

# Predicting Patients' Trust in Physicians from Personality Variables, Ethnicity, and Gender

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Zoreed A. Mukhtar  
University of Central Florida

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PREDICTING PATIENTS' TRUST IN PHYSICIANS FROM  
PERSONALITY VARIABLES, ETHNICITY, AND GENDER

by

ZOREED A. MUKHTAR

A thesis submitted in partial fulfillment of the requirements  
for the Honors in the Major Program in Psychology  
in the College of Sciences  
and in the Burnett Honors College  
at the University of Central Florida  
Orlando, Florida

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Thesis Chair: Charles Negy, Ph.D.

## **ABSTRACT**

This study examined variables related to the doctor-patient interaction that can predict college students' trust in their physicians. Specifically, I examined if five personality variables, ethnicity, and gender were associated with attitudes toward physicians. A second aim of the study was to determine if there was a difference in the level of trust in physicians between pre-medical and non-pre-medical students. Surveys were administered to UCF students containing a series of questions compiled from the Interpersonal Physician Trust Scale, Interpersonal Trust Scale, Illness Attitude Scale, Big Five Inventory, Martin-Larsen Approval Motivation Scale-Short Form, Almost Perfect Scale-Revised and Marlowe-Crowne Social Desirability Scale-Short Form, as well as 13 original questions that I developed. The sample consisted of 211 UCF students. It was hypothesized that lower levels of mistrust of others, symptoms of hypochondria, introversion, need for approval, and perfectionism would correlate significantly with trust in medical doctors. It was also hypothesized that there would be a difference in the level of trust in physicians between pre-medical and non-premedical students. Results indicated that on average, most participants across ethnicity and gender expressed uncertainty about their level of trust in their physicians. Ethnicity was not associated significantly with trust in physician. Gender was also not associated significantly with trust in physician. For Hispanic participants, only introversion predicted trust in physician. For male participants, only hypochondria predicted trust in physician. Finally, pre-medical status was not associated significantly with a difference in physician trust.

## **DEDICATION**

This research is dedicated to the patients I have encountered during my time as a volunteer medical scribe at Shepherd's Hope Health Center. These patients have inspired me to continue pursuing my passion for medicine.

## ACKNOWLEDGMENTS

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## **INTRODUCTION**

Physician-patient interaction is the confidential relationship between a doctor and a patient that is established when a doctor treats and provides medical care for a patient. This communication consists of shared perceptions about a health problem, treatment goals and psychosocial support (Duffy et al., 2004). Other components of doctor-patient interaction include an interpersonal relationship, exchange of information and patients' inclusion in decision making (Brédart et al., 2005). Trust also is an important factor of the doctor-patient relationship, because it can enable physicians to accurately diagnose and treat patients' symptoms and concerns with proper counseling and appropriate care (Duffy et al.). There has been extensive research conducted on physician-patient communication which shows that doctor-patient interaction is related to patient satisfaction.

Communication skills are important to maintain a successful therapeutic physician-patient relationship and to improve patients' medical care. Previous studies have shown patient dissatisfaction with interactions with their doctors even though physicians considered their communication to be acceptable (Stewart, 1995). Research also shows that physicians tend to overestimate their ability in communicating with their patients (Ha & Longnecker, 2010). Patients have often reported that they desire better communication with their physicians. In one study conducted by Tongue et al. (2005), 75% of orthopedic surgeons surveyed reported satisfactory communication with their patients, even though only 21% of their patients reported satisfactory communication. This miscommunication can lead to mistrust in doctors.

Effective physician-patient interaction can help regulate patients' emotions, identify



patients' concerns and facilitate medical information (Brédart et al., 2005). Patients who report satisfactory interactions with their doctors are more likely to be content with their medical care, follow their doctor's advice, adhere to treatment and are less likely to file malpractice complaints (Ha & Longnecker, 2010). Patient satisfaction has also shown to predict medical outcomes in acute illnesses as well as compliance with treatment. I reviewed four studies that I deemed most pertinent to this study to demonstrate and support the relation between physician-patient interaction and satisfaction among patients.

