Vulnerability of the elderly to sexually transmitted infections

Vulnerabilidade de idosos a infecções sexualmente transmissíveis

Juliane Andrade[1]
Jairo Aparecido Ayres[1]
Rúbia Aguiar Alencar[1]
Marli Teresinha Cassamassimo Duarte[1]
Cristina Maria Garcia de Lima Parada[1]

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Abstract

Objective: To identify the prevalence and factors associated with sexually transmitted infections (STIs) among the elderly.

Methods: Cross-sectional study was conducted in a municipality of São Paulo from 2011 to 2012. A structured questionnaire was administered to 382 elderly people, and their blood samples were collected to test for syphilis, hepatitis B, and HIV/AIDS. Data were analyzed using the logistic regression model, with discussion based on the benchmark of vulnerability.

Results: The prevalence of STIs was 3.4%, with 2.6%, 0.5%, and 0.3% prevalence of syphilis, hepatitis B, and HIV infection, respectively. Sex and a history of STIs were independently associated with this outcome: women had 12 times more likely to contract STIs than men, and the elderly with a history of these infections were 5 times more likely to contract an STI than those without a history of these infections.

Conclusion: The results indicated individual and programmatic vulnerabilities of the elderly to STIs. It is essential to suggest strategies that encourage women to negotiate safe sex practices as well as educating healthcare professionals on this subject.

Resumo

Objetivo: Identificar a prevalência e fatores associados às Infecções Sexualmente Transmissíveis (IST) em idosos.

Métodos: Estudo transversal, realizado em município do interior paulista, entre 2011-2012. Aplicou-se questionário estruturado a 382 idosos, coletou-se exame para sífilis, hepatite B e HIV/Aids. Análise de dados foi realizada por modelo de regressão logística, com discussão a partir do referencial da vulnerabilidade.

Resultados: A prevalência de IST foi 3,4%, sendo 2,6%, 0,5% e 0,3% de sífilis, hepatite B e infecção pelo HIV, respectivamente. Associaram-se de forma independente a este desfecho sexo e história de IST: mulheres tiveram 12 vezes mais chance que homens e, em idosos com história destas infecções, houve cinco vezes mais chance de IST, quando comparados àqueles sem história.

Conclusão: Os resultados apontam para vulnerabilidade individual e programática dos idosos às IST. Sugerem-se estratégias que favoreçam às mulheres negociarem a prática de sexo seguro e a educação permanente dos profissionais na temática.

Corresponding author
Juliane Andrade
Santana Avenue, 323,
18600-020, Botucatu, SP, Brazil.
juenf_andrade@yahoo.com.br

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[1]Universidade Estadual Paulista "Julio de Mesquita Filho", São Paulo, Brazil

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Introduction

The rapid aging of the population may be the most important and dynamic aspect of modern demographics, which consequently has a substantial influence on public health. Globally, there has been a modest increase (approximately 2% from 8% to 10%) in the proportion of people aged ≥60 in the last six decades. However, future predictions are somewhat different as in 40 years 22% of the global population is expected to be ≥60 years old, resulting in the rise in elderly population from 800 million to 2 billion people.[1]

The situation in Brazil is similar: between 1980 and 2000, the Brazilian population aged ≥60 years increased by 7.3 million to >14.5 million people in 2000. It is believed that by 2025, the country will have the sixth largest population of the elderly worldwide.[2]

Faced with this global demographic transition, the World Health Organization, in its Global Report on Aging and Health, stated that recent evidence on the aging process indicates that many perceptions and common assumptions regarding the elderly are based on outdated stereotypes.[3] In the context of sexuality, researchers have demonstrated that the elderly continue to be sexually active, even after 80 years of age.[4]

A study conducted in northeastern Brazil also demonstrated that in this country, many elderly people maintain an active sex life with desires and pleasures and often continue to have sex in an unsafe manner.[5] This may be because the elderly do not perceive themselves as vulnerable to sexually transmitted infections (STIs) and HIV/AIDS,[6] a perception that can be contested by global data on the distribution of these diseases by age group.

