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HIV Risk Perception, HIV Knowledge, and Sexual Risk Behaviors among Transgender Women in South Florida

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Abstract

Objectives—Transgender women experience a variety of factors that may contribute to HIV risk. The purpose of the study was to explore links between HIV risk perception, knowledge, and sexual risk behaviors of transgender women.

Design—A descriptive, correlational study design was used.

Sample—Fifty transgender women from the South Florida area were enrolled in the study.

Measurements—Transgender women completed a demographic questionnaire and standardized instruments measuring HIV risk perception, knowledge, and sexual risk behaviors

Results—Transgender women reported low levels of HIV risk perception, and had knowledge deficits regarding HIV risk/transmission. Some participants engaged in high risk sexual behaviors. Predictors of sexual risk behaviors among transgender women were identified.

Conclusions—More research is needed with a larger sample size to continue studying factors that contribute to sexual risk behaviors in the understudied population of transgender women. Evidence-based guidelines are available to assist public health nurses in providing care for transgender women. Nurses must assess HIV perception risk and HIV knowledge and provide relevant education to transgender women on ways to minimize sexual risk.

Keywords

HIV knowledge; Risk perception; Sexual risk behaviors; Transgender women

Background

People with identities, expressions, or behaviors that are not typical of birth gender are described as transgender or gender-nonconforming. For example, a biological male who identifies and lives as a female may refer to herself as a transgender woman, a male-to-female (MtF or MTF) trans-woman, or as “trans.” Some transgender women use hormones

or surgery to address gender dysphoria, the incongruence between an individual's birth gender and the individual's expressed or desired gender (American Psychiatric Association, 2013).

Transgender women experience a number of health disparities, with HIV infection among the most significant (Bauer & Hammond, 2015; De Santis, 2009). The lifetime risk of HIV infection 34.2 times higher among transgender women compared to the general population (Reback & Fletcher, 2014). High rates of unrecognized and undiagnosed HIV infection also occur in this group (Schulden et al., 2008). A number of factors place transgender women at risk for HIV infection. Most obvious is participation in high risk sexual behaviors such as unprotected anal sex with primary, casual, or commercial sex work clients (Sausa, Keatley & Operario, 2007). High rates of sexually transmitted infections (STIs) among transgender women also increases HIV infection risk, which has a low perceived risk assessment in this population (Operario et al., 2014; Sevelius, Reznick, Hart & Schwarcz, 2009). Finally, transgender women may lack knowledge about HIV infection and transmission risk factors that may result from a lack of access health care services (De Santis, 2009; Dewey, 2008).

One factor that influences HIV risk perception is the knowledge of a partner's HIV status (Suarez et al., 2001). Transgender women in relationships of more than one year in duration are more likely to have knowledge of the partner's sero-status (Nagaraj et al., 2013). Other factors include a lack of risk perception and a preference for sexual relationships with heterosexual men (Mauk et al., 2013; Wilson et al., 2014).

When discussing HIV knowledge among transgender women, two types of knowledge are considered. Knowledge of one's HIV sero-status is important because the risk of HIV transmission is 3.5 times greater when a person is unaware of HIV status (Marks et al., 2006). A second type of knowledge is of HIV risk factors and risk reduction methods, which can enhance risk perception and decrease sexual risk behaviors (Noor, Ross, Lai & Risser, 2014).

High risk sexual behaviors among MTF transgender women are associated with factors such as cultural/language barriers, stigma, discrimination, exploitation, high unemployment rates, poverty, and limited access to HIV education and healthcare (Kosenko, 2011; Nemoto et al., 2006; Sevelius et al., 2009). Transgender women have inconsistent condom use, unprotected anal sex and high rates of STIs (Kennedy & Botswick, 2005; Operario et al., 2014; Bauer et al., 2012). Unprotected anal sex has been associated with knowledge deficits, economic factors, forced sex or rape, use of drugs and/or alcohol before or during sex, educational level), and a prior history of incarceration (Brennan et al., 2012; Clements-Nolle et al., 2008; Nemoto et al., 2004; Operario et al., 2014). Finally, commercial sex work may influence sexual risk behaviors and is a source of HIV risk because of multiple sex partners, inconsistent condom use, sex in the context of alcohol/drugs, and higher payment for unprotected sex (Benotsch et al., 2016; Mimiaga, Reisner, Tinsley, Mayer, & Saffren, 2009; Reisner et al., 2009).

