The Relationship Between Nonverbal Communication and Patient Willingness to Comply in Framed, Low-Risk Medical Settings

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Abstract

This study discusses framing and communication tactics in the medical field. It specifically aims to understand whether expertise and empathetic nonverbal communication impacts patient willingness to comply with physician directives in gain- and loss-framed medical settings. Framing has been studied in many settings, including medical situations, and has been found to impact decision-making. This experiment utilizes college-aged individuals to examine Meningitis, a disease where the most at risk group is college aged young adults. Participants were exposed to one of six conditions to examine whether perceived expertise/empathy in their scenario impacted willingness to comply with the doctor directives. Although no mediation effects were discovered, the presence of nonverbal communication that portrayed expertise, as well as the level of perceived empathy, predicted willingness to comply.

Keywords: framing, nonverbal communication, medical settings, compliance

Introduction

It is easy to view the medical and communication worlds as separate, however they are intertwined and it is important to understand the relationship between these two fields of study. This experiment looked at the intersection of medical practices and communication in order to understand the role that communication practices play in doctor-patient relationships. The goal of this experiment was to understand how decisions are made in medical situations, and which communication aspects, particularly nonverbal communication, impact a patient's willingness to comply. This experiment looked at the relationship between framing, empathetic nonverbal communication, and nonverbal communication that displays expertise, in order to understand how the perceived presence of such communication aspects impact a patient's willingness to comply with physician directives. This study examined the nonverbal communication aspects in both gain- and-loss-framed scenarios in order to understand the potential differences between these two communication styles.

This study utilized college-age individuals (ages 18-25) primarily because the scenarios presented in the online survey questions pertained to the Meningitis vaccine. This selected age group, particularly young adults attending college, are one of the most at-risk groups for this disease (National Meningitis Association, 2017), making the scenarios presented in the study relevant to their lives. This study may help to understand which factors, other than medical and procedural information, impact compliance of the young adults, and, in the long run, help raise awareness of outside factors that may alter compliance in a medical setting.

Framing is a concept that has been deemed an abundant area in mass communication and journalism research (Matthes, 2009), and it can be further explored in many areas, including health communication. As seen in current health communication research, message framing has

the ability to impact an individual's decision-making by changing the manner in which identical information is presented (Gallagher & Updegraff, 2012). The interest of this study lies with the potential relationship between the frame through which a message is presented, the perceived presence of either empathetic or expertise nonverbal communication, and patient willingness to comply with physician directives in a given medical situation. This will help healthcare professionals and public health officials better understand the mindset of college-aged individuals, their decision-making process, and whether or not intentional nonverbal behaviors and frames can encourage positive decision-making in medical settings.

Literature Review

Framing

In communication studies, framing is defined as describing the same object or goal in relation to various points of reference (Kahneman & Tversky, 1982), which can often alter follow-up decisions. Frames are present in every communication interaction. Framing effects are widespread, but often encourage the recipient of the message to focus on certain aspects of the message and minimize the importance of other aspects of the message (Druckman, 2001). Framing effects are important because framing can lead to impulsive decision making patterns, thus violating rational choice theory (Keren, 2012). In other words, the way a message is framed, or formulated, can impact the actions and decisions of the receiver. Stanford researchers demonstrated the framing effect in a recent study where they varied the description of vegetables from basic (the name of the item), health centered (promoting health benefits or lacking unhealthy components of the food item), and indulgent (labeling the food item with descriptive adjectives) and found that, despite the food being prepared and served the same way, individuals

selected the indulgent vegetables 25% to 41% more than the conditions with other descriptions (Park, 2017)

Among the most studied frames are gain and loss frames. A gain-framed messages focus on the positive aspects and loss-framed messages focus on the negative aspects, and both are very common in communication practices (Lee & Aaker, 2004). In a medical setting, a gain-framed message might say something such as "regular exercise can keep your heart healthy," while conveying the importance of exercise in a loss-frame would be stated as "If you don't exercise regularly, you may end up with heart disease" (Tanzi, 2012). Many framing studies, including one by Rothman and Martino (1999), have found that the frames used to provide health-related information to a patient influence the medical decision that is made by the patient. When examining a frame, the two main ways to manipulate it are either by focusing on the benefits that will be obtained (gain-framed) or will not be obtained (loss-framed) or secondly by focusing on the negative outcomes not obtained (gain-framed) or negative outcomes that will be obtained (loss-framed) (Lee & Aaker, 2004).

Many studies examining the differences between gain- and loss-framed messages have found that these frames are persuasive in different settings. The level of perceived risk plays a role in persuasiveness of a frame and one study determined that individuals are risk-seeking when presented with a loss-framed message and risk averse with gain-framed messages (Rothman and Martino, 1999). Although risk does play a role, a meta-analysis on persuasive differences of frames, stated that because loss-framed messages are often more potent, they may have a persuasive ability that gain-framed messages lack (O'Keefe & Jensen, 2006). O'Keefe and Jensen also suggest that gain- and loss-framed messages can be equally persuasive and effective so long as they are used in the correct situation (2006). With regards to medical

settings, research has shown that loss-framed messages are most effective when describing detection efforts and gain-framed messages are most effective when describing prevention tactics (Rothman & Martino, 1999). The research findings demonstrate that different frames are more persuasive in various settings but they also demonstrate that framing does have an effect in that different frames should be used in different settings.

