeps that you heard. Then top to bottom, we look at very soft to very loud. This is measured in decibels, little increments of sound. And so, what we did with the hearing test, we just went pitch by pitch, frequency by frequency, and we marked the softest level you could hear each of those sounds, in each ear. The X's indicate the softest level you heard each of the beeps in your left ear, and the O's indicate the softest level you heard the beeps in your right ear. What we found is that all of your X's and O's fell outside of the normal limits. Ideally, all of those marks would fall at 15 decibels or above.

Patient: Ooh

Audiologist: And you can see, even your best threshold is what we call it, is at 30 decibels. So that's a mild hearing loss. So, looking at this, you have a mild to moderately severe hearing loss in both ears. One ear is not necessarily worse than the other; they're about the same, but what we see is that your hearing is better for the low pitches and worse for the high pitches. -- What that means for you is that you hear sounds like vowels, sounds that give speech power, AH, OO, E, but the sounds that you miss are sounds like the "f" the "sh," the "P," the "k," those are softer higher frequency sounds and so because you miss those you may sometimes say well "I can hear you, but I don't understand what you're saying" You may complain that your husband is "mumbling."

Patient: Yes! He does mumble, quite often which is why I have to ask him to repeat himself.

Audiologist: So, I don't think he mumbles; I think it's your hearing loss. --

Patient: Oh…

Audiologist: So, with this, I wanted to explain to you the type of hearing loss you have before we go into the treatment options. --

Patient: Okay

Audiologist: So, you have what's called sensorineural hearing loss. That means your hearing organ is involved, that's different from another type of hearing loss called conductive, which would mean the hearing loss is caused by something wrong with your ear, so to speak. So, wax or fluid something that could be medically resolved. When the hearing loss is sensorineural, the hearing organ or hearing nerve is involved, we treat it very differently. -- So, the treatment for your hearing loss would be hearing aids, so that's what I'm recommending today is that we move forward talking about hearing aids to get you hearing all those higher pitch/ higher frequencies sounds a little bit better.

Patient: So, going to the doctor won't help that at all?

Audiologist: No, there's nothing medically we can do to treat this hearing loss.

Appendix B

Script for Video B involving Patient-Centered approach

https://olemiss.box.com/s/udub5b2t1wvl7c0ekco712jdy26p3mlz

Audiologist: Hey, so we finished with your hearing test, and I'm gonna go over the results with you.

Patient: Wow! I mean, I was like, oh my word, that was my life! I didn't even know that I needed to come here, because my husband has been complaining about the T.V and he has to repeat himself all the time. I didn't think it was an issue until that noise test that you did.

Audiologist: Yeah, so you found the test kind of difficult?

Patient: I did! The beeps, I felt like I waited until I heard it, and then I raised my hand but the noise test-- It kept increasing those noises, and I had to listen for those words. I was like the same level of anxiety and frustration starting coming back to me. For instance, my kids in the car, you know I have to drive, and I can't look at them, and I have the radio going, the windows down, and their talking and want to have a conversation with me about school, or like at Sunday school, were in an old building and I'm by this big huge air conditioner, and it's hard to follow who's speaking and by the time that one person finishes I'm realizing who just said something. I mean, it's just like I didn't realize I had so much anxiety just dealing with noise.

Audiologist: Wow, yeah, well um, I'm sorry to hear that! I am hearing you say there are some situations that you're having some trouble, and you keep using the word "anxiety." You know I hate that you're experiencing that.-- Why don't we spend just a minute going over your hearing test? Let me show kind of what I see, and then we'll talk about what options we have to maybe reduce some of that anxiety and give you back some joy in those situations right now that are frustrating for you.-- Does that sound good?

Patient: Yeah! Yeah, yeah.

Audiologist: All right, so this is a graph we make of hearing; it's called an audiogram. We read it left to right. The low pitch sounds to high pitch sounds, which are all those different beeps that you heard. Top to bottom is very soft sounds to very loud sounds. What we did is go pitch by pitch (beep by beep), marking the softest level you could hear those sounds in each ear. So, the

X’s are your left ear; the O’s are your right ear. Ideally, for adults, we like all of those X’s and O’s to be up here above 15 decibels. That’s the little increments of sounds. --

Patient: Oh, none of mine are in that area! Wow!

Audiologist: That’s right, so you do have a kind of mild to moderately severe hearing loss in both ears.-- Do you see it’s better for those low pitches, worse for those high pitches? Which just means that there are some sounds that you just hear better than others, and you may say, “oh, I can hear it, but I can’t quite understand it,” or like you said, “if it’s noisy around, it’s harder for me to follow conversations.”

