Is Growing Up in a Rural Area Associated with Less HIV/STD-Related Risk?: A Brief Report from an Internet Sample

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Abstract

This exploratory study compared selected HIV/STD-related risk variables (sexual behavior, condom use, STD diagnosis, and beliefs) between adults who grew up in a rural area and those who grew up in a non-rural area. Participants were recruited through an electronic mailing list of a large, internet-based sexual enhancement product company and completed a web-based questionnaire. A sample comprising 123 rural men and women and 1131 non–rural men and women, ages 18 to 39 years, were analyzed. No significant differences were found for any of the variables between those who grew up in a rural area compared to those who grew up in a non-rural area, although both groups reported HIV/STD risk behaviors. Hence, prevention education efforts appear justified in rural, as well urban areas.

Introduction

Analysis of national probability data has shown that residents of rural counties are at greater risk for health problems compared to residents of metropolitan areas (Auchincloss & Hadden, 2002). However, because the rural culture often has more traditional values, rural residence has been viewed as protective of sexual risk in contrast to urban areas. To examine this perspective, several studies have compared HIV/STD-related risk of rural and urban or non-rural samples. Findings have been mixed, although several have identified greater risk for rural residents. For example, data from the National Survey of Family Growth found no differences in selected HIV/STD risk and protective behaviors (Yarber, Milhausen, Huang, & Crosby, 2007) between rural and non-rural men and women. Yet, data from another national probability sample, the Youth Risk Behavior Survey, found greater HIV/STD-related risk behavior among rural African American adolescents in contrast to their counterpart non-rural adolescents as well similar risk behavior between the two groups (Milhausen, Crosby, Yarber, DiClemente, Wingood, et al., 2003). Data from the National Household Survey of Drug Abuse found that the rates of condom use at last sexual intercourse by U.S. adults were lower in rural communities (Anderson, Wilson, Doll, Jones, et al., 1999). A study examining distance from health care among residents of a northern, largely rural state, found that those living greater distance from the health care provider; i.e. those living in the more rural areas, reported greater risk behavior (Heckman, Kelly, & Samlai, 1998). Further, a study of women from a largely rural, Midwestern state found that rural women, in contrast to metropolitan women, were more likely to report never using condoms for HIV prevention (Crosby, Yarber, & Myerson, 1999).

To date, all of the reported studies comparing HIV/STD-related risk behavior of rural residents to non-rural/urban residents have selected subjects by current residence. None, to our knowledge, have selected samples based on where the individuals were raised. Some research suggests that living in a rural community confers a sense of security related to HIV/STD acquisition, perceiving less risk of HIV/STD infection (Centers for Disease Control and Prevention, 1998; Crosby, Yarber, DiClemente, Wingood, Meyerson, 2002; Winningham et al, 2004; Yarber & Sanders, 1998). Possibly, the environment in which one grew up may be associated with risk behavior as an adult. Does growing up in a rural area have a protective effect on risk behavior as an adult? To explore this question, this study compared selected HIV/STD-related risk variables between adults, ages 18 to 39 years, who grew up in a rural area and those who grew up in a non-rural area.

Methods

Participants

Participants were recruited from an electronic mailing list of a large, internet-based sexual enhancement product company. As the focus of the study was on selected sexual health issues including condom use, only persons who were age 18 or over and who were able to read English were eligible. Nearly 2000 (1987) adults completed a web-based questionnaire in early 2006. All study procedures were anonymous and approved by the Institutional Review Board at the University of Windsor, Ontario, Canada.

The analytic sub-sample for this report was comprised of 123 men and women who grew up in a rural area and 1131 men and women who grew up in a non-rural area, ages 18 to 39 years, and who meet the study eligibility criteria stated above.

Measures

To assess where participants grew up, the following question was asked: “Where did you live most of your time you were growing up?” Rural/non-rural was dichotomized from a five-point scale with the following possible responses: rural area (selected as the rural subgroup) and large city or the suburban area around it, medium city of the surrounding area, small city or the surrounding area, and small town not close to a city (all being as selected as the non-rural subgroup). For the reporting of the findings, those who identified themselves as growing up in a rural area are described as the “rural subgroup” with those growing up in non-rural areas being labeled as the “non-rural subgroup.”

In this report, variables were selected for analysis representing three areas: behavior, STD diagnosis, and beliefs. Some of the questions were asked about the last 3 months and some about the last sexual encounter. The sexual behavior questions selected all posed the question within the context of the three-month time frame: “In the past three months, how many times have you used a condom for penile-vaginal sex? …how many times used a condom for penile-anal sex? … how many times did you have sex while drunk or high? … how many people have you had penile-vaginal sex with?” Another question was asked: “The last time you had sex with a condom, had you been drinking alcohol?” The condom-use error and problem questions selected referred to the last time a condom was used for sex: “The last time you had sex with a condom, was there penetration of the penis in the vagina or anus without the condom, and then it was put on later and penetration continued?...was the condom taken off before you finished having sex?...did the condom break during sex?...did the condom slip off during sex? …did the condom slip off as the penis was taken out of the vagina or anus?”