While HIV risk perception, HIV knowledge, and sexual risk behaviors among this group of women is well-documented, minimal work to date has examined the relationship of these

variables to sexual risk behaviors among transgender women (De Santis, 2009; Wilson et al., 2010). To begin to address this gap in the knowledge base, the purpose of this study was to explore links between HIV risk perception, HIV knowledge, and sexual risk behaviors among a sample of transgender women residing in South Florida.

Methods

Design and Sample

This pilot study used a descriptive correlation design to study health issues among a sample of MTF transgender women living in South Florida ($n = 50$), an area with a large lesbian, gay, bisexual, and transgender (LGBT) population (Rothaus, 2011). Inclusion criteria were a) self-identify as a transgender woman; 2) at least age 18 years or older; 3) residing in the South Florida tri-county area of Broward, Miami-Dade or Palm Beach County, Florida; and 4) speaking/understanding English.

After obtaining approval from the University's Institutional Review Board, data were collected in the South Florida tri-county area that including the major cities of Fort Lauderdale and Wilton Manors in Broward County, Miami and Miami Beach in Miami-Dade County, and West Palm Beach in Palm Beach County. Participants were recruited from agencies that serve transgender women such as HIV testing and counseling centers, mental health counseling centers, and a university-based gender reassignment surgery clinic. Flyers posted at these sites instructed participants to call for an appointment for data collection. During the call, participants were offered a choice of completing the measures at one of the agencies, at a private residence, or at the first author's office. Upon completion of the study, each participant was provided with five business cards to distribute to other transgender women.

After obtaining informed consent, participants were given the study's self-administered instruments to complete on paper. The research team member who collected informed consent was available for questions during data collection which averaged one-hour. Participants were compensated \$50 for participation.

Measures

HIV risk perception was measured using the four-item Perceived Risk for HIV Infection scale, with statements such as, "The likelihood that I am currently infected with HIV is ...". Five Likert-type responses are possible, ranging from 1 = "very unlikely" to 5 = "very likely." (Lauby et al., 2006). Total scores on this scale can range from 4 to 20, with higher scores indicating higher perceived risk of HIV infection. While the instrument has not been previously used with transgender women, it has an overall reliability coefficient of .78 (Lauby et al., 2006). Participants who reported that they were HIV infected were not asked to complete this scale.

HIV knowledge was measured using the 18-item HIV Knowledge Questionnaire-18 [HIV-KQ 18] that includes questions such as "A woman can get HIV if she has anal sex with a man." (Carey & Schroder, 2002). Responses are in a "true, false, and don't know" format and are summed; higher scores indicate higher levels of HIV knowledge. "Don't know" or

“refused to respond” were counted as incorrect responses. While the instrument has not been previously used with transgender women, reliability coefficients of .76 to .94 have been reported (Carey and Schroder (2002).

Sexual risk behaviors were measured using the Behavioral Risk Assessment Tool (BRAT], a clinical tool that assesses an individual’s risk of HIV infection risk (Wisconsin HIV Prevention Work Group, 2000). The BRAT contains 60 items, 35 on sexual behaviors and 15 substance use/abuse behaviors. The majority of items are answered with “yes/no” responses (“In the past 3 months have you performed anal sex as a top?”), but some item have open responses such as “In the past 3-months, how many men have you had sex with?” This instrument has not been used in research with transgender women.

Although the BRAT contains 60 items, only 35 items deal with sexual risk behaviors, while the additional 25 items deal with substance use behaviors. The 35 sexual risk behavior items were used to calculate a sexual risk score for each participant. “No” responses on the BRAT were scored as 0, while “yes” responses” were scored as 1. These 35 items were summed for a total sexual risk score. Higher total risk scores indicate higher sexual risk. Scoring the BRAT in this manner allowed an interval level measure of sexual risk that could be correlated with the other interval level variables of HIV knowledge and risk perception. In addition, the total risk score could be correlated with interval level demographics of age, income, and educational level. Total possible scores on the BRAT ranged from 0 to 35.