Nonverbal Communication

Similar to framing, nonverbal communication deals with the way a message is presented. Nonverbal messages are an important aspect of communication, and this component is present in many communication interactions. Nonverbal communication, defined as behavior or expressions that, intentionally or unintentionally, convey information and meaning (Burleson, 2003.), has the potential to alter the meaning of a message and the following actions and outcomes. For example, the way someone dresses, one of a wide variety of behaviors considered nonverbal factors, has the ability to add to, subtract, or change an interaction and the meaning attached to a message (Burgoon, Guerrero, & Floyd, 2016). Many outlets, including companies and schools, have recognized the importance of nonverbal communication and have studied how to use nonverbal cues to accurately and effectively represent themselves or their product. Examples of nonverbal cues would include norms such as dress regulations, grooming practices, and artifacts (such as signs or decorations) that are put in place to establish the expected nonverbal messages (Burgoon, Guerrero, & Floyd, 2016).

Researchers argue that the process of verbal communication cannot take place without nonverbal aspects, thus increasing the need for emergence of verbal communication research

combined with nonverbal communication research (Dimatteo, Taranta, Friedman, & Prince, 1980). In the past, nonverbal communication was often measured through a channel reliance research approach, in which nonverbal messages and verbal messages were measured as independent variables, which separately affected the response of an individual. However, this separate variable approach is now considered too simple to measure the response of an individual because there are many factors in addition to verbal and nonverbal cues that may impact an individual's response (Dimatteo, Taranta, Friedman, & Prince, 1980). Looking at how nonverbal messages work with verbal messages, rather than looking at them as separate items, can help us understand how different perceived nonverbal cues affect the message and its meaning. In addition to understanding how verbal and nonverbal messages work together, it is also important to understand how nonverbal cues change and impact communication in medical settings.

Communication in Medical Settings

Communication and the science-based field of health are more connected than it may seem and researchers have stated that communication is a necessary aspect of any beneficial healthcare improvements (Roter & Hall, 2006). Verbal and nonverbal communication are present in medical settings, and it is important to understand how communication tactics may alter the meaning of health-related message. In a medical setting, looking at the various nonverbal cues that are present in doctor-patient interactions, and understanding how these cues may alter the delivered messages, can help us comprehend how nonverbal communication practices may impact a patient's willingness to comply with a medical directive. Looking at how nonverbal

cues could potentially alter a message can help us understand the effect of a doctor's communication practices on a patient's compliance to a medical recommendation.

In an early study by DiMatteo, Taranta, Friedman, and Prince (1980), the specific effects of nonverbal communication in medical settings were identified and they found that patient satisfaction increased in conjunction with the presence of particular nonverbal styles, such as sensitivity to, and expressiveness of, nonverbal and postural cues, which can often display emotion. These styles were described as the ability of the physician to decode body posture, and understand the emotional cues from the patient. For the doctor-patient interaction, this ability is seen as an interpersonal success, and they concluded that, in the future, physicians should hone these skills (DiMatteo, Friedman, Taranta, & Prince, 1980).

Another early study focusing on the intentional postural congruence, or the mirroring of body movements, between counselors and clients focused on obtaining information on whether a client's perceived empathy of the counselor impacted client perception of the counselor and client satisfaction with the meeting (Maurer & Tindall, 1983). The study examined purposeful congruence of head, arm, and leg position during the client-counselor interaction as a display of empathy, and found that the client's perceived presence of these nonverbal cues was correlated with perceived counselor empathy and satisfaction of the interaction (Maurer & Tindall, 1983). This study demonstrated that empathic nonverbal communication can impact the overall impression a client has about the entire interaction between the health care provider (counselor) and patient (client).

In addition to looking at empathy, researchers have also looked at expertise nonverbal communication tactics in conjunction with both loss- and gain-framed messages. In a variation of the famous Milgram experiment, researchers defined a lab coat as a symbol of authority

(McLeod, 2007). Clothing, as mentioned earlier, is a form of nonverbal communication, and thus this lab coat was nonverbally communicating authority to the participants of the study. This study found that when the experimenter was wearing everyday clothes rather than a lab coat, the obedience of the participants dropped 20% (McLeod, 2007). Identifying whether or not perceived empathic and expertise related nonverbal communication can influence willingness to comply in gain- and loss-framed situation helps fill in gaps to further increase understanding of nonverbal communication in medical settings.

