INFLUENCE OF OPTOMETRIST ATTIRE ON THE DOCTOR-PATIENT RELATIONSHIP

by

Christina Ann Hicks

Thomas John Hubbard

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Christina Ann Hicks

Thomas John Hubbard

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APPROVED:

_____, Faculty Advisor

ACCEPTED:

_____

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ABSTRACT

Background: The doctor - patient relationship can be influenced by a large number of factors, including doctor attire. A review of current literature revealed there is no research regarding the influence of attire on the optometrist - patient relationship. This study aimed to evaluate the patient perception and influence of attire on the doctor - patient relationship. **Methods**: Respondents completed a survey following a review of three pictures of the same optometrist dressed in different attire. Data was collected from patients seen at the University Eye Center at Ferris State University in Big Rapids, Michigan. Data was analyzed using descriptive statistics and chi-square analysis. **Results**: Responses to eight out ten of the survey questions were statistically significant based on a chi-square value of 5.991 when male and female doctor model responses were grouped. **Discussion**: This study demonstrated that in most situations patients prefer an optometrist to wear formal attire with a clinical white coat. Patients also noted an increased level of trust and confidence in clinicians wearing a white coat.

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Introduction

The doctor-patient relationship is a complex interaction that can be influenced by a multitude of factors. It is widely accepted that the patient's first impression of the healthcare provider can affect this relationship greatly[1,2,3]. The first impression can be influenced by doctor attire, grooming, facial expression and a number of other factors. The classic appearance of the doctor includes a clinical white coat with name badge and relatively formal attire. The white coat was originally selected to portray cleanliness[4]. In recent years, the classic appearance of the doctor has been altered as studies have reported an increased spread of infections due to the white coat. This has led to a decreased usage of the white coat among doctors[2]. In England, the National Health Service was so concerned regarding the spread of microbes on the white coat that they instituted a bare-below the elbows policy in an attempt to limit transmission[4]. Additionally, the attire of the doctor varies depending on the setting in which the doctor practices. For example, scrubs have increased in popularity, especially in trauma and surgical settings. It has also been found that patient preference regarding doctor attire varies on geographic setting as well. As Landry states, patients in Ohio and South Carolina have no preference toward the white coat; but in states such as Texas the white coat is preferred. Finally, an increased presence of female doctors has occurred, which may alter the classic appearance of a doctor to some patients. This idea is supported by a study completed by Rehman et al, which demonstrated that patients place a greater importance on a formal appearance of a female doctor as opposed to a male doctor. The authors postulated that this might be a result of females historically fulfilling additional

roles in the healthcare setting such as dietician or nurse. Therefore, it is thought that the white coat helps identify the female as a doctor [1].

Studies performed by Gheradi, Rehman and McKintry support that patients prefer a formally dressed doctor wearing a white coat. It was found that patients tend to trust and have more confidence in doctors dressed in classical attire. Additionally, patients tend to have increased self-trust and hypothetical adherence to treatment regimens in doctors wearing the white coat. Results from a study of 451 patients in New Zealand published by Lill et al present alternative data. In this study of 451 patients in New Zealand, it was found that patients preferred a semi-formal attire over formal attire with a white coat [5]. Furthermore, an additional study among teenagers noted no statistical difference in patient attitude toward the doctor based on attire[1].

The studies listed above were completed with healthcare providers in a variety of doctor of medicine (M.D.) clinics. Patients in these studies were seen in outpatient and inpatient clinics as well as trauma settings. A literature review revealed a lack of articles discussing the effect of attire on the doctor of optometry (OD)-patient relationship. Optometrists treat patients in an outpatient, specialty clinic setting and may have different doctor-patient dynamics than those seen in trauma or surgical settings. The authors examined the role of attire on the optometrist-patient relationship, including but not limited to the confidence, trust and projected adherence to treatment regimens. Based on a review of the literature, the authors developed a null hypothesis that there would be no statistical significance in the responses to all ten questions based on the attire of the doctor and participants would have no preference for doctor attire.