Patient: Right, and that’s what it really is with the background noise and everything like that. -- How did I do on that noise test? I didn’t do very good?

Audiologist: So, yeah, that was a lot harder for you.

Patient: Yeah!

Audiologist: Which I expected after seeing this...

Patient: Did you? So that’s normal? I’m not like abnormal or anything?

Audiologist: well, it's normal for someone with hearing loss to have trouble in background noise, and that's what I'm hearing you say is, there's situations such as the car or in Sunday school that you're having trouble.-- The good news is that I do think that we can help you!

Patient: Oh!

Audiologist: I don't know if you have thought anything about hearing aids, but I do think that that might be something you should consider.

Patient: Like hearing aids could help me in the car?--

Audiologist: hearing aids could help you in the car, specifically in those noisy situations.--

Patient: Really?--

Audiologist: Give you back some confidence in communicating.

Patient: Like in restaurants and everything?

Audiologist: Absolutely!

Appendix C

Qualtrics Survey
Patients' Perspective of Patient-Centered Approach vs. Biomedical Approach

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/preview/SV_ebWImTqXrzjmQES?Q_CHL=preview&Q_SurveyVersionID=current

1.) The requirements of participation are:

- **You must be in college at the University of Mississippi.**
- **You must be seeking a degree other than Communication Sciences and Disorders.**
- **You must be between the ages of 18-25 years old.**

By choosing yes, I agree to participate; you confirm that you fulfill the participation criteria requirements and consent to be a part of this study.

a) Yes, I agree to participate

2.) What gender do you most closely identify with?

a) Female

b) Male

c) Non-binary/ third gender

d) Prefer not to say

3.) After watching *Video A*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely)

a) very unlikely

b) somewhat unlikely

c) somewhat likely

d) very likely

4.) After watching *Video B*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely)

a) very unlikely

b) somewhat unlikely

c) somewhat likely

d) very likely

5.) After watching the two video consultations, which consultation do you feel might meet your needs over the other if you were a patient that just found out they have hearing loss and need hearing aids?

a) Video A

b) Video B

Appendix D

Email of Introduction

Dear Students,

Invitation to Participate

Patients' Perspective of Patient-Centered Approach vs. Biomedical Approach

I am working on a capstone thesis in the Communication Sciences and Disorders(CSD) field and invite college students who are seeking a NON-CSD degree between 18-25 years old to participate in the study.

The research has been reviewed by the Institutional Review Board (IRB): file:///Users/lakynn.hillhouse411/Downloads/IRB%20Approval%20Email%20(1).pdf.

Participants will receive an email with (a) a link to Video A (3 minutes and 28 seconds), (b) a link to Video B (3 minutes and 19 seconds), and (c) the survey questions. After watching both videos, the participants will imagine they were just diagnosed with hearing loss and complete a 5 question survey regarding their demographics and the videos watched. This process should require 10 minutes of a participant's time.

(a) a link to Video A (3 minutes and 28 seconds): https://olemiss.box.com/s/letsgq22ktf9ntodh3fumrdc52rv0vi8
(b) a link to Video B (3 minutes and 19 seconds): https://olemiss.box.com/s/udub5b2t1wvl7c0ekco712jdy26p3mlz
(c) the survey questions: https://qfreeaccountssjc1.az1.qualtrics.com/jfe/preview/SV_ebWImTqXrzjmQES?Q_CHL=preview&Q_SurveyVersionID=current

Participation is online, and individuals' identity will remain anonymous. Participants may withdraw from the study at any time for any reason.

If you have any questions, please contact myself (Lakynn Hillhouse) or my thesis advisor Dr. Carolyn Wiles Higdon.

Thank you for your consideration,
Lakynn Hillhouse, A.A
Email: lmhillho@go.olemiss.edu

Dr. Carolyn Wiles Higdon, CCC-SLP, F-ASHA, F-NAP
Email: chigdon@olemiss.edu

Appendix E

Institutional Review Board Approval

This is to inform you that your application to conduct research with human participants, "Patients' Perspective of Patient-Centered Approach vs. Biomedical Approach" (Protocol #22x-104), has been determined as Exempt under 45 CFR 46.101(b)(#3). You may proceed with your research.

Please remember that all of The University of Mississippi's human participant research activities, regardless of whether the research is subject to federal regulations, must be guided by the ethical principles in The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.

It is especially important for you to keep these points in mind:

- You must protect the rights and welfare of human research participants.