A literature review on the epidemiology of STIs, with a particular focus on the elderly, has demonstrated increased rates of these infections in the population aged ≥50 in North America, Australia, China, Korea, and sub-Saharan Africa.[7] In Brazil, there are no national data on the prevalence of STIs in the general population and among the elderly in particular because many of these diseases do not involve compulsory notification. For HIV, a significant increase in the rates among men and women aged ≥60 years over the last decade has been reported,[8,9] indicating that the elderly are vulnerable to this disease.

The concept of vulnerability focuses on understanding how individuals and groups of individuals expose themselves to a health risk, based on totalities created by summaries that are pragmatically constructed on three analytical dimensions: individual, social, and programmatic.[10]

Individual vulnerability is related to the amount and quality of information that the individual has regarding certain problem and the possibilities of addressing it. Several factors are considered: personal factors, including the level of knowledge, education, and access to information; subjective factors, including values and beliefs; and affective, behavioral, and biological factors that increase the exposure and susceptibility to risk. Social vulnerability is formed from access to data, healthcare, education, culture, and employment, as well as the practice of change when new information is received; these conditions are associated with access to material resources and social equipment. Programmatic vulnerability is characterized by the identification and analysis of the scenario of government programs, including policies, programs, services, and activities for health protection and promotion.[10]

Although the vulnerability of the elderly to STIs is clear, few studies have addressed the factors associated with this problem, especially in Brazil. Therefore, in this study, we aimed to identify the prevalence and factors associated with STIs among the elderly.

Methods

This was a cross-sectional analytical study that focused on the occurrence of STIs among the elderly. We chose to study three major infections (syphilis, hepatitis B, and HIV/AIDS) and to adopt the theoretical framework of vulnerability to discuss the data obtained.[10]

The study was conducted the city of Botucatu, a medium-sized municipality in the interior of the

state of São Paulo. In 2015, it had an estimated population of 139,483 inhabitants, and according to the last census in 2010, there were approximately 17,312 elderly residents.[11]

The study population comprised elderly people aged ≥60 who were registered with the municipality's 17 basic health units (UBSs). The calculation of the sample size was based on the number of elderly people enrolled in the municipal health information system in 2011 in each health unit, with a 50% prevalence of STIs, a 5% margin of error, and 95% confidence interval. We determined that the minimal sample size would be 377 elderly people. Next, we identified the proportion of elderly per UBS and maintained this proportion when creating the sample.

The elderly participants were included in the study by inviting them when they were in the waiting room of the health units, according to the inclusion criteria: residing in the municipality and having had sexual intercourse at some point during life. Exclusion criteria were seniors diagnosed with diseases that impair the cognitive state, such as dementia or other neurological disturbances, which could impair the quality of the data obtained. The final intentional sample size was 382 elderly participants.

The data obtained covered the period from September 2011 to April 2012 and were collected through individual interviews conducted in a private location by the author, a nurse, and three trained nursing students. The instrument used for data collection was developed specifically for this study and was based on a national survey[12] and a questionnaire proposed by the Brazilian Ministry of Health.[13] It was previously tested in the elderly people who were not included in the sample; a few changes were made to the final instrument before it was used.

Peripheral blood samples were collected for HIV, HBsAg, and Venereal Disease Research Laboratory testing, and cases were confirmed using qualitative polymerase chain reaction ribonucleic acid reaction for HIV and using treponemal testing and automated chemiluminescent microparticle immunoassay for syphilis.

The outcome variable was STI (yes, no). Exposure variables included characteristics related to the sociodemographics and sexual behavior of the elderly participants: sex (male, female); age in years (60-74, ≥75); color (white, nonwhite); years of school completed (≥4, ≤3); receiving an income (yes, no); income of at least two times the minimum wage equivalents at the time of data collection, R$ 622.00 (yes, no); regular partner (yes, no); current sexual relations (yes, no); history of STI (yes, no); prior serum testing for STIs (yes, no); and use of condoms in all sexual relations (yes, no). Note that we investigated the use of the barrier method (condoms) in all sexual relations, whether vaginal or anal.

Statistical analysis included univariate analysis (first step) using the chi-square or Fisher's exact test as appropriate, with the calculation of the respective odds ratios (ORs). This was followed by multivariable logistic regression analysis conducted using the Wald test (second step) in which variables from the univariate analyses with $p < 0.20$ were inserted into the model. In the third step, multiple logistic regression analysis was performed with the variables from the second step with $p < 0.20$; $p < 0.05$ was considered statistically significant. This strategy for modeling and selecting the adjustment factors was intended to avoid over-adjustment as the result in question had a low frequency. The analyses were performed using SPSS software, version 20.0.