The STD diagnosis question was: “In the past year, have you been told by a doctor or nurse that you had a sexually transmitted disease?” Two questions were asked concerning condom protectiveness, using the rating of scale 1=no protection to 7=total protection: “How much protection against sexually transmitted diseases do you think a male condom provides?” and “How much protection against HIV do you think a male condom provides?”

Data Analysis

Associations between the key correlate (raised in a rural vs. non-rural area) and the dichotomous outcomes were assessed by the use of chi-square. Associations between the key correlate and outcomes assessed on a continuous level were analyzed by the use of t-tests. Significance was defined by an alpha of .05.

Results

Characteristics of the Sample

The average age for all 1254 participants was 30.9 years (sd = 9.0), with no significant difference in age between the rural and non-rural subgroups (P = .27). Of the total sample, 916 were males, with 67 (7.3%) self-identifying as growing up in a rural area. Of the 338 female study participants, 34 (10.1%) self-identified as growing up in a rural area. No significant differences were found between the proportion of males and females of the rural subgroup to the urban subgroup (P = .11). About two-thirds of each subgroup -- rural, 66.3%; non-rural, 65.7% -- were married (P = .90).

Sexual Behavior

As shown in Table 1, there were no significant differences between the rural and non-rural subgroups regarding the mean number of times in the past three months they (1) had not used a condom for penile-vaginal sex, (2) had not used a condom for penile-anal sex, (3) had sex while drunk or high, and (4) had two or more sex partners. Further, there was no significant difference in the number of times they had drank alcohol the last time they had sex with a condom. For the condom use errors and problems questions (not in table), no significant differences were found between the rural and non-rural subgroups for any of the five variables: penetration of penis in vagina or anus without condom then condom put on and penetration continued (rural = 22.5%, non-rural = 26.9%, P = .68); condom taken off before finished having sex (rural = 9.9%, non-rural = 9.5%, P = .94); condom broke during sex (rural = 1.6%, non-rural = 0%, P = .50); condom slipped off during sex (rural = 5.6%, non-rural = 3.7%, P = .68);

condom slipped off as the penis was taken out of the vagina or anus (rural = 5.6%, non-rural = 8.3%, P = .65).

STD Diagnosis

No significant difference (P = .92) was found between the percentage of the rural sample (2.5%) and the non-rural sample (2.6%) who indicated that they had been told, in the past year, by a doctor or nurse that they had a sexually transmitted disease.

Beliefs About Condom Protection

No significant difference was found (P = .17) between the mean belief rating (1 = no protection to 7 = total protection) on how much protection the male condom provides against sexually transmitted diseases between the rural subgroup (mean, 4.9) and the non-rural subgroup (mean, 5.0). No significant difference was found (P = .33) was found between the mean belief rating (1 = no protection to 7 = no protection) on how much protection the male condom provides against HIV between the rural subgroup (mean, 4.8) and the non-rural subgroup (mean, 5.0).

Discussion

To our knowledge, this is the first study to examine whether differences exist in HIV/STD-related risk of individuals who grew up in a rural area compared to those growing up in a non-rural area. The over-arching finding of this brief report was that persons growing up in rural and non-rural areas were not significantly different in the HIV/STD-related risk variables measured. That is, the prevalence of condom non-use during penile-vaginal and penile-anal intercourse, condom-use errors and problems, and STD diagnosis was similar for both subgroups, as were beliefs about the HIV/STD protective value of the male condom.

Despite the lack of significant differences between the rural and non-rural subgroups, the prevalence of the sexual risk behaviors reported reveals behaviors that pose some possible HIV/STD risk for both subgroups. For example, and one in every ten of both subgroups reported that they had two or more sex partners in the past three months and about two of every ten of both subgroups reported having drank alcohol the last time they had sex with a condom.

As true for most sexuality-related research, the study findings are limited the validity of retrospective self-report. The generalizability of the findings is limited because of the use of a convenience sample. Another limitation is that a comprehensive assessment of HIV/STD-related risk was not conducted. For example, injecting drug use (IDU) was not assessed. Whether or not the prevalence

of IDU, or other HIV/STD-related risk behavior not assessed here, varied between those growing up in rural areas in contrast to those growing up in urban areas is unknown.

This brief report found that selected HIV/STD-related risk factors of persons raised in a rural area were similar to those raised in a non-rural area. These findings are contrary to beliefs that individuals, just because they grew up in a rural area, are shielded as adults against many of the factors that contribute to HIV/STD transmission and acquisition. Nevertheless, the study observed a considerable degree of HIV/STD risk among persons who had been raised in rural areas, thereby suggesting that continued and expanded HIV/STD prevention programming in rural communities is warranted.

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Table 1: Prevalence of selected sexual risk behaviors of study participants who grow up in a rural area and those who grow up in a non-rural area

Variable	Rural	non-rural	t	df	*p*
	Mean # of times, past 3 months				
Did not use condom for penile-vaginal sex	24.7	24.2	.17	1234	.86[a]
Did not use condom for penile-anal sex	1.4	1.2	.28	1234	.78[a]
Had sex while drunk or high	3.5	4.0	.64	1234	.52[a]
Had two or more sex partners	10.2	10.7			.88[b]
	%				
Had been drinking alcohol last time had sex with a condom	21.1	20.7			.93[b]

[a] t-test

[b] chi-square