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Breast and Cervical Cancer Screening Among Rural Midwestern Latina Migrant and Seasonal Farmworkers

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Abstract

Background—While cancer control and prevention efforts are well documented, limited information on this topic exists for Latina farmworkers in the rural Midwest. This study sought to examine correlates of breast cancer and cervical cancer screening practices of English- and Spanish-speaking Latina farmworkers in Michigan.

Methods—Survey and anthropometric data were collected from a community-based cross-sectional sample of 173 Latina agricultural laborers in Michigan. Psychosocial-cultural and socioeconomic variables were examined as predictors of mammography and Papanicolaou screening.

Findings—Results showed that individual characteristics that were significantly associated with having a Papanicolaou examination in the last 12 months included having higher language-based acculturation (odds ratio = 3.81), having ever done a breast self-examination (odds ratio = 2.82), and having health insurance (odds ratio = 5.58).

Conclusions—Acculturation, insurance, and performance of breast self-examination were key correlates of recent cervical cancer screening among Midwest Latina farmworkers. Findings suggest that education and targeted outreach strategies for Spanish-speaking Latina farmworker women in rural settings are urgently needed.

Keywords

community health; health services utilization; cancer prevention screening; Latinas; agricultural workers; farmworkers

Enumeration estimates of US farmworkers (FWs) have ranged from 1 million to over 4 million.[1] Latino FWs are arguably at greater health risk and suffer more health problems than the US general Latino population.[2] Over half of FWs nationally live in poverty; fewer

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than 20% have health insurance; and the Federal Migrant Health program currently serves around 10% of FWs and their families.[3]

Michigan's second-largest industry is agriculture, and in 2002, there was $3.4 billion in revenue from farm production.[4,5] In 2001, Michigan was the fifth-largest user of FWs in the United States, and most recent enumeration data indicate that there were almost 100 000 FWs in Michigan in 1997.[4,5] In 2001, most of Michigan's FWs (98%) were of Mexican origin, with 50% migrating from Texas and Mexico to Michigan in "the Midwest stream"[4]; those migrating state to state following the growing seasons are known as migrant FWs. Seasonal FWs are the remaining FWs in Michigan who are residents and have "settled out" and work on the farms during the growing and harvest season.

Breast cancer (BC) and cervical cancer (CC) screening utilization rates differ by ethnicity, education, income, acculturation, and geographic region within the United States.[6] Regular use of mammography is associated with a decreased risk of BC[7] and a 25% BC reduction in mortality in women 40 years and older[8–10]; however, Latinas are less likely than other ethnic groups to utilize mammography.[11–13] Despite white women having higher age-adjusted BC incidence (130.6 per 100 000) and mortality (24.4 per 100 000) compared to Latinas nationwide (90.1 per 100 000 and 15.8 per 100 000, respectively),[14] Latinas are more likely to exhibit late-stage BC at time of diagnosis[15] and have lower survival rates.[16]

Regular CC screening is associated with decreased CC incidence.[17] Compared to other ethnicities, Latinas are less likely to use CC screenings[12,17,18] and more likely than non-Latina white women to be diagnosed with and die from CC.[17,19,20] National data from 2001–2005 data showed that Latinas had a higher age-adjusted CC incidence (13.2 per 100 000) and mortality (3.2 per 100 000) compared to that of white women nationwide (8.2 per 100 000 and 2.3 per 100 000, respectively).[14]

Minimal data exist that report cancer control efforts targeting Latina FW populations. A few studies have reported FW women's BC/CC screening knowledge and practices throughout Texas, North Carolina, California, and Florida.[21–25] One such study showed that 40% of age-eligible Latina FWs had a mammogram within the past 2 years versus a national average of 60% for Latinas,[24] illustrating a need for outreach to FW populations.[19]

