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The Impact of Ethnic Identity on Changes in High Risk HIV Behaviors in Sexually Active Migrant Workers

Nancy Shehadeh,

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA, 14919 SW 39th ST, Davie, FL 33331, USA

H. Virginia McCoy,

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA

Muni Rubens,

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA

Anamica Batra,

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA

Roderick Renfrew, and

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA

Kelly Winter

Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA

Nancy Shehadeh: nancyshehadeh@gmail.com

Abstract

Among migrant workers (MWs) in the US, HIV/AIDS prevalence may be as high as 13.5%. This serial cross-sectional study examines associations between Ethnic Identity (EI) in African American and Hispanic MWs and short-term changes in high-risk sexual behaviors. Baseline and 3-month follow-up data was collected from a larger HIV intervention study among MWs in Immokalee, Florida ($n = 119$) who reported unprotected sex in the past 30 days. The Multigroup Identity Measure was used to assess EI. A high EI score indicates less acculturation to one's new surroundings. Females had higher levels of positive behavior change. Lower EI was associated with higher levels of positive change in relation to HIV/AIDS risk behavior. Among Hispanics, education was negatively correlated with EI. Education was a predictor of behavior change. Future interventions should focus on reducing acculturation stress, which may prompt harmful coping behaviors, such as high-risk sex and substance abuse.

Keywords

Migrant workers; Ethnic identity; Sexual risk behaviors; Behavior change; HIV/AIDS prevention

Background

More than 4 million people in the United States are migrant farm workers [1, 2]. As one of the most rapidly growing populations in the US, Migrant Workers (MWs) have been immensely affected by HIV/AIDS [3]. The rate of HIV infection among migrant farm workers is estimated to be 10 times the overall US rate, and HIV prevalence is estimated to be as high as 13.5% [1, 4, 5]. It is well documented that HIV/AIDS risk behaviors differ between immigrant workers and those born in the US [4–6].

There are many HIV/AIDS risk factors among MWs. Contributing factors include feelings of isolation and loneliness, exposure to multiple sexual partners, limited access to health care, language barriers, and depression [4, 7–9]. These conditions can lead to behavior change among MWs. In order to cope with the social isolation of migration, people may find comfort in sexual intimacy and are more likely to engage in risky sexual practices. Unsafe sexual behaviors place MWs, as well as their families, at higher risk for HIV infection and STDs.

Acculturation and Ethnic Identity (EI) also are associated with increased HIV/AIDS risk, especially among MWs [4, 7–10]. Acculturation is a multidimensional process whereby contact between members of two or more cultural groups results in the exchange of cultural behaviors and beliefs. It is associated with the adoption of attitudes or beliefs of the mainstream or dominant culture. This concept is usually measured on a group level, while EI is assessed on the individual level [11]. EI, a dimension of acculturation, comprises self-label or group affiliation, feelings of belongingness and commitment to a group, and a sense of shared values and attitudes toward one's own ethnic group [12].

EI also includes aspects of ethnic involvement, such as language, behavior, values, and knowledge of ethnic group history [11, 13]. Moreover, EI may be viewed as a component in the acculturation process, because it measures an individual's attachment to his or her ethnic origin. Although a component and measure of acculturation, EI is sometimes used to evaluate acculturation, with a low EI score indicating high acculturation. The majority of studies that measure acculturation fail to assess the multidimensional component of this construct [14].

Prior research suggests that a decline in EI is common among individuals who have arrived in a new country or a new region within a country at a young age or have lived in a foreign place for an extensive amount of time. This phenomenon most strongly affects first- and second-generation immigrants [12, 15].

Complex effects on health outcomes in US immigrant populations have been influenced by acculturation and EI, especially among Hispanics. Acculturation has been associated with both positive and negative health outcomes related to HIV/AIDS risk taking behavior. Studies suggest that higher levels of acculturation may have a protective effect on individuals. This beneficial effect may differ depending on the circumstances and situation of the individual [16].

Higher levels of acculturation have been associated with higher educational attainment, greater access to health insurance, and higher socioeconomic status [17]. Accurate knowledge about HIV transmission, while controlling for education, has also been strongly associated with high levels of acculturation [18, 19]. HIV positive individuals who are more acculturated tend to take more proactive steps to better their health because of positive coping strategies. These strategies are a result of accessibility to education and credible health information within the US [20].