With regard to the ethical aspects, all elderly people included in the study received pre-test counseling, when they were informed of the confidential nature of the testing; the immunological window period; the difference between HIV, AIDS, and other STIs; the possible results of the tests; and how to prevent STIs. In the post-test meeting, if the results were negative, the professional discussed with the participant the risk, the immunological window, and preventive practices; if the results were positive, the participant was offered emotional support, answers to questions, and strong preventive practices, and the partner was identified for testing.[14] In addition, participants with syphilis were treated in their health unit, and those with confirmed

HIV or HBsAg were referred to the municipality's specialized service.

The study was approved in advance by the Faculdade de Medicina de Botucatu (UNESP) University Research Ethics Committee and registered under process 3949-2011. All participants signed a document indicating their free and informed consent before data were collected.

Results

The prevalence of STIs was 3.4%; among the 13 patients with infections, 10 patients had syphilis (2.6%), two had hepatitis B (0.5%), and one had HIV infection (0.3%) (data not shown in table).

Among the 382 participants, most were women (61.8%), were aged between 60 and 74 years (70.4%), were white (69.4%), had ≥4 years of education (52.1%), and were living with a partner (61.0%). Income was received by 84.8% of the participants, and 74.3% lived on an income less than two times minimum wage equivalents of family income. In terms of sexual activity, 62.2% reported having a regular partner, 55.0% were sexually active, and only 5.2% used condoms in all sexual relations. The vast majority of the participants (82.2%) did not report a history of STIs, and 20.4% had never undergone serological testing for these diseases.

Table 1 presents the results of univariate analyses of the characteristics of the elderly participants and the occurrence of STIs.

The following factors were considered to be potentially associated with STIs: sex, income, regular partner, current sexual relations, and history of STI (Table 1). Tables 2 and 3 present the results of multivariate logistic regression analysis.

The variables sex, income, regular partner, current sexual relations, and a history of STIs with $p < 0.20$ from the univariate regression model were added in the multivariate logistic regression model (Table 2). Only history of STIs was associated with the risk of STIs among the elderly ($p = 0.039$, OR = 4.78, 95% CI = 1.08-21.11).

Only the variables sex and a history of STIs with $p < 0.20$ were retained in the multivariate analysis (Table 3). In this case, both results were significant: elderly people with a history of STIs were five times more likely to present with an STI ($p = 0.027$, OR = 5.08 and CI 95% = 1.20-21.38), and older women were 12 times more likely to contract an STI than older men regardless of a history of STIs ($p = 0.022$, OR = 12.27 and CI 95% = 1.44-104.08).

Table 1. Univariate analysis of the factors associated with the occurrence of sexually transmitted infections in the elderly

Variable	Sexually transmitted infection		p-value	OR (95% CI)
	Yes n(%)	No n(%)		
Sex				
Female	12(5.1)	224(94.9)	0.015*	7.77(1.04-161.64)
Male	1(0.7)	145(99.3)		
Age (years)				
≥75	2(1.8)	111(98.2)	0.253*	0.42(0.06-2.06)
60-74	11(4.1)	258(95.9)		
Color				
White Non	8(3.0)	257(97.0)	0.533*	0.70(0.20-2.51)
White	5(4.3)	112(95.7)		
Education (years)				
≥4	6(3.0)	197(97.0)	0.607*	0.75(0.22-2.53)
0 to 3	7(3.9)	172(96.1)		
Partner				
Yes	6(2.6)	227(97.4)	0.264*	0.54(0.16-1.82)
No	7(4.7)	142(95.3)		
Receives income				
Yes	11(3.4)	313(96.6)	0.604**	0.97(0.19-6.50)
No	2(3.5)	55(96.5)		
Income > 2x the minimum wage				
Yes	0(0.0)	59(100.0)	0.094**	--------
No	13(4.3)	290(95.7)		
Regular partner				
Yes	6(2.4)	247(97.6)	0.119*	0.42(0.12-1.44)
No	7(5.4)	122(94.6)		
Current sexual relations				
No	11(5.2)	199(94.8)	0.057**	4.70(0.97-31.13)
Yes	2(1.2)	170(98.8)		
History of STIs				
No	10(3.0)	327(97.0)	0.188**	0.43(0.10-2.05)
Yes	3(6.7)	42(93.3)		
Condom use				
Yes	0(0.0)	18(100.0)	0.528**	----------
No	13(3.6)	351(96.4)		
Previous serology				
Yes	4(5.3)	71(94.7)	0.303**	1.86(0.55-6.23)
No	9(2.9)	298(97.1)		