### *Literature Review*

In 2012, a study by Johnson Thornton, Powe, Rote, and Cooper (2011) was conducted to determine if social concordance, a measure of shared social characteristics (e.g. age, gender, race, education) predicts differences in medical communication and patients' perceptions of medical care. The sample size consisted of 64 primary care physicians and 489 of their patients from Maryland, Washington D.C. and Virginia. It was hypothesized that higher physician-patient social concordance would be associated with positive patient perceptions of care and higher quality of medical visit communication. Results showed that measures of patient perception of care were associated with social concordance. Patients in low social concordance dyads were less likely to be satisfied with their care and less likely to recommend their physician to a friend than patients in high social concordance dyads. Lower levels of social concordance in doctor-patient interaction also predicted higher levels of patient vulnerability. These results suggest that social concordance is positively associated with patient satisfaction and can have an effect on communication during medical visits.

Saha and Beach (2011) examined whether the degree of patient-centered communication

used by a physician would affect patients' evaluation of the physician and acceptance of medical recommendations. Researchers used video-recorded vignettes that showed physicians providing a patient with clinical recommendations using two different approaches. One vignette used high patient-centered communication and the other used low patient-centered communication. Both vignettes showed a visit between a cardiologist and a patient with coronary artery disease. The physician recommended coronary artery bypass graft surgery. It was hypothesized that participants who viewed the high patient-centered communication video would be more likely to accept the physician's medical recommendations and rate the physician more positively than participants who viewed the low patient-centered communication video. Results showed that participants who viewed the high patient-centered communication vignette rated the physician as more trustworthy and reported that they would feel more comfortable being treated by the physician if they were the patient in the video. Participants who viewed the high patient-centered communication video also reported that they would be more likely to undergo the coronary artery bypass graft surgery. These results suggest that clinical recommendations are perceived more positively when a physician uses high patient-centered communication.

In 2010, a study by Kenny et al. was conducted in order to determine whether patients of a specific doctor agreed on their doctor's communication skills and if doctors' self-perception of their communication skills aligned with their patients' perceptions of them. The sample size consisted of 91 doctors from the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada and 1,749 of their patients. Doctors and patients completed their own version of a Matched-Pair Instrument (MPI) questionnaire after a consultation. Results showed that patients rated doctors higher than doctors rated themselves. Doctors' MPI scores

varied between doctors, suggesting that some doctors believed they had effective communication skills with their patients, while other doctors believed they had poor communication skills with their patients. Results also showed that physicians did not agree with their patients about their communication skill level. This was true when doctors' perceptions were both positive and negative (Kenny et al., 2010). The study also found that patients of the same doctor had little agreement on the doctor's communication skill level. However, doctors perceived their communication skills to be similar for every patient. These results suggest that doctors' perceptions do not correlate with their patients' perceptions of their communication skill level.

Finally, Jensen et al. (2010) examined the relationship between low-income adults' communication satisfaction, literacy, race, age and optimism. The sample consisted of 131 low-income adults from Indiana. Participants were surveyed and interviewed about communication satisfaction. They were asked if they felt that their doctor listened carefully to them, explained things in a way they could understand, showed respect for them and spent enough time with them. Results showed that one in seven participants felt that their doctor failed to explain things in a way they could understand. Additionally, 50% of participants were not satisfied with the amount of time their physicians spent with them, 16% of participants felt that their doctors did not spend enough time with them, 10% felt that their doctors did not listen to them carefully, and another 10% felt that their doctors did not respect what they had to say. White participants were more likely to report that their doctors did not listen to them carefully than non-White participants. Participants who were more optimistic reported that their doctors did a better job at explaining things in a way they could understand. Participants with greater literacy were more likely to be critical of their doctors. Younger participants were more likely to report that their doctors did not

spend enough time with them. These results suggest that low-income patients are more likely to be critical of their doctors if they are young, White, literate and pessimistic.

### *Purpose of Current Study*

Although previous literature has been written about physician-patient interaction, there is limited research conducted on college students' attitudes toward doctor-patient interaction. Research also is limited in comparing how personality variables predict patient's trust in their doctors. The purpose of this study was to explore variables that can predict college students' trust in their physicians and attitudes toward physician-patient interaction. The variables focused on in this study were personality (generalized mistrust, hypochondria, introversion, need for approval, and perfectionism), ethnicity, and gender. The goal was to analyze doctor-patient communication and determine whether these variables predict patients' trust in their physicians.

The findings from my study may be of use to professionals in the medical field as well as pre-medical students in college. With such a diverse population of patients that seek medical treatment in the United States, it is important that physicians and patients know how to effectively communicate with each other. My findings may illuminate a heretofore overlooked area of study that may show that personality variables of patients are associated with their perception of the quality and trustworthiness of their physicians.

