



The Effects of Patient Characteristics on Clinician's Adherence to Preventive Practice Guidelines

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The Effects of Patient Characteristics on Clinician's Adherence to Preventive Practice Guidelines

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Abstract

ABSTRACT

BACKGROUND: The existence of health disparities confirms that not all patients, regardless of differences in patient demographics, are provided quality healthcare (Agency of Health Care Research and Quality, 2003). Moreover, research suggests that health disparities may be present due to the inadequate delivery of medical services (S. Haist, J. Wilson, M. Lineberry, & C. Griffith, 2007; Van Ryn, Burgess, Malat, & Griffin, 2006). The differences in the delivery of care and services to ethnic minorities and those of low socioeconomic status warrant examining the role healthcare providers play in the causation of these health disparities (Smedley, Stith, & Nelson, 2003).

OBJECTIVE: The purpose of the study is to identify differences in routine screening practices of Physician Assistants and determine if such differences are associated with patients' race and socioeconomic status.

DESIGN: One hundred and twelve (N = 112) practicing Physician Assistants (N = 142) in Kentucky were surveyed and randomly assigned to receive one of four clinical vignettes. The likelihood of offering different routine screening recommendations was examined based on patient race and socioeconomic status.

MAIN MEASURES: We investigated the mean differences of selected preventative care recommendation options for vignette patients as a function of patient race and socioeconomic status.

KEY RESULTS: A multivariate analysis revealed that the race of a patient had a statistically significant multivariate effect on differences in screening recommendation, ($p = .017$) for hypertension (HTN), $p = .017$, immunization, $p = .002$. Univariate analysis showed statistically significant differences, with the African American patient were significantly less likely to receive screening for hypertension (HTN), ($M = 3.42$), 95% CI [3.24, 3.59], or immunizations ($M = 2.45$), 95% CI [2.21, 2.69] when compared to Caucasian women ($M = 3.71$, 2.98), 95% CIs [3.55, 3.88], [2.76, 3.23], respectively.

CONCLUSION: The findings suggest that the race of the patient in the vignette influenced the likelihood of receiving screening recommendations. The findings show that care delivered by Physician Assistants (PAs), are a possible source of healthcare disparities between patients from racial/ethnic minority backgrounds and their Caucasian counterparts.

Keywords: disparities, health education, race & ethnicity, socioeconomic, preventive care

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The Effects of Patient Characteristics on Clinician's Adherence to Preventive Practice Guidelines

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between patients from racial/ethnic minority backgrounds and their Caucasian counterparts.

Keywords: Health Disparities, Health Education, Race & Ethnicity, Socioeconomic, Preventive Care

INTRODUCTION

Health disparities in racial/ethnic minorities and those from low socioeconomic backgrounds persist despite efforts to eliminate potential causes. A potential cause of these and other relevant health disparity findings between ethnic minority populations and their Caucasian counterparts is the provision of sub-standard healthcare. Specifically, health disparities may occur because service delivery inadequacies (Haist, Wilson, Lineberry, & Griffith, 2007; Van Ryn, Burgess, Malat, & Griffin, 2006). Healthcare and healthcare disparities can be attributed to inadequacies in patient communication, shared decision-making between the patient and provider, and insufficient training of the healthcare provider. Disparities that result from the quality and quantity of care delivered by a practitioner can result in differentiated delivery of healthcare, thus unequal health outcomes.

The current study examined routine screening practices delivered by Physician Assistants as a possible source of healthcare disparities. The research literature suggests that health disparities can manifest from differences in delivery of services. A patient's race and minority status may influence the degree to which these services differ. Healthcare practitioners deliver these services; therefore, it is reasonable to suggest that healthcare providers may contribute to health disparities. The purpose of the study was twofold: 1) to identify disparities in routine screening practices of Physician Assistants and 2) to determine if such differences were associated with patients' race and socioeconomic status.

