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Physician Nonverbal Immediacy and African American Patient Treatment Adherence Moderated by Gender

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This is to certify that the doctoral dissertation by

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Abstract

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MA, Walden University, 2019

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

Health Psychology

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Abstract

Patient adherence is connected to communication, yet there is a gap in understanding physician nonverbal communication and African American patient adherence with gender discrepancies. The purpose of this study based on the theory of planned behavior was to explore physicians' nonverbal immediacy as a predictor in African American patient adherence to attending appointment, appropriately utilizing medications, and following treatment recommendations, as moderated by gender. Participants (N = 130) were African Americans ages 18 and over who had attended at least one appointment with a healthcare provider in the preceding year. Data were collected through surveys using the nonverbal immediacy scale-observer report, the medication adherence estimator, the treatment adherence perception questionnaire, and appointment adherence rate measured appointment adherence. Multiple regression was used with each of the adherence measures used as dependent variables. Gender, the moderator variable, and nonverbal immediacy were the independent variables for all three regressions. Nonverbal immediacy was found to be positively correlated with following treatment recommendations, appointment attendance, and medication adherence. Female participants were more likely to adhere to treatment adherence than male participants, and female participants were less likely to adhere to appointment attendance and medication use than male participants. The findings help positive social change by filling the gap in cultural understanding of nonverbal immediacy between providers and African American patients and have implications for positive social change by potentially improving African American patients' adherence to prescribed health regimens.

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Dedication

For my son, Thomas, who continues to teach me patience, hard work, and how to pursue my dreams. For my little sister, Ashlei, whose last words to me were how proud she was that I started graduate school. She held unwavering faith that it would be a great and accomplished journey. For my husband, Peter, who encouraged me through every challenge and cheered me on through every success.

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Chapter 1: Introduction to the Study

Introduction

When patients do not follow their treatment plans it places patients' health, life quality, and health of those around them at risk (Levine & Ambady, 2013). Not only does patient nonadherence risk individual health but also implicates community resources and costs. Patients who do not adhere to their treatment plans are more likely to be admitted for previously preventable hospital visits (Bartlett Ellis, 2016). Nonadherent patient hospital readmission has created inflation in healthcare costs. Healthcare costs of one hundred billion occur annually due to these preventable illnesses (Kleinsinger, 2018).

Intervention research has been done to support patients' adherence to their providers' health recommendations. Researchers have found that communication between the provider and patient is crucial. Research shows positive communication between patient and physician can increase adherence in patient treatment (Berman & Chutka, 2016). Positive communication consists of verbal and nonverbal behaviors from providers that foster productive appointments addressing patients' needs (Berman & Chutcka, 2016). This can be demonstrated by fewer interruptions by a provider. Fewer interruptions increase the chance of a more successful health visit where health problems and concerns are addressed (Berman & Chutka, 2016). Also, providers demonstrating they are listening to the patient by displaying nonverbal communication behaviors, such as nodding the head to show understanding and sympathy and maintaining eye contact, ensures patient support (Berman & Chutka, 2016). Although research confirms adherence is connected to communication, there is a gap in understanding physicians' nonverbal

communication and African American patients' adherence to treatment (Collins et al., 2011). Research has also shown there are gender discrepancies within patients' adherence to providers' treatment recommendations (Chou et al., 2018). Studies have shown that African American women are normally less adherent to pain medications than African American men (Yeager et al., 2019). In this study, I explored gender as a moderator variable to determine any potential gender discrepancies existing within treatment plan adherence.

This study provides needed information for positive social change to potentially improve African American patients' adherence to prescribed health regimens. I explored the implications of patient nonadherence. I also provided the implications of social change in the gap of cultural understanding for African American patients. Treatment adherence is defined as the ability for a patient to follow the agreed health plan prescribed by their provider (Anghel, 2019). This consists of but is not limited to (a) properly taking and utilizing medication, (b) performing appropriate lifestyle changes such as dieting, and (c) following the agreed health plan prescribed by their health provider (Anghel, 2019). The purpose of this study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence. These adherences included appointment attendance, medications, and following treatment recommendations.

In this chapter, I review the background of the study, literature related to physician nonverbal immediacy, and the gap in African American patient adherence research. I discuss the research problem and risk to overall health and life quality.

Further, I cover the research design, methodology, and definitions. Finally, in this chapter, I review the assumptions and limitations of this study.

Background

Nonverbal communication is critical to the quality of care that patients receive (Roter et al., 2006). These behaviors during an exchange include, but are not limited to, physical touch, eye contact, and smiling (Bartlett Ellis et al., 2016). These nonverbal behaviors can be used to demonstrate empathy from a provider (Bartlett Ellis et al., 2016). Nonverbal behavior also includes open or closed body language, defined as crossed or uncrossed arms, proximity, and vocal expressions. Vocal expressions include tone, volume, and pitch. More research is needed on the types of nonverbal communication that can improve or negate patient adherence.

Prior to the use of the term *adherence*, the term *patient compliance* was introduced in the 1970s at McMaster University Medical Centre (Vrijens et al., 2012). This term was first coined due to the repercussions on clinical trials when patients were not following their prescribed treatment plans. *Patient noncompliance* was then introduced as an official term through the U.S. National Library of Medicine. However, later research determined that patients' views on their treatment plans and provider relationships influenced their compliance rate (Vrijens et al., 2012). The term *patient adherence* was then coined due to patients' perspective of their relationship with their provider. This term also includes patients' opinions on their treatment plan. *Patient compliance* failed to analyze patients' views on their treatment. *Patient adherence* was used to describe a patients' contribution in determining the best plan of action for their

health. Compliance indicated solely a patient's obedience to follow treatment. In England in 1995, the term *compliance* was replaced with *concordance* (Vrijens et al., 2012). This was defined as patients and providers working together in agreement for a treatment plan. In the United States, the term *patient adherence* was introduced in 1997 by the American Heart Association. This further put a focus on a patient's motivation, understanding, and resources needed to adhere to treatment plans. The communication between provider and patient is crucial for the patient's health.

Medication adherence is the ability for a patient to follow prescribed instructions for their medication (Vrijens et al., 2012). The definition of the term *medication adherence* was developed over time until a three-point system was coined to define a process (Vrijens et al., 2012). This three-point system begins with the first phase of initiation. Initiation is the inception point in which a patient ingests their initial medicinal dose. The second phase is implementation: the patient's ability to appropriately follow a provider's instructions for each dose. This includes from start to finish of their medication intake. The last phase is persistence, which is the amount of time from start to finish of a patient's doses before discontinuing their medication. Researchers found that culture and race have been confirmed to have a role in medication adherence (Xie et al., 2019).

Researchers studied medication adherence in African Americans and found they were less likely to adhere to medication than Caucasians were (Xie et al., 2019). This discrepancy in medication adherence among African American patients requires further research. Research has also been conducted on medication adherence among diabetic,

hypertensive, and hyperlipidemic patients over a course of 2.5 years (Xie et al., 2019). Researchers found that African Americans were 7.5% less likely to adhere to medication intake compared to Caucasians. Similarly, African American patients suffering from heart disease are two to three times more susceptible to disease fatalities than Caucasians are (Ferdinand et al., 2017). These mortality rates are unacceptable because there is no genetic reason for them (Ferdinand et al., 2017). African American patients suffering from heart disease are less likely to adhere to medication intake and treatment plans. In a study of patients with diabetes, African American patients were found 25% less likely to adhere to their medications (Patel et al., 2016). Fatalities of human immunodeficiency virus (HIV) are most prevalent among African Americans (Anderson et al., 2020). African Americans are more likely to not adhere to appointment attendance for health checks. African Americans are also underrepresented in nonverbal immediacy research within healthcare (Collins et al., 2011).

Researchers Collins et al. (2011), analyzed nonverbal communication among medical students toward their patients. The researchers analyzed body language such as head nodding, gestures, facial expressions, and eye contact. However, African American patients were underrepresented. Future research was recommended to be done on African Americans (Collins et al., 2011). The gap in research into African American patients and nonverbal communication from providers and treatment adherence measures is a critical area for further study.

This research on nonverbal immediacy and African American patient adherence is crucial. This research can potentially improve communication that could lead to better

health quality and patient medical adherence. Research has been conducted on nonverbal immediacy and medication adherence. The researchers examined how immediacy behaviors can improve patient medication adherence (Ellis et al., 2016). Researchers also examined provider–patient interventions for medication adherence. The researchers found that nonverbal immediacy promotes patient engagement and openness to discussing medication decisions (Ellis et al., 2016). Researchers found this can lead to patients and physicians making decisions that better promote self-management. This can help in the research needed for African American patients adhering to medical recommendations.

Problem Statement

Patient adherence is the ability for patients to follow the recommendations of their health providers (Zolnierek & Dimatteo, 2009). This includes but is not limited to patient behavior, medication intake, and following the treatment plan. In addition, this can include lifestyle changes that patients and their provider discuss for health recommendations moving forward (Chakrabarti, 2014). The quality of life and health of a patient diminishes when patients do not follow their health providers' recommendations (Levine & Ambady, 2013). Not only does this implicate the health of the patient, but it can implicate the health of those around them (Levine & Ambady, 2013).

There are 125,000 deaths that occur per year that could have been prevented had a patient adhered to treatment (Kleinsinger, 2018). Healthcare costs of $100 billion occur annually due to these preventable illnesses. Researchers agree that public knowledge of the implications of treatment nonadherence is needed to improve patient adherence.

African Americans are at a greater risk of being diagnosed with preventable chronic conditions (Centers for Disease Control and Prevention, 2017). African Americans are also at a greater risk for death from these illnesses. Research is essential for solutions to stop preventable illness in African Americans. There is a higher medication nonadherence in African Americans than in Caucasians (Sun et al., 2020). Research has shown that provider communication is essential to patient adherence.

