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ABSTRACT

Health communication is a topic that has been broadly researched for a while. It is an area that holds significance everyday due to the number of people involved and the number of people who rely on healthcare in general. Student-athletes sustain over a million injuries annually, over half of which required surgery (Corlette et al., 2015). However, the specific topic of communication between a surgeon and their student-athlete is one that is not studied much at all. Utilizing Communication Accommodation Theory as the theoretical framework, this study explored how surgeons currently use accommodation in their communication to their student-athletes. It specifically looked into approximation, interpretability, interpersonal control, discourse management, emotional expression, communication satisfaction, and approximation. An online survey was sent out to student-athletes asking them about their experience(s) with their surgeon and how they communicate. The results indicate that surgeons who focus on communication accommodation have higher communication satisfaction but do not have higher surgery outcome satisfaction. There were no significant differences based on students' gender. Emotional expression, interpretability, and discourse management had the strongest relationship with communication satisfaction.

Communication Accommodation of Surgeons with Student-Athletes

A Thesis

Presented to

The Faculty of the Department of Communication and Sociology

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In Partial Fulfillment

Of the Requirements for the Degree

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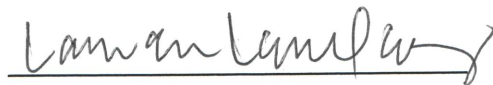
Thesis Committee



Dr. J D Wallace, Chair



Dr. Jon Camp



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To my family, Kevin and Carol Womble, Conner and Taylor Womble, Jacob Womble, and Claire Manning. They have been my support system and cheerleaders throughout the entire process. Thank you for your advice, for always being there for me, and for continuing to pray and lift me up in prayer throughout the entire process. Thank you for always believing in me and pushing me to believe in myself. To Jordan McFalling, thank you for your constant support during the good and bad days. You were always there to help me through the days that challenged me, while also helping me celebrate the good ones. You all played such an important role in this last year. The love and support you all showered me in and showed me did not go unnoticed, and I could never thank you enough. Thank you for all you have done in front of, and behind the scenes, you are all so appreciated.

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CHAPTER I

INTRODUCTION

This study seeks to understand the communication that takes place between surgeons and student-athletes and how that impacts the overall experience of the patient. Communication in any area of life is crucial for how interactions and experiences unfold. The use of communication in any field can determine how well an organization flows, and communication can also determine the reputation the organization gains. Depending on whether the people within the organization do an excellent job of communicating with each other, the systems within can greatly suffer or succeed. Healthcare is a prime example of how communication can allow organizations to do well but also fail.

An article from the Centers of Medicare and Medicaid Services (2020) states that “U.S. health care spending grew 4.6 percent in 2019, reaching \$3.8 trillion or \$11,582 per person” (para 2). Dowel (2020) writes that “there are 907,426 businesses in the Health Care and Social Assistance sector with 20 million employees and over \$1.0 trillion in annual payroll in 2018,” making it the largest U.S. employer (para 2). She also writes that “general Medical and Surgical Hospitals, which gained the most annual payroll” went “up \$13.8 billion between 2017 and 2018 to \$364.2 billion” (para 9). Every year, the healthcare industry has continued to move upward and stay one of the most important industries there is.

The numbers for healthcare are extreme and suggest how important of a field it is. However, there are other important healthcare numbers that need to be stated. According

to Michas (2021), the number of active physicians in the United States as of June of 2021 stands at 552,310. Comparing that number to the size of healthcare and not counting all other employees, physicians make up a large portion of the industry, meaning they are a vital part of their operations.

This study does recognize that an experience for a patient starts once they have their first interaction within the office. However, a big part of this study is the experience that results from surgeon-patient interactions. When referring to the *surgeon*, the person being referred to is the one who “diagnoses and treats injuries or illnesses and addresses health maintenance” (Occupational Outlook Handbook, 2021). Surgeons of a variety of groups of particular interests are dealing with diagnosing and treating injuries of one group that is particularly affected, collegiate student-athletes.

CHAPTER II

REVIEW OF LITERATURE

Health Communication and Student-Athletic Injury

There are “more than 460,000 student-athletes” who participate in collegiate sports each year (Aussie Athletes Agency, 2021; Corlette et al., 2015). A study done by Corlette and her colleagues (2015) discusses an analysis that was restricted to 25 NCAA championship sports. During the analysis, “1,053,370 injuries were estimated to have occurred during a 176.7 million athlete-exposures to potential injuries” (2015, para. 1). They describe *potential injury* as “one’s athletic participation in one competition or practice” (2015, para. 1). These numbers suggest how prevalent sports are and that injuries cannot be avoided. The same analysis reported that over half (57.7%) of the injuries required athletic surgery (Corlette et al., 2015). With surgeries being such an important and dominating part of healthcare, communication must be maximized in all areas including office visits. This study looks at communication during visits, specifically considering whether there is a gap in how surgeons are communicating with their student-athlete patients.

Student-athletes are the population of focus because of the sheer number of injuries they experience. Additionally, their injuries can make or break their career. Surgeons are a crucial part of a student-athlete’s injury management because they are the person to whom the athlete turns for information and advice on recovery. This interaction requires good communication because an athlete’s future may be at stake. How the

student-athlete perceives their surgeon's communication is a big factor because if they do not perceive their surgeon as trying to accommodate to their liking or needs, the healing process may suffer (Albo et al., 2005; O'Hair et al., 2013). It is because of this cruciality that student-athletes' surgeon interactions are focused.

Surgeries Within Collegiate Sports

When it comes to sports injuries, the sports that tend to require the most surgeries are men's football and men's and women's basketball due to the amount of impact and agility required (Charen et al., 2020). He also states, "the top five most commonly observed injury types requiring surgery were anterior cruciate ligament (ACL) tear, lateral meniscal tear, medial meniscal tear, shoulder anterior dislocation/subluxation, and medial collateral ligament tear," which comprise about 95% of all surgeries in those top three sports (p. 2). This is important to note because this list is comprised of injuries common for orthopedics.

ACL injuries are one of the most common in contact sports and often require surgery done by orthopedic surgeons (Christel et al., 2006; Gans et al., 2018). Hines et al. (2021) refer to ACL injuries by stating that there are "approximately 100,000 injuries per year within the NCAA alone" (p. 2). This number that is only in relation to Division 1 athletes suggests the relevancy and prominence of orthopedics within collegiate sports. Moreover, in the span of 10 years, Charen and his colleagues (2020) looked at and discovered a total of "3,852 injuries requiring surgery out of 64,598 injuries" (Charen et al., 2020, p. 7). All these numbers suggest how often athletes are going to doctors to discuss injuries, and a large number of them are being advanced to surgeons.

Cost of Athletic Injuries

Surgeon communication, in all areas, is important to study because of the impact it can have on an athlete. If a surgeon is not giving adequate information, the health of the patient (athlete) becomes at risk. This is particularly true in college athletics where student-athletes may not have the same support financially to help them than professional athletes do. It was estimated that in 2015 alone, female collegiate sports injuries resulted in a total cost between about “\$122 million and \$505 million” (Champa & Fair, 2019b, p. 2). On the other side, male collegiate sports injuries resulted in costs between about “\$433 million and \$1.5 billion” in 2015 (Champa & Fair, 2019a, p. 691). Collegiate student-athlete injuries can easily start adding financial burdens when surgeons are not communicating efficiently and adequately.

Research Problem

It is because of the 460,00 student-athletes (Aussie-Athletes Agency, 2021), over one million injuries (Corlette et al., 2015) and the cost of athletic injuries stated above that this study was conducted. The previous numbers are important to note because when a surgeon may not give adequate information during a visit or fit their communication to the patient’s needs, such miscommunication can cause the monetary burden of collegiate injuries to skyrocket. Additionally, surgeon communication not only affects physical components but also emotional.

Research has clearly shown that injured athletes often experience not only physical symptoms, but also psychological/emotional (e.g., stress, anxiety, concentration, depression, fear of re-injury, and future performance problems) and social (e.g., lost playing status and contact

with teammates) symptoms. (Etzel et al., 2006, p. 533)

Student-athletes' communication with their surgeon is important because it contributes to healing and helps to reduce the financial, physical, and mental cost of their injury. This affects the student-athlete in the short-term and long-term.