Research has shown that highly acculturated Hispanic women have higher protective health sexual communication scores. They were more likely than less acculturated participants to communicate their sexual concerns with intimate partners within the first 12 months of a relationship [21]. Among Hispanics, lower acculturation is significantly associated with a lack of HIV testing, less access to care, and a tendency to test sero-positive for HIV infection [22]. On the other hand, highly acculturated Hispanics tend to have more permissive views relating to sexual behaviors and are at higher risk in engaging in deviant coping mechanisms [23]. Prior studies also suggest that MWs who have lived in the US longer are more acculturated to the English language and American lifestyle and tend to engage in HIV risk behaviors more frequently [13, 24–26].

According to the Department of Health and Human Services (DHHS), 68% of newly diagnosed cases and 86% of babies born with HIV/AIDS in 2007 belonged to racial and ethnic minority groups. In comparison with other ethnic groups, HIV/AIDS is spreading more rapidly among African Americans and Hispanics [27, 28]. Of all HIV/AIDS cases diagnosed in 2007, African Americans and Hispanics accounted for 49 and 22%, respectively [27, 28]. Compared with non-Hispanic White men, African American men are 9 times more likely and Hispanic men 3.3 times more likely to die of AIDS [27, 28].

Given these facts, it is not well known whether migration and EI level can influence the likelihood of HIV infection. In general, there is a need for more research to examine EI's effects on HIV/AIDS risk behavior. The present study evaluates the general levels of EI among African American and Hispanic MWs in a rural community in South Florida. The main aim of the study was to examine possible associations between EI and short-term changes in high-risk sexual behavior in an ethnically diverse sample of MWs.

Methods

Data was collected from a larger study assessing the effectiveness of an enhanced/adapted cognitive behavioral program called Peer Education Ends Risky Behaviors (P.E.E.R) in comparison with a health promotion program, Health Education Always Leads to a Healthy You (H.E.A.L.T.H.Y), for producing long-term reductions in HIV risk and increased health behaviors among Alcohol and Other Drug using MWs [29]. P.E.E.R is an experimental group and H.E.A.L.T.H.Y is a control group. Both interventions were available in English and Spanish. The breakdown of participants by gender was about the same in each intervention, around 75% male and 25% female. About half of the participants spoke English and the other half spoke Spanish, this breakdown was the same in both interventions. Both interventions involved a 4 h workshop implemented over two weekends. Then 3 follow-ups at 3, 6 and 12 month periods were conducted to assess the long-term effects of the interventions. The HIV Risk Reduction Interventions described above had no bearing on the EI and HIV risk study illustrated in this article. The intervention groups were controlled for in the regression model executed in this study.

Participants were MWs residing in Immokalee, an agricultural area in Collier County, Florida. Participants were recruited using a targeted sampling method. Inclusion criteria for was the following: age 18 years or older, at least one episode of unprotected vaginal, anal, or oral sex, alcohol or other drug intake in the past 90 days, and fluent in English and/or Spanish. After the sample was recruited, they were randomly assigned into either intervention group, HEALTHY or PEER.

The present study was confined to participants who reported sexual activity in the past 30 days ($n = 119$) at baseline and 3-month follow-up. The study defined potential participants as migrant workers by conforming to the Public Health Services Act 1944 [30] definition.

The Public Health Services Act states that migrant workers are employed in agricultural labor, either seasonal or migratory, and live in temporary housing. We do not limit our definition of migrant workers to those who go 75 miles or cross county lines to work; and we include some people who work or worked indirectly in agriculture, such as in packing houses.

Measures: Ethnic Identity Measurement

The Multigroup Ethnic Identity Measure (MEIM) was used to assess participants' EI level [31]. The MEIM is a 12-item questionnaire that measures a participant's level of acculturation into the surrounding society. The MEIM questionnaire analyzes three aspects of EI: affirmation/belonging towards participant's ethnic group, ethnic identity achievement, and ethnic behaviors and practices. The MEIM score also indicates a participant's comfort level with individuals from his or her own ethnic group or from the mainstream culture of the residing area [31]. The scores for each item follow a likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). A mean score was calculated to assess the level of EI of each participant; the higher the mean MEIM score, the higher the participant's level of EI. Cronbach's alpha of the instrument was 0.845.