Communication between providers and patients has been connected to patients' adherence to treatment plans (Collins et al., 2011). However, more research is needed on physician nonverbal immediacy and African American patients. Proper communication from a medical provider is more than just verbal communication. Body language and nonverbal communication consists of eye contact, posture, gestures, facial expressions, and vocal tones (Berman & Chutka, 2016). Nonverbal communication can be used to show patients empathy, encouragement, and understanding. However, this communication can also be used to show patients a lack of care or focus, displeasure, and indignation (Berman & Chutka, 2016).

Elliott et al. (2016) analyzed the verbal and nonverbal interactions between physicians and patients. The researchers examined providers with African American and Caucasian patients in intensive care units. Researchers found that physicians' verbal communication when giving end-of-life care to patients needing similar treatment recommendations was the same between African Americans and Caucasians. However, the nonverbal communication interactions were different. The nonverbal communication used was significantly less when interacting with African Americans. This included

opened or closed postures, meaning crossed arms and arms by the side, the number of times physicians reached out to touch patients in a gesture of comfort, the proximity of distance to the patients, and time spent building rapport. The researchers observed recorded interactions and found that physicians were more likely to close their arms in closed-off postures and would not reach out and touch the patients; physicians stood farther away in proximity (Elliott et al., 2016). These nonverbal cues occurred when physicians were interacting mostly with African American patients (Elliott et al., 2016). Researchers suspected this may contribute to a lack of treatment adherence, increased risk of disease, and higher mortality rate (Elliott et al., 2016). Research confirms adherence is connected to communication. However, more is needed to understand physician nonverbal communication and African American patient adherence to treatment (Collins et al., 2011). Gender has also been researched in patient adherence and discrepancies have been found (Chou et al., 2018).

Global research has shown that women are less likely to adhere and more reluctant to use medication when treating illness than men (Chou et al., 2018). The researchers explained that the expression of pain and adherence to medication within gender is cultural. This lack of adherence can impact patients' life quality (Levine & Ambady, 2013). In a study of patients suffering from hypertension, researchers found that African Americans women with hypertension were less likely to follow medication adherence (Pettey et al., 2016). Medication adherence issues have been reported within many chronic health conditions (Oates et al., 2020). These conditions include cardiovascular disease, hypertension, gastrointestinal disorders, diabetes, and more. Some

health conditions have been reported as preventable had adherence been controlled for (Bartlett Ellis, 2016).

Implications of patient nonadherence have placed a higher healthcare cost and financial stressor on both patients and healthcare facilities (Oates et al., 2020). Treatment nonadherence can disrupt medication therapy, create risks with inconsistent medication usage, and lead to higher mortality rates. Appointment nonadherence creates barriers for patients to receive health information on their prognoses (Nwabuo et al., 2014). Patients are unable to be assessed for condition updates or educated on their treatment by their provider. Appointment nonadherence also creates unnecessary hospitalizations and an increase in chronic illness. More research is needed to improve missed appointment rates as these health implications not only risk the patient, but the community.

Purpose of the Study

The purpose of this quantitative study was to explore physicians' nonverbal immediacy as a predictor in African American patients' (a) adhering to appointment attendance, (b) appropriately utilizing medications, and (c) following treatment recommendations. The research objective was to understand nonverbal immediacy and its connection to treatment plan adherence and the possible benefits it may provide patients. There is research on nonverbal communication among healthcare professionals. However, more research is recommended among the African American patient population (Collins et al., 2011). African Americans are at a greater risk of suffering from preventable chronic illnesses (Centers for Disease Control and Prevention, 2017). Research on gender is recommended to determine potential influences on patient

adherence. Gender can potentially influence African American patients' adherence to following physician's recommendations for treatment (Cuffee et al., 2013). This quantitative study used gender as a moderator. Gender was used to determine if nonverbal immediacy and patient treatment adherence were significant based on gender. Nonverbal immediacy was determined by the nonverbal immediacy scale-observer report (NIS-O; Richmond et al., 2003). This scale has been validated for coding nonverbal communication. The adherence estimator measures patients' medication adherence (Gadkari & McHorney, 2010). Appointment adherence is a scale that measures a patient's ability to attend appointments (Mugavero et al., 2010). This scale is also known as missed visit rate. Treatment adherence was measured with the treatment adherence perception questionnaire (Sanford & Rivers, 2020). The dependent variables were appointment adherence, treatment adherence, and medication adherence. The independent variables were nonverbal immediacy and gender. However, gender was used as a moderator variable. The findings of this study provide needed research to aid in African American treatment adherence and to fill a gap in nonverbal immediacy research.

Research Questions

The research questions and hypotheses were as follows:

RQ1: Does physician nonverbal immediacy correlate with African American patients' adherence to treatment recommendations?

$H_0$1: Nonverbal immediacy does not correlate with African Americans following treatment recommendations.

$H_1$1: Nonverbal immediacy positively correlates with following treatment recommendations.

RQ2: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to treatment recommendations?

$H_0$2: The correlation of physician nonverbal immediacy and patients' adherence to treatment plans is the same in female African Americans and male African Americans.

$H_1$2: Nonverbal immediacy positively correlates with following treatment recommendations more strongly for female African Americans compared to male African Americans.

RQ3: Does physician nonverbal immediacy correlate with African American patients' adherence to appointment attendance?

$H_0$3: Nonverbal immediacy does not correlate with African American patients' adherence to appointment attendance.

$H_1$3: Nonverbal immediacy positively correlates with African American patients' adherence to appointment attendance.

RQ4: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to appointment attendance?

$H_0$4: The correlation of physician nonverbal immediacy and patients' adherence to appointment attendance is the same in female African Americans and male African Americans.

$H_1$4: Nonverbal immediacy positively correlates with adherence to appointment attendance more strongly for female African Americans compared to male African Americans.

RQ5: Does physician nonverbal immediacy correlate with African American patients' medication adherence?

$H_0$5: Nonverbal immediacy does not correlate with African Americans' adherence to medication.

$H_1$5: Nonverbal immediacy does correlate with medication adherence among African Americans.

RQ6: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' medication adherence?

$H_0$6: The correlation of physician nonverbal immediacy and patients' medication adherence is the same in female African Americans and male African Americans.

$H_1$6: Nonverbal immediacy positively correlates with medication adherence more strongly for female African Americans compared to male African Americans.

Theoretical Framework

The foundation of this study was built on the theory of planned behavior. The theory of planned behavior has been largely utilized in research regarding health behaviors and predictions of these behaviors (Conner & Norman, 2017). This theory was

created by Icek Ajzen (Bohon et al., 2016) and is one of the most utilized theories documented in social and behavioral science research (Bosnjak et al., 2020). The theory of planned behavior is made up of behavioral intention, the attitude of the behavior, subjective norm, and perceived control (Bohon et al., 2016). A closer examination of each construct in Chapter 2 provides relevancy for this theory in application to this study.

Behavioral intention is the motivation behind adhering or not adhering to a behavior (Asare, 2015). This is connected to the ease of conducting the task and if any challenges prohibit this action (Peters & Templin, 2010). Medication adherence is connected to patients' behaviors. The theory of planned behavior has been applied in research for patient medication adherence (Lin et al., 2016). The intention is behind a patient's ability to follow medical providers' instruction in taking their medications or following treatment. Any challenges to this task make the motivation behind it harder to adhere to.

Attitude of the behavior examines the individual's agreeability of the behavior. The more they favor the behavior, the more likely they will carry it out (Bosnjak et al., 2020). Patients' perceptions, feelings, and tendency toward the behavior constitute the attitude of the behavior (Peters & Templin, 2010).

Subjective norm is acting on the behavior based on others' opinions and encouragement. The perception that the opinion of someone held in high esteem agrees with the behavior, the more likely a person is to agree with it (Lin et al., 2016). This behavior is a result of social pressure (Asare, 2015).

Lastly, perceived behavior control examines an individual's assessment of the level of difficulty of the behavior. The perceptions of the behavior's challenges or resources to adhering to it (Peters & Templin, 2010). Chapter 2 covers a more in-depth explanation of the theory of planned behavior. The theory of planned behavior examines how participants perceive nonverbal communication and their likeliness of adherence. This aligns with nonverbal immediacy. Nonverbal immediacy examines an individual's perception of how liked they are. This inference is based on another's nonverbal behavior toward them. This perception then influences how interactions are impacted (Ellis et al., 2016). The attitude and beliefs of behavior may be an indicator in certain adherences to health behaviors among African Americans (Walker O'Neal et al.., 2012). The findings of this study may have implications for positive social change in relation to adherence of certain health behaviors among African Americans.

Nature of the Study

A quantitative study was conducted to identify nonverbal immediacy and its influence on treatment plan adherence among African American patients. The patients were those who actively saw their physician in person or via telehealth appointments, at least one to two times per year. SurveyMonkey was used for patients to complete surveys. The inclusion criterion were participants who were age 18 and up; age was entered as an integer. Gender was collected as a moderator variable. Gender was moderated for to determine potential influences on the variables. I examined if gender influenced the relationship between nonverbal immediacy and a patient's adherence to following their treatment plan.

The NIS-O was used to code nonverbal immediacy (Richmond et al., 2003). The adherence estimator was used for medication adherence (Gadkari & McHorney, 2010). Appointment adherence, also known as missed visit rate or missed visit proportion, was used to measure patient's adherence to medical appointments (Mugavero et al., 2010). The treatment adherence perception questionnaire was used to measure treatment adherence (Sanford & Rivers, 2020). Multiple regression was used with each of the adherence measures used as dependent variables. Gender, the moderator variable, and nonverbal immediacy were the independent variables for all three regressions.

Definitions

Body language: Nonverbal nuances seen on an individual such as eye contact, body posture, gestures, and facial expressions (Park & Park, 2018).

Medication adherence: The number of drugs prescribed by a health provider compared to the number of drugs successfully taken by the patient (Morrison et al., 2015).