Literature Review

Surgeon communication needs to be studied because of the impact it can have on the overall health of an athlete. An athlete's health can become at risk because of the level of communication with a surgeon. Surgeons are responsible for a great deal of health communication. Surgeons make up a total number of 53,872 members in healthcare, which is about 9.7%. That number includes many types of surgeons, with orthopedic surgeons being of particular interest to student-athletes. In general, orthopedic surgeons are some of the most used, and "there are more than 30,500 orthopedic surgeons in the U.S." (Definitive Healthcare, 2020). With a large portion of the population aging or being involved in athletics, data predicted there to be "a record 6.6 million orthopedic surgeries occurring annually by 2020" (Bandgrip, 2019). Orthopedic surgeons deal with many different injuries, which allows them to work with athletes, specifically collegiate athletes, often.

Health Communication

The U.S. Department of Health and Human Services (2006) states that health communication is "the study and use of communication strategies to inform and influence individual and community decisions that enhance health" (p. 11). Schiavo (2007) states that "health communication is an evolving and increasingly prominent field in both public health and the nonprofit and commercial" (p. 3). Doctors sometimes struggle with

health communication due to not knowing how to effectively communicate information regarding health and risks associated with issues (O'Hair et al., 2013).

When a doctor struggles with the interactions within a visit, it may be confusing or unsuccessful. Butow and Hoque (2020) state that “poor physician communicators face a higher risk of being sued by dissatisfied” patients (p. 49). Butow and Hoque (2020) state that “71% of the malpractice claims were initiated because of a physician-patient relationship problem, with most litigious patients perceiving their physicians as uncaring, poor delivery of medical information, and poor listeners” (p. 49). They discuss research and say that there are “strong positive relationships between health professionals’ communication skills and patients’ capacity to understand, recall and follow medical recommendations, self-manage chronic illness, and adopt preventative health” (p. 49).

Miscommunication happens between surgeons, but it most commonly happens between clinicians about patient information. The *HIPAA Journal* looked at “23,000 malpractice lawsuits and found more than 7,000 of those lawsuits could be attributed to communication,” which resulted in a cost of “\$1.7 billion in malpractice costs and almost 2,000 preventable deaths” (*HIPAA Journal*, n.d.). When healthcare professionals communicate effectively, their patient may better understand the content being discussed, and they are more likely to have a better rehabilitation and recovery. It is the “professionals in the fields of health communication, patient education, and health behavior change that have a special responsibility to contribute to the spread of concise and valid information in different contexts” (Bosworth et al., 2020, p. 873). Professionals in all fields are looked at to provide and explain information, so if a doctor is not sure of

the best way to do that, the communication process will become confusing and ineffective.

Health communication involves more than the visit between the physician and the patient. It begins during the first interaction which may occur before the waiting room. Wright (2016) states that “physician interaction in the presence of the computer starts at the very beginning of the interview process, within the first minute” (p. 4). Office visits are not thought to include the first interaction, so it is vital to keep in mind that a patient’s experience begins earlier. Due to this, Wright (2016) also points out that “it is helpful to acknowledge the patient before reverting to the computer by extending a friendly greeting upon entering, introducing the computer into the encounter, and reassuring the patient of its confidentiality when necessary” (p. 4). In doing this, it suggests to the patient that the office values personable interactions and conversations. The first interaction of an office visit can make or break the entire visit, so it is crucial to have a good first encounter to set the tone for the rest of the visit.

The overall impression of an office visit can be crucial to the healing of a patient (Edelhäuser et al., 2010). If an athlete walks into the office and the first interaction they have is mediocre or below average, it is likely they will not disclose important information during the visit with their surgeon due to the first interaction. From then on, the experience of the visit in the eyes of the athlete falls onto the surgeon for the most part, and if they are not disclosing enough information then the surgeon may not be able to give accurate information and/or treatment.

Communication Accommodation Theory

Communication Accommodation Theory (CAT) is a good fit for this study because of its previous applications in the medical field. It also does a good job of giving a clear, definitive meaning of what *communication* is, which provides a good foundation and path on what to base communication on in healthcare. Lastly, the theory uses communication interactions rather than other units of analysis. The use of *interactions* is helpful because it allows for consistency and an easy following of theory impact. The Communication Accommodation Theory (CAT) was developed by Howard Giles “in the 1970s for predicting and explaining adjustments individuals make to create, maintain, or decrease the social distance in interaction, changes that are enacted for reasons that go beyond the mere exchange of referential information and emotions” (Giles & Soliz, 2014, p. 107). Giles was a professor of communication at the University of California. He came up with the theory because people were trying to minimize distance within interactions, thus causing him to create CAT. When the theory was developed, it “was the foundation for independent models (themselves subject to their own later refinements and elaborations) in which accommodative processes and dilemmas were embedded within wider social forces” (Gallois et al., 2005, p. 124). Giles and Ongay (2007) define *CAT* as a “wide-ranging framework aimed at predicting and explaining many of the adjustments individuals make to create, maintain, or decrease the social distance in interaction” (p. 293). The theory is also said to focus “upon how, when, and why speakers attune their messages to match that of their interactions (accommodation) or not (non-accommodation) and how conflict can be managed” (Gasiorek & Giles, 2013, p. 13).

Communication Accommodation Theory, when used correctly, can be a “productive approach to understanding the linguistic as well as the socio-psychological aspects of patient-provider interactions” within the healthcare field (Farzadnia & Giles, 2015, p. 29). This needs to be used in healthcare settings because the five strategies can be used to measure healthcare communication effectiveness. These strategies are approximation, interpretability, interpersonal control, discourse management, and emotional expression (which will be discussed in detail later in this section). Although the five strategies sometimes cause inefficient use, “using CAT can help organizations and healthcare systems realize where miscommunication is happening” (Watson, 2020, p. 182). Watson also states that using CAT “can highlight the complex intergroup nature of the hospital setting and provide a framework on which to structure better communication.”

Structuring better communication can become difficult to do when someone does not know how to. CAT is effective because it can easily be applied to help surgeons know where to start and what things are important when it comes to communication. There are two categories connected to CAT: convergence and divergence.

Convergence

Communication can become confusing when the people or parties involved are not on the same page or using the same language. Convergence is meant to help with this issue because it “involves shifting communication patterns to resemble the pattern or style of another participant in conversation” (Mackie, 2018, p. 1217). In other words, convergence helps with “reducing differences between speakers” (Mackie, 2018, p. 1,217). Convergence does not always take place, but it most often occurs when there is a

higher need for approval or affiliation. It not only affects the speaker, but it also affects the receiver because listeners may pay more attention to the language they recognize.

Divergence

The use of divergence is at the other end of the continuum. Divergence “emphasizes certain communication differences” (Mackie, 2018, p. 1217). When someone is divergent, power might become distinctly different, or there might be a reinforcement of an important identity distinction. Not many listeners approve of this style because it tends to be used when the speaker is unwilling to use similar language styles. Listeners tend to get lost in communication when divergence is used, so for that reason, it is not the most popular style. Divergence can cause a lot of issues when used in the medical field. When a patient becomes lost in conversation, they will either ask questions to get more information or they will check out, so divergence is not ideal in these settings.

Convergence and divergence are both strategies that deal with the way a speaker handles their communication. Both styles are based on the goal of communication. However, five other strategies that can be used by medical professionals to elevate a patient’s experience by being effective with communication that takes place. These five strategies are discussed in the next section.

Communication Accommodation’s Five Strategies

When using the theory and the five strategies, a healthcare organization can become more effective. Giles, Pines, and Watson (2021) state that “CAT intervention trainings teach participants five main communication strategies that can be used to adjust toward or away from a speaker” (p. 66). It is in training when participants should be

taught how to truly use those strategies to better an organization. Giles, Pines, and Watson (2021) also state that “in healthcare domains, an appropriate blend” of the five strategies “is required to achieve patient trust and satisfaction that would constitute effective accommodation” (p. 66). The five strategies used within CAT all look at how “accommodation-non accommodation can be enacted by means of at least five sociolinguistic strategies: approximation, interpretability, interpersonal control, discourse management, and emotional expression” (Farzadnia & Giles, 2015, p. 19).

Each of the five strategies plays a different but significant role. The first of the five strategies is approximation. According to Dragojevic, Gasiorek, and Giles (2016), approximation “involves adjusting their verbal and nonverbal behaviors toward (convergence) or away (divergence) from their interlocutor” (p. 41). Simply put, *approximation* is when someone makes their nonverbal communication during an interaction either go with the conversation or go against it.

The second of the five strategies is *interpretability*, which is being able to understand the interpretative competence of others. This specific strategy includes “modification of complex speech by decreasing the diversity of vocabulary, increasing clarity by changing pitch and tempo and repetition, and the choice of topic to stay in familiar areas for the other person” (Ayoko et al., 2002, p. 169). The use of interpretability breaks down a conversation to where both people involved can easily communicate and understand each other. This strategy is also used to create common ground between people involved in an interaction.