Methods

Patients aged 18 and over seen at the University Eye Center at the Michigan College of Optometry located in Big Rapids, Michigan were selected to participate in this study. Two senior clinical interns that had no influence over the survey design or analysis administered all surveys. Patients selected for the study were seen in the primary care, contact lens and medical surgical clinics at the University Eye Center. The study was initiated in August 2013 and ceased in December 2013. A total of 74 participants were included in the study. The Ferris State University Institutional Review Board for Protection of Human Subjects approved all aspects of the study.

The study consisted of a 10-question survey that was to be completed while the patient was waiting for dilation during their comprehensive eye examination. The survey was adapted from Rehman et al. A sample of the survey is included in appendix A. Every survey was identical except for the gender of the optometrist. Half of the studies were generated with the male model optometrist and half with the female model optometrist. The surveys were then randomized so the survey administrators did not know what gender of optometrist model the patient received. This was done to eliminate potential administrator bias.

Each survey included three pictures of an optometrist. The optometrists were shown in a formal outfit with white coat, a formal outfit and lastly a business casual outfit. The two formal outfit choices are identical except for the presence of the white coat. The formal outfit is defined by dress slacks shown with a high collared dress shirt with arms covered for the female. The male formal outfit is defined as dress pants with collared shirt and tie. The casual outfits for both genders included jeans paired with a

casual collared shirt. The male optometrist model is shown in Figure 1, and female model is shown in Figure 2. Efforts were taken to ensure all other factors of the photographs remained the same, including but not limited to facial expression, background, stance and personal grooming. The study included completion of the survey with basic demographic information. Demographic information obtained included: gender, age, ethnicity and highest level of education. Choices available for ethnicity were: Caucasian, Asian, African American, Latin American or other. Highest level of education choices were: high school or equivalent, undergraduate, graduate or doctoral. Participants were required to respond in a forced choice method between the three images of the optometrist. Free response outside of the choices was discouraged. Surveys that were completed with multiple answers per question were not included in the analysis. Completed surveys were returned to the original envelope and sealed to ensure the data was not viewed or tampered with. All surveys were completed anonymously and only tracked by a randomized number on the outside of the sealed envelope.