Nonverbal communication: The social interaction of sending and receiving information to others without the use of vocal expressions (Soukup, 2019).

Nonverbal immediacy: The discernment of how liked an individual appears to another based on their nonverbal communication and how that impacts an individual's response to them (Ellis et al., 2016). Nonverbal immediacy includes but is not limited to the following: (a) removing the physical distance between individuals when interacting, (b) smiling, (c) making eye contact, (d) using hand gestures when speaking,

(e) uncrossing arms, and other nonverbal behaviors that can promote positive interaction and response (Ellis et al., 2016).

Patient adherence: The ability for patients to follow the recommendations of their health provider (Zolnierek & Dimatteo, 2009).

Patient nonadherence: Patients ignoring or misunderstanding medical instructions by their health provider (Martin et al., 2005).

Assumptions

The first assumption of this study was that patients were reporting their usual health behavior during this time. The COVID-19 pandemic occurred during the time of this study. I assumed that, if the participant rarely saw their physician before the pandemic, this behavior was the same. To alleviate this assumption, the survey required that participants have seen their health provider within the past year.

Second, an assumption of this study was in reference to using surveys as a self-reported measure. I assumed participants would respond to the questions in an honest manner. To alleviate dishonesty, instructions were to be honest and participants were ensured their identity would remain anonymous. Ensuring anonymity and having clear instructions of providing honest answers can help mitigate social desirability bias in online studies (Caputo, 2017). Lastly, I assumed all questionaries used provided accurate results based on response measurements. All measurements were found to be valid and reliable measurements of study based on previous research.

Scope and Delimitations

The scope of this quantitative study focused on the overall treatment adherence of African American patients in relation to the nonverbal immediacy of their medical providers. The participants included African American patients who regularly saw their physician at least annually and were ages 18 and over. A delimitation of this study was a patients' access to health providers. This study was performed during the COVID-19 pandemic. Health facilities regulated by virtual appointments needed patient to have access to a computer. A delimitation was in low-income households not having access to this technology. Many health appointments are completed virtually using technology software that allows a provider to meet with the patient through a computer webcam (Wong et al., 2021). A delimitation was patients having access to this technology. In addition, patients needed to understand and have knowledge to download and utilize the software. This further creates barriers for elderly and those with disabilities (Lam et al., 2020). For example, there is a delimitation in accessibility accommodation for those with hearing or visual impairments. Patients with hearing impairments require close captioning, which is not always provided (Lam et al., 2020).

A delimitation for this study is that there are other familiar adherence surveys that have been used in older research; however, they now have legal litigations. I have ensured the survey tools for the adherence variables in this study are valid and reliable. A delimitation for this study was in the amount of literature. Most existing literature on patient adherence has been focused on medication adherence. There is less research on appointment and treatment adherence within the African American population. The

survey questions were written in English. The patients needed to be proficient in literacy to comprehend the questions and respond accurately.

Limitations

The limitations within this study included gaining access to a patient population and collecting the data. The plan to aid in combating this challenge was to create surveys for direct online access using SurveyMonkey. In addition to the patient population, a limitation in doing a quantitative study was having a large enough number of participants. This is to combat generalization of the study and low response rates to surveys. To combat low response rates and gain access to the population, I used SurveyMonkey's targeted participant tool. The targeted participant tool is used to recruit participants to combat low response rates and increase participation in research surveys (Shaver et al. 2019). This aids in gaining access to the population and decreasing low response rates.

A limitation within this study was a participant's normal health behavior changing due to the COVID-19 pandemic. The pandemic was ongoing during the time of this study. More data on health behavior change due to the COVID-19 pandemic is currently needed and remained a limitation of this study (Knell et al., 2020). Subathra et al. (2021) researched patient medication adherence and COVID-19 impact in patients with glaucoma and found the following restrictions increased nonadherence in medication recommendations: (a) lockdown restrictions set in place by their governing region, (b) limited access to transportation, (c) financial hardship, and (d) hospital restrictions due to limitation of service for nonemergency patients.

Telehealth appointments are now widely used as appointment options for patients (Ennis et al. 2021). Studies show that African Americans are less likely to adhere to telehealth appointments due to challenges with access (Ennis et al., 2021). Telehealth appointments are comprised of a patient's access to their provider using video conferencing (Ennis et al., 2021). Visual and audio access gives patients the ability to attend their appointments with their provider without physical access. Research shows African Americans have less access to resources for telehealth appointments, leading to appointment nonadherence (Ennis et al., 2021).

Additionally, a limitation of this study is the gender binary. The research questions asked for female, male, and other participants. However, there is newly discovered research that the gender binary is a social limitation of identifying an individual (Hyde et al., 2019). Gender has become controversial in research as it has been challenged in terminology by neuro and psychological science. Researchers have argued that sex is determined by biological birth attributes, while gender is a sociocultural term chosen by individuals. Future research is still needed in neuro and psychological science to come to a consensus of gender studies in research.

Significance

Research shows that when positive communication occurs between a patient and physician, patients are more likely follow their treatment plans (Berman & Chutka 2016). Positive communication includes (a) open-ended questions, (b) eye contact, (c) facial expressions, (d) gesturing, (e) and body movement (Berman & Chutka 2016). This study's results provide providers with nonverbal immediacy knowledge and the potential

influences for patient adherence. This study provides information needed to potentially improve African American patients' adherence to prescribed health regimens. Improving self-management of health behaviors will help patients improve their life quality (Levine & Ambady, 2013). The results of this study also provide the information needed to address the gap of cultural understanding of nonverbal immediacy between a provider and African American patients. The findings may also help determine if gender influences the connection between nonverbal immediacy and patient adherence to treatment plans.

African Americans are at a high rate of being diagnosed with preventable disease (Ferdinand et al., 2017). African Americans are also at a higher mortality rate for these preventable diseases. This study helps bring knowledge of ways to improve adherence. Nonadherence is a significant factor in these preventable diseases that are leading to mortality (Ferdinand et al., 2017). Nonadherence also leads to increased hospital visits and higher healthcare costs for patients and health facilities. This study could lead to positive social change not just for patients but for the health community. This study provides knowledge that could potentially improve patient adherence and provider communication strategies and lower healthcare costs.

Summary

Patient nonadherence toward health provider's medical recommendations can risk the health and quality of life of patients and those around them (Levine & Ambady, 2013). Patients have been shown to adhere more to their medical plans when there is communication between patient and physician; however, there is a gap in research in

regard to nonverbal communication with African American patients (Collins et al., 2011). Nonverbal communication is critical to the quality of care patients receive (Roter et al., 2006). The purpose of this study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adhering to appointment attendance, appropriately utilizing medications, and following treatment recommendations. This quantitative study used gender as a moderator. The foundation of this study was built on the theory of planned behavior to examine how participants perceive nonverbal communication and their likeliness of adherence. This study provides information needed to potentially improve adherence of medical recommendations from providers for African American patients, which could create positive social change within the community and decrease health risks.

Chapter 2: Literature Review

Introduction

Patients' health and life quality become at risk when there is nonadherence to the proper treatment plan instilled by their physician (Levine & Ambady, 2013). Patients' health and the health of those around them is at risk. Proper adherence to treatment plans, appropriate medication use, and health appointment attendance have been confirmed to be connected to communication between provider and patient (Collins et al., 2011). However, there is a gap in understanding physician nonverbal communication and African American patient adherence to treatment (Collins et al., 2011). Nonverbal communication is critical to the quality of care that patients receive (Roter et al., 2006). More research is needed on how nonverbal immediacy can help patients adhere to the treatment recommendations of their provider (Ellis et al., 2016). Collins et al. (2011) analyzed nonverbal communication among medical students toward their patients. The researchers analyzed body language, such as head nodding, gestures, facial expressions, and eye contact. However, future research was recommended to be done on African American patients due to this population being underrepresented in research (Collins et al., 2011).

The purpose of this quantitative study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence to attending appointments, appropriately utilizing medications, and following treatment recommendations. This quantitative study used gender as a moderator. This study provides information needed to potentially improve African American patients'

adherence to prescribed health regimens. The study also provides information needed to address the gap of cultural understanding of nonverbal immediacy between providers and patients of African American descent. Additionally, the findings could aid in determining if gender influences the connection between nonverbal immediacy and patient adherence to treatment, appointments, and medications.

In this chapter, I examine the literature reviewed for this study. I discuss the search strategy used in this study, including the library databases and search terminology and a review of the theoretical foundation. I review the theory of planned behavior and how this theory relates to this study on physician nonverbal immediacy and African American patient adherence. Additionally, I present how the theory of planned behavior relates to the hypotheses of the study, and the literature review related to the following adherence measures: (a) appointment attendance, (b) appropriately utilizing medications, and (c) following treatment recommendations.

Literature Search Strategy

Multiple databases were used including Walden University Library, PubMed, Google Scholar, and ProQuest. These databases were used in searches leading to scholarly health journals and peer-reviewed health psychology sites. Search terminology within these databases included *patient adherence, patient nonadherence, treatment adherence, medication adherence, appointment adherence, African American patients, nonverbal immediacy, nonverbal communication, physician nonverbal communication, physician nonverbal immediacy, African American patient adherence,* and *African American patients gender moderator*. Citation chaining was done to further find research

related to the topic of physician nonverbal immediacy and African American patient adherence by gender. This was done by finding a recent article and recent past research cited within the article led to more findings. The scope of the literature was originally searched within the past 5 years. The timeframe was expanded through citation chaining when searches yielded little findings. This literature review process included research on the variables appointment attendance, appropriately utilizing medications, and following treatment recommendations. Included in the research was the target audience of African Americans ages 18 years and older. Further research was then done on gender for the purpose to be used as the moderator variable.