- Any changes to your approved protocol must be reviewed and approved before initiating those changes.

- You must report promptly to the IRB any injuries or other unanticipated problems involving risks to participants or others.

- If research is to be conducted during class, the PI must email the instructor and ask if they wish to see the protocol materials (surveys, interview questions, etc) prior to research beginning.

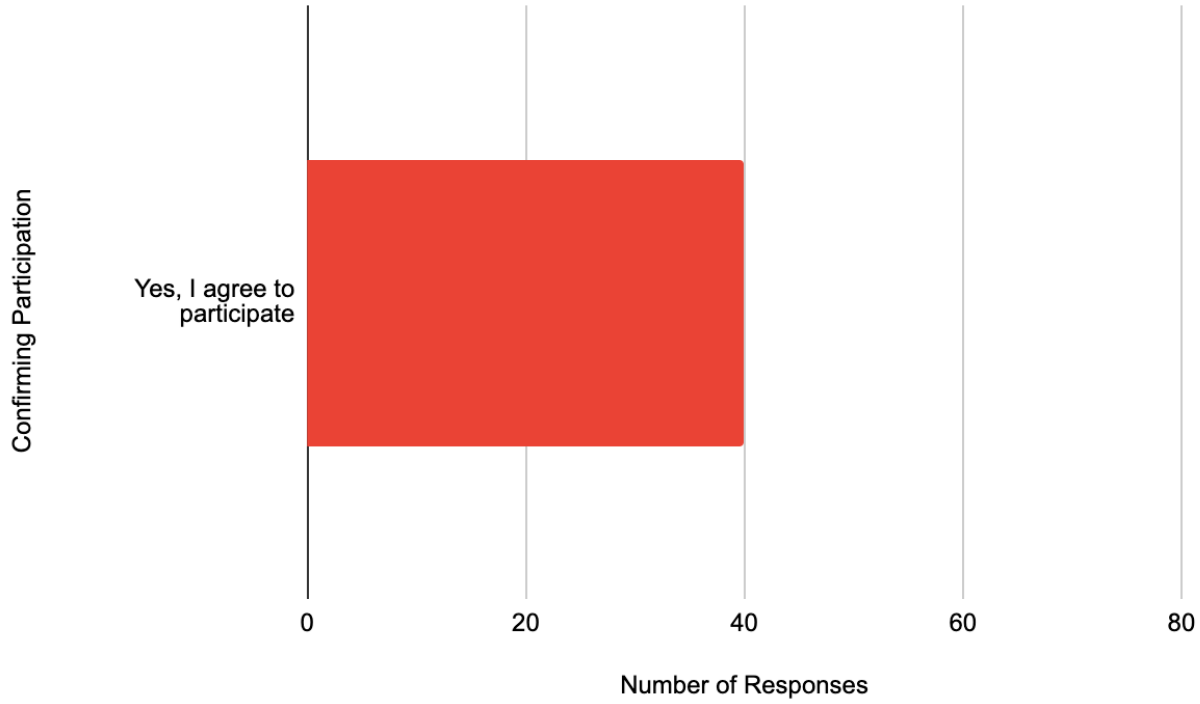
If you have any questions, please feel free to contact the IRB at irb@olemiss.edu.