### *Hypotheses*

Given the multitude of studies showing that personality variables (or constructs) influence people's behaviors, attitudes, and feelings, it was hypothesized that one or more personality variables would predict significantly participants' trust in their medical doctors. Specifically, it was predicted that lower levels of mistrust of others, symptoms of hypochondria, introversion,

need for approval, and perfectionism would correlate significantly with trust in physician. It was also hypothesized that there would be a difference in the level of trust in physician between pre-medical and non-premedical students. Because ethnicity and gender were included in this study for exploratory purposes, no formal hypotheses were made with respect to their potential relation to physician trust.

## METHOD

### *Participants and Procedure*

Anonymous surveys were administered to UCF students as a way for them to receive extra-credit in their class. The sample consisted of UCF students who were enrolled in Cross-Cultural Psychology and Sexual Behavior courses and who were at least 18 years of age. The surveys took approximately 30 minutes to complete. The final sample consisted of 211 UCF students.

### *Demographic Information*

Participants were asked to report their age, gender, ethnicity, sexual orientation, class standing, overall GPA and to indicate if they were a pre-medical student. Students were also asked to report when their last encounter with a physician took place.

### Materials

#### *Interpersonal Physician Trust Scale – Modified*

The Interpersonal Physician Trust Scale (Hall et al., 2001) measures patient trust in fidelity, competence, honesty, confidentiality, and global trust. The scale contains 10 items to which participants responded using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). Higher scores reflected higher levels of trust held by the respondents toward their physicians. In addition to the Interpersonal Physician Trust Scale, I created a series of 13 additional questions to measure trust in physician. Questions asked students to report whether they preferred treatment from physicians of the same gender and ethnicity (as the respondent), whether students researched their doctors online before visiting them and whether students followed their doctors' advice and made follow-up appointments or sought second

opinions. Questions also asked students to report if they believed they had been misdiagnosed by doctors in the past and if they voiced their concerns during visits or walked out of appointments not understanding what doctors explained to them. Lastly, students were asked to report if they believed physicians truly care about their patients or if physicians are mainly motivated by making profit. Based on the current sample of participants, the Interpersonal Physician Trust Scale had an acceptable reliability (Cronbach alpha = 0.83).

#### *Interpersonal Trust Scale – Modified*

Mistrust is a trait that refers to a feeling that someone cannot be relied on. To measure participants' general level of mistrust in others, they completed the Interpersonal Trust Scale (Rotter, 1967). This scale contains 15 statements to which participants indicated their level of agreement using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). I elected to only administer the 10 items that most applied to my study's focus. Higher scores reflected higher levels of general mistrust in others. Based on the current sample of participants, the Interpersonal Trust Scale had a low reliability (Cronbach alpha = 0.57). This scale's reliability is unacceptably low according to traditional psychometric standards (Allen & Yen, 2002).

#### *Illness Attitude Scale – Modified*

Hypochondria, or health anxiety, is a mental illness characterized by an obsession with having a serious but undiagnosed medical condition. Hypochondria was measured using the Illness Attitude Scale (Sirri et al., 2008). This scale contains 27 statements to which participants indicated their level of agreement using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). This scale consists of 9 subscales with 3 items each:

worry about illness, concerns about pain, health habits, hypochondria beliefs, Thanatophobia (fear of death), disease phobia, bodily preoccupations, treatment experience and effects of symptoms. I elected to only administer the 10 items that most applied to my study's focus. I used a total score from this scale in order to have a global index of each respondent's level of hypochondria. Based on the current sample of participants, the Illness Attitude Scale had an acceptable reliability (Cronbach alpha = 0.83).

#### *Big Five Inventory – Modified*

Introversion is a trait that describes an individual directing his/her attention toward his/her own interests, thoughts, and feelings. Introversion was measured using a portion of the Big Five Inventory (John & Srivastava, 1999). The Big Five Inventory is a 44-item inventory that measures an individual on the Big Five Factors (dimensions) of personality and each of the factors is further divided into personality facets. The items contain statements to which participants indicated their level of agreement using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). I elected to only administer the eight items that measured introversion. Higher scores reflected higher levels of introversion. Based on the current sample of participants, the Big Five Inventory had an acceptable reliability (Cronbach alpha = .90).