Moving Forward

Framing and nonverbal communication have been widely studied and the immense research on these communication subjects has created a large body of knowledge. This existing body of knowledge touches on the importance of nonverbal communication and framing, and the research has shown that both topics can impact perceptions of messages. Framing has been shown to impact decisions, interpretations of messages, and attitudes toward messages (Kerner, 2012). Nonverbal communication has been shown to impact the perceived meaning of a message and can affect outcomes (Burgoon, Guerrero, & Floyd, 2016). The information that is available on these topics is important because it allows communicators in all fields to understand how the presentation of their message impacts following reactions to the message. Further, this knowledge helps to ground research studies, which allows individuals to use verbal and nonverbal communication practices in a purposeful way so their messages have the desired effect.

Research has yielded a significant amount of information on communication topics; however, it is evident that there are gaps in the existing knowledge as it pertains to this study. Although framing, and the effect it has in the medical field, has been studied, existing moderating factors including nonverbal communication, are, for the most part, absent from research. Many studies have found that frames impact the meaning of messages and the actions taken after exposure to such messages, so it is important to study which factors play a role in minimizing framing effects. In addition, usage of framing and communication practices as they relate to college-aged individuals in a medical setting is a unique area of research. Understanding how this age group may be affected by framing is important to help ensure they are able to make the best decision.

Variations across studies range from the context in which information is framed, research of nonverbal communication, and implications from studying varying age groups. Many studies have found that framing does affect a receiver's perception of the message; however, the extent to which framing has an impact and the exact impact is unclear. One reason for the uncertainty about the exact effect of different frames on the perception of a message is that message perception depends not only on the frame but also the context, as different settings have different impacts.

In addition to differences regarding the exact impact framing has, early communication research studied nonverbal and verbal communication as two separate aspects but more recent

research is looking at the two as an intertwined process. For this reason, the direct effects that each type of communication has is difficult to evaluate.

This experiment focused on the effect of gain- and loss-framed messages in a medical context, while at the same time explored the moderating effect of nonverbal communication and the mediating effects of perceived empathic and expertise communication. This experiment examined how intentional empathetic and expertise nonverbal cues used in conjunction with both gain- and loss-frames impacts a patient's willingness to comply. This experiment provided insight into which communication factors, other than the directive, impact decision making in medical situations. The impact of various frames and nonverbal tactics was measured by comparing the subject's willingness to comply in different scenarios that contain the cues.

Specifically, two mediation hypotheses were tested:

H1: Empathic nonverbal communication positively influences the perception of empathy which increases willingness to comply.

H2: Expertise nonverbal communication positively influences the perception of expertise which increases willingness to comply.

The following moderation hypotheses were also tested:

H3: Gain-framed messages and empathic nonverbal communication will interact to positively influence willingness to comply.

H4: Gain-framed messages and expertise nonverbal communication will interact to positively influence willingness to comply.

H5: Loss-framed messages and empathic nonverbal communication will interact to negatively influence willingness to comply.

H6: Loss-framed messages and expertise nonverbal communication will interact to negatively influence willingness to comply.

Hypothesis Rationale

As stated in H3, a gain-framed scenario with empathic nonverbal cues will likely increase willingness to comply because gain frame messages are known to be more persuasive in prevention methods, and having a feeling understood will increase willingness to comply. As stated in H4, a gain-framed scenario with nonverbal cues that display expertise or power will likely increase willingness to comply because the research shows that perception of expertise increases the likelihood of compliance, and the lab coat is a strong symbol of expertise. As stated in H5 and H6, a loss-framed scenario with empathic nonverbal cues or a loss-framed scenario with nonverbal cues that display expertise will decrease willingness to comply because individuals are more risk-seeking in loss frame scenarios. Empathy might make participants feel hopeless, because too much empathy can make people uneasy, and will then take larger risks. Since they are already more likely to take risks, expertise in a loss-framed scenario might encourage participants to challenge the doctor.

Procedures/Methods

Subjects

For this research, the population of interest was college-aged individuals (ages 18-25). In order to reach the desired population, online surveys were circulated to a convenience sample of undergraduate students in lower and upper division communication classes at a large university on the California's central coast. This resulted in 156 of responses.

Within the sample, all of the colleges within the university were represented, however the College of Liberal Arts represented 51.3% of the responses. In terms of gender, 40.4% identified as male, 58.3% identified as female, and 1.3% identified as other. The most common age for participants was 18-19 (53.2%), followed by ages 20-21 (39.1%). Of the participants, 69.2% identified as white, 12.2% identified as Asian, 12.2% identified as Latino/a, 5.1% identified as other, 0.6% identified as African American, and 0.6% identified as Native American. The subjects were randomly assigned to read one of six scenarios. Although the data are not generalizable, the sample is pertinent to age demographic of interest and thus can provide useful information on communicating with college age students in medical settings.

