

Relationships of Demographic Background and Practice Setting Among Practicing Physician Assistants in the United States

Richard D. Muma, Justin Kelley, Shawn Lies

Introduction: It is assumed that minority health care providers continue to work in primary care and in underserved areas in higher proportions than their nonminority counterparts, regardless of changing workforce practice patterns. The primary purpose of this study was to determine whether this assumption still holds true among US physician assistants (PAs) in light of recent PA specialization. This assumption is important as there is continuing evidence that a similar background between providers and patients can be beneficial to the provider-patient relationship and to patient outcomes. A secondary purpose was to determine the relationships between various demographic variables (e.g., race) and current practice specialty and population served among all PAs. **Methods:** This cross-sectional study measured demographic and practice setting survey data. A random sample of 10,500 PAs was surveyed. **Results:** The main finding was that minority PAs were more likely to care for the underserved (31.9% vs. 19.3%) and to work in primary care practices (38.8% vs. 29.3%) than were nonminorities. A significant relationship was also found between serving underserved populations and nonmarried status, as well as age over 39 (these groups were more likely to serve this population, $p < 0.01$). Household income less than \$50,000 at the time of high school graduation was significantly related to caring for underserved individuals ($p < 0.01$) and working in primary care settings (more likely to serve in these settings, $p < 0.001$). **Conclusions:** Minority PAs were more likely to care for the underserved and work in primary care settings. Certain other demographic variables among all respondents were also significantly related to service to the underserved and work in primary care settings.

INTRODUCTION

In 2000, the minority population in the United States was estimated by the US Census Bureau to be 24.9% of the population. This percentage was expected to increase to 35% by 2030. It might be logical to assume that minority representation in the health professions, such as physicians and physician assistants (PAs), will proportionally increase; however, current trends suggest that there is a long way to go for these populations to be represented proportionally. Minority representation in the physician profession is currently 10.2%, while minority representation in the PA profession is 12.0%. Past research has indicated that higher proportions of minority PAs work in inner city settings than the national average for all PAs.

Review of the Literature

Minority physicians are more likely to care for minority patients than are white physicians. This is important as minority patients cared for by minority health care providers tend to have better health outcomes. A study of graduates from an urban PA program with large minority representation found that minorities were more likely to provide primary care services to underserved populations (although it should be noted that these PA graduates were concentrated in acute care hospitals where they earned higher salaries and had other benefits).

Increasing the number of providers caring for the underserved will affect access to medical care significantly, as well as have an effect on the overall cost and quality of health care. If demographic variables could be found to identify these providers, more efficient policies to increase the number of health care providers having similar characteristics could be implemented.

Efforts have been made on a national level to increase the recruitment, retention, and academic success of underrepresented minorities in allied health fields. For example, underrepresented minority PA faculty have been recruited to serve as both role models and future colleagues for minority students. This practice

tends to serve as a retention tool, as minority students feel more welcome and supported because they are surrounded by individuals who come from similar backgrounds. Interventions are also under way to increase the number of underrepresented minorities admitted to health professions education programs, such as PA programs. Ultimately, minority graduates may become faculty members involved in the education of PA students.

Allied health, medical, and nursing academic programs have modified their admission requirements to consider race-neutral factors (e.g., applicants with household income meeting US poverty threshold level at the time of high school graduation, first-generation college students, Spanish speakers, and others) in an effort to boost the percentage of minorities in their applicant pools and matriculants in programs.

Several studies show that minority physicians are more likely than their nonminority peers to practice in underserved areas; one study showed that this rate was double — 12% vs. 6%. Likewise, a random sample of 2,600 allopathic physicians and 355 osteopathic physicians were surveyed by Rabinowitz et al. These providers specialized in family practice, general practice, general internal medicine, or general pediatrics without sub specialization. Four variables were important predictors of physicians providing substantial care to underserved populations: being a member of an underserved minority, participating in the National Health Service Corps, having a strong interest in practicing in an underserved area before medical school, and being raised in an underserved area.

Purpose

These literature review findings not only provided groundwork for the design of this project and comparison of results, they can also provide the basis for future research and insight into the factors affecting underserved care among US PAs in 2008. Continuing research into the best ways to recruit individuals interested in caring for underserved populations may provide a beneficial resource for PA programs.