Theoretical Foundation

The foundation of this study was built on the theory of planned behavior. The theory of planned behavior has been largely utilized in research regarding health behaviors and predictions of these behaviors (Norman & Conner, 2017). Nonverbal immediacy is the discernment of how liked an individual appears to another based on their nonverbal communication (Ellis et al., 2016). This discernment then impacts an individual's response to them. Patient adherence is a behavior problem and utilizing the theory of planned behavior can be hypothesized to have an influence on adherence (Lin et al., 2016).

Theory of Planned Behavior

The theory of planned behavior was created by Icek Ajzen (Bohon et al., 2016). The theory of planned behavior is made up of three constructs: behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs examine risks and ramifications

of the behavior. Normative beliefs examine the expected behavior outcome of others. These behavioral assumptions are based on societal expectations of behavior, thus a behavior norm. Control beliefs examine potential influences that can hinder the behavior being carried out. These three constructs are then given subconstructs that then further give explanations that influence behavioral outcomes. These include subjective norm, attitude, and perceived control.

First to be examined is subjective norm. Normative beliefs stem from the societal pressures that assume behavior of others, which is then a subjective norm. Subjective norm is acting on a behavior based on the opinions of others. An individual is more likely to adhere to a behavior if someone they hold in high esteem agrees with the behavior (Lin et al., 2016). Conforming to social pressure is a result of subjective norm. Second to be examined is attitude. Behavioral beliefs examine the repercussions of a behavior, associating an attitude toward the behavior that is either agreeable or disagreeable. Attitude is the proportion of attractiveness an individual perceives the behavior is worth (Peters & Templin, 2010). The theory argues a patient's attitude toward a health behavior can also be influenced by social encounters and beliefs (American Psychological Association, n.d.). The behavior is perceived as productive and useful, or the individual deems a negative view of it. Hypothesizing that if a patient deems the health plan productive, there is a higher probability of adhering to it. Third is perceived control. Control beliefs assess elements that can disrupt the action of the behavior, a perception of behavior control. When a nonverbal encounter is received in the way a patient expects, patients felt a more satisfactory visit (Mast & Kadji, 2018).

Behavioral intention argues that the probability that someone will participate in a health behavior is connected to the will of their intention to participate (American Psychological Association, n.d.). This is the motivation behind adhering or not adhering to a behavior (Asare, 2015). This theory has been applied in research for patient adherence (Lin et al., 2016). This theory has been used to argue the probability that a patient will adhere to proper medication-taking is based on their intention and will to adhere to it.

Applications of the Theory of Planned Behavior

The theory of planned behavior is one of the most widely used theories in behavioral and social sciences research (Bosnjak et al., 2020). A research study on African American patients and colorectal cancer was done using the theory of planned behavior (Lucas et al., 2018). At the time of the study, African American patients reported the highest rates and fatalities of colorectal cancer. These high cancer and fatality rates were imputed to be caused from a lack of scheduling screening appointments. The theory of planned behavior was measured in questions that acknowledged the attitudes, normative beliefs, and perceived control of the patients. The measurement of patient attitude was questioned by the idea of screening for colorectal cancer as favorable or unfavorable. Normative beliefs examined societal expectations of behavior. These questions referenced the social pressure to obtain a screening and if others believed they should. Perceived control was examined by questioning a patient's control in the ability to schedule and attend screening appointments. Lin et al. (2016),

hypothesized that the theory of planned behavior could improve medication adherence in patients with epilepsy.

Literature Review Related to Key Variables

Nonverbal Immediacy

Nonverbal immediacy demonstrates behaviors that are a result of an individual's attitude (Ellis et al., 2016). These include behaviors that can be observed, such as making eye contact, gesturing, proximity of closeness, and tone of voice. Nonverbal immediacy within healthcare examines a patient's involvement and engagement in treatment plans offered by their physician. Communication within interpersonal relationships leads to relationship building. Nonverbal communication is essential due to its ability to change or influence a verbal message (Elliot et al., 2016). African American patients have reported a lack of communication in their interactions with health providers. This lack of communication between patients and their providers has been associated with patient nonadherence (Elliot et al., 2016). In a study with physicians and terminally ill patients, physicians were recorded while delivering treatment plans and diagnoses to their patients. Physicians demonstrated similar verbal communication to both Caucasian and African American patients; however, when communicating with African American patients, physicians demonstrated a difference in nonverbal communication (Elliott et al., 2016). Physicians stood further away and used blocking behavior by placing medical charts between themselves and their patient. Physicians did not use physical gestures of comfort, such as touching a patient's arm, when delivering terminal health news to African American patients. This was distinctly different from physicians' nonverbal

behavior with Caucasian patients. With Caucasian patients, physicians stood closer in proximity, offered gestures of comfort, and demonstrated open body language with no clipboards blocking them. Elliott et al. determined these changes in nonverbal communication are associated with African American patient nonadherence.

Treatment Adherence

Adherence to Treatment Recommendations

When patients do not follow their treatment plans, the patients' health, life quality, and the health of those around them are at risk (Levine & Ambady, 2013). Not only does patient nonadherence risk individual health but also implicates community resources and costs. Patients who do not adhere to their treatment plans are more likely to be admitted for previously preventable hospital visits (Bartlett Ellis, 2016). Nonadherent patient hospital readmission has created inflation in healthcare costs. Healthcare costs of $100 billion occur annually due to these preventable illnesses (Kleinsinger, 2018).

Research shows positive communication between patient and physician can increase adherence in patient treatment (Berman & Chutka, 2016). In a study with patients who have swallowing impairments, many with diagnoses of dysphagia, Krekeler et al. (2018) analyzed treatment adherence. The researchers sought to discover if patients follow the treatment recommendations of their medical provider. Researchers reviewed 12 similar adherence studies of patients with swallowing impairments. The range of results in patients adhering to physician recommendations was between 21.9% and 51.9% (Krekeler et al., 2018). Nonadherence of patients resulted in difficulty analyzing how successful treatment measures were and further complications with swallowing. Race

was not explicitly identified in the results of this research to confirm a percentage for African American patients. Due to lack of research on African American patients, study results were researched for all patients.

Appointment Adherence

Appointment adherence, which is also known as missed visit rate or missed visit proportion, is a valid measure of coding patients' adherence to medical appointments (Mugavero et al., 2010). Appointment adherence is measured by totaling the number of missed appointments divided by the total amount of appointments scheduled (Mugavero et al., 2010). When patients miss medical appointments, this lack of adherence puts their health at risk. Patient appointment nonadherence is associated with an increased risk of fatalities and emergency hospital visits (Nwabuo et al., 2014). This is especially true for minority populations, specifically African Americans.

Appointment adherence is crucial for a patient's health. Appointments allow patients to meet with their healthcare provider. During this time with their providers, patients are provided health education of their ailments. During this time, providers prescribe or alter medication prescriptions. Appointments also provide the opportunity of detecting health challenges with an earlier onset diagnosis (Nwabuo et al., 2014). Health interventions have occurred, but appointment nonadherence continues to be a health crisis. To create positive social change and address this issue of appointment nonadherence, additional information is needed to discover further challenges patients experience that discourage adherence to appointments. More research on African American patients and appointment adherence is needed.

Medication Adherence

Medication adherence is the ability for patients to follow their prescriptions guidelines and properly take medications (Ho et al., 2009). This includes not only the initial dosage but continuous dosages, at the correct times, and over the course prescribed by the physician. The risks of patients not adhering to proper medication guidelines risks not only their health, but community costs in healthcare fees (Ho et al., 2009). There is also the risk of patients inadvertently spreading infections and diseases to those around them, due to being left untreated. Researchers studied medication adherence in African Americans and found they were less likely to adhere to medication than Caucasians (Xie et al., 2019). This discrepancy in medication adherence among African American patients requires further research. Research has also been conducted on medication adherence among diabetic, hypertensive, and hyperlipidemic patients over a course of 2.5 years (Xie et al., 2019). African Americans were 7.5% points less likely to adhere to medication intake compared to Caucasians. African American patients suffering from heart disease are less likely to adhere to medication intake and treatment plans. In a study of patients with diabetes, African American patients were found 25% less likely to adhere to their medications (Patel et al., 2016). Patients and physicians actively engaging in communication has increased proper medication adherence (Ho et al., 2009). However, more research is needed on nonverbal communication and African American patient adherence.

Gender

Global research has shown that women are less likely to adhere and more reluctant to use medication when treating illness (Chou et al., 2018). This lack of adherence can impact patients' life quality (Levine & Ambady, 2013). In a study of African American patients with hypertension and medication adherence, female patients were less likely to adhere to medication. However, researchers implied further studies are needed to determine why this discrepancy occurred among genders (Cuffee et al., 2013). Researchers analyzed African American cancer patients' adherence to pain medication, the researchers included both female and male patients. Studies have shown that African American women are normally less adherent to pain medications than African American males (Yeager et al., 2019). Global research has shown that women are less likely to adhere and more reluctant to use medication when treating illness (Chou et al., 2018). The researchers go on to explain that the expression of pain and adherence to medication within gender is cultural. There are negative societal views of men expressing pain in Western culture. Men are more likely to adhere to medication and surcease the pain than opposed to women . Culture and race have a role in medication adherence (Xie et al., 2019). Researchers studied medication adherence in African Americans and found African Americans were less likely to adhere to medication than Caucasians but did not include or moderate for gender (Xie et al., 2019). In a study on patients with diabetes it was found that women were more likely than men to cancel their appointments. However, women were more likely to schedule appointments creating higher attendance adherence than men, yet lower appointment cancelations with men (Mesa, 2018). The

researcher did not control for race and more research is needed within appointment adherence moderated by gender for African Americans.