Appendix F

List of Figures from Data and Analysis

Figure 1

Survey Question One



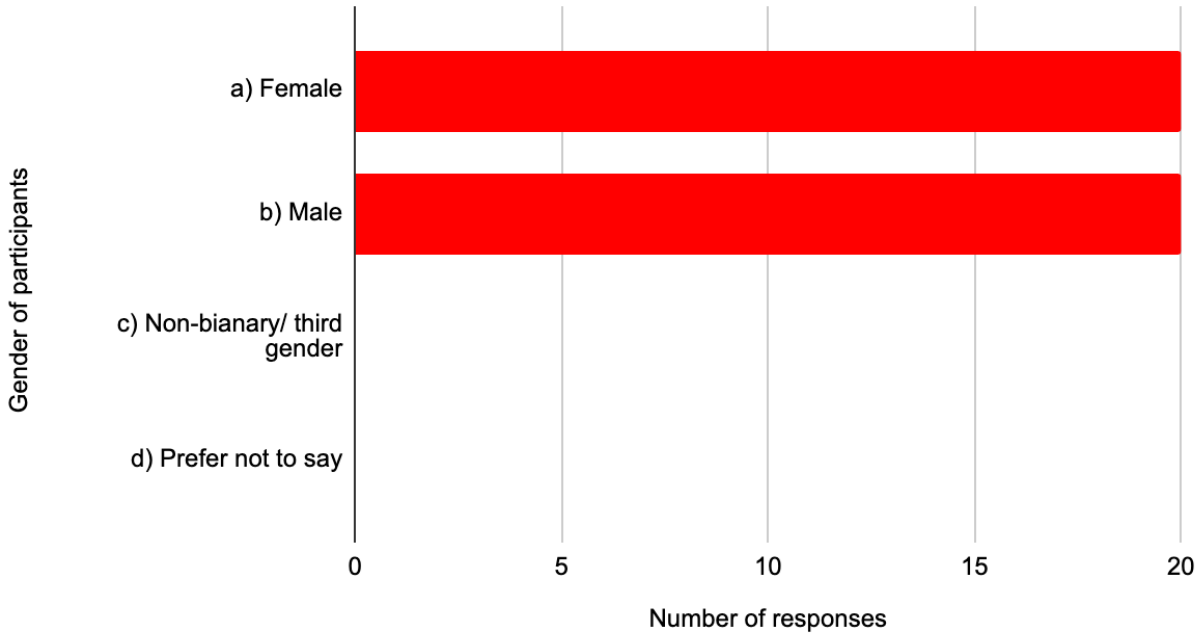
Note. The requirements of participation are:

- You must be in college at the University of Mississippi.
- You must be seeking a degree other than Communication Sciences and Disorders.
- You must be between the ages of 18-25 years old.

  By choosing yes, I agree to participate; you confirm that you fulfill the participation criteria requirements and consent to be a part of this study.

Figure 2

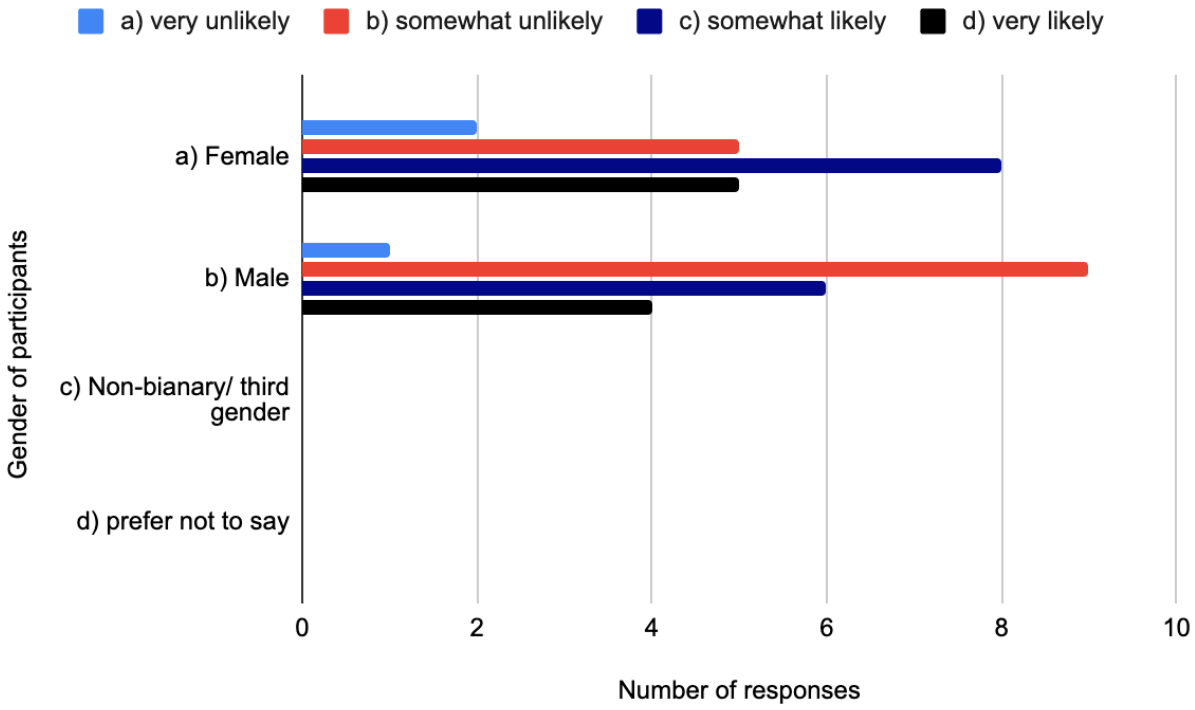
Survey Question Two



Note. With what gender do you most closely identify?