Research and anecdotal evidence indicate that minority health care providers (including PAs) have been more likely to work in areas of need. However, no recent research regarding PAs on a national level has been conducted to verify this in light of the more recent specialization of the PA profession. The primary purpose of this study was to determine whether past research and current assumptions still hold true. A secondary purpose was to determine the current relationships between the demographic background of practicing PAs (both minority and nonminority) and current practice settings.

METHODS

Design and Research Questions

This study was cross-sectional and conducted on a random sample of PAs across the United States. The research questions were as follows:

- Do minority PAs care for patients in underserved communities?
- What were the relationships between current practice specialty and population served to demographic variables among practicing PAs in the United States?

Participants

The American Academy of Physician Assistants (AAPA) database was queried in spring 2008 to obtain a randomized sample. To ensure an adequate number of variables in the respondent data set (particularly for specialty and race), a large sample was needed. A 20-30% response rate was expected. Therefore, 10,500 PAs were surveyed to ensure a pool of respondents numbering approximately 2,000.

Measurement and Procedures

The survey variables selected were based on three studies examining physician and PA demographics and care for the medically underserved. The surveys were mailed via regular mail. An 8-week time frame for response was given. No reminder postcards were sent.

Data Analysis

Frequency counts determined current practice specialty, population served, current practice community size, PA degree level, relationship status, gender, age, race/ethnicity, primary language spoken, family size and income during high school, high school classification and GPA, and PA program GPA. Chi-square analyses were performed to determine whether any significant relationships existed between current practice specialty and population served and demographic variables. SPSS, version 17, was used to analyze the data. The alpha level was set at .05.

	Mean	SD	Range
Current age	40.94	+/- 11.52	22–83
Graduation age	29.90	+/- 8.49	18–67

RESULTS

Demographic Profile

The survey return rate was 20% (n = 2,048). Respondents' mean age was 40.94 years (see Table 1a). Most respondents held a PA master's degree (53.1%). Nearly 12% were minorities. Specialty care was the most common practice type (63.5%) and 20.8% were working in practices caring for underserved populations, as designated by the state or federal government (see Table 1b).

Nonparametric Data

More than a third of primary care PAs served underserved populations (35.6%), compared to 15.5% of specialty PAs (see Table 2). Minority PAs were much more likely than nonminority PAs to work in primary care (38.8% vs. 29.3%) and care for underserved patients (31.9% vs. 19.3%) (see Table 3). Further analysis revealed significant relationships between practice type and high school community size, degree, age, household income, and high school GPA (see Table 4). Likewise, significant relationships were found between population served and practice community size, degree, relationship status, age, and household income (see Table 5).

DISCUSSION

The data from this study support the assumption that higher percentages of minority PAs provide care to underserved individuals and work in primary care settings than nonminorities, even in light of overall PA specialization. In addition, significantly greater percentages of married and older PAs cared for the underserved than do unmarried and younger PAs. Similarly, PAs from households with income of less than \$50,000 at the time of high school graduation were more likely to care for underserved individuals and practice in primary care settings. As characteristics like race, age, and marital status cannot be used to admit students into academic programs, understanding graduate practice data such as that presented here may provide a beneficial resource for academic health programs interested in developing interventions directed at identifying applicants who are likely to serve underserved populations. For example, application screening tools may be developed in which race-neutral factors may be used (e.g., household income at the time of high school graduation, first-generation college students) as proxies for other characteristics.

Summary of Results as Compared to the Literature

One of the first studies on this topic, by Prohaska in 1981, indicated that minority graduates were more likely than nonminorities to provide primary care services to underserved populations.⁷ Almost 30 years later, a similar outcome was detected for this study’s respondents: A significantly higher percentage (31.9% vs. 19.3%) of minority PAs were caring for underserved populations than were nonminority PAs. A study by Valentine found similar results to our research but did not address the demographic variables and how they were related to current practice settings. However, in Valentine’s study, minority PAs were more likely to practice in primary care and inner city settings, which were more likely to have underserved patients, but the relationships were not statistically significant. This was in contrast to our study, which demonstrated statistically significant relationships.

In the study by Rabinowitz et al, variables analyzed were similar to those in our study. They found that minority physicians were providing substantial care to underserved populations. Separate studies have shown that minority physicians are much more likely than their nonminority peers to practice in underserved areas (12% vs. 6% in one study). Another variable found to be important in providing substantial care to underserved populations in the Rabinowitz et al study was whether the physician grew up in an underserved area. Our study did not specifically address whether a PA grew up in an underserved area, but it did address the size of the community of the high school attended. Primary care PAs were more likely to be graduates of nonurban high schools. Unexpectedly, urban high school graduates were more likely to treat the underserved.