Research on African American patients with hypertension found that African American women were more likely to adhere to treatment recommendations from their physicians than men (Pettey et al., 2016). Adherence to treatment consisted of attending counseling as recommended by their physician. Women adhered by 13% more than African American men who did not adhere to treatment and lifestyle changes at 0% (Pettey et al., 2016). However, it is important to note that the participants consisted of 15 women, 14 men, and only two of the 15 women adhered to recommendations. This same study found that female African American patients were less likely to take their medications. This created a lower medication adherence than their African American male counterparts (Pettey et al., 2016). The researchers also stated a limitation of this study was that it took place in rural North Carolina. These results differed from older research done on African American populations in New York City (Pettey, 2016). What is consistent with research is that African Americans are among the lowest race to adhere to appointments, treatment, and medication adherence as recommended by their physicians. (Pettey, 2016).

African Americans

A research study on African American patients and colorectal cancer was done using the theory of planned behavior (Lucas et al., 2018). At the time of the study, African American patients reported for the highest rates and fatalities of colorectal cancer. These high cancer and fatality rates were imputed to be caused from a lack of

scheduling screening appointments. African Americans in the study reported a higher perceived control for scheduling appointment screening behavior when treatment recommendations prioritized benefits of doing so. This differed from Caucasian patients whose perceived control was higher when their health providers communicated risks associated with not scheduling and attending screenings. (Lucas et al., 2018). The research demonstrated the critical differences in communication and knowledge of cultural differences for physicians. Researchers reported racism within communication in how physicians communicated treatment recommendations.

A study was conducted on medication adherence and race with African Americans and Caucasians patients with lupus disease (Kai Sun et al., 2020). Low adherence was associated mostly with African American patients. Low adherence was associated with the interaction between the provider and African American patients. Interactions were deemed less compassionate and respectful leading to lower medication adherence among African American patients. Researchers found that African American patients who perceived that they could communicate with their physicians more openly improved their appointment adherence (Greer, 2016). This communication perception included feeling comfortable enough to discuss their health concerns with physicians. African Americans have the highest rate of mortality in cardiovascular disease. Researchers stressed the importance of learning how communication between the physician and patient can influence the likelihood African American patients will return for follow up appointments (Greer, 2016). In patients suffering from acute pulmonary embolism, anticoagulation adherence was measured. African American patients had the

lowest amount of adherence (Merchant et al., 2022). Researchers encouraged further studies to be done to determine the low adherence within African American patients.

Summary

Major themes in literature have demonstrated that a lack of communication exists between African American patients and health providers. Literature has shown that this lack of communication has contributed to patient nonadherence (Elliot et al., 2016). Studies show that positive communication between the patient and physician can increase adherence in patient treatment (Berman & Chutka, 2016). Nonverbal communication has been determined as essential due to its ability to change or influence a verbal message (Elliot et al., 2016). Nonverbal themes such as a lack of physical gestures of comfort, such as touching a patient's arm when delivering terminal health news to African American patients have been reported. Researchers determined this lack of gestures in nonverbal communication are associated with African American patient nonadherence (Elliot et al., 2016). Patient appointment nonadherence is associated with an increased risk of fatalities and emergency hospital visits (Nwabuo et al., 2014). This is especially true for minority populations, specifically, African Americans.

Researchers studied medication adherence in African Americans and found they were less likely to adhere to medication than Caucasians (Xie et al., 2019). However, this discrepancy in medication adherence among African American patients requires further research. Global research has shown that women are less likely to adhere and more reluctant to use medication when treating illness (Chou et al., 2018). However, researchers implied further studies are needed to determine why this discrepancy

occurred among genders (Cuffee et al., 2013). This overall lack of adherence can impact patients' life quality (Levine & Ambady, 2013). Researchers encouraged further studies to be done to determine the low adherence within African American patients. This quantitative study filled the gap in research needed to determine physician nonverbal immediacy and African American patient nonadherence.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence to attending appointments, appropriately utilizing medications, and following treatment recommendations. The findings of this study could have potential implications for positive social change by addressing the gap of cultural understanding regarding nonverbal immediacy between a provider and patients of African American descent. In this chapter, I discuss the research design, variables, connection to the research questions, and how the study advances knowledge in health psychology. The methodology, including sampling procedures, participant recruitment, and data collection, is also reviewed.

Research Design and Rationale

A quantitative study was appropriate for this study. I utilized multiple regression in examining the multiple variables and predicting the outcome of their relationship. A quantitative research design was appropriate for determining if physician nonverbal immediacy correlates to African American patient adherence. The adherences included appointment attendance, appropriately utilizing medication, and following treatment recommendations. I also tested if gender moderated the potential correlation. Gender and nonverbal immediacy were the independent variables for all three regressions. Gender was a moderator variable. The dependent variables were the following adherence measures: (a) appointment attendance, (b) appropriately utilizing medications, and

(c) following treatment recommendations. Multiple regression was used with each of the adherence measures.

Gender information was collected as a moderator variable. A moderator variable is a variable that is quantitative or qualitative and influences the relationship in strength or distance between the independent and dependent variables (Baron & Kenny, 1986). Moderators can be variables such as race, gender, and age and are typically placed on surveys (Mackinnon, 2011). Gender was collected as a moderator variable to determine if gender influences the relationship between nonverbal immediacy and patient adherence to medications, treatment, and appointments.

The participants completed an online survey using the survey tool SurveyMonkey. There were no resource constraints with the research design. The survey included age and gender demographic data and confirmed participants had seen their physician within the last year and that participants were of African American descent. The survey also asked participants the number of scheduled appointments and the amount missed if any. The use of a survey was appropriate to collect participant demographic data and behavior characteristics; surveys have commonly been used in quantitative research to collect participant information (Ponto, 2015). The NIS-O was used to code nonverbal immediacy and was able to determine the nonverbal immediacy of participants' physicians based on observations of the patient (see Richmond et al., 2003). The adherence estimator was used to determine patients' appropriate utilization of medications. The adherence estimator helped determine any potential challenges patients had when taking prescribed medications as determined by their providers (McHorney et

al., 2009). Appointment adherence was used to determine patients' scheduling and keeping of their appointments. Appointment adherence was measured by totaling the number of missed appointments divided by the total amount of appointments scheduled (Mugavero et al., 2010). The treatment adherence perception questionnaire was used to measure treatment adherence, determining if a patient did in fact adhere to the recommendations of their health provider and follow the treatment plan discussed between patient and provider during their appointment (see Sanford & Rivers, 2020).

Research Questions

The research questions and hypotheses were as follows:

RQ1: Does physician nonverbal immediacy correlate with African American patients' adherence to treatment recommendations?

$H_0$1: Nonverbal immediacy does not correlate with African Americans following treatment recommendations.

$H_1$1: Nonverbal immediacy positively correlates with following treatment recommendations.

RQ2: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to treatment recommendations?

$H_0$2: The correlation of physician nonverbal immediacy and patients' adherence to treatment plans is the same in female African Americans and male African Americans.

$H_1$2: Nonverbal immediacy positively correlates with following treatment recommendations more strongly for female African Americans compared to male African Americans.

RQ3: Does physician nonverbal immediacy correlate with African American patients' adherence to appointment attendance?

$H_0$3: Nonverbal immediacy does not correlate with African American patients' adherence to appointment attendance.

$H_1$3: Nonverbal immediacy positively correlates with African American patients' adherence to appointment attendance.

RQ4: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to appointment attendance?

$H_0$4: The correlation of physician nonverbal immediacy and patients' adherence to appointment attendance is the same in female African Americans and male African Americans.

$H_1$4: Nonverbal immediacy positively correlates with adherence to appointment attendance more strongly for female African Americans compared to male African Americans.

RQ5: Does physician nonverbal immediacy correlate with African American patients' medication adherence?

$H_0$5: Nonverbal immediacy does not correlate with African Americans' adherence to medication.

$H_1$5: Nonverbal immediacy does correlate with medication adherence among African Americans.

RQ6: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' medication adherence?

$H_0$6: The correlation of physician nonverbal immediacy and patients' medication adherence is the same in female African Americans and male African Americans.

$H_1$6: Nonverbal immediacy positively correlates with medication adherence more strongly for female African Americans compared to male African Americans.

Methodology

Population

The population of this study was African American patients. The inclusion criterion were participants ages 18 and up. Age was entered as an integer. Participants included patients who actively saw their physician in person or via telehealth appointments at least one to two times per year. I financed a recruiting platform, SurveyMonkey, to gain access to participants. Participants completed an informed consent form gaining permission to complete the study and ensuring that their data would be protected and their identities kept private. Participants were given the option to exit the survey at any time.

Sampling and Sampling Procedures

The analysis software program G*Power was used to determine the appropriate sample size for this study, which was 130 participants. The G*Power analysis program has been widely used by researchers in social and behavioral sciences studies and is

known for conducting power analysis with sample size calculators (Faul et al., 2007). A priori power analyses are used with the alpha level, the number of predictors, power, and effect size to calculate the sample size (Faul et al., 2007). The priori power analysis is a type of statistical test used to calculate a sample size for studies in the early stage before beginning recruitment (Faul et al., 2007).

Procedures for Recruitment, Participation, and Data Collection

Participants were recruited from SurveyMonkey, an online survey tool. Consent was collected, and once given, participants had access to the survey. The survey collected demographic data, such as age and gender, and confirmed the participant had seen their physician within the past year and that the participant was of African American descent. The survey asked for the number of scheduled appointments and the amount missed if any. The Walden University Institutional Review Board (IRB) approved the procedure for data collection and participation recruitment (06-13-23-0752114). Participation data were anonymous and were kept securely on a drive.

Instrumentation and Operationalization of Constructs

The NIS-O was used to code nonverbal immediacy. This system was created to code nonverbal communication and made by Virginia Richmond, James McCrotsky, and Aaron Johnson in 2003 (Richmond et al., 2003). The scale is available in the public domain. The NIS-O was originally developed for teachers and instruction-based communication. The scale has since been further developed and validated for participants' self and observational reporting. The NIS-O was found to be a valid and reliable measurement for coding nonverbal behavior (Richmond et al., 2003). The

immediacy scale was developed from early ideas of the immediacy principle. This principle proposes that people are connected to individuals and things that appeal to them and are then more likely to adhere and participate in the behavior an individual or thing is communicating (Richmond et al., 2003).