Analytic Strategy

Data were entered into the statistical analysis program SPSS Version 22.0 (IBM Corporation, 2013). Descriptive statistics were generated to describe the sample demographics and sexual behaviors. Because demographic variables of age and monthly income were not normally distributed, they were categorized. Correlation coefficients were used to examine the relationship between the continuous variables of HIV risk perception, HIV knowledge, and sexual risk behaviors. A regression analysis was used to determine variables associated with sexual risk behaviors. Only items with significant correlations were included in the regression.

Results

The average age of the 50 participants was 38.44 years ($SD = 14.78$, range = 20 to 78). Other demographics are in Table 1. Nearly all participants ($n = 42$; 84%) reported being tested for HIV infection at least once during the lifetime, with eight (16%) reporting a positive test, 33 (66%) a negative HIV antibody test and 7 (14%) being aware of their test results. Of the eight participants with HIV infection, the number of years since infection ranged from less than one year to 18 years ($M = 10.80$; $SD = 7.14$); 7 of the 8 with HIV infection (97.5%) were receiving care.

The mean score on the Perceived Risk for HIV Infection scale was 8.32 ($SD = 3.21$, range 4–15), suggesting somewhat inadequate HIV risk perceptions. A Cronbach’s alpha of .76 was noted with this sample of transgender women.

The mean score on the HIV Knowledge Questionnaire-18 was 4.82 ($SD = 2.08$, range 4–15); over 25% of participants had incorrect responses to five HIV knowledge questions (Table 3). A Cronbach's alpha of .65 was noted with this sample of transgender women. For actual risk behaviors, the sample mean on BRAT questions was 7.16 out of a possible score of 35 ($SD = 4.22$, range 0–18), suggesting a lower risk of HIV transmission among the study's participants.

Participants were asked to report if they had been diagnosed with Hepatitis C and other sexually transmitted infections (STISs) in addition to HIV infection. Nine participants (18%) reported a lifetime history of any STI diagnosis in addition to HIV infection. Forty percent of participants ($n = 20$) reported no sexual partners, while 18% ($n = 9$) reported more than 51 sexual partners during the 3-month time period; all of these nine participants engaged in CSW during this time period. A more complete description of the specific sexual risk behaviors can be found in Table 2.

No statistically significant relationships were noted between HIV risk perception and HIV risk behaviors ($r = .157$, $p = .352$), or HIV risk perception and HIV knowledge ($r = .069$, $p = .494$).

HIV risk perception and HIV knowledge were not correlated with any of the demographic variables. Sexual risk behavior was negatively correlated with age ($r = -.348$, $p = .013$); years living in the U.S. ($r = -.358$, $p = .011$); and years of education ($r = -.322$, $p = .022$). No relationship was found between sexual risk behavior and monthly income ($r = .143$, $p = .320$).

Demographic variables that were significantly correlated with sexual risk behaviors (age, years living in the U.S., and years of education) were used as the first block in the regression analysis. When entered in this manner, these demographic variables as a group were statistically significant, $R^2 = .164$, $F(3, 50) = 3.01$, $p = .040$, accounting for 16.4% of the variance in sexual risk behaviors. However, when examined individually in the regression analysis, no demographic variables remained statistically significant.

Block 2 of the regression analysis included the categorical variables of employment status, HIV testing, HIV testing results, nativity, and relationship status. Block 2 was not statistically significant, $R^2 = .289$, $F(5, 50) = 1.44$, $p = .231$. Because this block of variables was not statistically significant, the individual categorical variables also were not statistically significant in the regression analysis. Results of this analysis are in Table 4.

Discussion

This sample of transgender women had low levels of HIV risk perception, indicating that the participants were not aware of their risk of HIV infection. This study's findings support the work of other researchers that noted low levels of risk perception among transgender women (Nagaraj et al., 2013; Wilson et al., 2014). However, unlike previous research, this study was unable to provide a rationale for this lack of risk perception, or to link HIV risk perception to HIV knowledge or to sexual risk behaviors. In order to continue to the exploration of HIV

risk perception among transgender women, a larger sample or a qualitative exploration of HIV risk perception among these women may be needed.

The findings on HIV knowledge are unique to this sample of transgender women. Previous research has suggested that transgender women may not test for HIV infection because of a lack of knowledge of HIV risk (Bauer et al., 2012; Marks et al., 2006; Schulder et al., 2008). However, this was not the case with this sample as the majority had been tested for HIV infection and was aware of their HIV sero-status. Previous research has noted that HIV knowledge had an influence on sexual risk behaviors (Marks et al., 2006); however, specific deficits in HIV knowledge have not been specifically described. The current study detailed areas in HIV knowledge that can be studied in more detail with further research.