Individuals with limited English proficiency have greater difficulties communicating with and understanding providers[26,27] and are less likely to use preventive services, have health insurance, or have had a recent physician visit.[28–30] Higher language acculturation (ie, English proficiency) positively predicts Latina BC/CC screening[31] usage, after controlling for other covariates.[32–35] Lower levels of education relate to mammography and Papanicolaou examination (Pap exam) underutilization in Latinas and misunderstandings of cancer risk.[33,36–43] Studies show that health insurance coverage,* visiting a physician in the past year[12,33] and having a usual source of care[16,45,47–50] are the strongest predictors of mammography and Pap screening utilization among Latinas. Additionally, the nature of migrant and seasonal farmwork often make regular pay schedules difficult.[19] Along with a

*References 32, 33, 37, 40, 43, 44–46

large number of Latina FWs living below the federal poverty level, irregular income then can add to the barriers to BC/CC screenings.

This study hypothesized that socioeconomic factors (eg, health insurance) would be the strongest predictors of screening utilization. This study also hypothesized that psychosocial-cultural factors (eg, age, acculturation, and education) would positively predict screening utilization among Latina FWs. Given the logistical barriers that accompany migrant life (eg, nontransportable medical records, lack of a medical home, and lack of knowledge of how to access local services), this study hypothesized that migrant FW women would be less likely than seasonal FW women to receive BC/CC screening services.

Methods

Setting

Using Institutional Review Board–approved methods, this community health center–university partnership study took place in an upstream location on the western coast of Michigan in a rural county with a total population of less than 30 000 and a FW population estimated at 5000. In 2007, there were nearly 650 operating farms in the county.[51] From 2002 to 2004, self-report survey, anthropometric data, and clinical chart audits were collected on a convenient sample of 173 Latina migrant (60.1%) and seasonal (39.9%) FW women.

Sample Description

Women mostly identified as Mexican (56.1%), followed by Hispanic/Latina/Chicana (38.7%), Mexican American (4.6%), and Dominican (0.6%). On average, women were 35.2 ± 11.5 years old. Among these, 25.4% (n = 44) had at least a high school education; 42.5% (n = 73) had some form of health insurance; 51.8% (n = 88) considered Michigan home; 72.7% (n = 120) received most of their schooling in Mexico; 80.4% (n = 136) had an annual household income of less than $20 000; and 48.8% (n = 84) reported living in a farm labor camp.

In addition, 80.4% (n = 41) of women 40 years and older reported ever having a mammogram. Among those 18 and over, 90.1% (n = 154) reported ever having a Pap exam; 34.5% (n = 57) had been screened for high cholesterol; 62.5% (n = 90) had been screened for hypertension; and 65.7% (n = 102) had been to the dentist in the last year. Medical chart data showed that 48.4% (n = 61) had a Pap exam in the last year, and women had an average body mass index (BMI) of 30.9 ± 6.64, with 47.5% (n = 66) being obese.

Measures

Several items were derived from the 2001 Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System Questionnaire (ie, cancer screening, age, education, recent physician visit, health insurance, cholesterol screening, blood pressure screening, dental screening, and health status).[52] Cancer screening was assessed by self-report: "Have you ever had a mammogram?" and "Have you ever had a Pap smear?" Medical chart review was utilized to determine whether women had received a Pap exam

within the last 12 months. Since the clinic did not provide mammography services, information regarding mammography utilization could not be ascertained through chart reviews. Women aged 18 years and older were included in the analysis of Pap test utilization, while women 40 and older were included in the analyses for mammography screening use.

Age was assessed by date of birth. Education was assessed by highest level of education and dichotomized (< high school, ≥ high school). Language-based acculturation was assessed by a modified version of the Brief Acculturation Measure for Hispanics, a 4-item scale that assesses language use and preference.[53] Participants were asked, "What language do you prefer to speak at home? at work? in general?" and "In which language do you read?" This 4-item scale displayed an α of .87. A mean score was created, with higher scores indicating greater language-based acculturation.