Sexual Risk Assessment by Vaginal Episode Equivalent

Using data from the HIV/AIDS Risk Reduction Questionnaire, an index of sexual risk behavior, known as the Vaginal Episode Equivalent (VEE), was created to quantify participants' high-risk sexual behaviors. VEE is an index that combines the sum of a participant's sexual acts without condoms during the past 30 days, including unprotected oral, anal, and vaginal acts [32]. VEE weights oral, vaginal, and anal sex acts based on their differential risk. In comparison with using individual specific sex acts (e.g., unprotected vaginal intercourse) as individual variables, this index has the advantage of providing a score reflecting subjects' overall sexual risk-taking behavior [32]. Higher VEE scores are associated with higher sexual risk. The formula for measuring VEE is:

$$\text{VEE} = (\text{number of unprotected vaginal sex acts}) + (2 \times \text{number of unprotected anal sex acts}) + (0.01 \times \text{number of unprotected oral sex acts}).$$

For the purpose of this study, VEE was calculated for baseline and 3-month follow-up. A change score was computed by subtracting VEE baseline from VEE at 3-month follow-up. VEE change was then divided into two groups: those who showed a positive change or reduction in risk behavior ($n = 55$) and those who had a negative change or no change in risk behavior ($n = 64$). The "no behavior change" and "negative behavior change" groups were added together to retain power in the model since the sample size was small.

Statistical Analysis

PASW Statistics 18.0 was used for statistical analysis. Frequencies, means, standard deviations, and Chi-squares were used to examine independent variables. t tests were used to detect change in sex risk between baseline and 3-month follow-up. Finally, logistic regression was utilized to examine the relationship between EI and change in risky sexual behaviors. The logistic regression was divided into two blocks, with demographics in one block and ethnic identity measures in the second and sexual risk behavior measured as VEE as the outcome. To increase the validity of the findings, multicollinearity among the variables was acknowledged prior to the final analysis. Employment status (whether seasonal worker or not) was excluded from the final regression model because of high correlation with race, language, and country of birth. Analyses were run for the full sample

(n = 119), as well as subgroups of African American (n = 41) and Hispanics (n = 78) separately.

Results

Demographics

Participants were mainly Hispanic (n = 78, 61.3%) seasonal-working males who were single or lived as single (74.4%), The African American group (n = 38) also consisted mainly of males (n = 25, 61.0%) who were single or lived as single (92.7%). The mean age of the full sample was about 38 years old (SD = 11.85). The majority of African Americans were long-term residents of Immokalee (n = 32, 78.0%), staying for more than 18 years, while only 34.6% of Hispanics had lived in Immokalee for more than 18 years. Educational achievement was generally low in both ethnic groups. All African Americans were born in the US, while 57.7% of Hispanics were of Mexican, Latin American, or Caribbean origin, with the majority from Mexico. The majority of Hispanics were seasonal workers, with 53.8% earning less than \$399 a month. Only 17.1% of African Americans worked seasonally, with 61% earning less than \$399 a month. Table 1 further describes participants' demographic and socioeconomic characteristics.

The MEIM score at baseline ($M = 2.88 \pm 0.42$) was moderate to low level of EI for the entire sample. At entry level, the whole sample had a higher VEE score ($M = 4.92 \pm 8.78$) and was considered a high-risk group. At 3-month follow-up, subjects showed a significant reduction in VEE score ($M = 3.16 \pm 7.89$; $t = 2.190$, $p = 0.031$). The majority of participants at baseline had engaged in 1 vaginal sexual encounter (n = 117, 98%) in the past 30 days, with 39% not using a condom during that encounter. At baseline, oral (n = 55, 46%) and anal sex (n = 13, 11%) were much less common, and fewer participants used condoms during these acts. Participants at follow-up showed the same trend in sexual acts but used condoms more frequently.

Independent t-tests were conducted for both ethnic groups to evaluate EI scores and HIV sexual risk behavior. Evaluation of EI among African Americans ($M = 2.94 \pm 0.34$) and Hispanics ($M = 2.85 \pm 0.46$) also showed a moderate to low score, and there was no significant change between these two groups. There was a significant decrease in sex risk behavior from baseline to 3-month follow-up for the subset of African American participants. Hispanics also showed a reduction in risk behavior; however, the difference was not significant. Ethnic identity scores among African American and Hispanic participants varied but were not found to be significant.

Ethnic Identity and Sexual Risk Behavior Change

A two-block logistic regression analysis was performed on sexual risk behavior change from baseline to 3-month follow-up to explore the relationship between EI and sexual risk behavior in the full sample. The first block included demographic variables (age, gender, marital status, country of birth, language spoken, race, length of stay in Immokalee, and education) and the interventions in order to control for its effect on sexual risk behavior. In the second block, EI was added.

A test of the first block was not statistically significant, $\chi^2(9, n = 119) = 9.070$, $P = 0.431$. With the addition of the ethnic identity measure in the second block, the overall model was statistically significant, $\chi^2(10, n = 119) = 19.598$, $P < 0.033$, distinguishing participants with higher risk and those with no risk or lower risk.