There have been many nonverbal communication scales used in research that have been determined as a poor measure of reliability. Research has found that nonverbal communication scales demonstrate high reliability when participants are able to use them as a self-reporting measure (Richmond et al., 2003). The NIS-O has been used as a self-report measure and is conducted on a 5-point Likert scale ranging from *never* to *very often*. This scale was proven valid when used in a neonatal intensive care unit study (Nimbalkar et al., 2018). Physician nonverbal communication with parents of premature or at-risk infants were studied using video audits. The nonverbal scale was determined to be an effective scale in predictive validity for physician nonverbal communication research. The findings support the crucial and immediate need of communication strategies for physicians to develop while providing healthcare.

Adherence Estimator

The adherence estimator is a valid and reliable scale of measurements for medication adherence (Gadkari & McHorney, 2010). The adherence estimator analyzes three items: commitment, concern, and cost. The first item addresses patients' commitments and includes patients' perceptions of the importance of their medication. Second are patients' concern of risks the medication will cause to their current medical state. The last item addresses patients' concerns of out-of-pocket costs for the medication.

This estimator has been used and validated in research for patients suffering from diabetes, osteoporosis, cardiovascular disease, asthma, and other chronic diseases (McHorney et al., 2009). The three-item, 5-point Likert rating scale, is used to determine potential conflicts that prevent patients from taking their medications and is self-reported (McHorney et al., 2009). The method of scoring is determined by placing patient's responses in a high, medium, or low likelihood of adherence. The validity of the adherence estimator has also been tested in studies with chronic diseases and medication adherence, proving to be a valid measure (McHorney, 2009).

Appointment Adherence

Appointment adherence, which is also known as missed visit rate or missed visit proportion, is a valid measure of coding patients' adherence to medical appointments (Mugavero et al., 2010). This measure has been validated in studies with diabetes and hypertension control in patients (Nwabuo et al., 2014). The scale is available in the public domain. Appointment adherence is measured by totaling the number of missed appointments divided by the total amount of appointments scheduled (Mugavero et al., 2010). This was posed as two questions requesting participants to enter the number of appointments they had missed in the past year and the amount scheduled.

Treatment Adherence Perception Questionnaire

The treatment adherence perception questionnaire was used to measure treatment adherence. Treatment adherence is defined as a patient's ability to follow a physician's recommendations for their treatment, including medication taking, lifestyle changes, and appointment attendance (Sanford & Rivers, 2020). This is a valid and reliable

measurement of treatment adherence (Sanford & Rivers, 2020). An assessment of 450 patients with chronic conditions was conducted (Sanford & Rivers, 2020). The patients suffered multiple illnesses, serious, and common conditions (such as obesity, diabetes, hypertension, and high cholesterol). The treatment adherence perception questionnaire was determined a valid instrument in analyzing patients' views on behavior, burdens, and benefits of adherence to their medical treatment plans. Treatment adherence has been measured and determined a valid and reliable measure in patients suffering from hypertension (Garzón & Heredia, 2019). The scale has been used to measure patient adherence to treatment plans for patients with hypertension. Each item on the treatment adherence perception questionnaire was deemed reliable. The scale was validated for use by health professionals and in research to develop treatment plans that assist patients in adhering to healthcare recommendations. The scale is available in the public domain.

Multiple regression was used with each of the adherence measures used as dependent variables. Gender and nonverbal immediacy were the independent variables for all three regressions (gender was a moderator variable).

Threats to Validity

External Validity

Participants were required to complete a consent form which also ensured participants their responses were used solely for research purposes. Once participants accessed the surveys, a threat to validity may include nonresponse bias. Participants in the waiting rooms of hospitals or medical offices may not want to complete surveys during this time, as well as people online through social media. To combat this threat, I

financed targeted advertisements through SurveyMonkey Audience where the targeted research demographic is advertised to their participants (Shaver et al., 2019). Nonresponse bias occurs in survey research when respondents neglect to complete the survey, and this completes a bias different from those who do complete the survey (Davern, 2013). Response bias was another threat to validity, response bias occurs when participants choose not to complete surveys or questionnaires honestly (Mazor et al., 2002). This bias is common in health surveys where patients have been shown to want to be agreeable with what they perceive as the correct answer or be perceived as grateful for any medical services they are able to access (Dunsch, et al., 2018). Ensuring that the participant is aware that the data will be anonymous when reported helps in participants to complete the survey in an honest manner (Murdoch et al., 2014). The data was protected on a drive and identities not shared. This is then reflective of their personal experience, not on what they believe should be a perceived one for research. Social desirability responding is associated with response bias, occurring when participants may be dishonest when responding to questions such as on their health behavior, for fear of social acceptance (Van de Mortel, 2008).

Internal Validity

Internal validity is the discovery of variables that can interfere with research results that are not related to the variables used in the study (Patino & Ferreira, (2018). A threat to internal validity within this study would be historical events. This study measured patients' appointments within the past year. It is impossible to tell if the patients had a prior experience that caused their decision to no longer see their health

provider, follow treatment plans, or access their medications. This study was also done during a pandemic which may have caused an interruption to patients access to healthcare. There is also the historical significance of race within healthcare of African American patients. The historical significance of African American patients in the past having experienced what are now non-ethical procedures provided without consent, and experimentation has created a potential fear and distrust among African American patients (Thomas & Casper, 2019). Racial disparities within healthcare among African Americans continue to exist today resulting in preventable deaths and healthcare access.

The next threat to internal validity was attrition. Attrition is the threat of participants not completing the study which can interfere with results (Barry, 2005). This study entailed multiple surveys, including the treatment adherence perception questionnaire, the adherence estimator, and the nonverbal immediacy scale-observer. The threat of participants not completing all the surveys due to amount can interfere with study results. To combat attrition bias, including an incentive has proven to engage participants in taking and completing research (Barry, 2005).

Nonverbal Immediacy

Nonverbal immediacy is the perception of closeness and attachment an individual determines from the behaviors exhibited during a social communication exchange (Bartlett Ellis et al., 2016). Nonverbal immediacy includes but is not limited to, removing the physical distance between individuals when interacting, smiling, making eye contact, using hand gestures when speaking, uncrossing arms, and other nonverbal behaviors that can promote a positive interaction and response (Ellis et al., 2016). These behaviors all

are perceived in different intentions of communication as demonstrated in the following research examples (Dalonges & Fried, 2016):

- Smiling has been linked to perceptions of trustworthiness and likeability compared to someone who frowns.
- Touching the hand or arm of a patient by their provider has been linked to patients' feelings of closeness and empathy.
- Lack of eye contact from the provider to the patient creates feelings of dehumanization, where the patient does not feel like a person.

Nonverbal communication has been determined to make up more than 90% of communication in determining the perception of closeness within a conversation-(Park & Park, 2018). This demonstrates that a statement can be contradicted based on the nonverbal expression conveyed and perceived (Roter et al, 2006). Expressing a frown on the face towards an individual can be perceived as dissatisfaction, lack of any expression perceived as apathy (Roter et al, 2006).

Immediacy has been studied as a part of communication and formally documented as nonverbal or verbal by social psychologist, Albert Mehrabian in 1966 (Bartlett Ellis et al., 2016). Researchers tested and validated Mehrabian's theory that immediacy behaviors that increased perception of attachments and closeness fostered social engagement, whereas immediacy behaviors that decreased perceptions of attachment and closeness are more likely to create less engagement and withdrawal (Bartlett Ellis et al., 2016). Verbal immediacy explores linguistic code such as word choice, intensity of volume, and pitch. Verbal immediacy was not studied in this study. This is due to previous research

determining physicians delivering similar verbal diagnoses and recommendations to both African American and Caucasian patients, finding discrepancies instead in their nonverbal behavior approach (Bartlett Elliot et al., 2016). Nonverbal immediacy has been widely used to study reciprocal interactions. Researchers Bartlett Ellis et al., 2016 suggest that the implications for research on more studies of nonverbal immediacy between a provider and their patient has the potential to increase a patient's self-management of their medication adherence.

Medication Adherence

Medication adherence is the ability for the patient to follow their health provider's recommendations for proper medication intake (Shyamoli, 2018). Medication nonadherence increases the risks in mortality rate, hospital visits, and quality of life impairment. African Americans are less likely to comply with medication adherence than Caucasians (Shiyanbola, 2018).

In a study on diabetes medications, African Americans were 12% less likely to adhere to their diabetes medication than Caucasians (Shiyanbola, 2018). Intervention to determine causal factors and a plan for medical social change within the African American health community is needed. Determined causes of medication nonadherence are the following but not limited to a lack of communication between the provider and patient, misunderstanding the provider's instructions for how to take medications, and health illiteracy (Shiyanbola, 2018). Prominently within the African American community, medication adherence has been associated with a fear of risks associated with their prescribed medication (Shiyanbola, 2018).

Summary

In this chapter, I summarized the purpose of this study to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence to appointment attendance, appropriately utilizing medications, and following treatment recommendations. The research design consisted of a quantitative study where multiple regression was used in examining the multiple variables. In this chapter, I reviewed the methodology and sampling procedures, where participants completed a survey, and how the sample size was calculated. Recruitment measures were discussed to gain access to the populations, and a review of the instruments used. The results of this quantitative study are reviewed in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence to attending appointments, appropriately utilizing medications, and following treatment recommendations. The study also provides information to address the gap of cultural understanding regarding nonverbal immediacy between providers and patients of African American descent. In this chapter, I discuss the data collection process, including recruitment and response rates, the sample representation, results of the multiple regression analyses, and any challenges with implementation. I examine the collected results of the surveys, which includes descriptive statistics of the samples, statistical assumptions, and figures depicting the results of the surveys.