Procedure

This experiment took place in October of 2017. There was no monetary reward or compensation for participation in the online survey, however, at the discretion of professors, extra credit was offered for participation. If extra credit was offered, the personal data collected did not interfere with the confidentiality of the responses as the personal information was collected through a survey that was not connected to the online actual experimental procedure. The online survey took approximately seven (7) minutes and was circulated to students. The link to the online survey opened up to the informed consent page, which each participant agreed to before continuing with the online experimental scenarios and questions. These questions were designed to understand how willingness to comply is related to the frames and nonverbal cues that were presented in each scenario.

After agreeing to participate, the subjects answered questions that asked about demographic information, and were then exposed to information on Meningitis, which came from the U.S. Centers for Disease Control. Then, the subjects were randomly assigned to one of

six scenarios (see appendix 1) that described a low risk medical situation between doctor and patient. The six different scenarios had the same message but different frames and nonverbal cues. Conditions 1-3 employed a gain-framed message. The second had empathic nonverbal cues, in the form of close proximity, a smile, and a touch on the knee, and the third had expertise nonverbal cues, in the form of a lab coat (these were absent from the first condition). Conditions 4-6 employed a loss-framed message. The fifth condition had the empathic nonverbal cues from Condition 2 and the sixth had the expertise nonverbal cues used in Condition 3. Condition 1 had 30 participants (19.2%), Condition 2 had 32 participants (20.5%), Condition 3 had 26 participants (16.7%), Condition 4 had 23 participants (14.7%), Condition 5 had 19 participants (12.2%), and Condition 6 had 26 participants (16.7%). Three question sets that measured perceived empathy, perceived expertise, and willingness to comply (see appendix 2) followed, and the subjects had the ability to read the scenario while answering each set of questions. The participant's willingness to comply was the main outcome of interest, while the perceived presence of empathic or expertise nonverbal cues mediated impact on compliance with the various frames acted as moderators. The willingness to comply to the doctor advice in each scenario was compared to gain insight into which nonverbal cues and frames are most persuasive in this type of setting.

Upon completion of the online survey, the participant submitted their responses, and were thanked for participating. Following, the participants were lead to a different page where they could fill out personal information to receive extra credit, if it was offered.

Instrumentation/Measurements

Willingness to Comply. After being randomly assigned to one of the scenarios, subjects read the scenario and answered questions determining their willingness to comply with doctor

advice. The questions regarding willingness to comply were derived from a reliable and valid measure. Willingness to comply was measured using Burrough's four-item semantic differential scale (2007) using a 0-6 response option. The differentials in this scale are willing/unwilling, probably/improbably, likely/unlikely, and would/would not. This scale has been used in multiple research studies, with high validity and reliability.

Empathy Scale. In each of the six scenarios, the subject's perception of empathy was measured. This was done so with a slightly modified version of the Jefferson Scale of Patient Perceptions of Physician Empathy. This is a five item scale, measured on a seven point Likert Scale, from strongly disagree (1) to strongly agree (7) that has been used in multiple studies to understand the extent to which patients perceive empathy from their physician. The items on this scale are my doctor (1) understands my emotions, feelings, and concerns, (2) seems concerned about me and my family, (3) can view things from my perspective (see things as I see them), (4) asks about what is happening in my life, and (5) is an understanding doctor. For this study, a slight modification was made to item number two, changing it to "seems concerned about me and my well-being". This small modification made the questions more applicable to the participants who took the online survey, however it did not change the meaning of the question or the reliability of the measure.

Expertise. After reading through one of the six scenarios, the subjects answered questions regarding the perceived level of expertise of the doctor in their scenario. These six items were in a 7-point semantic differential form. The differentials are trustworthy/untrustworthy, good/bad, open-minded/close-minded, trained/untrained, experienced/inexperienced, and expert/not expert. These semantic differential items have been used in many studies, including one by Harmon and Coney, which was published in the Journal

of Marketing Research in 1982. These semantic differential items originally came from Berlo, Lemert, and Mertz (1969-70).

Analysis

Analyses started with reliability tests. Further analyses focused on understanding the differences between perceived expertise, perceived empathy, and willingness to comply in the various conditions. Preliminary analyses were done primarily for data exploration and the most important analysis was that of moderated mediation. In order to examine this, Model 14 of Andrew F. Hayes PROCESS macro was computed. This was used to examine the mediating effect that perceived nonverbal communication had between the presence of nonverbal communication and willingness to comply, as well as whether the framing of the message acted as a moderator in this relationship. Follow-up t-tests were also used to further explore differences across conditions.

Results

Cronbach's alpha was used to compute reliability across measures of the willingness to comply, perceived empathy, and perceived expertise measures. In this study, Burrough's four-item semantic differential measuring willingness to comply was highly reliable ($\alpha = 0.96$). The modified version of the Jefferson Scale of Patient Perceptions of Physician Empathy that was used in this study had a reliability of $\alpha = 0.89$. Finally, the six item semantic differentials that measured perceived expertise had a reliability of $\alpha = 0.90$. These measures were thus combined into three separate scale-level variables for analyses of moderated mediation. The average perceived expertise, perceived empathy, and willingness to comply were compared for each of the six conditions and were recorded in Table 1.