Interpersonal control is the third strategy, and it deals with “the role that speakers perform while interacting” (Ramtally, 2019, p. 460). Interpersonal control can be used in

many ways, but the most common way it is used is “to exert power, dominance and control in a conversation” (Ramtally, 2019, p. 460).

Discourse management, the fourth strategy, “aims at managing the conversational needs of interlocutors” (Ramtally, 2019, p. 460). Ramtally (2019) also discusses the separation of discourse management into three parts. The first of these three parts is the field, which includes the selection of the topic and its content. The second part is tenor, which are the strategies used by the interactants to maintain face while communicating. The third and final part of discourse management is the mode, which is how the conversations are shared and structured in terms of turn-taking. Although all strategies are important, discourse management has a big impact on a conversation because there are many things that need to be considered.

The last strategy that is part of the five is *emotional expression*. Emotional expression is used most when someone wants to reassure and comfort the one with whom they are conversing (Angus et al., 2015). This strategy can tie into communication satisfaction and accommodation. When a surgeon pays attention to the emotions of their patient, often, the patient will be satisfied with how the communication went during the visit. Patients want surgeons to pay attention to their feelings, so when they are aware of their emotional expression, meaning they are doing things to comfort and reassure the patient, they are also checking the box of communication satisfaction; this idea is discussed more in the surgeon-patient communication section.

Emotional expression can also tie into accommodation because when the surgeon is aware of the characteristics, mannerisms, and thoughts of their patient, they are going to be able to accommodate their communication and interaction(s) to fit the needs and

emotions of their patient. For example, Arininta et al. (2020) talk about how “the more adequate expression of patients’ individual concerns could only be originated from a more open atmosphere of communication offered by the doctors in this study, which led to the patients to express their concerns at ease” (p. 298). Emotions are always important and high when an office visit is taking place, so medical professionals need to be aware of this and be able to use emotional expressions to their benefit.

Surgery Health Communication

Surgeon communication is a critical part of a healthcare atmosphere. When surgeons are not communicating effectively, many things can take place and go wrong (Butow & Hoque, 2020; *HIPPA Journal*, n.d.; O’Hair et al., 2013). Surgeon communication not only takes place in the operating room, but also takes place with patients during visits. Surgeons may not discuss more than just problems, concerns, or injuries. In other words, the communication of surgeons with patients may only deal with injuries and explaining certain circumstances. However, other situations can more heavily involve surgeon communication. Chaumeton and Levinson (1999) give an example of one by saying, “surgeons are often called on to inform patients about unexpected surgical complications and their consequences” (p. 128). One important thing to note about surgeon communication is that “communication failure has been identified as a leading source of adverse events in surgery” (Albo et al., 2005, p. 772). Occasion, content, purpose, and the audience present can all have a severe impact on the communication that takes place. About “43% of adverse events were a direct result of communication failures between 2 or more clinicians” (Albo et al. 2005, p. 772). Overall, Albo, Awad, Bellows et al. (2005) mention that there were four types of communication failure:

occasion (45.7%), in which timing of an exchange was requested or provided too late to be useful; content (35.7%), in which information was missing or inaccurate, purpose (24.0%), in which issues were not resolved; and audience (20.9%), in which key individuals were excluded. (p. 773)

This is important because if a surgeon is having to talk about surgical complications, those may be in relation to miscommunication or communication issues.

Communication

The impact a conversation with a surgeon can have on a patient is often downplayed. Pendleton (1983) discusses how patients do not only go to the office with symptoms, but they are also bringing their concerns, ideas, and expectations. It is because of those things that surgeons need to be able to sympathize with patients. Mueller and his colleagues conducted a study that discussed both surgeons and physicians. In this study, they found physician-patient communication is “generally acknowledged as an important quality factor in a treatment process” (Mueller et al., 2006, p. 299). A patient goes to a doctor to discuss their problems and get feedback and comfort on the situation. When they are not treated as if they are in pain or struggling, the patient may view the treatment they are receiving as more negative. The study also found that “emotional conversations between doctors and surgeons and patients, meaning the doctor took time to talk to the patient, resulted in happier patients and better recovery” (p. 304). Patients want to be “treated as a complete person who receives answers to their questions and education about their conditions” (Dunnington et al., 2006, p. 619). Epps, Forese, and Tongue (2005) state that “acknowledging the patient’s emotions and values demonstrates that you recognize their individuality” (para 13). It was also found by Bhat et al. (2000), who

referenced surgeon information, said that “visits in which a physician responded positively to a patient clue tended to be shorter than those in which the physician missed the opportunity” (p. 1026). In other words, when a physician takes time to listen and respond to the concerns and worries of their patient, the appointments were shorter than those that did not address concerns and worries. This could be because once the concerns were addressed, it resulted in the easing of the patient’s mind, which caused fewer questions to arise in relation to the same worry. Some surgeons are criticized for not doing those things and accommodating to do so. For example, orthopedic surgeons deal with a multitude of problems brought in by patients. When many issues arise during the interview phase of a visit with a patient, there may not be enough time to talk about everything important. It is times like this when communication could be accommodated to fit the situation but still make the patient feel important. Thus, showing that “accommodation on either side of the consultation reflects rapport and strengthening of the physician-patient relationship,” physician [surgeon]-patient relationship (Bylund & D’Agostino, 2014, p. 565).

Gender

The interaction that takes place between a surgeon and patient can depend heavily on gender of both participants. The gender of the patient can have impacts on what interactions take place and how, and it can determine how much focus is put on the type of patient care provided. For example, Adams and her colleagues (2009) state that “findings suggest less tension around power and status within same sex dyads, which are characterised by relative ease” (p. 353). They also state that “findings suggest that opposite sex dyads, although providing opportunities for discussion of different patient

agendas, are characterized by less ease” (p. 353). Depending on the gender of the patient, interactions may be less structured and more relaxed. A chart displayed in the same article written by Adams and her colleagues shows that the male doctor and male patient dyad resulted in higher ratings of voice calmness when compared with opposite sex dyads (Adams et. al, 2009). Although not stated, this may suggest that male doctors have more relaxed interactions with male patients while “female patient-female physician dyads” demonstrate “significantly more PCC,” PCC standing for patient-centered care (Azari & Bertakis, 2012, p. 326).

The findings above are critical to research because numbers could change significantly based on the gender similarities between doctors and patients. Although the article written by Azari and Bertakis (2012) found “no significant association for male patient-male physician concordance” (p. 330) for patient-centered care, the gender of the patient does impact the way the physician spoke, meaning patient gender does have an impact on the conversation.

Interaction Based on Gender Differences

Gender can be a telling factor when it comes to how an interaction will take place during a visit with a patient, whether that be from the surgeon’s side or the patient’s side. Between choice of words, movements, expressions, and other factors, interactions can be completely different between males and females. Bylund and D’Agostino (2013) summarize CAT as “speakers and listeners modify communication behavior to become more similar or different from their partner in interpersonal interactions” (p. 564). The modification of communication can change depending on the gender(s) of people involved in the interaction. There are not a lot of studies discussing the interaction

between a surgeon and student-athlete based on gender, but the limited evidence suggests that it might include surgeon accommodation. Adams and her colleagues (2009) have studied the interactions between doctors and patients based on gender, and they found that in the male patient-male doctor dyad, male patients “may find it difficult to talk to male doctors about emotional agendas but raise them more frequently with female doctors” (p. 353). This finding suggests that male patients feel more comfortable with female doctors when needing to be vulnerable than they do with male doctors.

Studies have also suggested that nonverbals sent to surgeons from patients may depend on the surgeon’s gender. In general, “females are better at judging nonverbal cues and are more skilled in conveying emotions via nonverbal cues. It is very likely, then, that female physicians will exhibit higher levels of nonverbal sensitivity than male physicians,” (Frankel et al., 2006, p. 29). In one meta-analysis, female surgeons tended to have more patients smile and gaze at them, approach more closely, and get more self-disclosure than that of male surgeons (Allen & Dinda, 1992). This could be because with female physicians using more nonverbal communication, patients are mirroring those expressions. However, it has also been discovered by Azari and Bertakis (2012) that “female physicians would incorporate more patient-centered practice style behaviors” (p. 330).

Hall and Roter (2002) mention in another meta-analytic study that references surgeon information that “behavioral differences between male and female physicians could produce correspondence of gender differences in patients’ behavior directed back at them” (p. 218). For example, Hall and Roter (2002) found that

female physicians conducted longer visits than male physicians and engaged in significantly more active partnership behaviors, positive talk, psychosocial information giving and question asking, and emotionally focused talk. Female physicians also displayed more positive nonverbal behaviors than male. (p. 667-668)

When a surgeon is displaying more positive talk and behaviors that appear more positive, the patient may follow and have a positive attitude and use the same way of phrasing. The way the surgeon talks and acts about things may influence the patient's thoughts, nonverbals, and communication.