The model identified two significant predictors of change in sexual risk behavior, gender ($B = 1.168$, Wald $\chi^2 = 4.505$, $P = 0.034$) and ethnicity ($B = -1.869$, Wald $\chi^2 = 8.295$, $P <$

0.004); males were more likely to be in the no change/negative change group and lower levels of ethnic identity was associated with membership in the positive behavior change group. The beta estimates, standard errors, Wald χ^2 results, and odds ratios for each of the predictors are presented in Table 2.

Next, a logistic regression was performed with same variables for African Americans and Hispanics separately to find predictors of sexual risk change within each ethnic group. For Hispanics, education, length of stay in Immokalee, country of birth and EI at baseline significantly predicted sexual risk behavior (Table 3). The regression including only African Americans showed no statistically significant predictors.

Independent samples t-tests were conducted on years of education and MEIM baseline score among Hispanics, which showed some statistically significant difference between positive and no change/negative change behavior groups. The group that achieved a positive behavior change between baseline and 3-month follow-up had a higher educational level ($M = 8.05 \pm 2.99$ years) than the no change/negative change behavior group ($M = 6.60 \pm 3.37$ years). Positive behavior change was associated with lower baseline EI ($M = 2.99 \pm 0.42$) compared to no change/negative change group ($M = 2.70 \pm 0.46$).

Discussion

The main finding of this study was that gender and EI significantly predicted change in sexual risk behavior. Positive changes (reduction) in high risk sexual behaviors were found in participants at highest risk for sexually transmitted diseases. At baseline, males had lower EI scores and elevated levels of STD risk in comparison with females. Males were more likely to be in the no change/negative change group.

Positive change in high-risk sexual practices may be attributed to engaging more frequently in protective sexual practices during the 3-month period between baseline and follow-up. An increased frequency of STD prevention behaviors may be attributed to an increase in condom usage and a lower number of overall sexual partners within the past 30 days. This may be due to the ongoing STD prevention project between follow-up periods. Significant amounts of positive change in sexual behavior were detected in participants with higher levels of education.

Participants with a stronger attachment to their ethnic group had a tendency to engage in fewer high-risk sexual behaviors than those with lower EI, and thus some people with high EI scores may have been excluded from the final sample, which consisted of those with the highest risk for STDs. Baseline EI was another significant predictor of positive change in risky sexual behaviors between baseline and 3-month follow-up in the full sample. This could be a result of the overall low EI score for all participants. Another aspect of acculturation is that individuals who are more acculturated tend to attain higher levels of education, which can affect their change from high-risk sexual behaviors to safer ones.

Participants with higher levels of attachment to their ethnic group—particularly males—may have a tendency to engage in riskier lifestyles to cope with having values and norms that differ from those of the general population. These coping mechanisms might include high-risk behaviors, such as alcohol and drug abuse and unprotected sex. A similar phenomenon was found in a group of male Mexican–American college students—but not their female counterparts—in a study on heavy alcohol consumption [33].

Education, length of time in Immokalee, country of birth, and baseline EI score were significant predictors of sexual change in Hispanics. Length of time in Immokalee, country of birth, and EI score all accounted for the level of acculturation for Hispanics. It is also

possible that Hispanic culture has a *protective* impact on individual sexual behaviors. For Hispanic participants, we found a significant negative correlation between education status and EI. Although participants with higher education levels had lower EI scores at baseline, these participants reported to practice more STD prevention behaviors; thus reducing their chances of HIV/AIDS. Our study findings are consistent with previous research on MWs [20].

This relationship between EI, level of education, and high-risk sexual practices has been demonstrated in previous studies, which have suggested that lower levels of education were associated with higher levels of high-risk sexual practices. A similar analysis for African Americans was conducted; however, was not found to be significant.

There were two major limitations to this study: small sample size and omission of factors that could influence sexual risk behavior. The small number of high risk subjects might have weakened the power of the statistical analyses [34]. Other predictors of behavior change might have emerged with a larger sample. African Americans in the study were migrant workers but not immigrants.

Future studies on EI in MWs are necessary. A direction of further exploration is to assess the effects of long-term EI change and its influence on behavior change. It would be beneficial to investigate the possibility of enhancing EI through culturally sensitive HIV/STD prevention interventions that include EI indicators.