Self-rated health was measured using an item from the CDC HRQOL-4,[54] where higher scores indicate better health status. Life satisfaction was assessed by a single self-report item, "How would you describe your level of satisfaction with your life in general at the present time?" which had a 4-point response format ranging from *very unsatisfied* to *very satisfied*. BMI was calculated from height and weight clinic data. Standard BMI categories from the Centers for Disease Control and Prevention and a linear BMI variable were used in analyses. Health insurance was assessed by type of coverage and coded as *insured* versus *uninsured*. Recent physician visit assessed time since last doctor visit for a routine checkup. Self-reported cholesterol and blood pressure screening was assessed by "Have you ever had your blood tested for high cholesterol?" and "Have you ever had your blood pressure checked?" Recent dental screening was assessed by "Have you had a dental visit in the last year?"

Data Analysis

Means, standard deviations, skewness, and kurtosis were examined to ensure that variables were normally distributed within acceptable limits. A series of χ^2 tests, analysis of variance, and logistic regression analyses were used to test the hypotheses.[55] Data were analyzed in SPSS 14.0.

Results

Unadjusted bivariate analyses revealed that being a seasonal FW, cholesterol screening ever, physical examination ever, breast self-examination (BSE) ever, and a greater BMI were significantly related to mammography screening utilization among FW women 40 years and older. Women who were seasonal FWs (100%) were significantly more likely than migrant FW women (70.6%) ($P < .01$) to have ever had a mammogram. Women who had ever had their cholesterol checked in the past (85.2%) were significantly more likely to have ever had a mammogram compared to women who had never received a cholesterol screening (72.7%) ($P < .01$). Women who had ever had a general physical examination (87.2%) were also more likely to have been screened compared to women who had never had a physical examination (58.3%) ($P < .05$). Women who had ever reported doing a BSE were also more likely to have ever had a mammogram (94.4%) compared to women who had never done a BSE (*P*

< .01). Finally, women who had a mammogram in the past were significantly more overweight (mean BMI = 31.8) compared to women who had never had a mammogram (mean BMI = 27.8) (Table 1). However, in the multivariate regression model, none of these variables predicted ever having had a mammogram (Table 2).

In unadjusted analyses, ever having a blood pressure screening test and ever performing a BSE were significantly related to ever having had a Pap exam among FW women 18 years and older. Those who had received a blood pressure screening in the past (93.3%) were significantly more likely to have received a Pap exam compared to those who had never had their blood pressure checked (83.0%) ($P < .05$). Women who had done BSEs were more likely (93.0%) to have had a Pap exam compared to women who had never done BSEs (83.3%) (Table 1). However, in the multivariate model, no variables significantly predicted ever having had a Pap exam (Table 2).

In unadjusted bivariate analyses, having health insurance, having ever performed a BSE, and having a higher language-based acculturation significantly predicted having a Pap exam in the last 12 months among FW women 18 years and older. Insured women (64.9%) were significantly more likely to have had a recent Pap exam compared to those who were uninsured (33.8%) ($P < .01$). Women who had done BSEs were more likely (57.6%) to have had a recent Pap exam in the last 12 months compared to women who had never done BSEs (25.6%). Women who had a recent Pap exam were more acculturated (mean acculturation = 1.41) compared to women who did not receive a recent Pap exam in the last 12 months (mean acculturation = 1.22) ($P < .05$) (Table 1). In the multivariate regression model, a higher language-based acculturation (odds ratio = 3.81, $P < .05$), BSE ever (odds ratio = 2.82, $P < .05$), and having health insurance (odds ratio = 5.58, $P < .01$) significantly predicted having a Pap exam in the last 12 months. The model χ^2 was significant ($\chi^2 = 24.492$, $P < .01$), indicating that the model explained a significant proportion of variance in recent Pap screening utilization (Table 2).

Discussion

This study sought to examine predictors of BC/CC screening practices of Latina FW in Michigan. Results showed that after controlling for covariates, no variables predicted ever having a mammogram or ever having a Pap exam. However, in adjusted analyses, a higher acculturation (odds ratio = 3.81), ever doing a BSE (odds ratio = 2.82), and health insurance (odds ratio = 5.58) predicted a Pap exam in the last year. Thus, results showed that BSE performance, acculturation, and insurance were key correlates to having recent CC screening.