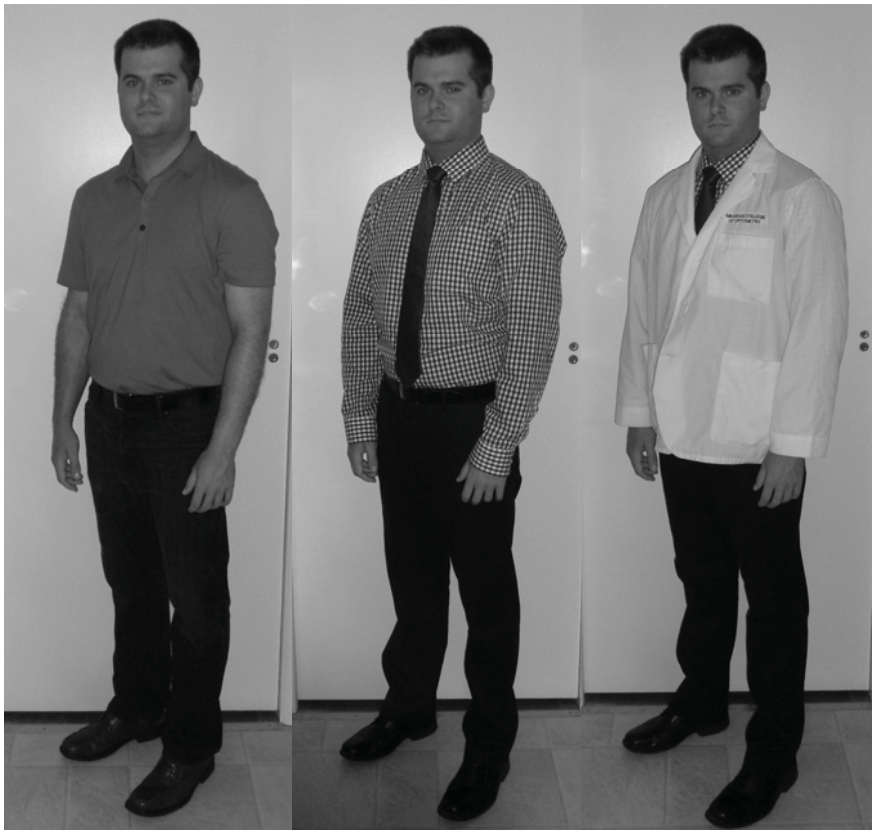

Figure 1. Images of male optometrist model. Starting from the far left, the attire choices are as follows: casual, formal, formal with white coat

The data was analyzed utilizing a multitude of statistical tests. Data was classified by age range, gender, demographic and level of education. Descriptive statistics were determined for each category. A chi square analysis was completed on all of the question responses to determine the statistical significance. A chi square analysis was performed since the data from questions one through nine was categorical instead of quantitative. A two tailed T-test with unequal variances was utilized to evaluate the results from the final question and classified on the basis of doctor gender.

Figure 1. Images of female optometrist model. Starting from the far left, the attire choices are as follows: casual, formal, formal with white coat

Results

A total of 74 surveys were completed over the course of the study and included in the analysis. No participants evaluated both the male and female doctor model or completed the survey more than one time. A total of 36 surveys were completed for the male model and 38 for the female model. 70% of the study participants were female and 30% were male. 93% of all the studies completed were performed by Caucasians. One African American, one person of Latin American heritage and three unspecified ethnicities completed the remaining 7% of the surveys. The average age of the study population was 49.9 with a standard deviation of 18.8. 72.9% of the study population completed high school or undergraduate degree. 24.3% had obtained graduate level

education. 1.35% of the population had received a doctorial degree as well as 1.35% of the population completed their education up to middle school.

Out of the first ten questions on the survey, all questions were found to be statistically significant except for questions one and eight. Question one asked which doctor a patient would prefer as their primary care physician. Question eight concerned which doctor was expected to be most caring and compassionate. Table one displays the chi-square values for first nine questions in the survey. The chi square value to determine statistical significance was 5.991 based on the chi square value provided for the degrees of freedom in the study. All values greater than chi square values greater than 5.991 were determined to be statistically significant and different than the theoretical distribution. The theoretical chi square values to determine statistical significance are provided in analysis tables that are readily available.

	Chi Square Value	% for Casual	% for formal	% for white coat plus formal
Question 1	5.58	31.82	31.82	36.36
Question 2	49.08	22.73	13.64	63.64
Question 3	13.55	27.27	22.73	50.00
Question 4	16.32	25.00	35.00	40.00
Question 5	17.10	19.05	38.10	42.86
Question 6	9.29	25.00	25.00	50.00
Question 7	35.27	19.05	19.05	61.90
Question 8	1.58	36.36	27.27	36.36
Question 9	11.09	22.73	31.82	45.45

Table 1. Chi Square values and percentage of participant responses selected for each attire. Statistically significant values are shown in red.

Further analysis was performed on responses to only the female model and only the male model. When the results for the female doctor model were isolated, all questions one through nine, excluding question eight, were found to be statistically significant using chi square analysis with a chi square value of 5.991. All questions that showed statistical significance were significant for the formal attire with white clinic coat. For the male doctor results when isolated from the female doctor responses, only question two was found to be statistically significant by chi-square analysis. Question two asked which doctor the participant would prefer to see for an ocular emergency. This question showed a statistically significant preference for the white clinic coat with formal attire. Table two shows the chi square values and percentages of responses for each question for both the male and female isolated data.