Surgeon Communication

With all those surgeons are involved in and do, such as interacting with patients, relaying information to nurses, and procedures, it is important that they know how to effectively do all of them. One thing that does intertwine with the interaction with patients is bedside manner. *Bedside manner*, as defined by *Merriam-Webster*, is “the manner that a physician assumes towards a patient” (2008). Dai and MacDorman (2021) state that “a good bedside manner” is “perceived as warm and competent” (p. 10). However, in a study that looked at over 6,000 surgeons, bedside manner was the most frequent complaint from patients. It was common for patients to note “that they felt the surgeon was dismissive or condescending” (Brzezinski et al., 2021, p. 109).

The bedside manner of a surgeon can have an impact on more things that one would think. Finch and Person (2008) mention how “a provider's bedside manner can impact professional reputation in the community, affect the loyalty of patients, and even impact effectiveness” (p. 1). Bedside manner not only has to do with the verbal side of

communication, but nonverbals are important as well. In the same article by Finch and Person (2008), they note that “non-verbal communication, such as neat appearance and body language, have been said to relay a positive impact on patient’s perceptions of provider bedside manner as well as effectiveness” (p. 2). Bedside manner is important because of the impact it can have on their patients. While nonverbal and verbal are not the only components in bedside manner, they are important for the relationship between surgeons and patients.

Studies often revolve more around the verbal side of the relationship, but the nonverbal side is significant to look at as well. Frankel et al. (2006) discuss how emotions tend to be expressed more through nonverbal cues in medical interactions. They also discuss how the communication relies more on the surgeon to recognize these signals and adjust their communicative behavior to fit, and display understanding and solicit a response (Frankel et al., 2006). However, although emotions are more expressed through nonverbal communication, verbal communication can be more straightforward or cause more discrepancies.

Verbal expression of emotion can allow a surgeon to verbally be in line with the patient’s emotions by expressing concern and words of affirmation. However, one big issue that can be caused by verbal expression of emotions is the approach of being “fake.” Kleef (2021) talks about how spoken emotions are not always a representation of the feelings inside. More specifically, “people may express emotions that they do not feel” (p. 92). This can become an issue within visits because a surgeon may express feelings that are not truly how they are feeling which can hinder their ability to relate to the patient. If this becomes the case, a patient may be able to realize the disconnect

between the surgeon's nonverbal and verbal expressions, thus suggesting to the patient the surgeon's incapability to relate.

Student-Athletes' Uniqueness

One might ask why student-athletes are a unique population to study. Although some may think nothing truly sets them apart from students who do not participate in sports, some factors make their schedules unique and can cause fatigue. Madrigal and Robbins (2020) state that "the four most common stressors identified among the current participants were injury, big moments/big games, fitness/conditioning, and playing time/starting" (p. 132).

Restricted Freedom

The schedule of a student-athlete is nonnegotiable. Jolly (2008) states that "while non-athletes are generally able to manage their own academic schedules and social lives, many athlete's schedules are set by others and are tightly regimented" (p. 146). O'Hanlon and Potuto (2006) discuss the hours of a student-athletes' schedule and the stress they endure by discussing how during an athlete's season, a little over 75% of the student-athletes report spending more than 10 hours a week in practice, and a little under half of the student-athletes spend more than 10 hours playing their sport during the week in season. Outside of those practices, student-athletes are also having to work out in the gym and are sometimes expected to do more than one workout a day. Not only are student-athletes having to excel in their sport on the field, but they are also held to high standards when it comes to excelling and performing in the classroom.

Student-athletes do not just have expectations to live up to and tight schedules, but they are also having to worry about eligibility. To begin with, Meyer (2005) discusses

how student-athletes are expected to take 15 hours of classes each semester, but if they drop below 12 then they lose their eligibility to play. This is something that most college students do not deal with because they do not have hour requirements to be able to participate in things. Not only do student-athletes have to take at least 12 hours of class each semester, but they also have the pressure of failure on top of them. If a student-athlete fails a class, they once again may become ineligible. Student-athletes, from a young age, must figure out how to manage the stress and workload that comes from the classroom and their sport at the same time. Dismally, “the tensions between athletics and academics give rise to negative perceptions about student-athletes among many faculty and staff” (Jolly, 2008, p. 147).

While the above issues may be true at some level for all students, they differ in the level of severity and overall impact for college students. Students who are not involved in sports more easily get to decide if they can participate in social events, socialize with friends, and explore outside interests. Although student-athletes decide they want to play in college, they do not get the ability to tell their coach that they are too tired to practice or workout that day. They also do not have the choice of attending or not attending class; they simply must be eligible to play their sport which requires class attendance (Meyer, 2005). Non-athlete students often have more freedom in deciding how much is on their plate and can decide to not do an assignment or not go to that class. However, student-athletes making the same decisions may suffer losing their position, their scholarship, and or even contribute to the downfall of their coach’s career.

Health and Life Issues

Mental Health

Another area that which student-athletes are unique is that they are thrown into an adult-type life with many stresses at a young age. Baghurst and Kelley (2013) discuss how the stressful environment and nature of college for young adults who start making their own decisions while trying to find a new identity can cause added stress on top of everything else. Student-athletes are having to juggle an extreme schedule for their sport and a tiresome schedule of classes, and they are held to high expectations for both. Also, on top of those two schedules, they are having to worry about and handle personal matters. All these things may impact an athlete's mental health.

Specifically, Carter and Maniar (2003) suggest that student-athletes experience disorders and symptoms of depression at similar or higher rates than non-athlete students. Jolly (2008) provides an example of one of their students who was involved in a sport, became so overwhelmed by their schedule and personal things that they started down a dark path. He states, "by the end of my first two months on the job, I had a student withdraw from the term and quit the team because of stress and depression so severe it led to an attempted suicide" (Jolly, 2008, p. 146).

Not only do student-athletes struggle with mental health, but they are also facing long-term health issues due to playing at a high level. Due to the rigorous schedules and workout regimen student-athletes are put through, they not only see effects on their health during college, but they also see the impact of collegiate sports later in life. Ian McMahan (2017) says that "most accomplished athletic individuals often lose their capacity to stay active later in life" (para. 8). The list of areas where student-athletes differ does not stop

there. There are some things that student-athletes are subject to that people probably do not realize, the first of those being alcohol.

Alcohol

The stress student-athletes are put through can cause them to resort to fixes or short-term solutions like alcohol. A study by Cashin, Leichter, Meilman, and Presley (1998) sampled over 8,000 athletes and found that student-athletes averaged more drinks per week and were a part of more frequent binge drinking than of non-athletes. Not only does that not take away the stress long-term, but intercollegiate athletes' experience contributes to the proliferation of negative consequences like "impaired academic work, getting into trouble with the police or other authorities, and being taken advantage of sexually" (Etzel et al., 2006, p. 524).

Drug Use and Drug Testing

Another area in that student-athletes tend to differ from non-athletes is drug use and drug testing. While any college student can use recreational drugs, what sets student-athletes apart from non-athletes is their accountability and different use of substances, especially "to help them perform better" (Etzel et al. 2006, p. 526). Both performance-enhancing and recreational drugs can show up in tests. If a student-athlete tests positive for having any type of illegal drug in their system, it typically leads "to suspensions, reductions or loss of financial support, and ultimately to dismissal from athletics" (Etzel et al., 2006, p. 527). It has already been mentioned that there are things that can cause a player to either lose their position or their scholarship, failing of a class or not performing on the field. Handling stressors is always difficult and additionally, if student-athletes use something else like a drug, their entire career is on the line.

Injury

The injuries student-athletes experience “vary in frequency, severity, by sport, and time of year” (Etzel et al., 2006, p. 533). It can never be predicted who is going to experience what and how bad it will be. One thing that is known is that injuries are a very common thing within the student-athlete population. Etzel, Maniar, Visek, and Watson (2006) state that “it is easy to realize how increases in the strength and speed of athletes and the importance placed upon winning in American society can contribute to high injury rates” (p. 533). All college students do things that can cause injury. However, they are not consistently put under pressure to perform well for the sole purpose of succeeding. Such pressure on student-athletes can cause them to overdo things and become injured. These injuries can not only be severe for the physical health but may approach emotional responses akin to “the stages of death or dying” (Etzel et al., 2006, p. 534). Kubler-Ross (1996) discusses this progression: denial to anger, bargaining, depression, and then acceptance. This can show that the severity of an injury is not just an injury for an athlete but a more life-changing event.