Health Disparities

Race and socioeconomic status are most salient when describing disparities in health. For example, the mortality rate associated with heart disease, stroke, cancer, asthma, influenza, pneumonia, diabetes, and HIV/AIDS is higher for African Americans than Caucasians (Office of Minority Health, 2011). African American men experience more adverse health outcomes than any other race or gender, with higher mortality rates in all leading causes of death in the US population (Kennard, 2006). African American patients are less likely than Caucasians patients to have controlled hypertension (Downie, 2011). In addition to these findings, studies have shown that a patient's race significantly affects the rate of asthma-related hospitalizations and the likelihood of receiving appropriate long-term control medications (Everage, Pearlman, Sutton, & Goldman, 2010; Gessner, 2003). Furthermore, intervention and prevention of certain health burdens, such as obesity, are critical in the prevention of diabetes and cardiovascular diseases. Disparities are seen in preventive health as well as the adult obesity rate for African Americans and Hispanics is higher in almost every state when compared to Caucasians (Levi, Segal, Laurent, & Kohn, 2011). Also, African Americans and Hispanics are twice as likely as Caucasians to have diabetes. Those with diabetes may suffer from other adverse diseases such as end stage renal disease and lower extremity amputations (Levine, 2001).

Healthcare Disparities.

Ethnic minority group members and low socioeconomic status group members are more likely to receive sub-standard healthcare. Low income, education and occupational attainment affect insurance status, access to care and health status. Many ethnic minority group members endure socio-demographic barriers, such as poverty and access to care, that result in adverse health outcomes (American College of Physicians, 2010). Unfortunately, they are also less likely to receive preventive care services (Minsky-Kelly, Hamberger, Pape, & Wolff, 2005). The American Sociological Association states "that racial and ethnic differences in health outcomes stem from socioeconomic inequalities, adverse conditions in segregated neighborhoods, as well as institutional practices that favor whites over minorities." (American Sociological Association, 2005).

Ethnic minority group members make up the largest representation of those living in poverty (American Psychological Association, 2012). This poverty status often results in the absence of health insurance, which is a primary determinant for access to quality healthcare. Those classified as low socioeconomic status and racial/ethnic minorities constitute the highest percentage of uninsured individuals in the United States (i.e., greater than 50 percent) (U.S. Department of Health and Human Services, 2010). A greater proportion of uninsured patients seek care or treatment that is considered late or overdue, thus, leading to poor health outcomes (Health Policy Institute of Ohio, 2004; U.S. Department of Health and Human Services, 2010).

Additionally, healthcare disparities persist among elderly members of ethnic minority groups. Despite the presence of and access to universal health insurance coverage (i.e., Medicare), patient age group remains a potential correlate of health disparities, particularly for ethnic minority group members (Pamies, 2009). Specifically, racial/ethnic minorities 65 years of age or older, are 30% less likely than their Caucasian counterparts to receive preventive immunizations for illness such as influenza and pneumonia (Office of Minority Health, 2011). Disparities in the rates of preventable hospitalizations are reportedly higher among elderly ethnic minority group members and the poor elderly. Specifically, African Americans experience double the rate of hospitalization than their Caucasian counterparts (CDC, 2011). Finally, having access to care can significantly lower mortality rates among the elderly and the poor. Even when patients have insurance but are faced with challenges to see a provider or must wait long periods of time to receive care, quality of care is compromised (Betancourt, 2006). Such challenges persist among African American elderly and poor patients at disproportionate levels.

Delivery of Services

The differences and inequalities in the delivery of healthcare services received by patients, particularly African American and low-income individuals, can also lead to health disparities (Bach, Pham, Schrag, Tate, & Hargraves, 2004; Kilbourne, Switzer, Hyman, Crowley-Matoka, & Fine, 2006). Healthcare has been defined as the delivery of services which includes the diagnosis, treatment and prevention of diseases, illnesses and injuries as well as other physical and psychological impairments in humans (Committee on the Future of Primary Care Institute of Medicine, 1996). Healthcare practitioners that have completed training in medicine, dentistry, pharmacy, related health sciences and nursing deliver healthcare services. This training emphasizes providing quality healthcare to all patients, regardless of differences in patient demographics, such as race, sex, or socioeconomic status (Nelson, 2002). Despite training programs and policies established to the provision of quality healthcare services, disparities in

health outcomes and healthcare delivery among patients from differing racial/ethnic minority and/or socioeconomic status persist (Bach et al., 2004; Kilbourne et al., 2006).