#### *Martin-Larsen Approval Motivation Scale-Short Form*

Need for approval is a trait characterized by constantly seeking approval from others. Need for approval was measured using the Martin-Larsen Approval Motivation Scale-Short Form (Martin, 1984). The short form is based on the original, 21-item Martin-Larsen Approval Motivation Scale (Larsen, Martin, Ettinger, & Nelson, 1976) that was designed to assess respondents' desire to receive positive evaluations and social approval from others. The Martin-



Larsen Approval Motivation Scale-Short Form contains ten statements to which participants indicated their level of agreement using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). I elected to only administer the 10 items that most applied to my study's focus. Higher scores reflected a higher need for social approval or acceptance. Based on the current sample of participants, the Martin-Larsen Approval Motivation Scale-Short Form had an acceptable reliability (Cronbach alpha = .72).

*Almost Perfect Scale-Revised – Modified*

Perfectionism is a trait characterized by setting excessively high standards of achievement, having a strong need to succeed, and being overly critical of self-evaluations. Perfectionism was measured using the Almost Perfect Scale-Revised (Dunn et al., 2002). This scale contains 23 statements to which participants indicated their level of agreement using a 5-point Likert-type scale, with response options ranging from Strongly Disagree (1) to Strongly Agree (5). I elected to only administer the eight items that most applied to my study's focus. Higher scores reflected higher levels of perfectionism. Based on the current sample of participants, the Almost Perfect Scale-Revised had an acceptable reliability (Cronbach alpha = .67).

*Marlowe-Crowne Social Desirability Scale-Short Form – Modified*

Social desirability is the tendency of survey respondents to answer questions in a way that will be viewed favorably by others. Because participants may respond to items in such a manner, they completed the Marlowe-Crowne Social Desirability Scale-Short Form (Reynolds, 1982). The Marlowe-Crowne Social Desirability Scale-Short Form is a 13-item abbreviated version of the Marlowe-Crowne Social Desirability Scale, which measures participants' need to be perceived as desirable to others. Participants responded to statements using a 5-point Likert-type scale with

responses ranging from Strongly Disagree (1) to Strongly Agree (5). I elected to only administer the 10 items that most applied to my study's focus. Higher scores reflected higher levels of the response set of social desirability. Based on the current sample of participants, the Marlowe-Crowne Social Desirability Scale-Short Form had an acceptable reliability (Cronbach alpha = .64).

## RESULTS

A series of zero-order correlations and multiple regression analyses were used to assess for relations between the predictive variables and the criterion variable (Trust in Physician). A multivariate analysis of covariance (MANCOVA) also was used to compare participants on the variables on the basis of ethnicity and gender. Social desirability was treated as the covariate. To examine if trust toward physicians varied as a function of ethnicity and gender, an analysis of covariance (ANCOVA) was performed, with ethnicity (White, Hispanic, and African American) and gender serving as the independent variables (IVs). Trust in physician served as the dependent variable (DV). Because of the low sample sizes of participants self-identifying as Asian or “Other” ( $n_s = 11$  and  $12$  respectively), data from participants from these two groups were excluded from analyses. An additional 10 surveys were not included in the analyses because they were incomplete. The final sample consisted of 211 students.

Ethnicity was not associated significantly with trust in physician (using Wilks' Lambda,  $F [2, 204] = .04, p > .05$ ). Gender was also not associated significantly with trust in physician ( $F [1, 204] = 2.05, p > .05$ ). There was no ethnicity X gender interaction ( $F [2, 204] = .88, p > .05$ ). Appendix A, Table 1 shows the means and standard deviations of study variables as a function of ethnicity and gender. In absolute terms, examination of the group mean scores on physician trust shows that, on average, most participants across ethnicity and gender expressed uncertainty about their level of trust in their physicians (using a 5-point response option format, mean scores ranged from 3.17 to 3.38 [ $SDs$  ranged from .28 to .52]). I note here that the mean Physician Trust score for the total sample (i.e., 3.32) significantly differed from the middle score of 3.0 among response

options ( $t [420] = -9.68, p < .001$ ). This suggests that although the overall response from participants indicated uncertainty over their physician trust, their trust level leaned modestly in the direction of trust. The  $t$ -tests conducted separately by ethnicity and gender yielded similar results (all  $ps < .001$ ).

To explore if study variables would predict physician trust, a standard multiple regression was performed. The predictor variables were: perfectionism, introversion, hypochondria, and need for approval. General mistrust in others was not included for analysis due to unacceptable reliability. The criterion was trust in physician. Social desirability was forced entered at block one. Using data from all participants, the study variables did not conjointly predict physician trust (Multiple  $R^2 = .08, R^2$  change = .03,  $F [4, 205]$  change = 1.71,  $p > .05$ ).