Results showed that 80.4% of women 40 years and older had reported ever having a mammogram and that 90.1% of all women reported ever having a Pap exam, with 48.4% reporting a recent Pap in the last 12 months. Since 90.7% of the women reported visiting the local migrant health clinic/community health center for health care services, the high cancer screening rates may be explained by the women's high utilization of this clinic, which provides free Pap exams and free referral vouchers for mammography screening to age-eligible women. Migrant health clinics are ideal mechanisms for providing care to and

accessing an ever-increasing hard-to-reach FW population. In 2010, nearly 863 000 migrant/seasonal FWs and more than 1 million homeless clients were served nationally by Health Resources and Services Administration–funded health centers; over one-third (34.4%) of all clients served for that same year were Latino.[56] Since such a high percentage of women who use migrant health clinic services do adhere to the cancer screening guidelines, the migrant health clinics demonstrate a successful method of providing services to a population who are historically underserved.

Although this study sought to access a historically hard-to-reach rural population, study limitations include a limited sample size and the cross-sectional study design. Future longitudinal studies are needed that contain larger samples to allow for in-depth analyses of various cultural health beliefs, social norms, and economic factors affecting screening behaviors among FW women. Despite these limitations, results from this study have the potential to lend insight to future research, community-based health promotion, and primary care practice in relation to increasing cancer screening adherence among Latina FWs.

Conclusion

Cancer screening increases early detection and reduces the morbidity of late-stage diagnoses.[57] Acculturation, insurance, and BSE performance were key correlates of recent CC screening among Midwest Latina FWs. Future studies are needed to empirically examine the application of study results across disease contexts and health care utilization types for FW women.[58,59]

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Table 1

Cancer Screening: Item Responses, χ^2, and Analysis of Variance[a]

χ^2 Analyses, % (No.)	Mammography, Ever	Pap Examination, Ever	Pap Examination, < 1 y
Education			
Less than high school	80.5 (33)	90.6 (115)	46.9 (45)
High school or greater	80.0 (8)	88.6 (39)	53.3 (16)
P	—	—	—
Annual income			
< $20,000	76.3 (29)	88.1 (118)	45.5 (45)
≥ $20,000	100.0 (12)	97.0 (32)	61.5 (16)
P	≤ .10	—	—
Health insurance			
Yes	89.5 (17)	94.5 (69)	64.9 (37)
No	75.0 (24)	86.6 (84)	33.8 (23)
P	—	≤ .10	≤ .01
Farmworker status			
Migrant	70.6 (24)	88.3 (91)	49.3 (33)
Seasonal	100.0 (17)	92.6 (63)	47.5 (28)
P	≤ .01	—	—
Cholesterol screening ever			
Yes	85.2 (23)	94.7 (54)	53.5 (23)
No	72.7 (16)	86.8 (92)	45.6 (36)
P	≤ .01	—	—
Blood pressure screening ever			
Yes	88.5 (23)	93.3 (83)	46.9 (30)
No	66.7 (10)	83.0 (44)	48.6 (18)
P	≤ .10	≤ .05	—
Physical examination ever			
Yes	87.2 (34)	92.3 (108)	52.9 (46)
No	58.3 (7)	84.6 (44)	36.1 (13)
P	≤ .05	—	≤ .10

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χ^2 Analyses, % (No.)	Mammography, Ever	Pap Examination, Ever	Pap Examination, < 1 y
Dental visit in the last year			
Yes	79.4 (27)	90.0 (90)	46.8 (36)
No	92.9 (13)	92.6 (50)	51.3 (20)
P	—	—	—
Breast self-examination ever			
Yes	94.4 (34)	93.0 (107)	57.6 (49)
No	46.7 (7)	83.3 (45)	25.6 (10)
P	≤ .01	≤ .05	≤ .01