The Rabinowitz study also found that variables not related independently to providing care to the underserved included gender, family income when growing up, and curricular exposure to underserved populations during medical school. Results from our respondents also concluded that gender was not significantly related to providing care to the underserved. However, among our respondents, PAs whose family household incomes were less than \$50,000 at the time of high school graduation were significantly more likely to work with underserved individuals ($p < 0.01$) and in primary care settings ($p < 0.001$).

Table 1b. Demographic Characteristics of Survey Respondents (n = 2,048)	
	Percent
Gender	
Male	36.4
Female	63.6
Specialty	
Primary care (internal & family med, and pediatrics)	30.5
Nonprimary care (e.g., cardiology, surgery)	63.5
Other (not in clinical practice/academic PAs)	6.0
Population served	
Underserved by federal or state designation	20.8
Not underserved	66.6
Other (did not know or not in clinical practice)	12.6
Practice community size	
Urban (> 50,000)	73.1
Nonurban	26.9
High school community size	
Urban (> 50,000)	53.1
Nonurban (< 50,000)	46.9

Table 1b. Demographic Characteristics of Survey Respondents (cont'd)	
	Percent
Household income	
\$0-\$50,000	53.9
\$50,001 and over	46.1
High school type	
Public	85.0
Private	15.0
Degree	
Certificate w/o degree	8.1
Associate	4.4
Bachelor's	34.4
Master's	53.1
Relationship status	
Married	70.9
Not married	29.1
Race/ethnicity	
Nonminority	88.3
Minority	11.7
Primary language spoken	
English	97.8
Spanish	0.9
Other	1.3
Family size	
1-4	42.7
5 or more	57.3
High school GPA	
1.5-3.5	50.4
3.6-5.3	49.6
PA program GA	
2.0-3.54	50.0
3.55-5.0	50.0

*Note: Percent columns may not add up to 100% because of rounding and respondent omissions.

Overall Significance of the Study Findings

This was a nationwide survey with an adequate response rate from which generalizations can be made. The percentage of minorities among respondents was 12%, the same as in the AAPA Annual Census in 2008. The focus of the study was to obtain a current and general understanding of the PA population in terms of the relationship between demographics and practice setting. The significance rests in the fact that no recent study has been conducted to determine relationships between PAs' demographic information and their current practice settings.

The results of this study demonstrate that the original assumption still holds true: Minority PAs continue to treat members of underserved populations and work in primary care settings in higher percentages than nonminority PAs, even in light of the specialization that has occurred in the PA profession. Additionally, practice data in this study provide information for PA programs interested in

developing interventions directed at identifying applicants who are likely to serve underserved populations.

Specialty	Population Served			χ^2
	Underserved	Not Underserved	Don't Know or Other	
Primary care	35.6	59.2	5.1	
Specialty	15.5	75.3	9.1	
Other	0.9	8.5	90.6	790.08*

	Nonminority Number (percent)		Minority Number (percent)	
	Primary care	528	(85.2)	92
Specialty	1161	(89.6)	135	(10.4)
Other	112	(91.8)	10	(8.2)
Total	1801		237	
Population served				
Underserved	346	(81.9)	76	(18.1)
Not underserved	1212	(89.7)	139	(10.3)
Don't know or other	231	(90.9)	23	(9.1)
Total	1789		238	

Practice Type	Variable				χ^2
	Practice Community Size				
	Urban		Nonurban		
Primary care	54.8		45.2		
Specialty	81.5		18.2		
Other	73.7		26.3		
	Degree				45.70**
	Certificate	Associate	Bachelor's	Master's	
Primary care	10.2	4.2	35.7	49.9	
Specialty	6.1	4.5	32.7	56.6	
Other	17.9	4.3	47.0	30.8	
	Relationship Status				0.41
	Married		Not Married		
Primary care	70.3		29.7		
Specialty	70.9		29.1		
Other	73.2		26.8		
	Gender				5.25
	Male		Female		
Primary care	32.9		67.1		
Specialty	38.2		61.8		