Figure 3.1

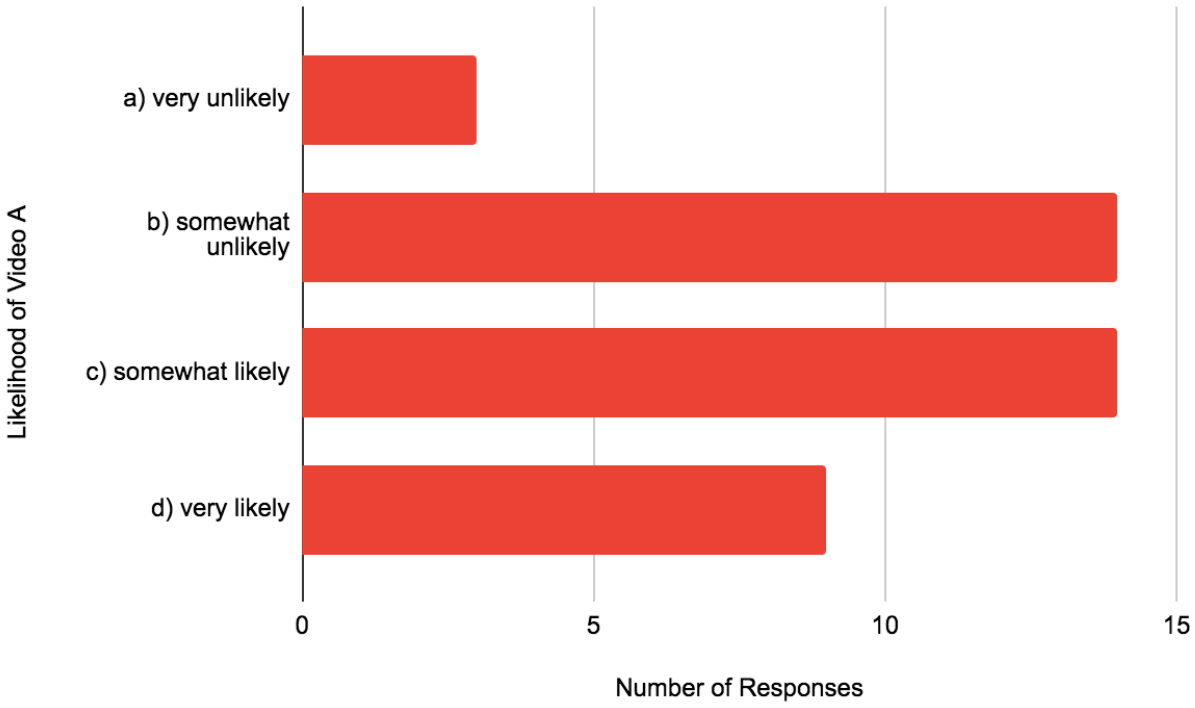
Survey Question Three



Note. After watching *Video A*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 3.2