	Chi-Square Value	% for Casual	% for formal	% for white coat plus formal
Question 1	6.877	15.79	26.32	57.89
		50.00	20.59	29.41
Question 2	16.218	10.53	18.42	71.05
	14.158	23.53	5.88	70.59
Question 3	10.139	15.79	21.05	63.16
		40.63	18.75	40.63
Question 4	10.139	15.79	21.05	63.16
		38.71	16.13	45.16
Question 5	15.077	12.82	17.95	69.23
		38.71	22.58	38.71
Question 6	9.038	12.82	25.64	61.54
		51.72	13.79	34.48
Question 7	17.308	15.38	12.82	71.79
		29.03	12.90	58.06
Question 8	No statistically significant Chi-square value	21.62	32.43	45.95
		57.14	20.00	22.86
Question 9	13.37	17.14	14.29	68.57
		41.18	26.47	32.35

Table 2: Shown in the second column are the statistically significant Chi-square values for question one through nine. Male values that are statistically significant and all percentages are listed in the bottom half of the split cell. Percentages with significant Chi-square values are shown in red.

The final question asked on the survey asked the participant to rank on a scale of one to ten, how important the doctor's physical appearance is in determining the

participant's confidence in the doctor's competency. A score of one indicated not important at all, while a score of ten indicated extremely important. The average value for the male doctor was 6.818 with a standard deviation of 2.65. The average value for female doctor was 7.49 with standard deviation of 2.30. While these values are different, they were found to not be statistically significant based on a p-value of less than 0.05 to determine statistical significance (p=0.307).

Discussion

Interestingly, when patients were directly asked which doctor they would prefer to be their primary eye care provider as asked in question one, results were not statistically significant. This could indicate no consensus based on the image presented but may be too broad of a question to obtain an accurate representation. Patient responses were relatively equally spread across the three choices. This is in contrast to more indirect and specific question regarding the doctor's skill, patient desire to return for follow-up or which doctor would be most compassionate or caring to the patient. Responses to these questions were statistically significant towards a doctor in a white coat dressed formally. It may be that question one was too broad to effectively evaluate patient responses towards doctor attire, but when more specific questions are asked, more defined and statistically significant attire preferences are present.

Our results are similar to the results from several other studies performed with healthcare providers. A study by Gheraradi et al that consisted of 586 participants stated that patients were more confident across all demographics when a doctor wore a white coat. The study by Gheraradi displayed a doctor in six different attire choices. Additionally, they found that participants felt positively or above neutral for all patient

attire selections except for the casual option[3]. Furthermore, our results are supported by a study conducted by McKinstry that surveyed patients in five general physician practices. They asked participants to evaluate and determine what doctors they would be happiest to see for the first time as well as in which doctor they would have the highest confidence. Participants also had a greater preference for female doctors to wear the white coat over male doctors, as also observed in this particular study[2]. Finally, two additional studies completed by Beck and Rehman report results analogous to the ones found in this study only conducted with other healthcare provider settings [1,5].

Our results are in contrast to those reported by Lill et al. These authors reported, based on the results from their study, that there would be a decrease in desire for a doctor to wear a white coat; participants in this particular studied preferred for the doctor to not wear a white coat [5]. This study was conducted in New Zealand with young doctor models. Studies have reported variability in doctor attire preferences based on geographic location as well as specialty of the doctor. Therefore, this may be a regional preference. It is unlikely to be a specialty preference in the New Zealand study since the participants were patients seen in a range of clinical settings, including inpatient and outpatient settings[5].

Our study did not find a statistical difference between how confident participants felt based on the physical appearance of whether the doctor was male or female as asked in question ten. Interestingly, when the data was segregated into responses solely for the female and solely for the male doctor model, we discovered differences in responses. Nearly all questions for the female doctor were statistically significant for the formal clinic attire with white coat. Only one of the exact same questions was statistically

significant for the male doctor to wear formal attire with white clinic coat. This is consistent with other studies performed. Like this study, others have found that participants prefer the female doctor to be dressed more formally and have a greater preference for the female doctor to wear the white coat[1,2]. In Rehman et al, the authors believe this statistical difference could result from an increased need on the part of the participant to identify the female doctor as a physician instead of a nurse, dietitian or other person in the healthcare professions. Our findings are consistent with findings in other healthcare settings, indicating patients desire an increased sense of formality in the female doctors.

