



Assessing knowledge, attitudes, and behaviors related to HIV and AIDS in Nicaragua: A community-level perspective

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ABSTRACT

Background: Nicaragua's HIV epidemic is concentrated among men who have sex with men. Nevertheless, the increasing number of HIV cases among heterosexuals, high levels of poverty and migration rates, and incomplete epidemiological data suggest the need to improve the understanding of the epidemic.

Objective: To examine the prevalence of HIV-related knowledge, attitudes, and sexual risk-taking behaviors, and their predictors among the adult population.

Methods: A community-based cross-sectional survey was conducted in 2009 among 520 participants ages 15–49 from an ongoing Health and Demographic Surveillance System in Nicaragua. Bivariate analysis and adjusted prevalence ratios were used to examine factors associated with HIV-related knowledge, attitudes, and sexual behavior.

Results: Contributing factors for risk-taking behaviors included cognitive, psychosocial, and emotional elements. Insufficient knowledge affecting the accurate assessment of HIV risk were low educational level, poverty, and rural origin, especially among females. Recognizing risk was not sufficient to promote safer sex: 90% of the females and 70% of the males who reported being sexually active in the past year did not use condoms during their last sexual encounter. Inconsistent condom use among men was associated with older age, long-term relationships, and lack of awareness about acquiring HIV infection.

Conclusions: Interventions to reduce social-structural contextual factors in Nicaragua are needed so that individuals may adopt and maintain HIV risk reduction strategies. Increased gender-specific HIV education and skills-building programs need to be implemented. Sensitive mass media messages may also increase the knowledge of HIV and AIDS, and serve to encourage protective attitudes and behaviors.

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Introduction

Since the beginning of the HIV epidemic, an essential component of efforts to better understand its dynamics has been measuring knowledge, people's attitudes, and the level and frequency of risk behaviors related to HIV transmission [1]. These aspects provide important information to identify populations most at risk for HIV, as well as to determine needs, barriers, and goals to HIV prevention [1]. Addressing misconceptions about the modes of HIV transmission is as important as promoting knowledge of the true means of transmission. Both are critical in assessing changing perceptions that result from preventative efforts. Misinformation about HIV has been strongly associated with HIV-related stigma

and discrimination, and with high rates of HIV risk behaviors [1,2]. Perceived vulnerability is also critical to an individual's precautionary behavior [3].

By the end of 2009, approximately 4 million people were living with HIV infection on the American continent. Globally, the HIV epidemics in Latin America remain relatively stable. However, Central America reports an increasing number of new infected cases [4]. Nicaragua was the most recent Central American country in which the HIV epidemic was detected and has one of the lowest rates of HIV prevalence in the Latin American region. Since 2004, only 0.2% of the adult population was estimated to be HIV-positive, but a significant increase in the HIV incidence rate has been reported [5,6]. Since the predominance of its transmission taking place sexually (primarily through heterosexual encounters), HIV mostly affects men and young people. Those between the ages of 15 and 49 may represent 91% of all HIV-positive cases in Nicaragua [5]. However, this figure may be underreported due to inadequacies in case detection, HIV surveillance, and antiretroviral therapy monitoring [7].

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Gender inequalities are one of the main HIV social drivers in Nicaragua. Obstacles for HIV and sexually transmitted infection (STI) interventions are gender norms related to masculinity represented by the “ideology of machismo” and by the “culture of Marianismo”. Machismo derives from Spanish and Portuguese world “macho”. It refers to men who socially and physically dominate and impose their will on women or even other men, encompassing the concepts of exaggerated masculinity, patriarchal authority, and physical prowess. Marianismo is associated with martyrdom of the Virgin Mary and notions of self-sacrifice, duty, caretaking, passivity, honor and sexual morality. Both have been linked to social factors such as unfavorable socioeconomic status (SES), dependency, lack of communication with partners, and violence against women, and also against men who have sex with men [8–10]. The above has resulted in a dramatic increase in infections among women, with a consequent reduction in the gap between male and female HIV-infection rates [5].

A lack of knowledge and inadequate negotiation skills concerning HIV and its related risk behaviors negatively influence perceptions of risk, vulnerability, the need for HIV testing, and adherence to a treatment regimen [1,2,11]. Consequently, programs and strategies directed at reducing the impact of HIV must be based on knowledge of these aspects and of the social and cultural context in which they have developed.

A few reports in the literature have addressed the issue of HIV-related knowledge, attitudes, and behaviors among the Nicaraguan people. Existing information indicates low levels of knowledge about HIV transmission and prevention, and high rates of inconsistent condom use among adolescents, young adults, and among females attending antenatal care facilities [12–14]. In men who have sex with men (MSM) the level of knowledge was higher, but the rate of condom use remained low [10]. The aim of this study was to determine the prevalence of HIV-related knowledge, attitudes, and sexual risk-taking behaviors, and to identify variables associated with knowledge, awareness, and condom use in a representative sample of men and women of reproductive age in Nicaragua.