In summary, student-athletes, unlike many typical students, are put under pressures from a young age and expected to perform and meet standards both on the field and in the classroom. Those pressures and stressors can take an extreme toll on student-athletes mental health and physical health. Additionally, it can cause one to try to take the stress and pain away in various ways. However, non-athletes have the luxury and option to take things off their plate often with less effect. The stakes may be higher for student-athletes as they face additional stressors. Falling short in handling these could potentially

cause them to lose their position, scholarship, and the grasp of a dream they have worked so hard to obtain their entire life.

Hypotheses and Research Questions

With accommodation changing and modifying throughout communicative behaviors so that those involved are on similar or different channels, gender may influence how these modifications are done. It seems that female surgeons are more willing or likely to modify to fit the emotional needs of the patient during the visit than male physicians. It is also more likely for patients to show more nonverbal expressions and communication to female surgeons due to their likeliness to show it back. Based on those findings, accommodation appears to have an amplified effect on female surgeons because they are more likely to change and modify their communicative behaviors to become like the patient they are talking to, generally used to relate emotionally. These concepts lead to the following hypotheses and research questions:

Hypotheses

H1: Communication accommodation is significantly different for different types of surgeons.

H2: Patients who have high communication accommodation surgeons will have significantly higher communication satisfaction than patients with low communication accommodation surgeons.

Research Questions

R1: Is there a significant difference between genders and type of communication accommodation?

R2: Is communication accommodation related to communication satisfaction?

CHAPTER III

METHODOLOGY

The methods used for this study were done through survey measures. The population of interest in the study consisted of collegiate athletes' perceptions of their surgeon communication. There were nine fields of surgeons listed in the survey for the participants to choose from with an "other" option for them to fill in if needed. Those surgeons are listed in Table 1. below with a short description of what they do.

Table 1

Types of Surgeons in the Survey

Surgeon	Description
Orthopedic Surgeon	Devoted to the care of musculoskeletal system
Vascular Surgeon	Diseases that affect the arteries and veins
Neurological Surgeon	Diagnoses, evaluation, and treatment of nervous system
Thoracic Surgeon	Pathological conditions of the chest
Plastic Surgeon	Repair, replacement, and reconstruction of defects
Bariatric Surgeon	Procedures performed on people who are obese
Trauma/Critical Care Surgeon	Perform emergency surgeries for critical injury/illness
Colorectal Surgeon	Intestinal tract, colon, rectum, anal canal, & perianal area
Pediatric Surgeon	Diagnoses, preoperative, operative, & postoperative (children)

One of the most prevalent kinds of surgery is orthopedic surgery. It is a broad field with many orthopedics specializing in specific areas with the most common areas being "hands, feet, and sports injuries" (Brennan, 2021, para. 3). Non-orthopedic surgeons are all other surgeons not specialized in bones, ligaments, joints, muscles, and tendons.

Sample

Most participants were solicited from the United States. The participants were made up of collegiate athletes from multiple universities but started at a Midwestern private institution. The initial student-athletes were solicited with email through the private institution's athletic department. The main criteria for qualification to participate was current student-athlete status. The survey used in the study followed a snowball sample, meaning emails were sent primarily to athletes from the Midwestern private institution and relayed to others from them.

The research looked at student-athletes, which is naturally a very resistant sample. A small response was to be expected because of this, but the small sample turned out to find some significant things for orthopedic surgeons. The survey ended up getting 59 total responses, 24 of which could recall specific conversations with surgeons (40.6%). Among the 24 respondents, there was a 100% completion rate. Snowball samples were chosen for comparability and usefulness of data. In this case, it allowed a broader search of other universities which gives a broad spectrum of data to be studied. Snowball sampling is noted for this kind of study because it "is particularly effective in hard-to-reach or 'hidden' populations'" (Dennison et al., 2016, p. 8). This type of survey method tends to be used with hard-to-reach subjects, or where a sufficient sample is most likely not going to be reached (Biernacki & Waldorf, 1981; Frank & Snijders, 1994;). It was decided that this would add to the sample from researchers host institution. Given the above difficulties it was determined that a snowball sample would be the most effective approach.

Table 2*Patient and Surgeon Demographics*

	Participants		Surgeons	
	<i>n</i>	%	<i>n</i>	%
Age				
18-24	44	100		--
Gender				
Male	8	33	24	100
Female	16	67	0	0
Ethnicity				
Pacific Islander	1	4	0	0
African Am.	5	21	1	4
Caucasian	17	71	22	92
Other	1	4	1	4

Instrumentation

An instrument was developed by taking information from two places. The first of those instruments being from an article written by Chevalier et al. (2020) that included a study looking at pharmacy student's self-reported attitudes. Chevalier et al. centered this article around being a CAT-based, longitudinal design that captured attitudes, beliefs, and behaviors about patient communication over time. This article deals specifically with all five strategies from CAT: approximation, discourse management, emotional expression, interpretability, and interpersonal control. The "Cronbach alpha value calculated for this unidimensional scale was 0.93, above the acceptable 0.70 or greater" (p. 122). The items included in the scale from this article were adapted to fit this study. Overall reliability for this scale was also high, $\alpha = .951$. Individual subscale reliability ranged from $\alpha = .866$ to .904. With all these reliabilities being above .7, the reliability is strong. This exceeded the reliability of previous research findings.

The instrument consists of a 7-point Likert-type scale that was taken from the Chevalier et al. (2020) article; wording was changed to fit the view of the patient. The

last two categories in the survey, communication satisfaction and accommodation, come from two different articles. The communication satisfaction survey items come from an article written by Canter et al. (2008) that is measuring communication satisfaction with hotel employees. The employees were presented with a survey asking them about areas of work in which they ranked using the scale. This study aimed to capture efficiency based on communication satisfaction by using a longitudinal design and focusing on the five CAT strategies. Once again, the wording in the items taken from the article was changed to fit the view of a patient. Every main item in the survey had 4 items that fell under it. Each item on the survey followed a 7-point Likert-type scale ranging from: 1 = strongly disagree to 7 = strongly agree. The list of surgeons used comes from a page on the *American College of Surgeons* webpage. This created an instrument that provided information for the following areas: the difference of communication accommodation depending on the field of surgeon, the level of use of communication accommodation and the impact on satisfaction, communication accommodation dependent on the surgeon's gender, and if communication accommodation is related to communication satisfaction.

Data Analysis

This study explored differences between types of surgeons and whether communication accommodation is dependent on the type. This study also looked to further understand if the gender of the physician/surgeon makes a difference with communication accommodation. These two areas of research are important because there is not much research surrounding the two, which means there is a gap in the literature. Additionally, if communication is better accommodated in certain fields of surgeons, this may mean that some athletes are being treated better in the sense that they are receiving

more adequate care. There are times when athletes must visit their surgeon multiple times because of the same injury. Is this because they did not receive the information they were hoping to leave with, or did their surgeon approach the appointment with a more injury-focused mindset, which means the athlete was not able to find everything out? So, one aspect of this study is to find out if certain fields of surgeons do better with covering various parts of an interaction when it comes to the surgeon-patient visit. This is explored through the following areas: discourse management, emotional expression, interpretability, interpersonal control, approximation, communication satisfaction, and accommodation. Although that is a quite extensive list, a surgeon would benefit from greater integration of these things if they were focused both on the patient and the injury. The adequate focus of the surgeon on the patient and injury depending on the type of surgeon is what this study ultimately exploring. This study used several types of analyses due to the research questions and hypotheses and their respective group.

Hypotheses

Hypothesis one, “communication accommodation is significantly different for different fields of surgeons,” came back inconclusive. Almost all the participants selected “orthopedic surgeon” with only three non-orthopedic selected: one “neurological” and two “others.” There were no definitive findings involving differences between fields of surgeons that were examined.

Hypothesis two, “patients with high communication accommodation surgeons will have significantly higher communication satisfaction than patients with low communication accommodation surgeons,” used an Independent Samples *t*-test. The Independent Samples *t*-test for unequal variances was chosen to compare “the means of

two independent groups in order to determine where there is statistical evidence that the associated population means are significantly different” (Kent State University, 2021, para. 1; Reinard, 2008, p. 518). Once the data were collected, a median split, high accommodation was used. Median splits “are a perfectly valid, and extremely useful analytical tool for researchers” (Kardes et al., 2015, p. 690). They are used to “transform a continuous variable into a categorical variable with “‘high’ and ‘low groups”” (DeCoster et al., 2011, p. 198). This means the data were gathered and split down the middle. The data were split at 5.5 with that being the best natural break in the data.

