

PAPANICOLAOU TESTING AMONG NATIVE AMERICAN AND HISPANIC POPULATIONS

Objective: The purpose of this study was to explore the perceptions and knowledge of, and access to, Papanicolaou (Pap) testing among Hispanic and Native-American women.

Design: A cross-sectional descriptive study was conducted by surveying Hispanic and Native-American women. The survey was developed with the constructs of the Preventive Health Model and was designed to assess background characteristics, representation factors, social influence factors, and program factors among Hispanic and Native-American females.

Participants: Hispanic ($n=48$) and Native-American ($n=68$) women aged 18 to 89 years.

Setting: The surveys were distributed in several community health event sites throughout the Kansas City Metropolitan Area.

Main Outcome Measures: The primary response (dependant) variables include knowledge, cervical screening intentions, and perceptions regarding the use of the Pap test.

Results: Most of the women surveyed (97%) had heard about Pap testing and reported having had a Pap test. Abnormal Pap test results were reported by 36% of the respondents. Acculturation and less income were significant factors in whether respondents could afford a Pap test, had health insurance, had a regular healthcare provider, and worried that a Pap test would uncover cervical cancer. Income was additionally related to having a doctor recommend Pap testing, the ability to get to the doctors' office during office hours, and fear of a cervical cancer diagnosis.

Conclusion: Acculturation (or language) and income were determinants of Pap screening behavior among Native-American and Hispanic women. (*Ethn Dis.* 2006;16:223–227)

Key Words: Acculturation, Cervical Neoplasms, Health Behavior, Hispanic Americans, Native Americans, Papanicolaou Test

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INTRODUCTION

Minority populations across the United States tend to have lower-than-optimal rates of adhering to Papanicolaou (Pap) testing guidelines; this fact is especially true of Hispanic and Native-American populations. Regardless of the stage of disease at diagnosis, cervical cancer incidence for Hispanic women was approximately twice that of non-Hispanic women in the years 1992–1999 as reported by the CDC.¹ While over the past few years overall incidence among Hispanic women has dropped by 4.4% per year; adherence to Pap testing within three years is still only 74% among Hispanic women, almost 20% under the target for the 2010 goal.¹

Native-American populations also face cervical cancer incidence burdens. This group has two to five times the incidence of cervical cancer when compared to Whites, and in 1999 was reported to have the highest incidence and mortality from cervical cancer of any racial/ethnic group.² Unfortunately, in the Native-American population, instead of decreasing, the incidence of invasive cervical cancer is steadily escalating.³

The Preventive Health Model has yet to be used to analyze perceptions and knowledge of and access to Pap screening. The purpose of this study was to survey Hispanics and Native Americans to further explore perceptions and knowledge of, and access to, Pap testing among these populations. This study was guided by the Preventive Health Model, which integrates all previous possible determinants of Pap screening

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and further defines possible reasons for the increased incidence of cervical cancer in Hispanic and Native-American populations.

METHODS

Participant Selection

Study participants were chosen on the basis of their racial and ethnic background. The designated survey was administered to a sample of Hispanic and Native-American populations in both rural and urban areas of Kansas and Missouri. To access these populations, study personnel attended minority organization meetings aimed at health education. Such avenues included rural and urban church meetings, health fairs, mammography outreach events, community organization meetings, Native-American reservation events, and other outreach services provided by the Kansas Masonic Cancer Research Institute.

Study Instrumentation

The study protocol was approved by the University of Kansas Human Subjects Committee and the Health Information Portability and Accountability Act (HIPAA) review committee. The approved survey was based upon the constructs of the Preventive Health