To distill further this finding, I elected to conduct a series of standard multiple regressions separately by ethnicity and gender (see Appendix A, Table 2). The predictor and criterion variables remained the same. Regarding ethnicity, only for Hispanics did the study variables significantly predict physician trust (Multiple  $R^2 = .21, R^2$  change = .17,  $F [4, 54]$  change = 2.90,  $p < .05$ ). The individual variable that achieved significance was introversion ( $B = -.375, t = -2.97, p < .01$ ). The zero-order correlation between introversion and physician trust for Hispanics was statistically significant as well ( $r = -.37, p < .01$ ). For African Americans, the  $p$  level approached significance, suggesting a trend toward the study variables predicting physician trust (Multiple  $R^2 = .28, R^2$  change = .28,  $F [4, 28]$  change = 2.71,  $p = .05$ ). As with Hispanics, the individual variable that achieved significance was introversion ( $B = -.402, t = -2.49, p < .05$ ). The zero-order correlation between introversion and physician trust for African Americans was statistically significant as well ( $r = -.41, p < .05$ ). For Whites, the study variables did not predict significantly physician trust

(Multiple  $R^2 = .10$ ,  $R^2$  change = .03,  $F [4, 111]$  change = .78,  $p > .05$ ). None of the individual variables achieved significance (all  $ps > .05$ ).

The study variables did not significantly predict physician trust for either gender. For women, Multiple  $R^2 = .09$ ,  $R^2$  change = .02,  $F (4, 155)$  change = 1.01,  $p > .05$ . For men, Multiple  $R^2 = .14$ ,  $R^2$  change = .14,  $F (4, 44)$  change = 1.77,  $p > .05$ . None of the individual variables achieved significance for women (all  $ps > .05$ ). For men, one individual variable, hypochondria, achieved significance ( $B = -.322$ ,  $t = -2.12$ ,  $p < .05$ ).

Finally, to determine if physician trust differed as a function of being a pre-medical student or not, an ANCOVA was performed, with the IV = pre-medical student (yes or no); and the DV = physician trust. Pre-medical status was not associated significantly with a difference in physician trust ( $F [1, 208] = .06$ ,  $p > .05$ ).

## DISCUSSION

Findings of the study suggest that overall, personality variables, ethnicity and gender are not associated significantly with patients' trust in their physicians. There were no ethnic or gender differences in the participants' level of trust toward their physicians. More noteworthy, across ethnicity and gender, most participants were uncertain of whether or not they trust their physicians. If my findings were to generalize to the broader community, this is a finding that should concern doctors, because patients may not comply with treatment or follow recommendations if they are unsure if they trust their physicians. This uncertainty may be due to doctors not spending enough time with patients, not communicating effectively with patients, or due to patients not voicing their concerns.

Among Hispanic, and to a lesser degree, African American participants, only introversion predicted trust of physicians. A common characteristic of introverts includes focusing on internal feelings and thoughts rather than seeking out external stimuli. Introverts tend to be social around people they know well, be quiet or reserved around unfamiliar people, keep emotions private, and are self-aware (Cherry & Gans, 2017). Most patients do not know their doctors on a personal level and they might not feel comfortable accepting advice from a doctor who only spends 15.7 minutes with them, which is the median length of a primary care visit (Tai-Seale, McGuire, & Zhang, 2007). Introverts also tend to be inward-turning and look for answers within themselves, so they might not be as willing to accept recommendations from outside sources, such as a physician.

Moreover, based on zero-order correlations, a relatively strong negative correlation between introversion and physician trust was observed among both Hispanics and African

Americans. These findings suggest that introverts who are members of ethnic minority groups may have less trust in their physicians than extroverts. This observed intersection between introversion and ethnic minority status may be due to multiple factors that relate to culture and/or socioeconomic status. Some minority students in this sample may have been raised in families in which it was not acceptable economically to visit a doctor unless it was a medical emergency. Such infrequent interactions with medical personnel may influence physician trust. More specific to the role of introversion, I speculate—although do not know with certainty—that ethnic minorities who are relatively introverted may have less experience with diverse people and even diverse entities in general (e.g., professionals in various disciplines). Consequently, they may be guarded when encountering medical doctors; this may particularly be the case given that a preponderance of medical doctors in the U.S. are non-Hispanic White (Kaiser Family Foundation, 2017). The present data do not shed light on the reason(s) for this finding.