Research has suggested that practitioner biases or prejudices that emerge during the delivery of services (i.e., screening, diagnosis, and treatment) often lead to healthcare disparities and thus, health disparities (Green et al., 2007; Rathore et al., 2000; Van Ryn & Burke, 2000). For example, one study found that, in 21,629 patients visiting emergency rooms with similar complaints of chest pain, race and insurance status were associated with the delivery of services. Specifically, in comparison to Caucasian patients, minority patients, patients with Medicaid or the uninsured were less likely to have a diagnostic test ordered such as ECG, pulse oximetry, cardiac monitor and cardiac enzyme (Lopez, Vranceanu, Cohen, Betancourt, & Weissman, 2008). In addition, studies have found that facilities treating African American patients were less likely than those treating Caucasian patients to have access to board certified physicians, high quality diagnostic and treatment modalities, and adequate referral services (Bach et al., 2004).

The current study continues in this line of research pursuant of the sources of health disparities through the examination of health care practitioners' reports of routine diagnostic screening practices for ethnically and socioeconomically diverse patients.

METHODS

Design.

A randomized sample of practicing physician assistants in Kentucky were evaluated to determine if the race or socioeconomic status of a patient influenced the likelihood of offering different routine screening recommendations. The anonymous survey instrument consisted of a visual image followed by a written clinical vignette and four-point Likert-type scale questionnaires.

Population studied.

Demographic Characteristics. The target population consisted of current practicing Physician Assistants' in Kentucky. Access to an electronic mailing list of all current practicing Physician Assistants' in Kentucky were obtained via the Kentucky Physician Assistant Association. Membership to this association is voluntary. However, the association collects information on all practicing physician assistants in Kentucky. The population included all practicing Physician Assistants in the practices and subspecialty practices of Family Medicine, Emergency Medicine, Internal Medicine, and Women's Health. To resemble the general population of physician assistants, study participants were selected through a simple random sample procedure.

Survey Instrument.

The study utilized a survey instrument consisting of a visual depiction and written clinical vignette. The race (African American /Caucasian) and socioeconomic status (waitress with high school diploma/lawyer with doctorate degree) of the patient were modified, resulting in four separate vignettes. The study utilized a modified version of an original clinical vignette that was created and used by Baig & Hesler (2008). Permission from the author of the original vignette was obtained for use in the study. The written clinical vignette portrayed a female patient presenting to the medical office for a routine women's health examination. The written vignette included some components of the patient's history, including present illness, past medical history, and social history. Following the clinical vignette were questions to evaluate the Physician Assistants' perceptions, beliefs and knowledge of preventive medicine practices.

Participants were randomly assigned to receive one of the four experimental clinical vignettes to eliminate bias in assignment. Participants were asked to provide demographic information. At the completion of the electronic survey, participants were directed to a new computer window and given the option of entering a random drawing for one of 50 \$10 Amazon gift cards.

Patient Characteristics Independent Variables.

The independent variables included in the study were patient race (African American or Caucasian) and socioeconomic status (waitress with a high school diploma/ lawyer with a doctorate degree). There were four groups formed by the combination of levels, 1) African American/waitress with a high school diploma 2) Caucasian/waitress with a high school diploma 3) African American/ lawyer with a doctorate degree, and 4) Caucasian/ lawyer with a doctorate degree.

Physician Response Dependent Variable.

Routine screening recommendation practices for Physician Assistants based on specific preventive healthcare issues were the dependent variables for the current study. Screening recommendations were generated from national practice guidelines and evidence-based medicine research. The survey instrument included questions about the likelihood of decisions based on established screening recommendations.