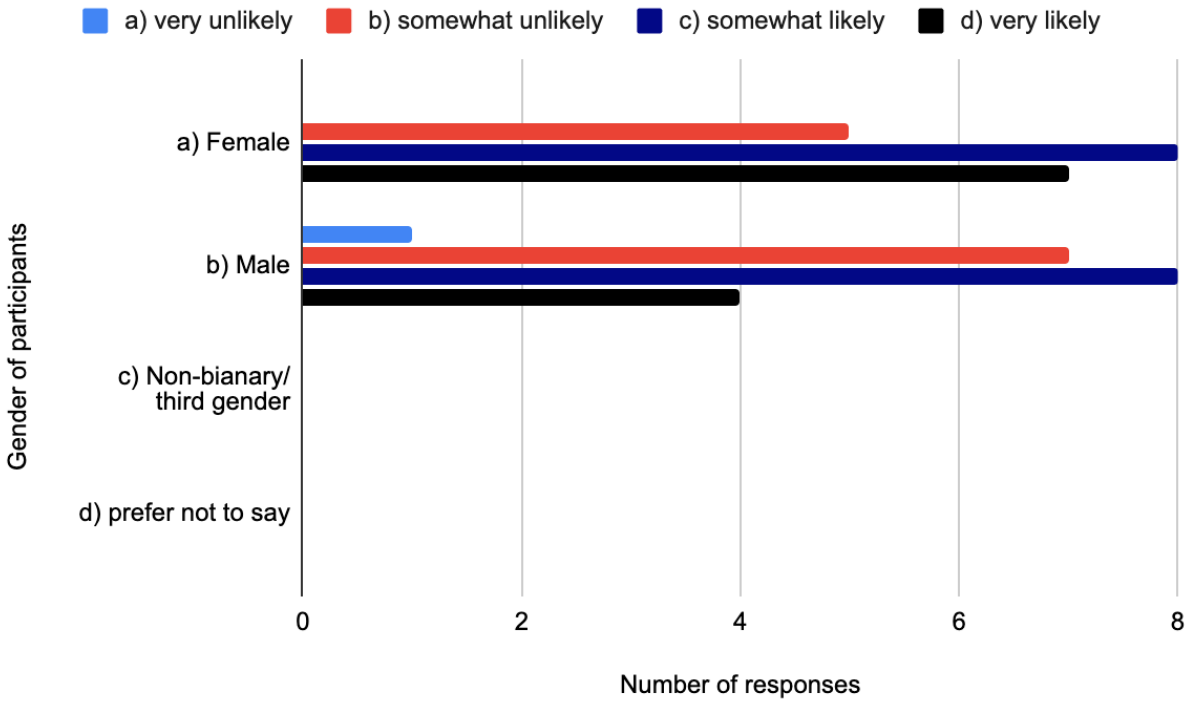
Survey Question Three- Additional Data



Note. After watching *Video A*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 4.1

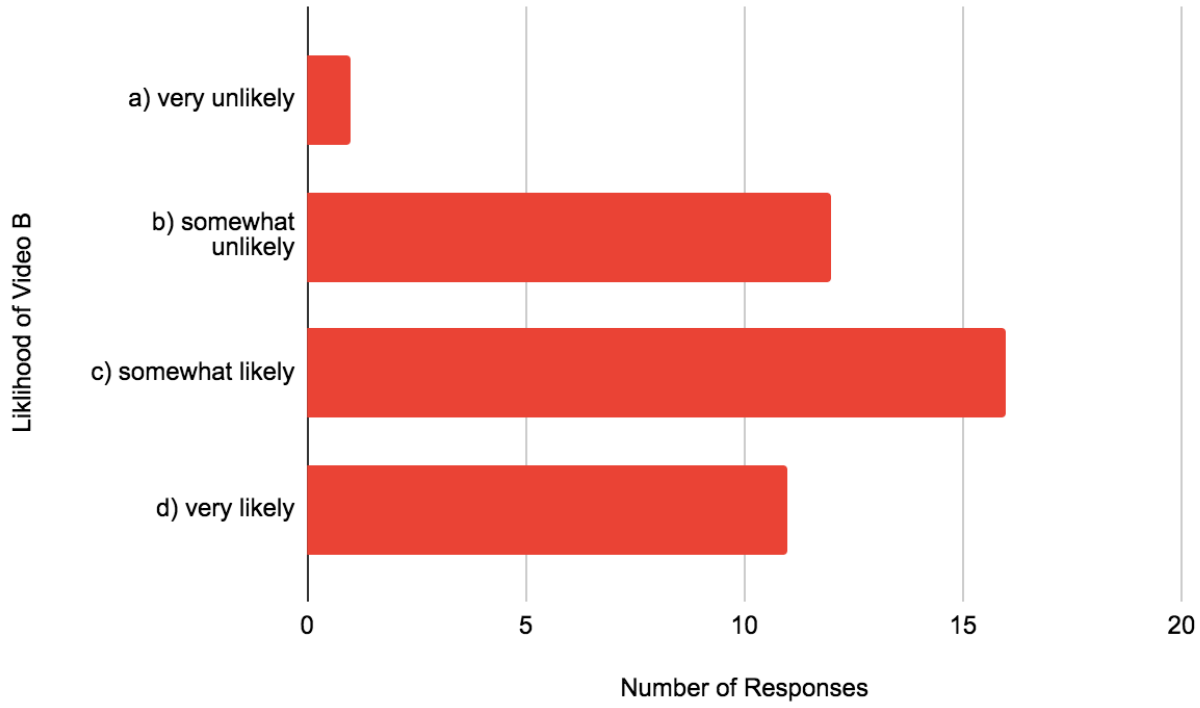
Survey Question Four



Note. After watching *Video B*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 4.2