For male participants, there was a significant negative correlation between symptoms of hypochondria and physician trust (I note that the correlation also was observed among female participants, but did not achieve statistical significance). Hypochondria is an anxiety disorder characterized by an obsession with the idea of having an undiagnosed illness. Hypochondriacs have an intense fear of having a serious illness and frequently visit or switch doctors, because they tend to believe that their illness has not been properly diagnosed. It may be difficult for physicians to gain hypochondriac patients' trust, because if a doctor does not see serious symptoms present, then the doctor will not prescribe treatment, even though patients believe that their symptoms are serious and are undiagnosed. If physicians notice that their patients have health anxiety or exhibit symptoms similar to Hypochondria, perhaps they should refer their patients to a psychiatrist,

clinical psychologist or counselor, who can treat their hypochondria with proper therapy or medications.

There may be differences in hypochondriac symptom assessment between men and women. Both genders may differ in how they describe the same symptoms, how they conclude certain symptoms to be indicative of an illness and differ in their recall of past medical experiences (Barsky, Peekna & Borus, 2001). Moreover, differences between men and women in their trust in physician may be due to social roles. Further, men may be less likely to visit their physicians than women. It may be more socially acceptable for women to acknowledge their pain to their physicians and seek help than for men. More frequent interaction with their doctors may allow women to trust their physicians more than men. Again, the present data do not clarify the reason(s) for this obtained gender difference.

It was originally hypothesized that pre-medical students trusted their physicians more than non-pre-medical students. That hypothesis was based on the idea that trust and high regard for medical doctors was a motivation for them to pursue a career in the medical profession. However, pre-medical status was not associated significantly with a difference in physician trust. Pre-medical students may either trust their physician and may use that as an inspiration to pursue medicine, or they might not trust their physician and want to pursue medicine in order to prevent more patients from mistrusting their physicians. Pre-medical students in this sample may also have other motivations for wanting to pursue medical school that are not related to their physician, such as monetary reasons.

#### *Limitations of Current Study*

This study had several limitations. Surveys were the only method used to gather data. Thus,



participants may not have provided honest or accurate answers. This study also had a small sample size (N=211) of students from UCF. As a result, these findings cannot be generalized to the entire UCF population or to students from different universities or individuals of other populations (different educational or age groups). Specific reliance on data from college students from two distinct courses (Cross-Cultural Psychology and Sexual Behavior) likely further decreased generalizability of the current findings to the population at large. Also, the low number of items comprising some of the scales may have contributed to the relatively low reliability estimates of the scales. The sample also consisted of only university students, who are relatively healthy. As a result, they may not evaluate their physicians as much as patients who visit doctors more frequently.

### *Conclusion*

Although the results of this study did not support my hypotheses, they showed that overall, many patients may only trust their doctors mildly, or may be uncertain about whether doctors in general are trustworthy. Moreover, for some minority of patients, physicians might need to pay special attention to those who seem introverted or hypochondriac in order to gain their trust to increase the likelihood of their patients complying with treatment and following their recommendations.

### *Future Research*

Future research should be conducted to determine if other personality variables influence patients' trust in their physicians. Research can also be conducted on different patient populations (e.g., geriatric, adult, patients with chronic illnesses, etc.) to determine if other patient populations trust their physicians similarly to university students. It would be of interest to know patients' trust

levels of doctors in countries that have socialized medicine. Lastly, research should be conducted to determine whether factors such as time spent during a doctor's appointment or use of technology during a doctor's appointment influence patients' trust in their physicians.

## **APPENDIX A**

Table 1: Means and Standard Deviations of Physician Trust Scale as a Function of Ethnicity and Gender

Ethnicity	Gender	Mean	Std. Deviation	<i>n</i>
White	Male	3.17	.52	27
	Female	3.35	.52	90
	Total	3.31	.52	117
Hispanic	Male	3.26	.45	16
	Female	3.35	.43	44
	Total	3.33	.44	60
Afr. Am.	Male	3.23	.28	7
	Female	3.38	.47	27
	Total	3.35	.43	34
Total	Male	3.21	.46	50
	Female	3.36	.48	161
	Total	3.32	.48	211

Table 2: Regression of Study Variables on Physician Trust by Ethnicity and Gender

*Whites (n = 117)*

VARIABLE	Beta	Std. Error	Beta	t-test value	Significance
Social Desirability	.28	.09	.30	3.13	< .01
Hypochondria	-.00	.09	-.00	-.06	<i>ns</i>
Introversion	-.05	.06	-.08	-.86	<i>ns</i>
Need for Approval	.16	.09	.17	1.67	<i>ns</i>
Perfectionism	.02	.11	.03	.14	<i>ns</i>

Note: Multiple  $R^2$  change = .10 ( $F$  change [4, 111] = .78,  $p > .05$ ).