The entire clinical vignette containing the independent variables were displayed on one page. There were six separate sets of questions, each set displayed on a separate page. The study participants were not allowed to go back to previous questions as he or she advanced through each set of questions. The first question in the survey asked the participant to indicate how likely he or she was to include screening recommendations when obtaining a medical history on the patient described in the vignette. Screening recommendations were compiled and placed into separate categories consisting of items defined as screening recommendations and screening tests/procedures recommendations. There was a total of 17 items for screening recommendations. Each screening recommendation category were measured using a 4-point Likert scale of 1 = Very Unlikely, 2 = Unlikely, 3 = Likely, 4 = Very Likely.

Data Collection.

The study was submitted and approved by the Institutional Review Board at the host institution for the research study. A survey design was used for the purposes of collecting data. To address content and construct validity, the survey was reviewed and edited by a panel of peer reviewers who were experts in the field of medical education and medical research, with knowledge related to the contents of the survey. A cover letter containing a description of the study, details of the informed consent procedures and the researcher's contact information was included in the initial email invitations. The survey was anonymous; no internet protocol addresses were collected.

Survey

The instrument was an internet-administered survey with targeted response rate of 20% to 40%. Data were collected over a 2-week period. To increase predicted response rates, the participants received a follow-up email reminder in 48 hours after the initial request and 48 hours after the subsequent reminder. One week after the subsequent email reminder, a repeat mailing of the survey was sent to all responders.

The survey instrument was emailed to 611 practicing physician assistants that met inclusion criteria. Invitations to participate in the study resulted in 142 responses (23 %). After list-wise deletion for incomplete data, this number fell to 112.

RESULTS

Descriptive results.

The demographic characteristics showed that providers were mostly Caucasians (72%), between 30- 49 years of age (33.6%), and female (68.8%). More than half of those surveyed practiced for 9 years or less (55%). Physician Assistants participating in the study practice family medicine (23.6%), followed by emergency medicine (18%). Practice location was proportional between urban, suburban and rural location (30.3, 32.1, and 37.6%, respectively) Descriptive information for study participant is in Table 1.

Table 1. Demographic Results of Physician Assistant Survey Participants

Variables	Physician Assistant Study Participants (N=112)	Kentucky Physician Assistants (N=936)
Gender		
Male	28.7% (n=31)	31.9% (n=299)
Female	68.8% (n=77)	66.9% (n=627)
Race (n=110)		
African-American/Black	2.7% (n=3)	2.1% (n=20)
Hispanic/Latino	0.0% (n=0)	2.0% (n= 19)
White, non-Hispanic	92.7% (n=102)	72.0% (n=675)
Asian, Pacific Islander or Indian subcontinent	1.8% (n=2)	4.2% (n=40)
Race/Ethnicity not listed, please specify	2.7% (n=3)	0.3% (n=3)
Age (n=110)		N/A
20-29	14.5% (n=16)	
30-39	33.6% (n=37)	
40-49	25.5% (n=28)	
50-59	15.5% (n=17)	
60 or <	10.7% (n=12)	

Table 1 (Continued) Demographic Results of Physician Assistant Survey Participants

Variables	Physician Assistant Study Participants (N=112)	Kentucky Physician Assistants (N=936)
Years in Practice		
< 5	27.5% (n=30)	N/A
5-9	27.5% (n=30)	
10-14	19.3% (n=21)	
15-19	9.2% (n=10)	
20 or more	16.5% (n=18)	
Practice Specialty		
Emergency Medicine	18.2% (n=20)	11.0% (n= 109)
Family Practice	23.6% (n=26)	37.2% (n= 349) ^a
General Surgery	0.9% (n=1)	1.6% (n= 34)
Hematology/Oncology	0.9% (n=1)	11.0% (n= 109)
Internal Medicine	10.9% (n=12)	10.2% (n= 96)
Neurology/surgery	3.6% (n=4)	2.5% (n= 24) ^b
Otorhinolaryngology	1.8% (n=2)	N/A
Orthopedic/Surgery	10% (n=11)	0.6% (n= 5)
Pediatrics	1.8% (n=2)	5.5% (n= 52)
Plastic Surgery	0.9% (n=1)	1.4% (n= 13)
Urology	0.9% (n=1)	0.0% (n= 0)
Other	21.8% (n=24)	0.4% (n= 4)
Practice Environment		
Hospital based	25.5% (n=28)	26.8% (n= 251)
Individual practice	13.6% (n=15)	12.3% (n= 116)
Small group practice (≥5)	29.1% (n=32)	N/A
Large group practice (≤6)	22.7% (n=25)	N/A
Other	9.1% (n=10)	N/A
Practice Location		
Urban	30.3% (n=33)	
Suburban	32.1% (n=35)	
Rural	37.6% (n=41)	

Note. ^a This is representative of family medicine, with or without urgent care, general internal medicine, general pediatrics and obstetrics and gynecology. ^b Combined neurology and neurosurgery.