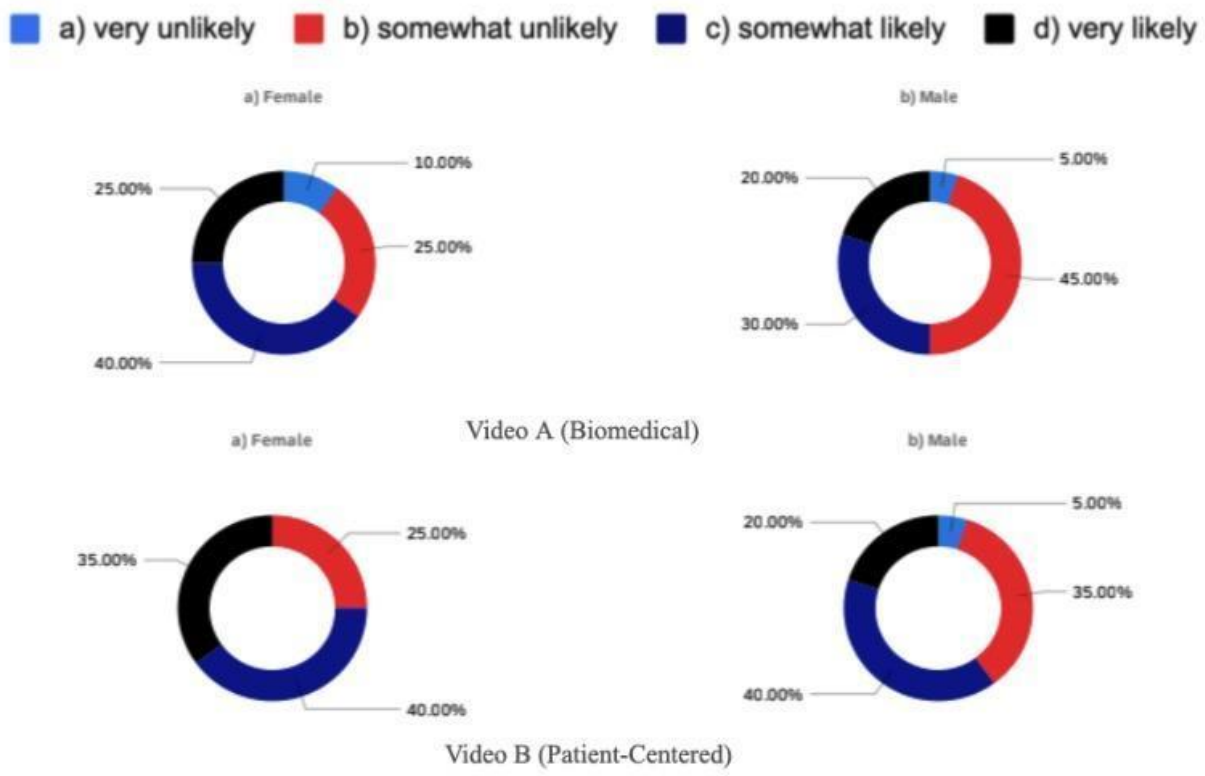
Survey Question Four- Additional Data



Note. After watching *Video B*, on a scale from 1-4, how likely are you to purchase hearing aids? (1 being very unlikely- 4 being very likely).

Figure 4.3

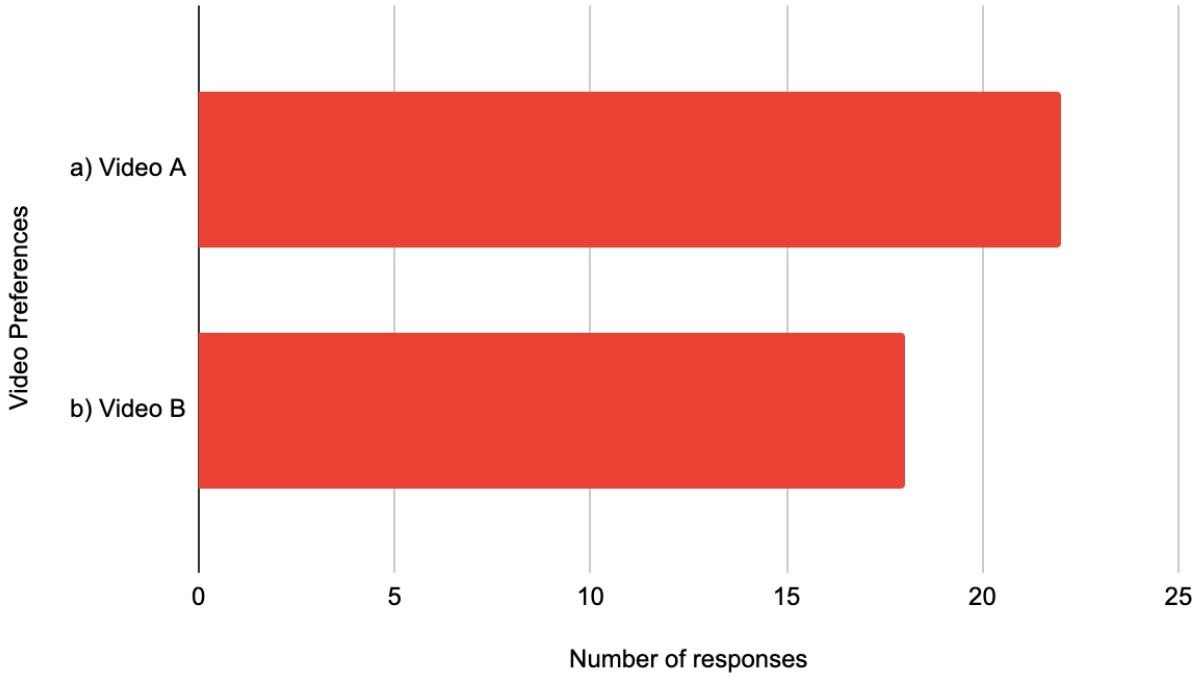
Survey Questions Three & Four- Pie Charts