In terms of sexual risk, this study's findings support previous research that noted that transgender women engage in inconsistent condom use (e.g., Xavier et al., 2005). However, unlike previous research that described how sexual risk behaviors varied between those in primary relationships when compared to those in commercial sex relationships, relationship status was not a significant predictor of sexual risk in this sample. Even though some women in this sample had more sexual partners because of involvement in CSW, the number involved in CSW did not significantly influence the study's findings in terms of relationship status and sexual risk behaviors.

The current study had some additional unique findings regarding sexual risk behaviors. The participants in this study not only reported sex with men, but women and other transgender persons. Research studies (e.g., Rebeck & Fletcher, 2014) described sexual risk from sex with men, but did not consider sexual risk from sex with other transgender persons or natal women (cis women). This study's findings on the sexual partners of transgender women demonstrate the spectrum of sexuality and sexual behaviors among transgender women.

The participants in this study engaged in a wide range of anal sex behaviors that have not been described in as much detail in previous studies. Participants in this study engaged in both insertive (active) and receptive (passive) anal sex behaviors, as 28% ($n = 14$) engaged in insertive anal sex, with 50% of these ($n = 7$) engaging in unprotected insertive anal sex. Unprotected active anal sex is less risky than passive anal sex, but both are considered high risk for HIV/STI transmission (CDC, 2010).

In addition, some participants in this study reported sex with persons of unknown HIV status ($n = 13$; 26%), or sex with partners who use drugs or alcohol during sex ($n = 27$, 54%), and partners who inject drugs ($n = 15$; 30%). The use of drugs/alcohol during sex and engaging in sex with drug-injecting partners both increase sexual risk (CDC, 2010). More research is needed to explore reasons for engaging in high risk sex with casual and primary partners, including sexual partners in the context of CSW.

Additionally, more work is needed to standardize the research instruments used to measure HIV risk perception, HIV knowledge, and sexual risk behaviors to ensure that the instruments are measuring variables for this specific population. One method that could be used to ensure that the instruments are useful with transgender women would be the use of focus groups to review each instrument. If items on the instruments are not understood or

deemed useful by the women, suggestions on how to improve the items could be generated by the participants. The restructured items could then be pilot tested with transgender women to determine how the instruments perform specific to transgender women.

Although the current study did not find a relationship between HIV risk perception, HIV knowledge, and sexual risk behaviors, some predictors of sexual behaviors among transgender women have been identified that can be explored further. More research with a larger sample of transgender women would allow a more comprehensive examination of predictors of sexual risk behaviors among this subpopulation of women.

The results of this study combined with the existing body of knowledge on HIV risk perception, HIV knowledge, and sexual risk behaviors among transgender women provide some clinical implications for nurses and other healthcare clinicians providing care to this population. One of the most fundamental and essential aspects of providing care to transgender women is the realization that some health care organizations have not been welcoming of transgender women, resulting in negative experiences with health care (Socias et al., 2014). In order to decrease negative experiences and to optimize health care encounters, it is important that nurses and other clinicians develop a welcoming, non-judgmental, open environment in which these women can receive needed health care services in a safe, non-threatening environment (De Santis, 2009; Thornhill & Klein, 2010).

In providing care to transgender women, nurses and other clinicians must constantly work on the development of rapport so that an accurate assessment of health care needs can be identified, and interventions to decrease health risks can be developed in tandem with each transgender woman. Nurses and other clinicians must assess transgender women's perception of HIV/STI risk. If these women report a decreased perception of risk, this inaccuracy must be corrected with transgender-specific education that assists each woman in personalizing risk for HIV/STI acquisition.

One step in correcting misconceptions about HIV/STI risk is encouraging transgender women to consent for HIV/STI testing. Encouraging HIV/STI testing is not only based on the high rates of HIV/STI infection among this population, but is congruent with the established guidelines used in clinical care that advocates for annual testing for all persons ages 13 to 65 years of age who are sexually active (Branson et al., 2006). Nurses and other clinicians can incorporate these recommendations into the discussion in order to "normalize" the HIV/STI testing experience when discussing the need for HIV/STI testing, which may facilitate acceptance of HIV/STI among these women.