Screening Recommendation Results. The means and standard deviations were calculated for each of the 17 screening recommendations (Table 2).

Table 2 Test between Subjects Effect Recommendations for Race

Dependent Variable	Mean Sq.	F	Sig	Partial Eta	Observed Power
Dental Health	.057	.072	.789	.001	.058
HTN	2.41	5.83	.017	.051	.668
Lipid	.816	1.433	.234	.013	.220
Alcohol	.303	.511	.476	.005	.109
Breast CA	1.04	1.69	.196	.015	.252
Tobacco	.585	1.45	.231	.013	.223
Diabetes	.471	.832	.364	.008	.148
Pre-Conception	.005	.005	.943	.000	.051
Sexual Health	.003	.003	.956	.000	.050
Sedentary Lifestyle	.000	.001	.982	.000	.050
IPV	.113	.168	.683	.002	.069
Diet/Exercise	.003	.004	.949	.000	.050
Obesity	3.43	3.82	.053	.034	.491
Depression	1.561	1.99	.161	.018	.287
Cancer Prevention	.205	.288	.592	.003	.083
Immunization Hx	8.03	10.20	.002	.086	.886
Firearm Safety	.069	.200	.656	.002	.073

Multivariate analysis of variance (MANOVA) was conducted to identify differences in the dependent variables as a function of race and socioeconomic status. The multivariate analysis was conducted as a general linear model using the Statistical Package for Social Sciences (SPSS v. 21.0) software. Multivariate analysis was used to examine the mean scores for the likelihood of suggesting screening recommendations and screening test recommendations for each of the two independent variables of race and socioeconomic status. To proceed with a MANOVA, equality of covariance matrices and homogeneity of variance assumptions had to be satisfied. The Box’s Test evaluated the assumption that the covariance across matrices were the same across both independent variables. The Box’s Test showed that the covariance was significantly different, suggesting that the assumption of homogeneity of covariance was violated. However, Box’s Test is sensitive to having equal sample sizes across groups, affecting the test robustness. Each cell had an unequal number of respondents suggesting that robustness cannot be assumed in the MANOVA. To account for an unequal number of respondents, a Type III sum of squares was used to correct for the unequal number of respondents and lack of balance across the two independent variables of race and socioeconomic status. Homogeneity of error variances was evaluated using Levene’s test. The Levene’s test was not significant for any of the dependent variables, confirming that the assumption of equality of error variances was met across all the dependent variables ($p > .001$).

Screening Recommendations: MANOVA Results.

Cohen's criteria were used to examine the effect size. The criteria suggest that the effect size is small when η^2 is equal to .01, medium effect when η^2 is equal to .06 and a larger effect size when η^2 is equal or greater than 0.14 or greater is considered large (Cohen, 1988). With an alpha level of .05, a one-way MANOVA showed a statistically significant main effect for race differences on screening recommendations: Pillai's Trace (V) = .26, $F(17, 92) = 1.88$, $p = .03$, $\eta^2 = .26$, observed power = .94.

Statistically significant was not found based on an alpha level, $p = .05$, for socioeconomic status and the interaction term of race and socioeconomic status. The significant MANOVA results justified proceeding with analysis of whether Physician Assistants assigned to the African American patient vignette would report significantly lower routine screen recommendations as compared to Physician Assistants assigned to the Caucasian patient vignette.

The mean scores were statistically significantly different between Caucasian women and African American women on hypertension screening ($M = 2.41$, $p = .017$), obesity ($M = 3.43$, $p = .053$) and immunizations ($M = 8.03$, $p = .002$) (Table 2).