Note. The top two pie charts represent Video A (Biomedical) and the bottom two pie charts represent Video B (Patient-Centered).

Figure 5.1

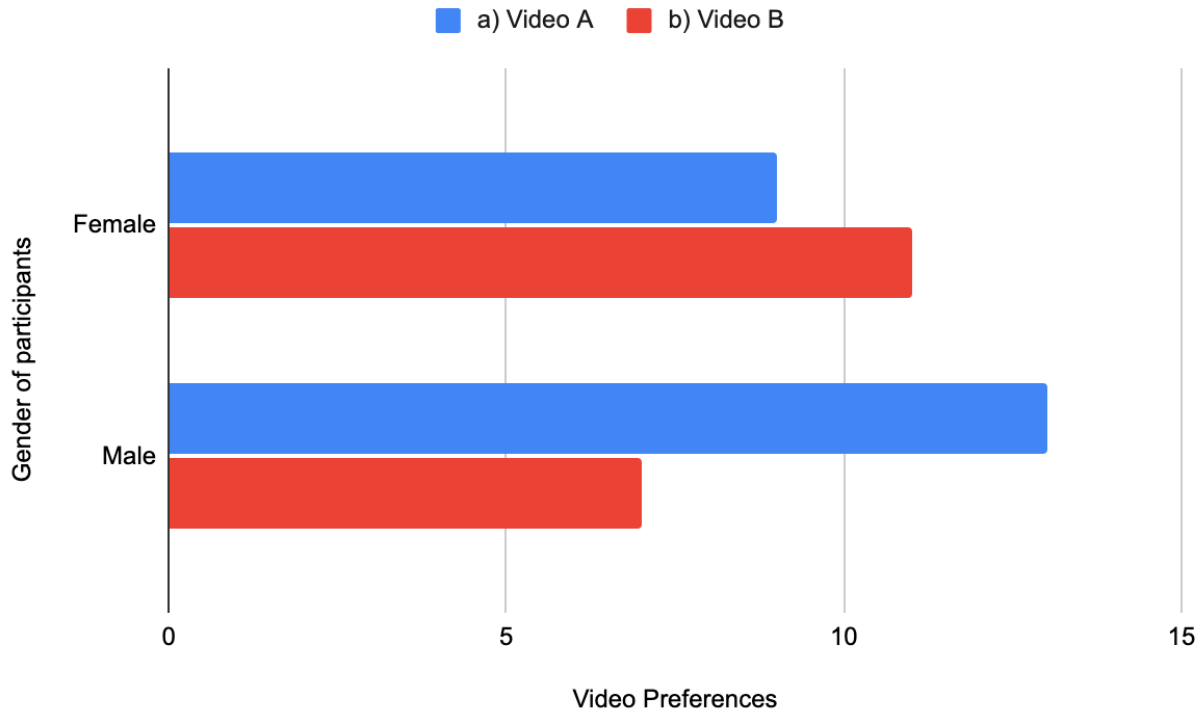
Survey Question 5



Note. After watching the two video consultations, which consultation do you feel might meet your needs over the other if you were a patient that just found out they have hearing loss and need hearing aids?

Figure 5.2

Survey Question Five- Gender Preferences



Note. The figure demonstrates the responses to Survey Question Five relative to gender; dividing the forty participants into twenty females and twenty males.

Figure 5.3

Survey Question Five- Pie Chart