Methods

A cross-sectional community-based study was carried out in northwestern Nicaragua, in the municipality of León, by means of home interviews from May to August 2009. León is the second largest city of Nicaragua and a university town. An estimated 60% of the population lives in poverty [15]. According to the Ministry of Health, León is ranked fourth in the country in numbers of HIV and AIDS cases. Day laborers, housewives, and students are those most affected by the epidemic [6]. Our study was conducted using the Health and Demographic Surveillance System (HDSS) in the municipality of León. The HDSS represents approximately 30% of an estimated overall population of 175,000 inhabitants. In the database, 70% are urban inhabitants; 56.8% of the total population is between 15 and 49 years of age, with a male sex ratio of 0.93 [15]. The sample size decided upon for the survey was 650 participants. It was based on the following considerations: (1) an estimated non-condom use prevalence of 60%, with a 95% confidence interval (CI), 80% power, and a 20% risk of not using a condom in an initial sample of 520 participants; (2) a non-response rate of 10% reported in this type of survey [16] and (3) a 15% loss due to migration, death, or disability determined in a pilot test. Eligibility criteria were set for men and women ages 15–49 years residing in rural and urban areas of the municipality of León for at least three years and who were willing to participate. The sample was checked to assure that it was representative and did not differ from the HDSS population in terms of sex and residence distribution.

Instrument and data collection

A structured survey instrument was developed on the basis of standardized questionnaires [10,12,16]. The instrument measured migratory and SES, HIV-related knowledge, HIV-related attitudes and awareness, and HIV-related behaviors. The questionnaire was pilot-tested with 20 people (not included in the final survey) to train field workers in its use and to obtain content validity.

The poverty index for each participant was estimated using the household poverty index from the HDSS database. It was defined by means of the “unsatisfied basic needs” assessment, as developed for and adapted to Nicaraguan conditions [15]. The level of knowledge about HIV was measured by a 17-point score based on two key domains: (a) modes of HIV transmission (10 items), and (b) misconceptions about HIV transmission (7 items) [10]. We used exploratory factor analysis with principal component factoring to characterize the underlying structure of the scale. We set the minimum factor loading to 0.40 as the threshold for scale inclusion. All items ranged from 0.52 to 8.58, confirming the structure of the scale. Functional knowledge was assessed via a Yes/No/Do not know/Decline to answer format (e.g., HIV is transmitted by vaginal sex; by using public toilets). Each correct response was scored as a 1 and an incorrect response or a “do not know” answer as a 0. Two sum scores were dichotomized, yielding 1 = “Sufficient knowledge” if the participants scored 16 or more, and 0 = “Insufficient knowledge”, if the respondent answered 15 or fewer questions correctly. The same cut-off point used by Ugarte et al. [10] had been employed. The internal reliability (Cronbach’s alpha) for the scale was 0.73. Three questions were also included on ways to reduce the risk of sexual transmission based on the ABC strategy, i.e., (A) abstinence, (B) being faithful to one sexual partner, and (C) consistent condom use. The main sources of a person’s HIV-related information were also requested.

Attitudes were assessed by asking about a person’s perception of HIV risk and self-disclosure of HIV status [10]. The former included general perception, assessed by twelve questions; and self-perception of risk, which was assessed by a single question scored by a 5-point response ranging from “very likely” to “very unlikely”. General perception was initially measured by three questions with a 5-point response ranging from “very serious” to “not serious”. In addition, nine multiple-choice questions about perceived HIV-related high-risk populations were posed. Disclosure of HIV status was solicited through three questions using a multiple-choice response format. Participants were asked about their sexual behaviors over the last 12 months, and about experience with their most recent partner [16]. Questions inquired into age at first experience of sexual intercourse, number of sexual partners, frequency of sex, condom use, and use of drugs before and during sex (including injectable drug use). Frequency of condom use was categorized as “inconsistent” or “consistent”. Inconsistent use meant not using a condom with each act of vaginal, oral, or anal sex. Additional information about intimate contact with sex workers, sexual intercourse among men, and HIV testing was requested. There were also questions about changes in sexual behavior to prevent HIV infection because of concerns about AIDS.

The study team was composed of two researchers and four field workers (two psychologists and two social workers) with previous experience in the area of sexuality and gender issues. Maps were produced by the use of a Geographical Information System (GIS) that enabled the interviewers to find the households. Interviewers were matched to interviewees of the same sex to increase the likelihood of obtaining accurate answers to questions that were sex-related or gender sensitive. Where privacy could not be obtained, an appointment was made to return at a later time. The survey was administered in Spanish.

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