This study was looking at the possibility of a mediating effect for perceptions of nonverbal communication as well as the moderating effect that framing might have on the relationship between perceived nonverbal communication and willingness to comply. Due to the nature of this study, a model for moderated mediation was tested to determine the relationship between these variables. Before running Model 14, I initially ran Model 4, a basic mediation model, which was not significant. I then ran Model 14 to understand the relationship between nonverbal expertise, perceived expertise, and willingness to comply, and the role that framing had in this association.

The moderated-mediation model that was run on expertise is displayed in Figure 1. The relationship between nonverbal expertise and perceived expertise was not significant. Perceived expertise was not found to be a mediator, however it did have a direct positive effect on willingness to comply. The presence of nonverbal expertise (whether it was perceived or not) also had a positive effect on willingness to comply. Framing had a direct, negative effect on willingness to comply, and framing with perceived empathy had a positive moderating effect.

I then ran a second mediation model to understand the relationship between nonverbal empathy, perceived empathy, framing, and willingness to comply. The moderated-mediation model that was run on empathy is displayed in Figure 2. The relationship between nonverbal empathy and perceived empathy as well as the relationship between the presence of nonverbal empathy and willingness to comply were insignificant. Perceived empathy did not act as a mediator between nonverbal empathy and willingness to comply. Perceived empathy had a positive effect on willingness to comply.

The results of the above models indicate that framing in relation to expertise had an impact but not in relation to empathy. To explore these effects further, I ran follow-up t-test to

examine the effect of gain- and loss-frames on expertise and empathy. I first ran a t-test to compare the perceived expertise between gain and loss conditions (Ngain=88, Nloss=68). This test found that those given gain-framed scenarios had an average perceived expertise of 5.62, while those in given loss-framed scenarios had an average perceived expertise of 5.2, $t = 2.67$, $p < .01$. This same test to determine the difference in perceived empathy for gain vs. loss conditions (Ngain=88, Nloss=68)) suggested exactly the opposite. The average perceived empathy for those given a gain-framed scenario was 4.17 and the average perceived empathy for those given a loss-framed scenario was 4.55, $t = -1.77$, $p = .08$. These t-tests indicate that while nonverbal communication that conveys expertise may be important for gain-framed message, nonverbal communication that conveys empathy may be important for loss-framed message.

Discussion

This experiment set out to test whether perceived empathic or perceived expertise as well as message framing impacts the willingness to comply of a patient in a medical setting. The data collected can provide meaningful information on the importance of communication practices in doctor-patient interactions.

Although the Anova tests determined that the difference in perceived empathy, perceived expertise, and willingness to comply between the six conditions was not statistically significant, there is interesting information from the means displayed in Table 1. It is interesting to note that condition 1, the gain-framed scenario with no purposeful nonverbal cues, had the highest levels of perceived expertise, but also, the lowest willingness to comply. Condition 3, the gain-framed scenario with nonverbal cues that displayed expertise, had the lowest perceived empathy, but also the highest willingness to comply. This supports H4, which states that gain-framed messages with expertise nonverbal cues will work to increase willingness to comply. The data

suggests that presence of nonverbal communication does not correlate with the perception of said nonverbal communication, and therefore it is important to be aware of how behaviors can be perceived so that the sender of a message has a full comprehension of what information could be received. Condition 5, the loss-framed scenario with empathic nonverbal cues, had the lowest perceived expertise and the highest perceived empathy. This supports H1 which states that empathic cues will positively impact perception of empathy, however, statistical tests showed that this relationship was not significant. This demonstrates that when preparing a message with the aims of patient compliance, empathic communication practices should not be the focus. H2, which stated that nonverbal cues displaying expertise would increase the perception of expertise was not supported.

The correlation test found that perceived expertise and willingness to comply were positively correlated, $r = .55$, $p < .01$. A correlation test also found perceived empathy and willingness to comply were positively correlated, $r = .26$, $p < .01$. In this study, the correlation between perceived expertise and willingness to comply was larger than the correlation between perceived empathy and willingness to comply. This hints at the idea that expertise may be more valued than empathy when deciding whether to comply with doctor directives. In other words, we want our doctor to know what they are talking about and be able to trust their advice, and there are often other individuals in a patient's life who can provide empathy.