*Chi-square test; **Fisher's exact test

Table 2. Logistic regression model to estimate the risk of sexually transmitted infections (STIs) among the elderly

Variable	p-value*	OR	95% CI
Sex	0.095	6.76	0.71-63.54
Income of up to two times the minimum wage equivalents	0.997	-----*	-----**
Regular partner	0.904	0.92	0.25-3.29
Current sexual relations	0.267	0.37	0.06-2.10
History of STIs	0.039	4.78	1.08-21.11

*Multivariate logistic regression using the Wald test; **Impossible to estimate

Table 3. Logistic regression model to estimate the risk of sexually transmitted infections (STIs) among the elderly

Variable	p-value*	OR	95% CI
Sex	0.022	12.27	1.44–104.08
History of STIs	0.027	5.08	1.20–21.38

*Multivariate logistic regression using the Wald test

Discussion

The obtained prevalence of STIs, especially that of syphilis, was considered high. Few articles on the prevalence of STIs among the elderly have been published; the present literature cannot be compared with the data from this study as they are based on populations over 50 years of age. However, national population data demonstrated an upward trend the last decade in the HIV detection rate in men and women aged ≥60 years.[15,16] In São Paulo, an increase in the syphilis detection rate from 17.0 per 100,000 in 2010 to 45.4 per 100,000 in 2013 has been observed in this age group.[17]

This study identified two factors that were independently associated with STIs among the elderly: a history of STIs and female sex.

Having an STI in other stages of life indicates that risk behaviors were adopted previously. Reinfection or developing a new infection after 60 years of age consequently shows individual vulnerability. One Brazilian study that aimed to estimate the vulnerability of the elderly to AIDS[18] and other studies on STIs in general populations also found that a history of STIs was a factor associated with new infections or re-infections.[19,20]

Women receive care from health services more frequently than men, a fact associated with social and historical issues related to maternal and child healthcare, which tends to continue throughout life, and gender issues as the female body is often associated with the locus of care.[21] Therefore, because women have more diagnostic opportunities than men, we expected fewer cases of STIs among the women in this study. In contrast, the situation we found indicates both social and programmatic vulnerabilities experienced by women through the loss of opportunities to identify cases and implement effective treatment in the health services.

One study on factors associated with sexual risk behaviors among the elderly has indicated the benefits of appropriate interventions for this group, which are aimed at reducing behaviors that make them vulnerable; however, the fact that the elderly and healthcare professionals are reluctant to address these issues is considered as a complicating factor. The authors argue that healthcare professionals tend to consider the elderly asexual and, consequently, unable to acquire STIs, making prevention unnecessary. On the other hand, this approach makes it difficult for the elderly to perceive themselves as vulnerable. Thus, we can conclude that healthcare professionals need to be trained to record the sexual history of the elderly during their routine visits to health services as this can increase self-perception of risk and the need to adopt safe behaviors.[22]

In southern Brazil, a qualitative study on sexuality demonstrated that the elderly use the media to inform themselves about issues related to sexuality and STIs. No participant reported communicating with healthcare professionals about their sexuality during consultations. The authors conclude that there are barriers on the part of healthcare professionals, who may consider sex to be exclusive to young people.[23]

The loss of opportunities to develop interventions for elderly women is especially relevant, considering that at this stage of life, women experience physiological changes, such as the thinning and dryness of the vaginal wall, which increase the likelihood of contracting STIs.[24]