Research Questions

Research question one was, “Is there a significant difference between genders and type of communication accommodation?” Four groups were present within this question: male, female, non-binary/third gender, and other. This question was initially designed to analyze the data in two ways to see if there was significant difference between genders on either side of the interaction. The first way was to look at the gender of the surgeon; however, nobody identified with any other group other than male. The second way was to look at the gender of the patients.

For research question two, “Is communication accommodation related to outcome satisfaction?” a Pearson correlation coefficient was used. An advantage of using this test is that it creates a “rate particularly suitable to evaluate the linear relationship between two continuous variables” (Chicco & Jurman, 2020, p. 5). The range of numbers that were used to determine correlation are: perfectly positive linear correlation (+1), no relationship (0), and perfectly negative linear correlation (-1) (Kent State University, 2021). Chen et al. (2020) state,

a value of +1 implies that X is completely positively linearly correlated to Y . On the other hand, a value of 0 indicates that X is not linearly correlated to Y at all. Finally, a value of -1 implies that X is completely negatively linearly correlated to Y . (p. 1775)

X in this research question was communication accommodation its sub-scales and Y was Outcome satisfaction. The Pearson correlation tested to see if the level communication accommodation was correlated with the outcome satisfaction of patients.

CHAPTER IV

RESULTS

This study proposed two hypotheses and two research questions. All hypotheses and research questions worked towards testing elements of student-athletes' perceptions of surgery communication accommodations.

Hypothesis One: Surgeon Type

Hypothesis 1 was inconclusive due to an insufficient variety in types of surgeons seen by student-athletes. All accommodation means for orthopedic surgeons were higher than the means for the other types of surgeons with the exception of discourse management. The biggest difference was interpersonal control and emotional expression, with non-orthopedic surgeons being marginally higher in discourse management.

Table 3

Fields of Surgeons and Communication Accommodation

	Orthopedic Surgeons		Other Surgeons	
	M	SD	M	SD
Approximation	5.2	0.96	5.16	0.76
Interpretability	5.73	1.07	5.33	1.5
Interpersonal Control	5.5	1.03	5.08	0.62
Discourse Management	5.48	1.43	5.5	0.66
Emotional Expression	5.84	1.21	5.00	0.87

Hypothesis Two: Accommodation and Communication Satisfaction

Hypothesis 2 compared patients with high communication accommodation surgeons compared to patients with less communication accommodating surgeons in

terms of communication satisfaction. This hypothesis was utilized a median split. The means showed that the group of surgeons who had higher accommodation tended to have patients with significantly higher communication satisfaction ($M = 6.61$; $SD = .506$) than the group with lower accommodation ($M = 4.75$; $SD = 1.17$) $t(13.01) = 4.88$, $p = .000$. The means for both groups were in the positive range.

An additional analysis showed that accommodation overall was related with communication satisfaction with $r(22) = .922$ $p < .000$. Furthermore, there were significant values and strong correlations in $r(22) = .766$ $p < .000$ for interpretability and $r(22) = .890$ $p < .000$ for discourse management. Relations between all different types of accommodation ranged from a moderate correlation of $r(22) = .614$ $p < .001$ to a very strong correlation of $r(22) = .922$ $p < .000$.

Table 4

High Communication Accommodation Surgeons versus Low Communication Accommodation Surgeons

	High Comm. Surgeon		Low Comm. Surgeon		t-test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	(d.f.13.01)	<i>p</i>
Comm. Sat.	6.61	0.503	4.75	1.17	4.88	0.000

Research Question One: Accommodation and Gender

Research question 1 looked specifically at gender and type of communication accommodation. There was no variability in surgeon gender with all responses indicating male. The second way this research question examined gender was by the gender of the subjects. When looking at this research by the gender of the subject, there were eight individuals who identified as male and 16 as female. The analysis showed that with communication accommodation, there was no significant difference between male and

female patients in terms of communication accommodation in all areas, with the numbers strikingly similar. The largest difference was in areas of interpretability ($M = 5.73$; $SD = .985$) and interpersonal control ($M = 5.51$; $SD = .985$) with females, $t(13.12) = -.127$, $p = .659$.

Table 5

Patient Gender and Accommodation

	Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Approximation	5.21	1.16	5.18	0.829
Interpretability	5.59	1.37	5.73	0.985
Interpersonal Control	5.31	1.06	5.51	0.985
Discourse Management	5.53	1.22	5.46	1.44
Emotional Expression	5.62	1.34	5.79	1.16

Research Question Two: Communication and Outcome Satisfaction

Research question 2 consisted of two variables, communication accommodation and outcome satisfaction. This research question tested to see if there were any relationships between types of communication accommodation and outcome satisfaction. The research question found no significant relationships either overall or in any of the sub-scales. Despite the outcome of this research question, it is suggested by the data that orthopedic surgeons are doing well with the strategies, but those strategies have no impact on the overall surgery satisfaction for patients.

Table 6*Correlations Between Communication Accommodation and Outcome Satisfaction*

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Comm. Satisfaction	24	5.76	1.28	--						
2. Overall Accommodation	24	5.55	1.01	.922**	--					
3. Outcome Satisfaction	24	5.58	1.44	0.332	0.278	--				
4. Approximation	24	5.20	0.93	0.614**	0.743**	0.211	--			
5. Interpersonal Control	24	5.45	0.99	0.649**	0.837**	0.121	0.660**	--		
6. Interpretability	24	5.69	1.10	0.766**	0.880**	0.188	0.609**	0.672**	--	
7. Emotional Expression	24	5.74	1.21	0.851**	0.941**	0.260	0.608**	0.804**	0.802**	--
8. Discourse Management	24	5.49	1.35	0.890**	0.912**	0.311	0.526**	0.672**	0.766**	.844**

Correlation is significant at the 0.01 level (2-tailed)

CHAPTER V

DISCUSSION

There has been a lack of study in how surgeons specifically accommodate to their student-athletes through communication. The way a surgeon communicates, with listening being involved, is important because it can have effects on both the visit and the rehabilitation of the patient (Boudreau et. al, 2011). It is often thought that communication only affects the appointment interaction and the next few steps that follow, especially surgery, but communication accommodation can help aid in an athlete's healing, or it can hinder the athlete's healing. Studying surgeon communication with their patients is important because it is an area that can have such an amazing impact, but it also has the potential to have a negative one as well.

Research within healthcare can be taken to many new levels to study a variety of things. This study looked specifically at communication accommodation of surgeons with patients, specifically student-athletes. Findings indicated a high level of accommodation among the surgeons studied, contributing to higher communication satisfaction. This finding was robust regardless of gender of patients.

Surgeon Communication Accommodation

Hypothesis one, which looked at the fields of surgery, proved to be inconclusive after collecting data. However, numbers did suggest that orthopedic surgeons, when compared to non-orthopedic surgeons, tend to have higher levels of accommodation with the exception of discourse management. All means were positive, and if this finding

holds, it means that surgeons are contributing to the process of tailoring communication to patients. With the so few non-orthopedics, comparisons can only be speculative. Orthopedic surgeons had higher numbers in all categories but one, suggesting that orthopedic surgeons may be aware of the communication needs of the population they are working with.

The second hypothesis which looked at if patients who have communication accommodation surgeons would have higher communication satisfaction, was supported. Both groups were positively accommodating with mean scores of 6.61 and 4.75 respectively. This suggests that surgeons who focus on communication accommodation will have higher levels of communications satisfaction. As mentioned previously, the use of accommodation by surgeons to the patient's needs is crucial to their healing. Support of the second hypothesis suggests the healing of patients can be elevated by accommodation, and that being more patient-focused leads to more communication satisfaction.

This was true for all sub dimensions with discourse management and emotional expression being at the top of the list. Both strategies feed into the strong relationship range, meaning their correlation was between 0.70 and 0.89 (Boer et al., 2018). Discourse management being at the top of the list means that surgeons who focus on this strategy are focused more on what can be done to fit the entire conversation to the patients' needs. Patients seem more satisfied with surgeons who do what they can to maintain face within the conversation, but also when each person is able to speak in discussion and control the conversation. Emotional expression was the other strategy that came out on the high end in terms of patient communication satisfaction. This strategy may be used when the

surgeon is paying attention to the patient's emotions and doing what they can to comfort them or tailor to their emotional needs. With this strategy being at the top in terms of numbers, it may mean that the surgeons who focus on making their patient feel safe and comfortable to share are the ones that patients have the most satisfaction with.