The moderated mediation model demonstrated that there was no mediation effect; however, it gave insights into the interesting relationships that exist between the variables in this study. An interesting relationship was demonstrated with the data that showed that it was not the presence of empathy or expertise, but rather the perception of these variables, that influenced willingness to comply. The positive correlation between these variables and willingness to

comply demonstrates how important a patient's perception of their doctor is when following doctor directives. The results from the mediation test demonstrates that how something is said can be more important than what is said. Many past studies have found the importance of nonverbal communication, and this study may help to emphasize that importance in a medical setting. Further, this moderated mediation model found that frame of a message had a significant relationship with willingness to comply when paired with expertise, but not when paired with empathy, which suggests that although framing is important, its importance may be limited by the other contextual factors. This does not support H3 which stated that gain-framed messages with empathy would increase willingness to comply. Since frame did not have an effect with empathic cues, H5 was also not supported. H6, which states that loss-framed messages with expertise would negatively correlated to willingness to comply was supported because Condition 3 (gain-framed with expertise) had a higher willingness to comply than Condition 6 (loss-framed with expertise). In other words, although it may have effects, the way a message is framed is not the ultimate determinant of impact and persuasive effects. This moderated mediation model gave data that suggest that although framing has a real impact, it should be considered in relation to other communication variables that are present.

The t-test confirmed the idea that empathy and expertise are perceived differently in different frames. Perceived expertise was significantly higher in the gain-framed scenarios than in the loss-framed scenarios, and, at a moderately significant level, perceived empathy was higher in the loss-framed scenarios than in the gain-framed scenarios. The results from the t-test further emphasize the idea that framing is important and does have an effect but only in certain scenarios. The findings from the t-test enhance the data from the mediation model, and reveal interesting information about the influence of various communication variables in different

settings. This confirms the idea that individuals sending messages should be aware of how they are saying it so that they can effectively pair framing with nonverbal practices. This data also suggests that empathy may be more desired when relaying negative information than positive information which can help to guide communication practices in carious frames.

Limitations

Although this study yielded interesting results, there were limitations that interrupt the generalizability of these findings. The small sample size that lacked diversity was one large limitation of this study. Having a larger sample size with more diversity in age, racial and ethnic background, and field of study would have been ideal, however, was hard to achieve given the short time frame in which the study took place. The sample that was obtained was a convenience sample, which is one limitation of the data that resulted from this study. The sample in this study was not representative of the entire college-aged population because the individuals who participated were not randomly selected. All of the participants were college students on the central coast of California, which makes it hard to generalize this data to a different age group or to those of the same age group who are not attending college and may have different mindsets.

In addition to demographic issues, the wording of the prompts, as well as the medical topic prevent generalizability. The scenarios were all written with the doctor recommending that an action be taken. This did provide interesting data, however, individuals react and process differently when told to do something rather than told not to do something, therefore, generalizing outside of a “do this” command would be hard. The topic, meningitis, really only applies to college students, so it was a good topic for the participants but is not relatable to other groups.

Based on the results, it can be interpreted that the empathic nonverbal communication was not as obvious as the expertise related nonverbal communication, and thus might not have been perceived. The empathic nonverbal cues may have been too subtle in these scenarios, and should have been made more obvious so that the effect could really be noticed and interpreted.

In order to avoid race, age, and other demographic biases, I made a conscious choice to use scenarios that the participants read rather than videos or live doctors. This choice was deliberate and beneficial in some aspects, however, it makes it hard to generalize as interpersonal interactions can lead to different thought processes and decisions than simply reading information. Furthermore, many doctor-patient interactions are face-to-face rather than read, and therefore, although the scenarios discussed a real medical situation, they did not entirely reflect real life.

Further Research

This experiment looked at the effects of expertise and empathy separately. Further research should examine how the perception of empathy and the perception of expertise work together to impact willingness to comply. Understanding how nonverbal cues work together, as well as individually, is important because it is unlikely that the nonverbal cues used send only one message to the receiver. Specifically, in relation to medical settings, it is very common for a doctor to wear a lab coat and smile at the patient, however, in this experiment, the two were strictly separated.

In addition, it was hypothesized that the presence of nonverbal cues that displayed either empathy or expertise would positively correlate to the perception of either empathy or expertise. This hypothesis was not supported, thus the presence of nonverbal communication did not correlate to the perception of either expertise or empathy. Further research should look at what

factors positively correlate with either the perception of empathy or the perception of expertise. The perception of expertise and the perception of empathy were both positively correlated with willingness to comply, so understanding what leads to these perceptions would be useful to help doctors learn how to gain compliance.

Conclusion

Although it was hypothesized that a mediation effect would occur and it did not, there is still valuable information that can be taken from this study. The value that is placed on perceived expertise in determining willingness to comply is important to note because it can allow for doctors giving directions to be aware of what is persuasive and what is not. Further, it can ensure that the way doctors present themselves does not take advantage of the power that having expertise gives them. Being aware of this provides the opportunity to be more mindful and make an educated decision of when to wear the lab coat and in what interactions to leave it off. The importance of framing with expertise but not with empathy indicates the complex relationship between communication practices and again gives the opportunity for mindful communication.

Many of these variables have been studied on their own or in some relation to one another, but it is important to recognize that these variables interact with each other in a variety of settings, including the medical world. Framing and nonverbal communication cues are important and they can influence willingness to comply in medical situations, which is important to recognize. It is possible that combining doctor directives with the communication world could yield a better doctor-patient interaction. Although this experiment was small scale and the exact numbers have limited generalizability, the main research focus can be generalized, and it does demonstrate the importance of creating a medical world that values findings from communication research.