The results of this study in which women were 12 times more likely to contract an STI differ from those of the previously cited study by Foster et al.[22] on sexual behavior among the elderly, which included people aged ≥50 years. These authors found that female sex was a protective factor

against developing sexual risk behaviors.Potential explanatory factors include the fact that our study was conducted in a medium-sized municipality in the interior region of the state of São Paulo, Brazil, where beliefs and taboos surrounding sexuality in the elderly women may be more intense than those observed in the United States. In addition, the American study included slightly younger population, which may have favored addressing female sexuality in this group.[22]

In Brazil, policies focused on active aging have been established to promote health, resulting in benefits for the population aged ≥60 years. With the achievements obtained by this group in recent decades, extending the sex life takes on greater importance. The increase in quality of life, incentives to socialization, resumption of relations as people get older, and greater relevance accorded to collective activities and dance, for example, can lead to meetings among the elderly. These meetings associated with technological health advances, including hormone treatments and the use of drugs to enhance male sexual performance at more advanced ages, have enabled the rediscovery of new experiences and have contributed to the increase in sexual activity among the elderly.[25] However, interventions to caution about the negative consequences of unsafe sexual practices are essential to ensure that this population is less vulnerable to HIV infection and other STIs.

All elderly participants in our study with STIs stated they did not use condoms, a situation that has been identified as an important aspect of individual vulnerability. A systematic review with the meta-analysis of condom use by the elderly confirmed condom use to be a protective factor or behavior against HIV infection as its decreases the vulnerability of individual.[26] Explanations for low rates of condoms use that have been reported in the literature may also be useful to explain the situation in our study: the elderly have difficulty perceiving themselves as vulnerable to STIs; marriage is considered as a protective factor, with the notion that having a regular partner does not necessitate condom use;[27] the experience of menopause and the perception that because women are no longer fertile, they are not at risk of contracting STIs.[23]

We emphasize that in this study, we collected blood samples from individuals of both sexes who were seeking care at health services. It is also notable that these individuals with positive serum results for HIV, syphilis, or hepatitis B were not diagnosed during routine health checkups. Consequently, they were unaware of their infection status, indicating programmatic vulnerability characterized by the unreliability of resources offered to the individual in the area of prevention, diagnosis, and treatment,[10] which are the most important when considering control measures.[28]

It is notable that the municipality where the study was conducted offers the following services that should permit the diagnosis and treatment of STIs among the elderly: the municipal STD/AIDS program, which conducts the state campaign ("Fique Sabendo") and blood testing offered at the UBS; a testing and counseling center for STI/AIDS, and an outpatient service specializing in infectious diseases. The fact that despite these resources, the participants were only diagnosed in a study indicates the failure of the healthcare network for the elderly and, again, programmatic vulnerability as there is no intervention specifically designed for the elderly population and primary care professionals are not sensitive to the vulnerability of the elderly to STIs. Corroborating these findings, another study performed in the same municipality demonstrated that serum HIV testing among elderly patients only occurred in secondary and tertiary care, clearly showing that primary care professionals do not consider the elderly to be vulnerable to STIs/AIDS.[6]

The results obtained are relevant for nurses as well as for the multidisciplinary team as they receive elderly people in UBSs and participate in planning and implementing activities aimed at the elderly health.

Lastly, we suggest caution in generalizing the data presented herein because this was not a population-based study but a convenience sample, although we were careful to collect data from all municipal UBSs and to include participants in proportion to the populations served by them.

Conclusion

The prevalence of STIs was high (3.4%) in the study population and was independently associated with female sex and a history of STIs, indicating individual and programmatic vulnerabilities. To change this scenario, we suggest conducting educational activities for women, so that they feel they are in a position to negotiate safe sex practices. We also suggest establishing strategies for early diagnosis and implementing immediate treatment, thereby interrupting the chain of transmission; this can be made possible if healthcare professionals implement a protocol of recording broad health history of the elderly that includes asking about sexual history and offering blood tests for the elderly with a history of STIs and for the patients in vulnerable situations. This requires continuous education on this topic among healthcare professionals, so that they can contribute to the successful implementation of policies to promote and prevent STIs/AIDS, with an emphasis on the elderly population.

Collaborations

Andrade J, Ayres JA, Alencar RA, Duarte MTC, and Parada CMGL declare that they participated in the conception of the study, the critical review related to intellectual content, and the approval of the final version for publication.

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