Table 1. Characteristics of study population

Characteristic	Total	Hispanic* n (%)	Native American* n (%)	P value
Population	116	48 (41.38)	68 (58.62)	
Language spoken				<.0001†
Only Spanish	34 (29.31)	34 (70.83)	0	
English	82 (71.69)	14 (29.17)	68 (100)	
Marital status				.5427
Ever Married	86 (74.14)	37 (77.08)	49 (72.06)	
Never Married	30 (25.86)	11 (22.92)	19 (27.94)	
Household income				.4895
<\$1100.00 per month	46 (41.81)	21 (45.65)	25 (39.06)	
≥\$1100.00 per month	64 (58.19)	25 (54.35)	39 (60.94)	
Education level				.8875
High school	56 (48.70)	23 (47.92)	33 (49.25)	
College	59 (51.13)	25 (52.08)	34 (50.75)	
Health insurance				.1093
Yes	61 (52.59)	21 (43.75)	40 (58.82)	
No	55 (47.41)	27 (56.25)	28 (41.18)	
Regular healthcare provider				.0004†
Yes	75 (64.66)	22 (45.83)	53 (77.94)	
No	41 (35.34)	26 (54.17)	15 (22.06)	
General health status				.2449
Poor–fair	25 (21.55)	14 (29.17)	11 (16.18)	
Good	62 (53.45)	23 (47.92)	39 (57.35)	
Very good–excellent	29 (25.00)	11 (22.92)	1 (26.47)	
Smoking status				.0837
Never smoked	59 (50.86)	29 (60.42)	30 (44.12)	
Smoker	57 (49.14)	19 (39.58)	38 (55.88)	

* Seven participants identified themselves as both Hispanic and Native American. All of the other participants identifying themselves as Hispanic also checked White or Other in the race category. All other Native Americans identified themselves as non-Hispanic in the ethnicity column.

† Significant differences in answers given by Hispanic and Native American women.

Model.⁴ The survey was composed in both English and Spanish translation. A Spanish translator was consulted to effectively translate the survey from English into Spanish and to ameliorate language interpretation issues. Also, at preventive health outreach programs in which participants who only spoke Spanish were present, an interpreter was present to provide the consensual information and to answer any questions that arose while the participant was completing the survey.

Data Collection Procedure

The information gathered from each survey was transferred into a Microsoft Excel database (Microsoft Corp., Redmond, WA, USA) that employed a data dictionary and double data entry to

ensure accuracy and consistency. Data analyses were performed by using Statistical Analysis Software 8.0e (SAS, SAS Institute, Cary, NC, USA).

Data Management and Analysis

Data obtained from the survey were analyzed to determine direct relationships between the primary response variables and representation, background, and social influence factors (per the Preventive Health Model). The primary response variables included knowledge, intentions, and barriers in the use of the Pap test.

Each categorical variable was summarized by frequencies and percentages, and each quantitative variable was summarized by its mean and standard deviation. Bivariate analysis with chi-

square test, or Fisher exact test when appropriate, was employed to determine any significance that income might have on Pap test adherence and also to determine significant differences between answers given by Native-American and Hispanic women. To test for the presence of acculturation, bivariate chi-square analysis (and Fisher exact test when needed) was performed to test for significance between English-speaking and Spanish-speaking participants. Participants who spoke only Spanish were those who could not complete an English survey, and surveys were identified accordingly.

RESULTS

The total number of women who were surveyed in rural and urban areas of Kansas and Missouri was 116, including 68 Native American and 48 Hispanic women aged 18 to 89 years. Seven participants identified themselves as both Hispanic, in the ethnicity category, and Native American, in the racial category. For comparative reasons, all seven women were categorized and analyzed as Native Americans. All other participants identified themselves as either Hispanic and White or non-Hispanic and Native American. Sixty-eight participants identified English as their primary language, while 34 participants identified Spanish as their primary language. All Spanish-speaking individuals were provided a survey that was translated into Spanish or were read the survey by an interpreter (Table 1).

Ninety-seven percent ($n=47$ or 98% Hispanic and $n=65$ or 97% Native American) of the women surveyed reported having had a Pap test, with the average age of 23 (age 24 for Hispanic and age 22 for Native American) for first Pap test. Thirty-seven percent of the population ($n=20$ or 43% Hispanic and $n=22$ or 33% Native Americans) reported an abnormal Pap test. Of those who reported

Table 2. Comparison of race, language, and income from respondent's agreement with perceptions and knowledge of the Papanicolaou testing