*Hispanics (n = 60)*

VARIABLE	Beta	Std. Error	Beta	t-test value	Significance
Social Desirability	.03	.12	.03	.26	<i>ns</i>
Hypochondria	-.19	.12	-.25	-1.78	<i>ns</i>
Introversion	-.21	.07	-.38	-2.97	< .01
Need for Approval	-.04	.12	-.04	-.32	<i>ns</i>
Perfectionism	.00	.11	.00	.04	<i>ns</i>

Note: Multiple  $R^2$  change = .21 ( $F$  change [4, 54] = 2.89,  $p < .05$ ).

*African Americans (n = 34)*

VARIABLE	Beta	Std. Error	Beta	t-test value	Significance
Social Desirability	-.09	.14	-1.1	3.13	< .01
Hypochondria	-.14	.11	-.21	-1.21	<i>ns</i>
Introversion	.23	.09	-.40	-2.49	< .05
Need for Approval	-.17	.11	-.26	-1.50	<i>ns</i>
Perfectionism	.21	.17	.22	1.23	<i>ns</i>

Note: Multiple  $R^2$  change = .28 ( $F$  change [4, 28] = 2.71,  $p = .05$ ).

Table 2 Continued

Women (n = 161)

VARIABLE	Beta	Std. Error	Beta	t-test value	Significance
Social Desirability	.21	.08	.24	2.80	< .01
Hypochondria	-.05	.07	-.05	-.65	ns
Introversion	-.08	.05	-.15	-1.82	ns
Need for Approval	.06	.07	.08	.89	ns
Perfectionism	.02	.08	.02	.29	ns

Note: Multiple  $R^2$  change = .09 ( $F$  change [4, 155] = .02,  $p > .05$ ).

Men (n = 50)

VARIABLE	Beta	Std. Error	Beta	t-test value	Significance
Social Desirability	-.03	.14	-.04	-.23	ns
Hypochondria	-.31	.15	-.32	-2.15	$p < .05$
Introversion	-.11	.08	-.20	-1.36	ns
Need for Approval	.20	.16	.18	1.20	ns
Perfectionism	.01	.16	.01	.09	ns

Note: Multiple  $R^2$  change = .14 ( $F$  change [4, 44] = 1.78,  $p > .05$ ).

## **APPENDIX B**

## Demographics Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

Your Gender (circle one):

1. Male
2. Female
3. Other (please specify): \_\_\_\_\_

Your age:

- 17 or less
- 18
- 19
- 20
- 21
- 22
- 23 or older

Your ethnicity (circle one):

1. White or Anglo American
2. African or Black American
3. Hispanic
4. Asian
5. Other (please specify): \_\_\_\_\_

Your Religion (circle one):

1. Christian
2. Muslim
3. Buddhist
4. Atheist
5. Agnostic
6. Hindu
7. Jewish
8. Other (please specify): \_\_\_\_\_



Your Sexual Orientation:

1. Straight
2. Bisexual
3. Gay
4. Lesbian
5. Other (please specify): \_\_\_\_\_

Your highest level of education:

1. Year 1 Freshman (0-30 hours)
2. Year 2 Sophomore (31-60 hours)
3. Year 3 Junior (61-90 hours)
4. Year 4 Senior (91 or more hours)
5. Post Graduate

Overall UCF Cumulative GPA:

- 0.0 – 1.4
- 1.5 – 1.9
- 2.0 – 2.4
- 2.5 – 2.9
- 3.0 – 3.4
- 3.5 – 4.0

Are you a pre-medical student (Do you wish to pursue medical school)?

1. Yes
2. No

When was your last encounter with a physician?

1. 1 week or less
2. 1 month or less
3. 6 months or less
4. 1 year or less
5. More than 1 year ago

Interpersonal Physician Trust Scale – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. My doctor will do whatever it takes to get me all the care I need.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. Sometimes my doctor cares more about what is convenient for him/her than about my medical needs.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. I completely trust my doctor's decisions about which medical treatments are best for me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. My doctor is totally honest in telling me about all of the different treatment options available for my condition.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. Sometimes my doctor does not pay full attention to what I am trying to tell him/her.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. I have no worries about putting my life in my doctor's hands.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. I have been misdiagnosed by a doctor in the past.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. I trust my doctor to tell me if a mistake was made about my treatment.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. I sometimes distrust my doctor's opinions and would like a second one.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. I sometimes worry that my doctor may not keep the information we discuss private.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