Follow-up univariate ANOVAs showed that the main effect for race had a statistically significant effect on screening recommendations of hypertension (HTN), $F(1, 112) = 5.832$; $p = .017$; $\eta^2 = .051$ and immunization, $F(1, 112) = 10.20$; $p = .002$; $\eta^2 = .086$. A Bonferroni correction ($p = .02$) was used to protect against alpha inflation at the level of multiple univariate ANOVAs. Although not statistically significant after the Bonferroni correction, obesity was trending towards significance, $p = .053$, $F(1, 112) = 3.82$; $p = .053$; $\eta^2 = .03$ (Table 2).

The study found that participants were less likely to recommend: hypertension (HTN), ($M = 3.42$, 95% CI [3.24, 3.59]), or immunization screening to African American women, ($M = 2.45$, 95% CI [2.21, 2.69]) when compared to Caucasian women ($M = 3.71$, 2.98, 95% CIs [3.55, 3.88], [2.76, 3.23]), respectively (Table 3).

Table 3 Mean Estimates for Screening Recommendation based on Race

Dependent Variable	Pt Race in Vignette	Mean	Std. Error	95% CI	
				Lower Bound	Upper Bound
Dental Health	AA	1.93	.12	1.68	2.17
	WW	1.88	.12	1.65	2.11
HTN	AA	3.42	.09	3.24	3.59
	WW	3.71	.08	3.55	3.88
Lipid	AA	3.32	.10	3.11	3.52
	WW	3.49	.10	3.30	3.68
Alcohol	AA	3.29	.11	3.08	3.50
	WW	3.39	.10	3.19	3.59
Breast CA	AA	3.26	.11	3.05	3.48
	WW	3.46	.10	3.25	3.66
Tobacco	AA	3.55	.09	3.38	3.72
	WW	3.70	.08	3.53	3.86
Diabetes M	AA	3.38	.10	3.17	3.58
	WW	3.51	.10	3.31	3.70
Pre-Conception	AA	2.42	.14	2.15	2.69
	WW	2.41	.13	2.15	2.66
Sexual Health	AA	2.77	.13	2.50	3.03
	WW	2.78	.13	2.53	3.03
Sedentary Lifestyle	AA	2.79	.13	2.53	3.04
	WW	2.78	.12	2.54	3.02
IPV	AA	2.10	.11	1.88	2.32
	WW	2.04	.11	1.82	2.25
Diet/Exercise	AA	3.03	.12	2.79	3.27
	WW	3.02	.12	2.79	3.25
Obesity	AA	2.68	.13	2.43	2.94
	WW	3.03	.12	2.79	3.28
Depression	AA	2.61	.12	2.37	2.85
	WW	2.85	.12	2.62	3.07
Cancer Prevention	AA	2.66	.12	2.43	2.89
	WW	2.75	.11	2.53	2.97
Immunization Hx	AA	2.45	.12	2.21	2.69
	WW	2.98	.12	2.76	3.23
Firearm Safety	AA	1.53	.08	1.37	1.68
	WW	1.58	.08	1.43	1.73

DISCUSSION

The study results suggest that the patient's race influenced differences found in two screening recommendations. The findings suggest that the hypothetical African American female patients, as represented in the clinical vignettes, were less likely to receive screening recommendations for hypertension and immunizations when compared to the Caucasian female patients.

Preventive screening for hypertension could aid in preventing the development of chronic medical conditions such as end stage renal failure, stroke, and myocardial infarctions. This is a major risk factor for ethnic minority women, with the incidence rates for hypertension being higher for African American women than for Caucasian women (Bailey et al., 1997). The study findings support national trends on healthcare disparities with African Americans being less likely to receive screening for hypertension (10%) and immunizations (35%) than Caucasians (National Commission on Prevention Priorities, 2007). Additionally, the results from this study were consistent with previous studies that showed that the African American female patient were less likely to receive screening recommendations for obesity when compared to Caucasian female patient (Baig & Heisler, 2008).