Variable	Race			Language			Income		
	Hispanic <i>n</i> =48, <i>n</i> (%)	Native <i>n</i> =63 <i>n</i> (%)	<i>P</i> value	English <i>n</i> =82, <i>n</i> (%)	Spanish <i>n</i> =34, <i>n</i> (%)	<i>P</i> value	<\$1100 <i>n</i> =46, <i>n</i> (%)	≥\$1100 <i>n</i> =64, <i>n</i> (%)	<i>P</i> value
History of Pap									
1. Ever had a Pap	47 (97.92)	66 (97.92)	.4314	37 (45.67)	33 (97.06)	.4455	45 (97.88)	62 (96.88)	.7626
2. Average time since last test									
Within the last year	32 (68.09)	36 (54.55)	.1536				27 (42.19)	37 (57.81)	.5771
Within last 3 years	8 (17.02)	22 (33.33)					11 (36.67)	19 (63.33)	
More than 3 years	7 (14.89)	8 (12.12)					7 (53.85)	6 (46.15)	
3. Abnormal Pap	20 (42.55)	22 (33.33)	.8341	37 (45.67)	12 (35.29)	.3041	24 (53.33)	25 (39.06)	.1403
Perceived susceptibility									
1. Chance of cervical cancer is high	23 (48.94)	26 (38.80)	.0421	32 (39.02)	17 (50)	.0348	20 (43.48)	14 (21.88)	.0156
2. It is important to get a Pap	48 (100)	62 (91.18)	.0369	76 (92.68)	34 (100)	.1180	43 (93.47)	61 (95.31)	.5281
Perceived seriousness									
1. Cancer is a health problem	48 (100)	62 (91.18)	.5862	81 (98.78)	34 (100)	.7069	46 (100)	63 (98.43)	.3944
2. Cervical cancer is likely to be cured	26 (54.17)	32 (47.06)	.4508	39 (47.56)	19 (55.88)	.4146			
Perceived barriers									
1. Have insurance	21 (43.75)	40 (58.82)	.1093	51 (62.20)	10 (29.41)	.0013	13 (28.26)	44 (68.75)	< .0001
2. Have a regular Dr.	22 (45.83)	53 (77.94)	.0004	67 (81.71)	8 (23.53)	< .0001	24 (52.17)	48 (75.00)	.0130
3. Dr. recommended Pap	36 (76.00)	55 (80.88)	.4479	67 (81.71)	24 (70.59)	.1849	30 (65.22)	55 (85.94)	.0105
4. Pap is painful	16 (33.33)	12 (17.65)	.0518	16 (19.51)	12 (35.29)	.0706	14 (53.85)	12 (46.15)	.1548
5. Pap is embarrassing	18 (37.50)	24 (35.29)	.8076	32 (39.02)	10 (29.41)	.3268	21 (53.85)	18 (46.15)	.0580
6. Others have told me about bad experience	18 (37.50)	22 (32.84)	.6045	26 (32.10)	14 (41.18)	.3510	21 (52.50)	19 (47.50)	.0974
7. Influential person told me to get a Pap	33 (68.75)	37 (55.22)	.1427	48 (59.25)	22 (64.70)	.5850	29 (43.94)	37 (56.06)	.4855
8. Cost is a concern	23 (48.94)	10 (14.71)	< .0001	15 (18.52)	18 (52.94)	.0002	21 (45.65)	10 (15.87)	.0007
9. I can get to office during office hrs	30 (63.83)	44 (66.67)	.7545	56 (70.89)	18 (52.54)	.0657	26 (59.09)	45 (71.43)	.1838
10. It is easy to get to and from Dr. office	35 (74.47)	59 (86.76)	.0934	71 (87.65)	23 (67.65)	.0113	33 (71.74)	55 (87.30)	.0419
Perceived Worries									
1. A Pap will show I have cancer	24 (50)	11 (16.18)	< .0001	13 (15.85)	22 (64.71)	< .0001	20 (43.48)	14 (21.88)	.0156
2. I could get a STD from a Pap test	12 (25)	4 (5.88)	.0033	5 (6.10)	11 (47.83)	.0002			
3. A Pap will keep me from getting pregnant	3 (6.38)	2 (2.94)	.2407	2 (2.44)	3 (9.09)	.1181			
Knowledge									
1. I have heard of a Pap test	45 (93.75)	67 (100)	.0701	81 (100)	31 (91.18)	.0242	44 (41.51)	6 (58.49)	.3843
2. Pap test prevents cervical cancer	41 (87.23)	59 (89.39)	.7228	70 (88.61)	30 (88.23)	.2486	37 (38.95)	58 (61.05)	.1212

Bold numbers are statistically significant differences between populations compared ($P < .05$).

having had a Pap test, most (87%) had a Pap test within the past three years. Only 13% of the participants reported going three or more years without getting a Pap test (Table 2).