Approximation and interpersonal control are the two strategies that came out in moderate relationships, a moderate relationship being 0.40 to 0.69 (Boer et al., 2018). Both mean that patients look less for surgeons to make their verbal and nonverbal communication go with or against the conversation. The presence or absence of interpersonal control from a surgeon also had less of an impact on the overall communication satisfaction for the patient; patients seem to be comfortable with the surgeon controlling the conversation. This is good news for orthopedic surgeons because it is something that, if they do personally lack or struggle with doing during visits with patients, it does not impact the overall satisfaction of the patient.

This study suggests some interesting possibilities for the communication accommodation strategies examined. The first being that orthopedic surgeons may be taking part by approximation by converging their communication toward the conversation. This is typically done by adjusting their verbal and nonverbal behaviors to benefit the conversations with patients. The second strategy that was found to be present was interpretability. Student-athletes might be able to understand orthopedic surgeons due to the explanation of things during the appointment. This suggests that the surgeons may be doing a good job of breaking down medical terms or ideas enough for their patients to understand what is being talked about. It also may mean that both people involved can easily communicate and understand one another.

Interpersonal control is another strategy that showed up in the results of this research. This strategy is used when someone is exerting control and dominance in a conversation, and orthopedic surgeons seem to be doing that. It was also found that there was a big significant relationship between interpersonal control and communication satisfaction because patients tend to like this approach by surgeons. This is an interesting find, and it may suggest that majority of patients see the surgeon as the expert and choose to just listen and let them dominate.

The fourth strategy found present from this research is that orthopedic surgeons may be doing all parts of discourse management: topic and content, tenor, and maintaining face while interacting. All these play integral roles in a single interaction, and the use of them by orthopedic surgeons suggests they are paying close attention to all aspects of a conversation. Lastly, it looks like orthopedic surgeons are doing a good job with emotional expressing. The data suggests they may be paying attention to the emotions of their patients and perhaps doing what they can in the moment to help comfort or lessen their emotions. This means the patient may be pleased with the overall communication present during the appointment because of these strategies.

Interestingly this had no significant difference on visit outcome satisfaction between high accommodators ($M = 5.85$, $SD = 1.63$) and low accommodators ($M = 5.27$, $SD = 1.19$). This means that what happened during the interaction may not play a role in the satisfaction of the patient once they have left the appointment. Whether the appointment was good or bad, there was no shift in satisfaction of the outcome.

Gender and Communication Accommodation

A second area looked at in this study was gender. For research question one, the study hoped to capture the effect of gender in both surgeons and patients. The results of the first research question came out somewhat as might have been expected, having all male orthopedic surgeons. While the results were inconclusive regarding surgeon gender, they do suggest a need for diversity. This highlights the findings in previous research that only 6.5 percent of orthopedic surgeons were women (DeMaio, 2019). Both this study and the 2019 study support that there needs to be work done in diversity of orthopedic surgeons (DeMaio, 2019). Having diversity within the orthopedic field will invite “a collaborative and innovative orthopedic community and ultimately to better patient care” (Bytyqui et al., 2020, p. 51). It may also allow for the possibility of different viewpoints on issues, offer different opinions on how to handle appointments or certain situations, and it would allow for patients to choose whether they wanted to visit with a male or female orthopedic surgeon. As mentioned previously, male patients are more likely to share emotional concerns and comments with female physicians (Adams et al., 2009), so seeing the change of more gender diversity in the orthopedic surgery field would allow a chance for patients to choose who they want to talk with.

Adams and her colleagues (2009) have studied the interactions between doctors and patients based on gender. What they found was that in the male patient-male doctor dyad, male patients “may find it difficult to talk to male doctors about emotional agendas but raise them more frequently with female doctors” (p. 353).

This study also examined patient gender. The results showed no significant difference between accommodation of genders. This lack of difference could be due to

the lack of power and small sample size. This may also mean that surgeons are approaching all patients the same regardless of patient gender. What is meant by this is that surgeons may not be going into the appointment with a strategy based solely on the gender of the patient. They may not be thinking that because the patient is a male or female, they need to be talked to or things need to be explained a certain way. Instead, they may be going into each appointment and then adjusting based on what is going on during the conversation.

Those that did identify as female had slightly higher scores for interpretability and interpersonal control during their appointments with surgeons than those who identified as male. Perhaps they understand what is being said better, and the surgeon is exerting more control within the conversation. The two highest areas of accommodation for both males and females were interpretability and emotional expression.

This is an important aspect of a visit because if this finding is accurate, it means that orthopedic surgeons are doing a good job of explaining things within the visit and explaining things clear enough so patients can understand. This finding may also teach orthopedic surgeons that if they are going to have an appointment with a patient, if they focus on interpretability and emotional expression, the visit could go smoothly, and the patient may leave more satisfied and informed.

Communication Accommodation and Outcome Satisfaction

Lastly, research question two found that communication accommodation was not related to outcome satisfaction. The data suggests no significant relationship between communication accommodation and outcome satisfaction for student-athletes. Orthopedic surgeons are still doing good things, and there have been previous studies where a

correlation between the two items does exist. For example, a study done by Gunter, Gurwitz, Mazor et al. found that patients prefer full disclosure from doctors about errors. Doing this results in more physician trust and a more positive emotional response from the patient (Gunter et al., 2004). Bensing (1991) found that nonverbal behaviors such as eye contact and showing interest on the doctor's side of the interaction are the most important factors in determining patient satisfaction. Another study done by Hadac, Polis, and Smith (1981) resulted in positive patient satisfaction when doctors spent time discussing preventive care and greater interview length. Furthermore, Buller and Buller (1991) found that patients were less satisfied with doctors who were more dominant and took a controlling approach towards communication. However, Buller and Buller did deal with a different population, so that may have an impact on why the results differ.

There are a few things that may account for the differences from previous research. The first of those things is that this study was dealing with specifically student-athletes. Student-athletes are unique in the aspect of how their time is spent, making a quick recovery essential. Other health communication accommodation literature does not look at student-athletes which may be why the results differ. Another reason for differences between this study and previous literature is that there was not a time limit set on how long it has been since the student-athlete interacted with their surgeon. The only time constraint was that they still had to be a student-athlete. This may cause for inconsistency when recalling the interactions with surgeons. This study also did have a small sample size, with reduced sample power, which may show in the results.

One thing that is important to note about the outcome satisfaction question of this study is that it was only linked to surgery outcome and not the entire surgery experience

which would include the interaction with the surgeon and the surgery itself. Much of the literature referenced above is looking more at the entire experience and not just the surgery. This may be another reason why results are different between this study and previous findings.

Future Research

Areas of future research that are looking at surgeon communication with patients, need to involve looking into possible differences of communication accommodation with different types of surgeons. This area of research would be interesting to investigate because it may show if different fields of surgeons use the strategies from communication accommodation theory. It may also show if there are fields of surgeons that put more emphasis on some strategies more than other fields, or if there are some fields of surgeons that do not use them at all. This would then allow for the opportunity to compare the different fields of surgeons and know which ones are more patient-focused and which are more fact oriented.

Another similar area of future research that would be interesting to investigate would be how different gendered surgeons use the five accommodation strategies. This research would be the same approach as the different fields of surgeons, but it would suggest how different gendered surgeons approach appointments, and if they think of the strategies in different ways. It might be that male or female surgeons think some strategies are more important than others, or they may think the strategies and accommodating are not important at all. Researching this would allow for insight on how surgeons approach these strategies in appointments because of their gender.

Future research should also think about looking deeper into broader arrays of outcomes that are not dealing with surgery results. This study included a satisfaction question that looked at the satisfaction of the surgery, but more research needs to be done looking into expanded areas such as if the interaction between the patient and the surgeon impacts the entire experience including the surgery and physical therapy. This research would provide the opportunity to know and understand if and why there is any link between the surgeon-patient interaction to other things outside of it. Doing this may give a better understanding of just how impactful communication accommodation of the surgeon can be from the viewpoint of patients.

Lastly, when looking into surgeon communication that involves patients, something that would be helpful to future research would be to shorten the time between the actual visit and when the survey is taken by the patient. This study did not consider that it may have been a year or two since the patient talked with the surgeon which means a senior could have been taking the survey but had their interaction when they were a senior. This would then mean they are more likely answering the survey based on things that may have happened instead of what truly happened. Having a time frame would create more concise data may also result in more accurate data.

Limitations and Conclusions

There were a few limitations that came out when this study was being conducted. The first of these was that the sample was small, contributing to insufficient numbers in the study. This was to be expected because of the population being student-athletes. This may have also contributed to the lack of surgery fields. Similar to the context, the results

came out to be dominantly orthopedic surgeons which did impact some of the other areas of testing within the study.

Another limitation was that the study was looking at the gender of surgeons, but results came to only look at male orthopedic surgeons; no other genders were identified in the study. This may reflect the current demographics of professionals. It also suggests a need for diversity within the field of orthopedics.