Limitations

The method used to deliver the survey instrument has external validity limitations. The study was delimited to study participants who are nationally certified Physician Assistants practicing in the state of Kentucky. Physician Assistants that have not taken and passed their national board certification exam were excluded as participants in the study. The results from the proposed study are generalizable only to certified Physician Assistants in the state of Kentucky. Additionally, the sample was overwhelmingly Caucasian and female, preventing the opportunity to complete further subset analyses based on race/ethnicity and gender of the participants. The random sample of participants could expand to several other states, improving generalizability. In addition, internet-based data collection has limitations, specifically those associated with technology failure and accessibility. Email accessibility and restrictions can be challenging in that, study participants cannot ask for clarity or explanations of any questions. It is possible that a representative sample of the target population would not have the opportunity to take the survey due to internet resources or lack of the necessary skills to navigate through the technology. Multiple modalities of delivery such as, paper surveys could improve response rates and study results.

The clinical vignette included only one female patient, who was either African American/Caucasian and from a low or high socioeconomic status. The study used a pictorial representation of a female patient. The pictures were identical except for modifications to the skin color of the patient. Future studies should include diverse clinical vignettes that vary in a patient's demographic characteristics as health and healthcare disparities occur among all genders, races and socioeconomic statuses.

CONCLUSION

This study was the first of its kind to include Physician Assistants as the study participants. Physician Assistants commonly provide preventive healthcare services and are more often the initial provider for such services. This makes them an integral part of the healthcare system. This study explored whether Physician Assistants provided differentiated

care to patients based on their demographic characteristics from the findings of this study, it can be concluded that race and socioeconomic status continue to be a significant factor in the prevalence of some healthcare disparities. More importantly, the study suggests that Physician Assistants may provide differentiated care based on a patient's race and socioeconomic status.

REFERENCES

- American College of Physicians. (2010). Racial and Ethnic Disparities in Health Care, Updated 2010 *American Medical Association*.
- American Sociological Association. (2005) Race, Ethnicity, and the Health of Americans. *ASA Series on How Race and Ethnicity Matter*.
- Bach, P., Pham, H., Schrag, D., Tate, R., & Hargraves, J. (2004). Primary Care Physicians Who Treat Blacks and Whites. *The New England Journal of Medicine*, 351(6), 575-584. doi:10.1056/NEJMsa040609
- Baig, A., & Heisler, M. (2008). The Influence of Patient Race and Socioeconomic Status and Resident Physician Gender and Specialty on Preventive Screening. *Semin Med Pract*, 11, 27-35.
- Bailey, J., Kellermann, A., Somes, G., Banton, J., Rivara, F., & Rushforth, N. (1997). Risk Factors for Violent Death of Women in the Home. *Arch Intern Med*, 157(7), 777-782. doi:10.1001/archinte.1997.00440280101009
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.)*. Hillsdale, NJ.
- Committee on the Future of Primary Care Institute of Medicine. (1996). *Primary Care: America's Health in a New Era*: The National Academies Press.
- Downie, D., Schmid, D., Plescia, M., Huston, S., Bostrom, S., Yow, A., Lawrence, W., DuBard, C. (2011). Racial disparities in blood pressure control and treatment differences in a Medicaid population, North Carolina, 2005-2006. *Preventing Chronic Disease*, 8(3), A55. Retrieved from http://www.cdc.gov/pcd/issues/2011/may/10_0070.htm
- Everage, N., Pearlman, D., Sutton, N., & Goldman, D. (2010). Disparities by race/ethnicity and sex: asthma hospitalizations and emergency department visit rates in Rhode Island and Healthy People 2010 goals. *Medicine And Health, Rhode Island*, 93(6), 177.
- Gessner, B. (2003). Asthma prevalence among Alaska Native and nonnative residents younger than 20 years enrolled in Medicaid. *Annals of Allergy, Asthma & Immunology*, 90(6), 616-621.
- Green, A., Carney, D., Pallin, D., Ngo, L., Raymond, K., Iezzoni, L., & Banaji, M. (2007). Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients. *Journal of General Internal Medicine*, 22(9), 1231-1238. doi:10.1007/s11606-007-0258-5
- Haist, S., Wilson, J., Lineberry, M., & Griffith, C. (2007). A Randomized Controlled Trial Using Insinuated Standardized Patients to Assess Residents' Domestic Violence Skills Following a Two-Hour Workshop. *Teaching & Learning in Medicine*, 19(4), 336-342. doi:10.1080/10401330701542495
- Health Policy Institute of Ohio. (2004). *Understanding Health Disparities*. Columbus, OH Retrieved from <http://a5e8c023c8899218225edfa4b02e4d9734e01a28.gripelements.com/pdf/publications/healthdisparities.pdf>.