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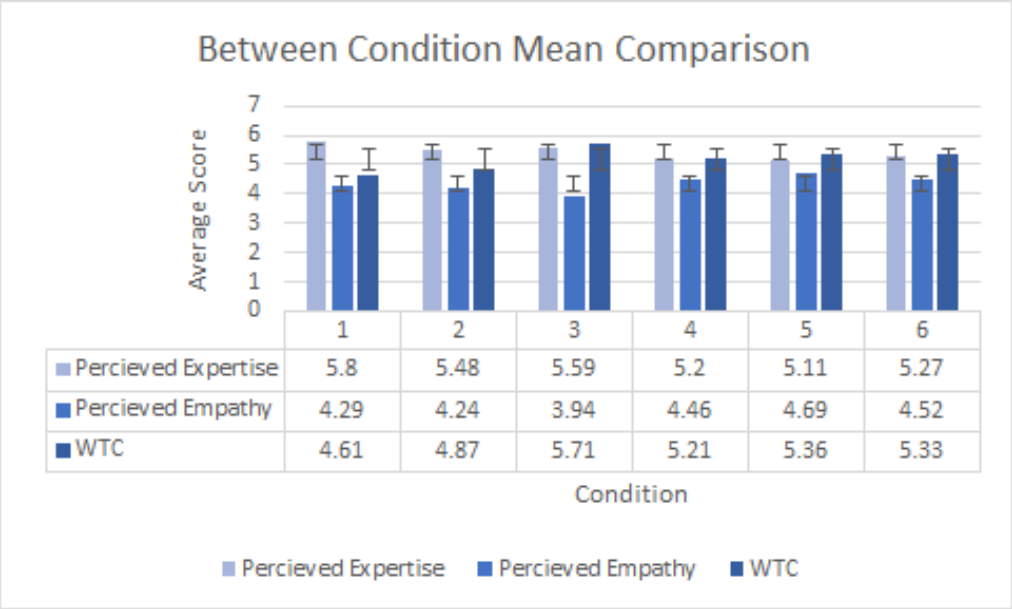
Table 1


Between Condition Mean Comparison
Average Score
7
6
5
4
3
2
1
0
1
2
3
4
5
6
Percieved Expertise 5.8 5.48 5.59 5.2 5.11 5.27
Percieved Empathy 4.29 4.24 3.94 4.46 4.69 4.52
WTC 4.61 4.87 5.71 5.21 5.36 5.33
Condition
Percieved Expertise
Percieved Empathy
WTC

Figures

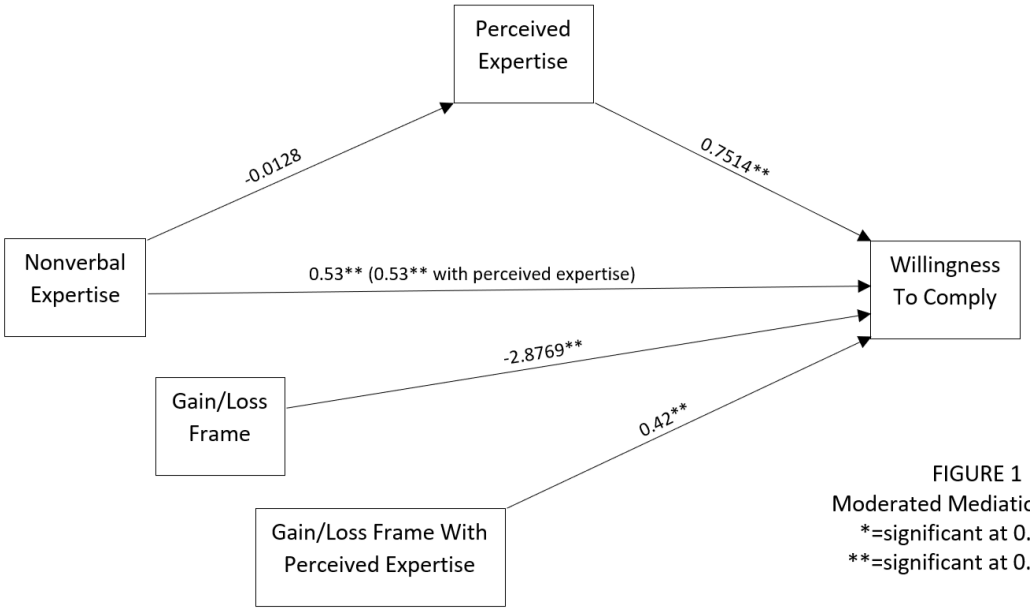


FIGURE 1
Moderated Mediation=-0.005
*=significant at 0.1 level
**=significant at 0.05 level