This research shows that surgeon communication accommodation does have an impact on the patient in terms of communication satisfaction. This finding alone suggests that surgeons who have a patient-focused style may have more fulfilled patients. The findings were unable to explore gender diversity within the orthopedic surgeon field which may be cause for alarm and is something that requires further investigation. Changes are happening, in terms of gender within the work field, and the field of orthopedic surgeons should see this change as well. Once this change takes place, orthopedic surgeons will not only have the impact of communication, but further diversity in the field will have its own benefits.

In summary, the orthopedic surgeons studied were doing well during appointments with communication accommodation. The findings suggest that they seem to be focusing on their patients while still getting the information out. Interestingly some results suggested that a population of student-athletes may still prefer dominance of the surgeon during the conversations, but those results were not enough to skew or impact the overall results much at all. Emotional expression, interpretability, and discourse management seem to have the strongest relationship with communication satisfaction. If orthopedic surgeons are consistent and have patient-focused appointments, student-

athletes will continue to be satisfied, and will be able to get back to the sport they love and at which they have worked so hard to excel.

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APPENDIX A

Institutional Review Board Approval Letter

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World
Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885



January 4, 2022

Emily Womble
Department of
Communication and Sociology
ACU Box 28156
Abilene Christian University

Dear Emily,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "Communication Accommodation of Surgeons with Student-Athletes", (IRB# 21-198) is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your

work. Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs

APPENDIX B

Mandatory Informed Consent

Read and Click at Bottom to Indicate Voluntary Participation

Principal Investigator

Emily Womble

Abilene Christian University

Address 1600 Campus Court, Abilene, TX 79601

DESCRIPTION OF THE STUDY

If you volunteer to participate in this study, we would ask you to complete a survey evaluating communication accommodation of surgeons during office visits. This study is examining the communication with surgeons, specifically surgeons with athletes, and if surgeons accommodate their communication to the patient.

DURATION OF PARTICIPATION

Survey length varies depending on participants, with most participants being able to complete the survey in 5 to 10 minutes.

RISKS/BENEFITS TO THE PARTICIPANT

This study presents no risks to you. All personal information and/or results from the questionnaires will be anonymous.

There are no foreseen risks associated with this study. If you have any concerns about the risks or benefits of participating in this study, you can contact Emily Womble at eaw15c@acu.edu.

COSTS AND PAYMENTS TO THE PARTICIPANT

There are no costs to you or monetary compensation for participating in this study.

CONFIDENTIALITY AND PRIVACY

The researchers will keep your information, and the results of the tests, confidential. No records with names will be kept unless you choose to provide them. All information obtained in this study is strictly confidential unless disclosure is required by law.

PARTICIPANTS RIGHT TO WITHDRAW FROM THE STUDY

You have the right to refuse to participate in this study or withdraw from it at any time.

You will not lose any legal claims, rights, or remedies by signing this form and by your participation in this research study.

VOLUNTARY CONSENT BY PARTICIPANT

I fully understand the contents of this document and voluntarily consent to participate in the research entitled “Communication Accommodation of Surgeon with Student-Athletes.” If I have any questions in the future about this study or content, you may contact the principal investigator or Seaver IRB Chairperson, Megan Roth. This consent ends at the conclusion of this study. If you have any questions about the PI or study protocols, address questions to Seaver IRB Chairperson, Megan Roth.

By clicking below, I acknowledge that I have read the consent form, I am at least 18 years old, and I voluntarily agree to participate in this research study.

- Yes
- No

APPENDIX C

Participant Communication

Email Sent to Student-Athletes

Hello,

I am very excited to begin conducting my thesis research about surgeon communication accommodation during office visits with patients, dealing specifically with collegiate athletes. If you can take this survey and pass it on to other collegiate athletes you know from other universities, it would be greatly appreciated.

Communication between surgeons and patients can become very complicated and intricate, especially when surgery is involved. Communication plays an important role in the surgeon-patient interaction, and I am wanting to look more in-depth at how well surgeons are communicating with collegiate athletes during visits. You are invited to participate in a study that explores how well surgeons interact with their patient(s).

Taking this survey will give you the opportunity to give input that will help create a better medical experience. The participation time will be ***approximately 15 minutes***.

If you meet the following criteria, you are eligible to participate in this study.

- At least 18 years old
- Is currently a student-athlete
- Have visited a surgeon due to sport-related injury

If you have already taken this survey, thank you for your participation, it is greatly appreciated.

It would also be much appreciated if you would post a link to the survey on your social media to help me gather a larger sample (see Appendix D).

Questions? Contact Emily Womble at eaw15c@acu.edu or the advisor Dr. J.D. Wallace at jd.wallace@acu.edu

Email Sent to Coaches

Hello,

I am very excited to begin conducting my thesis research about surgeon communication accommodation during office visits with patients, dealing specifically with collegiate athletes. If you are able to pass this email on to your athletes and other current collegiate coaches you know from other universities, it would be greatly appreciated; they can be the coach of any sport.

Communication between surgeons and patients can become very complicated and intricate, especially when surgery is involved. Communication plays an important role in the surgeon-patient interaction, and I am wanting to look more in-depth at how well surgeons are communicating with collegiate athletes during visits. I invite you to send this email to your athletes to participate in a study that explores how well surgeons interact with their patient(s). Sending this email to your athletes gives you a helping hand in creating a better experience during office visits with surgeons for your athletes. The participation time will be *approximately 15 minutes*.

If your athletes meet the following criteria, they are eligible to participate in this study.

- At least 18 years old
- Is currently a student-athlete
- Have visited a surgeon due to sport-related injury

Questions? Contact Emily Womble at eaw15c@acu.edu or the advisor Dr. J.D. Wallace at jd.wallace@acu.edu

Sample Social Media Post

A graduate student is trying to gather data regarding surgeon communication accommodation in office visits with collegiate student-athletes. If you meet the criteria below, it will help them out a lot if you click on the link and take the survey. The survey only takes about 5-10 minutes to complete.

Once you have completed the survey, please repost this on one of your social media platforms.

Criteria:

- At least 18 years old
- Was or currently is a collegiate athlete
- Have visited a surgeon due to sport-related injury

Link

APPENDIX D

Athlete Patient Survey

1. Choose your gender. What gender do you identify as?

1. Male
2. Female
3. Non-binary / third gender
4. Prefer not to say

2. What ethnicity are you?

1. American Indian
2. Pacific Islander
3. African American
4. Caucasian
5. Other _____

Think about a surgeon you have the most experience with when it comes to communicating with them. The following questions deal with communication between you and the surgeon you decide on. As you answer the questions, think about communication between you and that surgeon and answer based on those interactions.

3. Choose what gender your surgeon was.

1. Male
2. Female
3. Non-binary / third gender
4. Prefer not to say

4. What kind of surgeon did you see?

1. Orthopedic Surgeon
2. Other

5. If you checked the "Other" option above, please check which category applies to you.

1. Pediatric Surgeon
2. Colorectal Surgeon
3. Plastic Surgeon
4. Thoracic Surgeon
5. Vascular Surgeon
6. Bariatric Surgeon
7. Trauma/Critical Care Surgeon
8. Neurological Surgeon

Discourse Management

6. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Gave me time to process information given to me.
2. Allowed time during the appointment to ask questions.
3. Made an attempt to get me/keep me involved during the appointment.
4. Responded to my nonverbals by asking more questions or clarifying things.

Emotional Expression

7. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Acted in a caring way that made me feel like he/she understood.
2. Spoke respectfully to me.
3. Used both verbal and nonverbal expressions to show they care.
4. Made sure I knew I could contact him/her if I became worried.

Interpretability

8. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Used words that were easy for me to understand.
2. Clarified things that confused me.
3. Attempted to get to know my background a little better to understand.
4. Talked on my level of understanding.

Interpersonal Control

9. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Controlled the conversation.
2. Adjusted their physical position to become on equal level as me.
3. Tried to empower me to take responsibility for my health.
4. Respectfully guided conversations back on topic when necessary.

Approximation

10. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Appeared comfortable speaking on the same level as me.
2. Used expressions he/he knew I could understand.
3. Made a clear effort to speak slowly when I did.
4. Made a clear effort to speed up his/her speech when I did.

Communication Satisfaction

11. Please read each item and select the option that best applies to the communication between you and your surgeon: They . . .

1. Knew and understood the problems faced by me as the patient.
2. Was willing to listen to me.
3. Offered guidance for solving my injury.
4. Communications with me made me feel important during the interaction.

Outcome Satisfaction

12. How satisfied were you with the results of your surgery?