Table 4. Practice Type Relationship to Demographics, Percents (cont'd)			
Practice Type	Variable		X ²
Other	35.0	65.0	
	Current Age		71.05*
	0-38	39 and over	
Primary care	43.9	56.1	
Specialty	55.8	44.2	
Other	19.8	80.2	
	Graduation Age		3.96
	0-28	29 and over	
Primary care	44.8	55.2	
Specialty	48.6	51.4	
Other	53.3	46.7	
	Race/Ethnicity		9.47***
	Nonminority	Minority	
Primary care	85.7	14.8	
Specialty	89.6	10.4	
Other	91.8	8.2	
	Family Size		5.60
	1-4	5 and over	
Primary care	38.8	61.2	
Specialty	44.5	55.5	
Other	3.1	56.9	
	Household Income		28.82*
	\$0-\$50,000	\$50,001 and over	
Primary care	59.8	40.2	
Specialty	49.4	50.6	
Other	72.2	27.8	
	High School Community Size		16.77*
	Urban	Nonurban	
Primary care	47.3	52.7	
Specialty	56.6	43.4	
Other	46.3	53.7	
	High School Type		1.55
	Public	Private	
Primary care	86.5	13.5	
Specialty	84.3	15.7	
Other	85.1	14.9	
	High School GPA		17.27***
	1.5-3.5	3.6-5.3	
Primary care	50.0	50.0	
Specialty	50.6	49.4	
Other	49.6	50.4	
	PA Program GPA		4.38
	2.0-3.54	3.55-5.0	
Primary care	48.5	51.1	

Specialty	49.9	50.1	
Other	59.1	40.9	

Percentages may not add up to 100% because of rounding and respondent omissions. *df = 2, p < 0.001, **df = 6, p < 0.001, ***df = 2, p < 0.01, ****df = 8, p < 0.05

Table 5. Relationship of Population Served to Demographics, Percents (n = 2,048)					
Population Served	Variable				X²
	Practice Community Size				125.66*
	Urban		Nonurban		
Underserved	51.7		48.3		
Not underserved	79.5		20.5		
Don't know or other	73.9		26.1		
	Degree				18.88**
	Certificate	Associate	Bachelor's	Master's	
Underserved	9.5	6.2	33.3	51.0	
Not underserved	6.8	3.9	34.1	55.2	
Don't know or other	12.7	4.0	37.1	46.2	
	Relationship Status				13.83***
	Married		Not married		
Underserved	65.6		34.4		
Not underserved	73.4		26.6		
Don't know or other	65.2		34.8		
	Gender				0.14
	Male		Female		
Underserved	35.7		64.3		
Not underserved	36.7		63.3		
Don't know or other	36.5		63.5		
	Current Age				15.02***
	0-38		39 and over		
Underserved	43.2		56.8		
Not underserved	53.4		46.6		
Don't know or other	46.6		53.4		
	Graduation Age				3.08
	0-28		29 and over		
Underserved	44.4		55.6		
Not underserved	48.4		51.6		
Don't know or other	51.0		49.0		
	Race/Ethnicity				20.53*
	Nonminority		Minority		
Underserved	81.9		18.1		
Not underserved	89.7		10.3		
Don't know or other	90.9		9.1		
	Family Size				0.87
	1-4		5 and over		
Underserved	40.9		59.1		
Not underserved	43.5		56.5		

Table 5. Relationship of Population Served to Demographics, Percents (cont'd)			
Population Served	Variable		X ²
Don't know or other	43.1	56.9	
	Household Income		10.39***
	\$0-\$50,000	\$50,001 and over	
Underserved	61.0	39.0	
Not underserved	51.3	48.7	
Don't know or other	54.4	45.6	
	High School Community Size		3.55
	Urban	Nonurban	
Underserved	52.2	47.8	
Not underserved	54.3	45.7	
Don't know or other	48.0	52.0	
	High School Type		0.28
	Public	Private	
Underserved	85.5	14.5	
Not underserved	84.7	15.3	
Don't know or other	85.8	14.2	
	High School GPA		13.64
	1.5-3.5	3.6-5.3	
Underserved	55.4	44.6	
Not underserved	49.1	50.9	
Don't know or other	48.6	51.4	
	PA Program GPA		
	2.0-3.54	3.55-5.0	
Underserved	50.6	49.4	
Not underserved	49.0	51.0	
Don't know or other	55.2	44.8	

Percentages may not add up to 100% because of rounding and respondent omissions. *df = 2, p < 0.001, **df = 6, p < 0.01, ***df = 2, p < 0.01

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