Research Questions and Hypotheses

The research questions and hypotheses were as follows:

RQ1: Does physician nonverbal immediacy correlate with African American patients' adherence to treatment recommendations?

$H_0$1: Nonverbal immediacy does not correlate with African Americans following treatment recommendations.

$H_1$1: Nonverbal immediacy positively correlates with following treatment recommendations.

RQ2: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to treatment recommendations?

$H_0$2: The correlation of physician nonverbal immediacy and patients' adherence to treatment plans is the same in female African Americans and male African Americans.

$H_1$2: Nonverbal immediacy positively correlates with following treatment recommendations more strongly for female African Americans compared to male African Americans.

RQ3: Does physician nonverbal immediacy correlate with African American patients' adherence to appointment attendance?

$H_0$3: Nonverbal immediacy does not correlate with African American patients' adherence to appointment attendance.

$H_1$3: Nonverbal immediacy positively correlates with African American patients' adherence to appointment attendance.

RQ4: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' adherence to appointment attendance?

$H_0$4: The correlation of physician nonverbal immediacy and patients' adherence to appointment attendance is the same in female African Americans and male African Americans.

$H_1$4: Nonverbal immediacy positively correlates with adherence to appointment attendance more strongly for female African Americans compared to male African Americans.

RQ5: Does physician nonverbal immediacy correlate with African American patients' medication adherence?

$H_0$5: Nonverbal immediacy does not correlate with African Americans' adherence to medication.

$H_1$5: Nonverbal immediacy does correlate with medication adherence among African Americans.

RQ6: Does gender moderate the potential correlation between physician nonverbal immediacy and African American patients' medication adherence?

$H_0$6: The correlation of physician nonverbal immediacy and patients' medication adherence is the same in female African Americans and male African Americans.

$H_1$6: Nonverbal immediacy positively correlates with medication adherence more strongly for female African Americans compared to male African Americans.

Data Collection

The data were collected using the recruiting platform SurveyMonkey. I financed the recruiting tool, SurveyMonkey Audience, to gain access to participants in a quicker timeframe. Initially, only two respondents began the survey and did not finish past the first question; 2 weeks passed with no responses. Upon access to SurveyMonkey Audience, participation for 136 participants was completed within 24 hours with a response to all questions. SurveyMonkey Audience targets participant members who

receive credits, also known as tokens, for every completed survey, which they can choose to redeem. There were no discrepancies in data collection from the plan presented in Chapter 3. The demographic characteristics of the sample population of this study were African American patients ages 18 and up. The genders included female and male: 70.6% of responses were female participants and included a total of 96 responses; 29.4% of responses were male participants and included a total of 40 responses. No participants chose the additional option *other* for gender. This is referenced in the demographic characteristics in Table 1. The majority of participants (33%) were between ages 45 and 60, as demonstrated in the demographic characteristics of Table 2.

Table 1

Gender Demographic Characteristics

Gender	*n*	Percent
Female	96	70.6
Male	40	29.4

Table 2

Age Demographic Characteristics

Age	*n*	Percent
No response	2	1.5
18–29	30	22.1
30–44	37	27.2
45–60	45	33.1
> 60	22	16.2

The participants included patients who actively see their physician in person or via telehealth appointments at least one to two times per year. I ran the gender and nonverbal immediacy variables against all three adherences in SPSS: (a) appointment attendance, (b) appropriately utilizing medications, and (c) following treatment recommendations. This was done by downloading the results from SurveyMonkey into an Excel spreadsheet. I then cleaned the data by removing respondents who did not answer all the questions. Out of 158 participants, 136 participants completed the entire survey. Once data cleaning was done, I adjusted the gender moderator variable by coding it as female = 1 and male = 0. I then coded the questions by assigning a number based on participants' responses to questions. For example, high likelihood for nonadherence is 1, medium likelihood for nonadherence is 2, and low likelihood for nonadherence is 3. I calculated appointment adherence by dividing the number of appointments attended over the last 2 years by the number of appointments scheduled the last 2 years.

I calculated the adherence estimator for medication adherence using the methodology outlined by the scale. This consisted of three questions regarding commitment, cost, and concern. I assigned the corresponding point value to their answers and summed the points. This gave the adherence estimated number that was used in the regression.

Next, I calculated the nonverbal immediacy scale. This included summing the scores from the listed questions on the estimator. I used the instructions from the methodology of this scale to calculate the scale from the responses.

I calculated the treatment adherence perception questionnaire scale for treatment adherence. This consisted of a behavior, benefits, and burden section. I assigned the corresponding point value to their answers and summed the points. The data were then transferred into the SPSS program to perform the regressions.

Results

Treatment Adherence

The first regression examined nonverbal immediacy and gender's effects on treatment adherence. The model demonstrated that change in gender and nonverbal immediacy account for 34.3% of the change in treatment adherence, as demonstrated in Table 3. Nonverbal immediacy was positively correlated with treatment adherence and the relationship was statistically significant as demonstrated in Table 4 (b =.650, p < .001). This supports the alternative hypothesis that nonverbal immediacy positively correlates with following treatment recommendations.

Gender was positively correlated with treatment adherence and the relationship was not statistically significant (b = .47, p = .843). Women were more likely to adhere to treatment adherence than men, supporting the alternative hypothesis. Female patients were represented with a 1 and male patients were represented with 0; the positive correlation can be interpreted as being female increased the treatment adherence score by .47, all else being equal.

Table 3

Treatment Adherence

Model	R	Change statistics

		R square	Adjusted R square	Std. error of the estimate	R square change	F change	df1	df2	Sig. F change
1	.585a	.343	.333	12.419	.343	34.396	2	132	<.001

Table 4

Treatment Adherence Coefficients

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	(Constant)	7.796	7.032		1.109	.270	–6.113	21.706
	Gender	.466	2.345	.014	.199	.843	–4.173	5.104
	Nonverbal immediacy scale	.650	.079	.584	8.265	<.001	.494	.805

Appointment Adherence

The second regression examined nonverbal immediacy and gender's effects on appointment adherence. The model in Table 5 demonstrates that change in gender and nonverbal immediacy account for 7.1% of the change in appointment adherence. Nonverbal immediacy was positively correlated with appointment adherence, and the relationship was statistically significant (b = .008, p = .002). This finding supports the alternative hypothesis. Nonverbal immediacy positively correlates with African American patients' adherence to appointment attendance.

Gender, as demonstrated in Table 6, was negatively correlated with appointment adherence and the relationship was not statistically significant (b = –.01, p = .90).

Women were less likely to adhere to appointment adherence than men. Female participants were represented with a 1, and male participants were represented with 0; the negative correlation can be interpreted as being female decreased appointment adherence score by .01, all else being equal.

Table 5

Appointment Adherence

Model	R	R square	Adjusted R square	Std. error of the estimate	Change statistics				
					R square change	F change	df1	df2	Sig. F change
1	.266a	.071	.056	.403057853317	.071	5.011	2	132	.008

Table 6

Appointment Adherence Coefficients

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	(Constant)	.054	.228		.237	.813	–.397	.505
	Gender	–.010	.076	–.011	–.129	.898	–.160	.141
	Nonverbal immediacy scale	.008	.003	.266	3.165	.002	.003	.013

Medication Adherence

The final regression examined nonverbal immediacy and gender's effects on medication adherence. The model demonstrated in Table 7 that change in gender and nonverbal immediacy accounted for 12.9% of the change in medication adherence. Nonverbal immediacy was negatively correlated with medication adherence and the

relationship was statistically significant (b = -.191, p <.001), as shown in Table 8. Lower values on the medication adherence scale corresponded with higher medication adherence, therefore a negative correlation in this regression was interpreted as higher nonverbal immediacy score correlated with higher medication adherence. This finding supported the alternative hypothesis. Nonverbal immediacy positively correlates with following medication adherence more strongly for female African Americans compared to male African Americans.

Gender was positively correlated with medication adherence and the relationship was not statistically significant (b = 1.946, p = .146). Women were less likely to adhere to medication adherence than men. Women were represented with a 1 and men were represented with 0, the positive correlation can be interpreted as being female increased the medication adherence score by 1.946, all else being equal. This finding supported the alternative hypothesis. Nonverbal immediacy positively correlates with medication adherence more strongly for female African Americans compared to male African Americans

Table 7

Medication Adherence

Model	R	R square	Adjusted R square	Std. error of the estimate	Change statistics				
					R square change	F change	df1	df2	Sig. F change
1	.359a	.129	.116	7.052	.129	9.870	2	133	<.001

Table 8

Medication Adherence Coefficients

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	(Constant)	23.499	3.985		5.897	<.001	15.616	31.381
	Gender	1.946	1.330	.119	1.463	.146	–.684	4.576
	Nonverbal immediacy scale	–.191	.045	–.347	–4.280	<.001	–.279	–.103

Summary

Nonverbal immediacy positively correlated with following treatment recommendations. Females were more likely to adhere to treatment adherence than males. Nonverbal immediacy positively correlated with African American patients' adherence to appointment attendance. Females were less likely to adhere to appointment adherence than males. Nonverbal immediacy positively correlated with following medication adherence. Females were less likely to adhere to medication adherence than males. Chapter 5 discusses the purpose and summarize key findings. The interpretation of the findings are discussed and the relation to the knowledge discussed from the literature review in Chapter 2. The findings are also related to the conceptual framework. Limitations of the study and recommendations for further research are discussed, as well as implications for positive social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to explore physicians' nonverbal immediacy as a predictor in African American patients' adherence to attending appointments, appropriately utilizing medications, and following treatment recommendations. The study also provides the information needed to address the gap of cultural understanding regarding nonverbal immediacy between a provider and patients of African American descent. The findings indicate that nonverbal immediacy positively correlates with following treatment recommendations. The findings indicate that female patients are more likely to adhere to treatment adherence than male patients. Nonverbal immediacy was positively correlated with African American patients' adherence to appointment attendance. The findings indicate that female patients were less likely to adhere to appointment adherence than male patients were. Nonverbal immediacy was positively correlated with following medication adherence. The findings indicate that female patients are less likely to adhere to medication adherence than male patients. In this chapter, I discuss the interpretation of the findings, limitations, and recommendations for further research.