Undoubtedly, most primary eye care providers would like to seem caring, compassionate, trustworthy and competent. They would also likely want their patients to come to their clinic for an ocular emergency, return to follow up appointments and adhere to the appropriate treatment plan prescribed. The results from this study support that wearing a formal outfit with a white clinic coat is preferential to patients. Results from questions three, four and six represent a possible improved doctor-patient relationship. With an improved relationship patients would be more likely to adhere to treatment plans, return for follow up visits and trust doctor recommendations.

This study has several limitations. This study was completed in only one outpatient clinic located in a small rural town in Michigan. This study population may not represent the preferences for populations outside of rural communities. The sample size in future studies could be greatly increased to obtain additional data. To better evaluate statistical significance it would be ideal to have a more balanced patient age distribution as well as larger sized sample population. Furthermore, it would be

beneficial to obtain a more diverse population based on race and education level. A vast majority of the respondents for this study were Caucasian and as a result their responses may not reflect the preferences of other races.

Finally, in retrospect, in may have been beneficial to administer the study with color photographs of the doctor models. The subtleties of the doctor models attire would have been better appreciated in color photographs. Additionally, due to the grayscale of photographs, the male doctor's casual image does not clearly identify that the model was wearing jeans and thus could skew the participant's responses.

Future studies would additionally benefit from having increased doctor apparel options for participants to evaluate. The authors feel it would have been beneficial to show an optometrist in scrubs since the doctors at many OD/MD combined practices have begun to wear scrubs. Additionally, after further review of literature, it may have been beneficial to contrast the patient responses between female optometrist models in slacks and professionally appropriate skirt. Some studies have noted that patients prefer female doctors to dress more formal in a skirt, while others have reported that patients view this as a negative characteristic of female doctor attire[2].

It is extremely difficult to quantify how much of an impact the doctor's attire has on the doctor patient relationship, but it is most certainly a component of the relationship. Based on the results from this study, in most situations wearing a white coat is not detrimental to the doctor-patient relationship and can frequently be beneficial to the clinician and patient alike. This assumption is based on the responses of our survey where a majority of the questions asked to the participants demonstrated a statistical significant in patient preference for formal attire with a white coat. Our results do vary based on

gender of the doctor. Wearing a white clinic coat could likely benefit both genders but in particular females. A white clinic coat coupled with formal dress attire could likely benefit the clinician in optometric settings similar to the one in this particular study.

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APPENDIX A

SURVEY PRESENTED TO PATIENT

Influence of Optometrist Attire on the Doctor - Patient Relationship

Part One:

What is your age in years? _____

Please circle one of the following:

Ethnicity

Caucasian Asian African American Latin American Other

Gender

Male Female Other

Highest level of education achieved

Middle School High School/GED Undergraduate Graduate Doctoral

Part Two:

After reviewing the images shown below, please answer the following questions with the appropriate letter of your choice (A, B, or C). Please respond truthfully and to the best of your abilities. If you have any questions regarding directions or protocol for this survey, please ask your student clinician. Thank you very much for providing your time in completing this brief survey.[1]

1. Which optometrist would you prefer to be your primary eye care provider? _____
2. Which optometrist would you prefer to treat you for an ocular emergency? _____
3. Which of these optometrists would you trust the most? _____
4. Which of these optometrists would you most likely to adhere to the treatment recommendations? _____
5. Which of these optometrists would you have the most confidence in their diagnosis and treatment? _____
6. Which of these optometrists would you return for follow-up care? _____
7. Which of these optometrists would you expect to be more knowledgeable and competent? _____
8. Which of these optometrists would you expect to be more caring and compassionate? _____
9. Which of these optometrists would you expect to be more responsible? _____
10. Which of these optometrists would you expect to be more authoritative and in control? _____

On a scale of 1-10, 1 being not important at all and 10 being extremely important, how important is your optometrist's physical appearance in determining your confidence in his/her competency? _____

[1] *The questions in this survey are adapted from an article authored by Rehman S, Nieter P, Cope D and Kilpatrick A, entitled "What to Wear Today? Effect of Doctor's Attire on the Trust and Confidence of Patients."*