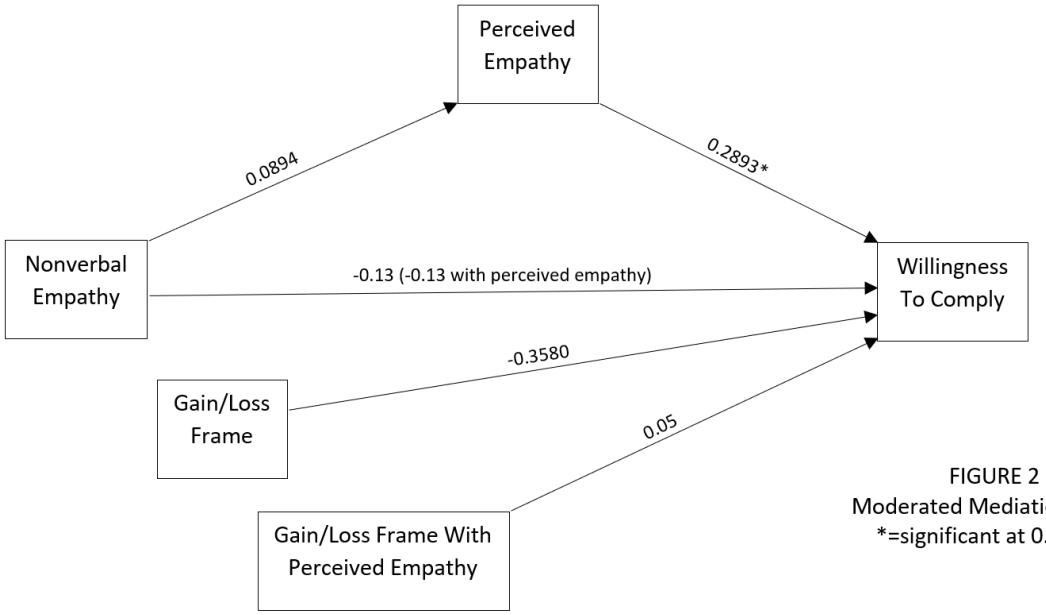


FIGURE 2
Moderated Mediation=0.005
*=significant at 0.1 level

Appendix

Appendix 1: Scenarios

Scenario 1:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you. Your doctor tells you that the meningitis vaccine is successful 85% of the time and says that you should get the vaccine.

Scenario 2:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you. Your doctor seems friendly, smiles at you, moves closer, and puts their hand on your knee. Your doctor tells you that the meningitis vaccine is successful 85% of the time and says that you should get the vaccine.

Scenario 3:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you, wearing a lab coat. Your doctor tells you that the meningitis vaccine is successful 85% of the time and says that you should get the vaccine.

Scenario 4:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you. Your doctor tells you that the meningitis vaccine is unsuccessful 15% of the time and says that you should get the vaccine.

Scenario 5:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you. Your doctor seems friendly, smiles at you, moves closer, and puts their hand on your knee. Your doctor tells you that the meningitis vaccine is unsuccessful 15% of the time and says that you should get the vaccine.

Scenario 6:

Imagine you go to the doctor's office for a consultation about the meningitis vaccine. You are unsure whether this vaccine is a good idea. Your doctor enters the room to speak with you, wearing a lab coat. Your doctor tells you that the meningitis vaccine is unsuccessful 15% of the time and says that you should get the vaccine.

Appendix 2: Survey Questions

Instructions: Please answer all of the following questions with the previous scenario in mind.

Instructions: Please rate the following based on how willing you are to implement advice given by your medical provider in this situation.

Scoring:7 point semantic differential scale running from 0 to 6, with 4 being neutral.

1. Willing	6 5 4 3 2 1 0	Unwilling
2. Probable	6 5 4 3 2 1 0	Improbable
3. Possible	6 5 4 3 2 1 0	Impossible
4. Likely	6 5 4 3 2 1 0	Unlikely

Instructions: Listed below are a series of statements. Please rate how much each of them describes the doctor in the previous situation.

Scoring:7 point semantic differential scale running from 0 to 6, with 4 being neutral.

1. Trustworthy	6 5 4 3 2 1 0	Untrustworthy
2. Good	6 5 4 3 2 1 0	Bad
3. Open-minded	6 5 4 3 2 1 0	Close-minded
4. Trained	6 5 4 3 2 1 0	Untrained
5. Experienced	6 5 4 3 2 1 0	Inexperienced
6. Expert	6 5 4 3 2 1 0	Not Expert

Instructions: Listed below are a series of statements. Please rate how much each of them describes the doctor in the previous situation.

Scoring: 7 point scale running from 1 (strongly disagree) to 7 (strongly agree)

1. My doctor understands my emotions, feelings, and concerns.

1 2 3 4 5 6 7

2. My doctor seems concerned about me and my well-being.

1 2 3 4 5 6 7

3. My doctor can view things from my perspective (see things as I see them).

1 2 3 4 5 6 7

4. My doctor asks about what is happening in my life.

1 2 3 4 5 6 7

5. My doctor is an understanding doctor.

1 2 3 4 5 6 7