	Mammography, Ever[b]		Pap Examination, Ever		Pap Examination, < 1 y	
Mean Comparisons, Mean ± SD (No.)	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
Age	48.90 ± 9.59 (10)	49.93 ± 7.15 (41)	36.38 ± 13.16 (16)	35.04 ± 11.20 (152)	35.36 ± 11.57 (64)	34.68 ± 10.78 (60)
P		—		—		—
Language-based acculturation [c]	1.22 ± 0.41 (8)	1.43 ± 0.57 (40)	1.39 ± 0.61 (16)	1.40 ± 0.54 (147)	1.22 ± 0.35 (63)	1.41 ± 0.61 (58)
P		—		—		≤ .05
Health status[d]	2.67 ± 0.50 (9)	2.80 ± 0.81 (41)	2.88 ± 0.70 (17)	2.87 ± 0.65 (151)	2.80 ±.57 (65)	2.87 ± 0.70 (61)
P		—		—		—
Life satisfaction[e]	3.50 ± 0.85 (10)	3.38 ± 0.67 (40)	3.41± 1.00 (17)	3.52 ± 0.64 (151)	3.58 ± 0.59 (64)	3.56 ± 0.67 (61)
P		—		—		—
Body mass index[f]	27.82 ± 4.55 (9)	31.78 ± 4.77 (31)	30.12 ± 4.47 (12)	30.98 ± 6.79 (127)	30.56 ± 5.69 (65)	31.40 ± 6.57 (60)
P		≤ .05		—		—

[a] Incomplete data are due to participant nonresponse. $P < .10$. Approaching significance at the .05 level ($.05 > P < .10$).

[b] Includes only women 40 years and older.

[c] Possible range, 1–3; higher scores denote higher acculturation to English language.

[d] Possible range, 1–5; higher scores denote higher self-reported health status.

[e] Possible range, 1–4; higher scores denote higher self-reported life satisfaction.

[f] Possible range, 19–60; higher scores denote greater body mass index scores.

Table 2

Variables Associated With Mammography and Pap Screening Use Among Latina Farmworkers[a]

	Model 1: Mammography, Ever[b]			Model 2: Pap Examination, Ever[c]			Model 3: Pap Examination, < 1 y[d]		
Factors	**OR**	**95% CI**	***P***	**OR**	**95% CI**	***P***	**OR**	**95% CI**	***P***
Acculturation[e]	2.220	0.222, 22.161	.497	0.413	0.100, 1.700	.220	3.810	1.157, 12.545	.028*
Body mass index	1.156	0.884, 1.512	.290	0.948	0.863, 1.041	.262	0.958	0.885, 1.036	.283
Blood pressure screening ever									
No	1.00			1.00			1.00		
Yes	1.083	0.102, 11.544	.948	2.945	0.637, 13.617	.167	0.432	0.152, 1.231	.116
Physical examination ever									
No	1.00			1.00			1.00		
Yes	0.406	0.026, 6.356	.521	1.653	0.337, 8.097	.535	1.948	0.671, 5.651	.220
Breast self-examination ever									
No	1.00			1.00			1.00		
Yes	6.326	0.643, 62.274	.114	1.171	0.246, 5.587	.843	2.819	1.033, 7.695	.043*
Health insurance									
No	1.00			1.00			1.00		
Yes	2.366	0.214, 26.126	.482	2.446	0.450, 13.293	.300	5.575	2.017, 15.406	.001**
Farmworker status[f]									
Migrant	—	—	—	1.00			1.00		
Seasonal	—	—	—	0.525	0.133, 2.800	.525	1.208	0.445, 3.280	.711
−2 log likelihood		23.7999			56.109			105.436	
Nagelkerke R^2		.267			.111			.306	
Model $\chi 2$		5.297 ($P > .05$)			5.318 ($P > .05$)			24.492 ($P < .01$)	

Abbreviations: OR, odds ratio; CI, confidence interval.

[a] Mammography and Pap examination ever were determined through self-report survey. Time since last Pap examination was determined through clinic chart review. Odds ratio of 1.00 indicates reference category.

[b] n = 52; includes only women 40 years and older.

[c] n = 105.

[d] $n = 94$.

[e] Possible range, 1–3; higher scores denote higher acculturation to English language.

[f]

* $P < .05$.

** $P \leq .01$.