Interpretation of the Findings

The results of this study indicate that nonverbal immediacy positively correlates with following treatment recommendations. Female patients were found to be more likely to adhere to treatment adherence than male patients were among participants in this study. Research on African American patients with hypertension found that African

American women were more likely to adhere to treatment recommendations from their physicians than African American men were (Pettey et al., 2016). These study's results support the findings that women are more likely to adhere to treatment adherence than men. However, it is important to note that the participants consisted of 15 women and 14 men, and only two of the 15 female participants adhered to recommendations (Pettey et al., 2016). This same study found that female African American patients were less likely to take their medications, which created a lower medication adherence than their African American male counterparts (Pettey et al., 2016).

Nonverbal immediacy was found to be positively correlated with African American patients' adherence to appointment attendance. Female patients were less likely to adhere to appointment adherence than male patients. In a study on patients with diabetes, researchers found that women were more likely to adhere to appointment adherence than men (Mesa, 2018). This research did not support the findings that women are less likely to adhere to appointment adherence than men. However, it is important to note that women were more likely than men to cancel their appointments. Contrastingly, women were more likely to schedule appointments, creating higher attendance adherence than men yet lower appointment cancelations among male patients (Mesa, 2018). Mesa (2018) did not control for race, and more research is needed regarding appointment adherence moderated by gender for African Americans.

The findings of this current study indicate that nonverbal immediacy positively correlates with following medication adherence. Female patients were less likely to adhere to medication than male patients were. Global research has shown that women are

less likely to adhere and more reluctant to use medication when treating illness (Chou et al., 2018). In a study of African American patients with hypertension and medication adherence, female patients were less likely to adhere to medication (Cuffee et al., 2013). The researchers explained that the expression of pain and adherence to medication within gender is cultural. There are negative societal views of men expressing pain in Western culture. Men are more likely to adhere to medication and address the pain than women are (Chou et al., 2018).

The foundation of this study was built on the theory of planned behavior. The theory of planned behavior has been largely utilized in research regarding health behaviors and predictions of these behaviors (Conner & Norman, 2017). Nonverbal immediacy is the discernment of how liked an individual appears to another based on their nonverbal communication (Ellis et al., 2016). This discernment then impacts an individual's response to them. Patient adherence is a behavior problem and utilizing the theory of planned behavior can be hypothesized to have an influence on adherence (Lin et al., 2016). The theory argues a patient's attitude toward a health behavior can also be influenced by social encounters and beliefs (American Psychological Association, n.d.). The research findings of this study support the theory of planned behavior. Nonverbal immediacy of the provider was found to influence a patient's likelihood to adhere to following the provider's treatment recommendations.

Limitations

The limitations within this study included gaining access to a patient population and collecting the data. The original plan to aid in combating this challenge was to create

surveys for direct online access using SurveyMonkey. In addition to the patient population, a limitation in doing this quantitative study was having a large enough number of participants. To combat low response rates and gain access to the population, I used SurveyMonkey's targeted participant tool SurveyMonkey Audience. Targeted participant tools are used to recruit participants to combat low response rates and increase participation in research surveys (Shaver et al. 2019). This tool immediately helped gain access to participants in this study.

A limitation within this study was whether participants' normal health behavior changed due to the COVID-19 pandemic. The pandemic was ongoing during the time of this study. More data on health behavior change due to the COVID-19 pandemic is currently needed and remains a limitation of this study (Knell et al., 2020). Telehealth appointments are now widely used as appointment options for patients (Ennis et al. 2021). Studies show that African Americans are less likely to adhere to telehealth appointments due to challenges with access (Ennis et al., 2021). Telehealth appointments are comprised of a patient's access to their provider using video conferencing (Ennis et al., 2021). Visual and audio access gives patients the ability to attend their appointments with their provider without physical access. Research shows African Americans have less access to resources for telehealth appointments, leading to appointment nonadherence (Ennis et al., 2021).

Additionally, a limitation of this study was the gender binary. The research questions asked for female, male, and other participants. Using other as a gender alternative was to remain inclusive; however, there may be more inclusive terminology

needed when including identifying gender options for individuals. There is newly discovered research that the gender binary is a social limitation of identifying an individual (Hyde et al., 2019). Gender has become controversial in research as it has been challenged in terminology by neuro and psychological science. Future research is still needed in neuro and psychological science to come to a consensus of gender studies in research.

An additional limitation to this study was response bias as an external threat to validity. Response bias occurs when participants choose not to complete surveys or questionnaires honestly (Mazor et al., 2002). This bias is common in health surveys where patients have been shown to want to be agreeable with what they perceive as the correct answer (Dunsch et al., 2018). To combat response bias as an external threat to validity, participants were informed that survey responses would be anonymous with no identifying data to discourage response bias. However, there is no way to verify honest responses of anonymous participants.

A limitation that presented as a threat to external validity was nonresponse bias, meaning participants neglected to complete the survey. To combat nonresponse bias, I funded SurveyMonkey Audience to utilize a target audience of SurveyMonkey participant members. Once participants complete a certain amount of surveys and reach a minimum threshold, they receive tokens for their participation from SurveyMonkey. Although a target audience was utilized through a funded platform, there were still responses on the survey that did not include all responses. Data cleaning was completed for item nonresponse.

Lastly, a limitation that occurred was a threat to internal validity, historical events. This study measured patients' appointments within the past year. It is impossible to tell if patients had a prior experience that caused their decision to no longer see their health provider, follow treatment plans, or access their medications. This study was also done during a pandemic, which may have caused an interruption to patients access to healthcare.

Recommendations

Positive social change is needed to discover further challenges African American patients experience that discourage adherence to their physician's recommendations. More research on African American patients and medical adherence is needed. There is limited research on studies of African American patients in following treatment recommendations, appointment attendance, and medication adherence as recommended by their physicians. Researchers also recommend further studies are needed to further determine discrepancy among genders (Cuffee et al., 2013). This study provided the information needed to provide positive social change by improving African American patients' adherence to prescribed health regimens. It explored the implications of patient nonadherence. It also provided the information needed in the gap of cultural understanding for African American patients. The theoretical implications of this study supported the hypothesis that behavior of social interactions can interfere or aid in the action of a patient deciding to follow physician recommendations.

Nonverbal immediacy Recommendations for Physicians and Healthcare Providers

I recommend for practice, educating physicians on the impacts of nonverbal immediacy while interacting with patients. Nonverbal communication can be used to show the patients empathy, encouragement, and understanding. However, this communication can also be used to show patients a lack of care or focus, displeasure, and indignation (Berman & Chutka, 2016). Research has shown nonverbal communication from a physician can be significantly less when interacting with African American patients (Elliott et al., 2016). Physicians are more likely to close their arms in closed-off postures. There is a decrease of comfort gestures such as reaching out and touching the patient when delivering terminal news. Physicians stand farther away in proximity. I recommend physicians are trained on the impact of closed and open body language with all patients. This is demonstrated by having arms by the side rather than arms crossed, practicing gestures of comfort, eye contact, and smiling when appropriate. The physician should remove barriers between themselves and the patient. For example, if the physician is taking notes on a clipboard, the physician should make sure to place it down, make eye contact with the patient to demonstrate they are listening. If a physician is taking notes on the computers, the physician should ensure to still practice open body language. For example, the physician should face toward the patient while they are speaking, make eye contact, and nod their heard to demonstrate they are engaged and listening. I recommend regular and effective unconscious bias trainings for physicians. This is to educate physicians on unconscious bias to prevent nonverbal communication that may discourage patients from treatment.

This current study's results have aligned with previous research that gender significantly correlates with adherence to treatment recommendations from their physicians. I recommend more research to be done on African American female patient nonadherence. Research on gender nonadherence has been done, however more research is needed on the African American population specifically.

I recommend nonadherence of African American patients to be studied on patients who identify as gender nonconforming. This will provide more data to ensure all patients are provided access to support their choice in how they identify as well as providing healthcare providers the information they need in supporting adherence measures for these individuals. I recommend this research on African American patient nonadherence and physician nonverbal immediacy to be done outside of a pandemic. This is to ensure normal health behavior is documented.

Additional Policy Recommendations for Adherence Improvements

I recommend healthcare practices including satisfaction surveys after each visit, with questions specifically including likelihood to follow treatment plan of the provider, follow medication treatment regimen, and appointment follow up. I recommend taking the time to speak with patients who miss appointments. I recommend discussing the importance of appointment adherence and following up on their healthcare needs. I recommend physicians to discuss during visits with patients the implications of not adhering to medication intake and the impact it may have on their overall health. Finally, I recommend when discussing a treatment plan with the patient, to ensure a discussion is had to deter nonadherence. This should be done by taking the time to ask the patient if

they have concerns about the treatment plan, medication, or appointment follow up plan (Kleinsinger, 2010). The physician should also inquire if the patient has any alternative ideas they were considering on their own and discuss those options.

Conclusion

This study determined that physician nonverbal immediacy positively correlates with African American patients following treatment recommendations. Women were more likely to adhere to treatment adherence than men. Nonverbal immediacy positively correlated with African American patients' adherence to appointment attendance. Women were less likely to adhere to appointment adherence than men. Nonverbal immediacy positively correlated with following medication adherence. Women were less likely to adhere to medication adherence than men. Although more research is needed among African American patients, this study has created positive social change in improving adherence measures among African American patients. It also provided positive social change in the gap of cultural understanding of nonverbal immediacy between a provider and African American patients.

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