Public health clinicians have the obligation to assess transgender women's knowledge of HIV risk and modes of transmission. The results of the present study have identified a number of areas in which transgender women may lack knowledge. The care provider has the responsibility to assess each woman's knowledge of HIV risk and modes of transmission, and to correct any inaccurate information so that each woman is equipped with knowledge to reduce sexual risk.

Probably the most important role for nurses and other healthcare clinicians involves the provision of sexual healthcare of transgender women. Nurses and other clinicians may lack

knowledge of how to provide sexual health care to transgender women and may not be fully competent in providing care (Socias et al., 2014; Thornhill & Klein, 2010). All public health clinicians involved in the monitoring and care of transgender women should receive education on how to provide sexual healthcare. Some examples of important sexual health issues include pharmacological knowledge of female hormones, competence in providing pre- and post-operative care issues for those women undergoing sex reassignment surgery (SRS), and the continued need for biological gender-specific healthcare issues. For example, even if a transgender woman fully transitions with SRS, the prostate is not removed during SRS. Therefore, the need for screening for prostate cancer risk is still required.

Nurses and other clinicians should be aware of evidence-based guidelines and resources that have been developed to assist in providing care to transgender women. At least two established research and clinical care centers in the U.S. maintain websites with resources for clinicians: (The Fenway Institute [www.fenwayhealth.org] and the Center of Excellence for Transgender Health [www.transhealth.ucsf.edu]). In addition, the Institute of Medicine (2011) released a report on lesbian, gay, bisexual and transgender research and care that nurses and other clinicians may find useful as a resource in providing healthcare for transgender women.

All health workers can learn a great deal about the healthcare needs of transgender women by asking these women to serve as informal educators. Some transgender women welcome the opportunity to advocate for self and others by educating about their unique healthcare need and correcting misconceptions that exist. Allowing transgender clients to educate about transgender healthcare needs may provide empowerment and contribute to successful relationships that can further optimize transgender healthcare.

Limitations to the present study include the use of snowball sampling technique. Transgender women are a hidden population, and are often difficult to recruit for research studies (De Santis, Martin & Lester, 2010). The use of this technique can result in a homogenous sample, with little variability among the participants. A second limitation was the use of research instruments that had not been previously normed with this population of women. However, alpha coefficients for the instruments used were all within an acceptable range, leading to more confidence in the study's findings. A third limitation is the small sample size which limits generalizability.

Conclusion

Transgender women are a vulnerable population, one that is often difficult to locate and access for research purposes. Previous researchers have noted that transgender women experience a number of health disparities including high rates of HIV/STIs resulting from high risk sexual behaviors that may be influenced by the unique social factors that impact this population of women. This study provides the foundation for future research and clinical work on reducing HIV risk among this vulnerable population of women.

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Table 1Participant Demographic Characteristics ($N = 50$)

Variable	<i>M (SD), Range of Frequency (%)</i>
Age	
20–29	16
30–39	15
40–49	10
50–59	4
60–69	3
70–79	2
Years of education	12.99 (2.91), 8–20
Nativity	
U.S.-born	32 (64%)
Foreign-born	18 (36%)
Employment status	
Employed	15 (30%)
Not employed	35 (70%)
Total monthly income	Range = \$0–10,000
Less than \$500	8 (16%)
\$501–999	15 (30%)
\$1,000–1,999	9 (18%)
\$2,000–3,999	9 (18%)
\$4,000 and above	9 (18%)
Race/Ethnicity	
Black	9 (18%)
Caucasian	18 (36%)
Hispanic/Latino	23 (46%)
Relationship Status	
In a relationship	38 (76%)
Not in a relationship	12 (24%)
Sexual Orientation ($n = 42$)	
Heterosexual	18 (36%)
Gay or homosexual	12 (24%)
Bisexual	6 (12%)
Pansexual	6 (12%)