11. I sometimes walk out of a doctor's appointment not understanding what the doctor told me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

12. I prefer to see a doctor who is of the same race as me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

13. I prefer to see a doctor who is of the same gender as me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

14. I prefer to see a doctor who is of the same sexual orientation as me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

15. I use the internet to search for where my doctor went to medical school.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

16. I use the internet to search for if my doctor has any malpractice claims.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

17. My doctor sometimes uses words that I do not understand.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

18. My doctors' medical decisions are influenced by how much money he/she can make.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

19. My doctor is usually in a hurry and rushes through the visit.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

20. My doctor commonly make mistakes.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

21. My doctor does not always give me a chance to say everything I want to say.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

22. My doctor explains things to me in a way that is easy to understand.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

23. My doctor acts impersonal toward me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Interpersonal Trust Scale – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. Hypocrisy is on the increase in our society.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. One is better off being cautious when dealing with strangers until they have provided evidence that they are trustworthy.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. Fear and social disgrace or punishment rather than conscience prevents most people from breaking the law.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. An honor system in which teachers would not be present during exams would probably result in increased cheating.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. It is safe to believe that in spite of what people say most people are primarily interested in their own welfare.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. Most elected officials are really sincere in their campaign promises.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. Most experts can be relied upon to tell the truth about the limits of their knowledge.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. Most people can be counted on to do what they say they will do.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. In these competitive times one has to be alert or someone is likely to take advantage of you.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. Most students in school would not cheat even if they were sure they could get away with it.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Illness Attitude Scale – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. Do you worry about your health?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. Are you worried that you may get a serious illness in the future?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. If you have a pain, do you worry that it may be caused by a serious illness?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. If a pain lasts a week or more, do you believe that you have a serious illness?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. Do you examine your body to find whether there is something wrong?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. Do you believe that you have a physical disease but the doctors have not diagnosed it correctly?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. When your doctor tells you that you have no physical disease to account for your symptoms, do you refuse to believe him/her?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. Are you afraid of news which reminds you of death (such as funerals, obituary notices)?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. Are you afraid that you may die soon?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. When you read or hear about an illness, do you get symptoms similar to those of the illness?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5



## Big Five Inventory – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. I see myself as someone who is talkative.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. I see myself as someone who is reserved.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. I see myself as someone who is full of energy.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. I see myself as someone who generates a lot of enthusiasm.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. I see myself as someone who tends to be quiet.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. I see myself as someone who has an assertive personality.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. I see myself as someone who is sometimes shy or inhibited.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. I see myself as someone who is outgoing or social.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Martin-Larsen Approval Motivation Scale – Short Form Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. I would rather be myself than be well thought of.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. I change my opinion (or the way that I do things) in order to please someone else.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. In order to get along and be liked, I tend to be what people expect me to be.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. I find it difficult to talk about my ideas if they are contrary to group opinion.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. I am willing to argue only if I know that my friends will back me up.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. I seldom feel the need to make excuses or apologies for my behavior.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. It is not important to me that I behave “properly” in social situations.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. If there is any criticism or anyone says anything about me, I can take it.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. I am careful at parties and social gatherings for fear that I will do or say things that others won't like.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. I usually do not change my position when people disagree with me.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Almost Perfect Scale-Revised – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. I have high standards for my performance at work or at school.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. I often feel frustrated because I can't meet my goals.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. If you don't expect much out of yourself, you will never succeed.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. I think things should be put away in their place.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. I like to always be organized and disciplined.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. Doing my best never seems to be enough.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. I often worry about not measuring up to my own expectations.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. I try to do my best at everything I do.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. I have a strong need to strive for excellence.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. I often feel disappointment after completing a task because I know I could have done better.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Marlowe-Crowne Social Desirability Scale-Short Form – Modified Questionnaire

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge. Your information will be kept strictly confidential.

1. I sometimes feel resentful when I don't get my way.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

2. On a few occasions, I have given up doing something because I thought too little of my ability.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

3. No matter whom I'm talking to, I'm always a good listener.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

4. There have been occasions when I took advantage of someone.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

5. I'm always willing to admit it when I make a mistake.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

6. I sometimes try to get even rather than forgive and forget.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

7. I am always courteous, even to people who are disagreeable.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

8. I have never been irked when people expressed ideas very different from my own.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

9. There have been times when I was quite jealous of the good fortune of others.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

10. I have never deliberately said something that hurt someone's feelings.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5



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