- Kennard, J. (2006). *Black American Men's Health; Statistics show black men worse off*. Explore Men's Health, The New York Times Company. (Ed.) Retrieved from http://menshealth.about.com/od/blackhealth/a/Af_amer_stats.htm
- Kilbourne, A., Switzer, G., Hyman, K., Crowley-Matoka, M., & Fine, M. (2006). Advancing health disparities research within the health care system: a conceptual framework. *American Journal of Public Health, 96*(12), 2113-2121.
- Levi, J., Segal, L., Laurent, R., & Kohn, D. (2011). *F as for Fat; How Obesity Threatens America's Future 2011*. Retrieved from <http://www.rwjf.org/en/library/research/2011/07/f-as-in-fat.html>
- Levine, R., Foster, J., Fullilove, R., Fullilove, M., Briggs, N., Hull, P., Husaini, B., Hennekens, C. . (2001). Black-white inequalities in mortality and life expectancy, 1933-1999: implications for Healthy People 2010. *Public Health Reports, 116*(5), 474-483.
- Lopez, L., Vranceanu, A., Cohen, A., Betancourt, J., & Weissman, J. (2008). Personal characteristics associated with resident physicians' self perceptions of preparedness to deliver cross-cultural care. *Journal of General Internal Medicine, 23*(12), 1953-1958.
- Minsky-Kelly, D., Hamberger, L., Pape, D., & Wolff, M. (2005). We've Had Training, Now What? *Journal of Interpersonal Violence, 20*(10), 1288-1309. doi:10.1177/0886260505278861
- National Commission on Prevention Priorities. (2007). *Data Needed to Assess Use of High-Value Preventive Care: A Brief Report from the National Commission on Prevention Priorities*. Partnership for Prevention,. Retrieved from <https://www.prevent.org/data/files/initiatives/briefdataneedsreport.pdf>
- Nelson, A., Smedley, B., Stith, A. (2002). *Unequal Treatment:: Confronting Racial and Ethnic Disparities in Health Care (full printed version)*: National Academies Press.
- Office of Minority Health. (2011). *Data/Statistics*. Retrieved from <http://www.minorityhealth.hhs.gov/templates/browse.aspx?lvl=3&lvlid=532>.
- Pamies, R., Nsiah-Kumi, P. (2009). Addressing Health Disparities in the 21st Century. In C. Kosoko-Lasaki, O'Brien (Ed.), *Cultural Proficiency in Addressing Health Disparities*: Jones and Bartlett.
- Rathore, S., Lenert, L., Weinfurt, K., Tinoco, A., Taleghani, C., Harless, W., & Schulman, K. (2000). The effects of patient sex and race on medical students' ratings of quality of life. *The American Journal of Medicine, 108*(7), 561-566. doi:10.1016/s0002-9343(00)00352-1
- U.S. Department of Health and Human Services. (2010). *National Healthcare Disparities Report*. Rockville(MD). Retrieved from <http://www.ahrq.gov/qual/nhdr10/Chap5.htm>
- Van Ryn, M., Burgess, D., Malat, J., & Griffin, J. (2006). Physicians' perceptions of patients' social and behavioral characteristics and race disparities in treatment recommendations for men with coronary artery disease. *American Journal of Public Health, 96*(2), 351-357.
- Van Ryn, M., & Burke, J. (2000). The effect of patient race and socio-economic status on physicians' perceptions of patients. *Social Science & Medicine, 50*(6), 813-828.