Culturally sensitive STD/HIV prevention programs targeting different ethnic groups and the contexts in which they reside and identifying determinants of sexual behavior change are essential for successful future interventions in this vulnerable population. Such programs should focus on helping MWs find constructive ways to cope with having values and norms that differ from those of the general population. The MW community is highly vulnerable to STDs because of unhealthy lifestyles, low wages, strenuous employment situations, and other stress inducers. Future interventions could assist in reducing acculturation stress, which might contribute to harmful coping behaviors that increase STD risk.

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Table 1

Relationships between demographic characteristics and ethnicity

Demographic characteristics	African Americans Hispanics total		
	(n = 41; 38.7%)	(n = 78; 61.3%)	(n = 119)
Age (Mean $\pm$ SD)	46.22 $\pm$ 10.36	37.99 $\pm$ 11.85	40.82 $\pm$ 11.98
Gender N (%)			
Male	25 (61.0%)	63 (80.8%)	88 (73.9%)
Female	16 (39.0%)	15 (19.2%)	31 (26.1%)
Education (Mean $\pm$ SD)	11.05 $\pm$ 2.13	7.31 $\pm$ 3.25	8.60 $\pm$ 3.41
Marital status N (%)			
Single/living as single	38 (92.7%)	58 (74.4%)	96 (80.7%)
Married/living as married	3 (7.3%)	20 (25.6%)	23 (19.3%)
Country N (%)			
USA	41 (100%)	33 (42.3%)	74 (62.2%)
Mexico/others	0 (0%)	45 (57.7%)	45 (37.8%)
Language N (%)			
English	41 (100%)	17 (21.8%)	58 (48.7%)
Spanish	0 (0%)	61 (78.2%)	61 (51.3%)
Years lived in Immokalee N (%)			
Less than 18 years	9 (22.0%)	51 (65.4%)	60 (50.4%)
More than 18 years	32 (78.0%)	27 (34.6%)	59 (49.6%)
Work N (%)			
Full-time	4 (9.8%)	29 (37.2%)	33 (27.7%)
Part-time	15 (36.6%)	25 (32.1%)	40 (33.6%)
No work/did not work	22 (53.7%)	24 (30.8%)	46 (38.7%)
Season N (%)			
Yes	7 (17.1%)	45 (57.7%)	52 (43.7%)
No	12 (29.3%)	9 (11.5%)	21 (17.6%)
Not applicable	22 (53.7%)	24 (30.8%)	46 (38.7%)
Crop N (%)			
Citrus	5 (12.2%)	20 (25.6%)	25 (21.0%)
Vegetables	2 (4.9%)	21 (26.9%)	23 (19.3%)
Others	0 (0%)	4 (5.1%)	4 (3.4%)
Not applicable	34 (82.9%)	33 (42.3%)	67 (56.3%)
Income (per month) N (%)			
Less than \$399	25 (61.0%)	42 (53.8%)	67 (56.3%)
More than \$399	14 (34.1%)	33 (42.3%)	47 (39.5%)
Not applicable	2 (4.9%)	3 (3.8%)	5 (4.2%)

Table 2

Summary of direct logistic regression analysis predicting vaginal episode equivalent (VEE) change for full sample

Variable	Beta estimate	Standard error	Wald χ^2 (df = 1)	P value	Odds ratio
Age	0.006	0.018	0.122	0.727	1.006
Gender *	1.168	0.550	4.505	0.034	3.216
Marital	-0.229	0.526	0.189	0.664	0.769
Country of birth	1.222	0.860	2.021	0.155	3.396
Language	0.752	0.857	0.770	0.380	2.121
Race	0.263	0.670	0.154	0.695	1.301
Length of time	0.969	0.545	3.159	0.076	2.636
Education	0.170	0.098	3.013	0.083	1.186
Intervention	0.281	0.410	0.469	0.493	1.324
MEIM baseline **	-1.869	0.649	8.295	0.004	0.154

* $P < 0.05$,** $P < 0.01$

Table 3
Summary of direct logistic regression analysis predicting vaginal episode equivalent (VEE) change for Hispanics

Variable	Beta estimate	Standard error	Wald χ^2 (df = 1)	P value	Odds ratio
Age	0.001	0.023	0.003	0.959	1.001
Gender	1.141	0.925	1.524	0.217	3.131
Education *	0.323	0.133	5.911	0.015	1.381
Marital	-0.049	0.615	0.006	0.937	0.952
Length of time *	1.641	0.750	4.784	0.029	5.160
Country of birth *	2.068	1.044	3.924	0.048	7.913
Language	1.233	0.948	1.691	0.194	3.431
Intervention	0.822	0.569	2.087	0.149	2.275
MEIM baseline **	-2.698	0.913	8.731	0.003	0.067

* $P < 0.05$,

** $P < 0.01$