DISCUSSION

The Preventive Health Model was a useful model for systematically analyzing perceptions and knowledge of,

and access to, Pap screening among Native-American and Hispanic women. The study findings suggest that greater acculturation and household income contribute to background factors such as demographics, insurance, and presence of a regular healthcare provider. These variants also significantly affect representation factors, especially among Hispanic women, such as worry, perceived susceptibility, and prior screening behavior.

Several of the findings in this study are consistent with current and former research. Several studies have found that lack of insurance, lack of a regular healthcare provider, and worry about cost were barriers to attaining a Pap test among Hispanic and Native American women.^{2,3,5,7-10} While in the process of performing this study, a concurrent research study was published by Byrd et al.¹¹ This study focused on only Hispanic women aged 18 to 25; however,

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findings consistent with those discovered in our study suggest that the same barriers exist across Hispanic women from other regions within the United States. Byrd et al found that acculturation, lack of insurance, and perceived importance of getting a Pap test were positively associated with Pap test receipt. These results are consistent with the results in our study.

Some discoveries were inconsistent with findings in other studies. While perceived worry was found to be more often associated with the Native-American population, our study found it to be much more of a concern among Hispanic women.¹⁰ Byrd et al did not report perceived susceptibility as a significant factor in getting a Pap test, but they reported that perceived Pap test-associated pain and embarrassment was negatively associated with getting a Pap test. These inconsistencies could be associated with the differences in the age of the study populations.

Limitations

Our methods had specific limitations. For instance, age could be a factor when analyzing the high number of women who had received a Pap test. While this research study was conducted on women aged 18 to 89 years, the average age was 43 years. By this age, most every woman, especially among these two populations, would have most likely been to the doctor for an exam, either because of sexual activity or

parity. Also, even though the survey was translated into Spanish, in several of the Hispanic sites, women were unable to read Spanish nor speak or understand English. While the presence of a translator helped in this situation, it could have produced response bias. Also, on the original version of the survey, the word "Pap" was employed rather than the full spelling Papanicolaou. While English-speaking women understood the shortened version, several of the Spanish-speaking women had never heard of the procedure. In order to prevent this from being a confounding factor, the survey was changed to include both versions of the word for all future Spanish-translated surveys. This problem defines the role that language might play in lack of use of Pap tests. Additionally, most of the surveys were administered at mammography outreach or other health screening events, which may have selected women who are health conscious. Also, the survey showed that more than half of the women surveyed had some form of insurance, and almost 75% of the women also reported having a regular healthcare physician, which would indicate that they have medical means to obtain a Pap test. The sample size may be viewed as a limitation of this study. The margin of error is 14% with a sample size of 50 participants in each population group. Therefore, since only 68 Native American women and 48 Hispanic women were surveyed, results may not be generalizable.

CONCLUSION

This study is unique because it used constructs of a theory that had not yet been employed to determine possible reasons for lack of Pap testing among these populations. Also, even though the Hispanic and Native-American populations represent a large number of residents in the Kansas City area and surrounding counties, and also represent

populations at risk for developing cervical cancer, research has not yet been performed to study these populations in this area.

Cervical cancer is a highly preventable disease. Culturally specific prevention and education interventions need to become a priority in public health programs to decrease the health disparity associated with this disease. These targeted interventions can be effectively designed by continuing to study these populations to determine cultural factors that lead to use of the Pap test. The results of this research allow public health officials to discover more effective methods needed to increase adherence to Pap screening and ultimately decrease cervical cancer incidence and mortality among the Native-American and Hispanic populations throughout the Kansas City area.

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