Table 2**Sexual Risk/HIV Risk Behaviors (*N*= 50)**

Variable	Frequency (%)
Sex under the influence of drugs or alcohol	16 (32%)
Sex for money, drugs or shelter	14 (28%)
Spent time in the correctional system	11 (22%)
Spent time in alcohol or drug treatment	10 (20%)
Injected drugs (includes hormones) during lifetime	31 (62%)
Has engaged in sex during the previous 3 months	33 (66%)
Sex with men during the previous 3 months	29 (58%)
Sex with women during the previous 3 months	5 (10%)
Sex with transgender persons during the previous 3 months	8 (16%)
Vaginal sex during the previous 3 months	
Had vaginal sex during the previous	9 (18%)
Used a condom during vaginal sex	5 (55.5%)
Anal sex during the previous 3 months	
Insertive (active) anal sex	14 (28%)
Insertive (active) anal sex with a condom	7 (50%)
Receptive anal sex	25 (50%)
Receptive anal sex with a condom	20 (40%)
Oral sex during the previous 3 months	
Insertive (active) oral sex	33 (66%)
Insertive (active) oral sex with a condom	13 (26%)
Receptive oral sex	30 (60%)
Receptive oral sex with a condom	13 (20%)
Sex with a person of unknown HIV status	13 (26%)
Sex with a partner who uses drugs or alcohol	27 (54%)
Sex with a partner who injects drugs	15 (30%)

Table 3Responses to HIV knowledge questions * (*N* = 50)

Question and correct response	Number and % Correct	Number and % Incorrect	Number and % “Don’t know”
Coughing and sneezing are not a mode of transmission. (True)	31 (62%)	15 (30%)	4 (8%)
Sharing a glass of water with someone who has HIV as a mode of transmission. (False)	48 (96%)	2 (4%)	0
Coitus interruptus prevents HIV transmission. (False)	44 (88%)	4 (8%)	2 (4%)
Anal sex is a mode of HIV transmission. (True)	47 (94%)	3 (6%)	0
Showering or washing genitals after sex prevents HIV transmission. (False)	48 (96%)	1 (2%)	1 (2%)
Pregnant women with HIV will have babies born with HIV. (False) ***	31 (62%)	12 (24%)	7 (14%)
People with HIV quickly show serious signs of being infected. (False)	45 (90%)	4 (8%)	1 (2%)
A vaccine is available to prevent HIV. (False) ***	35 (70%)	7 (14%)	8 (16%)
Deep kissing is a mode of HIV transmission. (False) ***	36 (72%)	8 (16%)	6 (12%)
Having sex during the menstrual cycle prevents transmission of HIV. (False)	43 (86%)	4 (8%)	3 (6%)
Female condoms can prevent HIV transmission. (True) ***	35 (70%)	11 (22%)	4 (8%)
Natural skin condoms are more effective than latex condoms. (False) ***	36 (72%)	2 (4%)	12 (24%)
Taking antibiotics prevents HIV infection. (False)	48 (96%)	1 (2%)	1 (2%)
Multiple partners increase HIV risk. (True)	46 (92%)	3 (6%)	1 (2%)
Taking a test 1 week after sex indicates infection. (False)	41 (82%)	7 (14%)	2 (4%)
Sharing swimming pools and hot tubes with a person with HIV infection can result in infection (False).	45 (90%)	2 (4%)	3 (6%)
Oral sex as a mode of HIV transmission. (True) ***	37 (74%)	6 (12%)	7 (14%)
Use of Vaseline or baby oils with condoms lowers risk for HIV (False)	41 (82%)	5 (10%)	4 (8%)

* Questions from Carey & Schroder (2002).

** “Don’t know” responses were scored as incorrect for data analysis.

*** Item with >25% incorrect.

Table 4Predictors of Sexual Risk Behaviors among Transgender Women ($N = 50$)

	<i>B</i>	<i>SE B</i>	<i>β</i>
Block 1			
Age	-.037	.066	-.129 *
Years living in U.S	-.288	.241	-1.196 *
Years of education	-.043	.060	-.166 *
$R^2 = .164$, $R^2 = .154$, $F = 3.01$, $p = .040$			
Block 2			
Relationship status	-.110	1.41	-.011 *
HIV testing during lifetime	2.74	1.72	.240 *
HIV test results	-1.56	1.47	-.150 *
Employment status	-1.58	1.44	-1.10 *
Nativity	-1.19	1.76	-.136 *
$R^2 = .125$, $R^2 = .289$, $F = 1.43$, $p = .060$			

*
 $p > .05$ (not significant)