

Knowledge and attitudes about sexuality in the elderly with HIV

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Abstract *This is a cross-sectional quantitative study carried out with 241 elderly diagnosed with HIV, assisted in the services of reference of Recife, Pernambuco State, Brazil. Knowledge and attitudes were evaluated through the Aging Sexual Knowledge and Attitudes Scale (ASKAS). Senior men, participants with higher educational level, those without depressive symptoms and individuals diagnosed with HIV for more than 12 years have a higher level of knowledge about sexuality in old age. Conservative attitudes toward sexuality in aging have been strongly associated with women, illiterate participants, practicing evangelical and Catholic religions, and elderly diagnosed with HIV with less than 12 years. Elderly with less knowledge had more conservative attitudes regarding sexuality in aging ($r = 0.42$; $p < 0.0001$). Thus, it is essential to carry out health actions with the aim of improving knowledge and attitudes regarding sexuality in the elderly, paying particular attention to those who are most vulnerable to HIV infection.*

Key words *Knowledge, Sexuality, Elderly, HIV*

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Introduction

Few elderly were diagnosed during the first decade of the epidemic of acquired immunodeficiency syndrome (AIDS). However, this setting has been changing over the years^{1,2}. Data from the Ministry of Health (MS) show that in Brazil, between the 1980s and 2000s, 4,761 cases of Human Immunodeficiency Virus (HIV) infection were reported in people aged 60 years or older, while between 2001 and 2016, this number hiked to 28,122 cases, which is a 700% increase³.

It may be that increased life expectancy⁴, use of hormonal therapies and the discovery of sexual potency-enhancing drugs are promoting a better quality of sexual life in the elderly population^{5,6}. On the other hand, these people were not alerted on the consequent vulnerability to Sexually Transmissible Infections (STIs) and HIV nor the importance of condoms^{6,7}. In contrast, the elderly's sexuality has been neglected by the government⁸.

The senior population is not being included satisfactorily in national strategies aimed at the promotion of sexual health and the prevention of STI/HIV/AIDS. STI/HIV/AIDS prevention actions carried out by the National STD/AIDS Program (PN-DST/AIDS) prioritized those aged 50 years and over⁹ only in 2008.

HIV prevalence in the population over 60 years of age grows as no other age group and is now a public health problem⁸. This increase is associated with the advance of HIV diagnosis and care technologies and widespread dissemination of antiretroviral therapy (ART)¹⁰. Thus, as treatment access is improved, the survival of people with HIV increases, which causes many to reach old age^{11,12}.

In 2013, the Joint United Nations Program on HIV/AIDS (UNAIDS) recognized the growing population of older adults with HIV, as well as the fact that this population group is at risk of infection by the virus¹². When speaking about aging and AIDS, the first issue that must be addressed is the sexuality of the elderly¹³.

Sexuality is an essential aspect of the human being and represents the interaction of various elements, including gender, identities and gender roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. People experience and express sexuality differently, through thoughts, attitudes, behaviors and relationships¹⁴.

Deconstructing the myth of an asexual old age¹¹, several studies describe the elderly as sexually active persons¹⁵⁻¹⁸. Interest and sexual activity

continue to play an essential role in people's lives as they age¹⁹⁻²². According to the literature, a considerable proportion of older adults are involved in one or more sexual relationships²³⁻²⁵. Provided that there are no severe health problems, nothing prevents this group from having sexual activity at this life stage¹⁹.

The elderly have many of the risk behaviors found among younger people. However, with less knowledge about HIV contamination^{26,27} and relevance of condoms^{23,28,29}. Studies investigating sexual activity in older adults with HIV are scarce, even in the face of a higher number of seniors infected with the virus^{3,12} and evidence that they engage in unprotected sex^{15,23}.

We note that elderly sexuality is still a subject sidelined by scholars, and most of the studies on this subject are directed to the adverse physiological aspects of sexuality in old age³⁰. As a consequence, the lack of knowledge about sexuality favors the development of prejudiced behaviors and conservative attitudes about sexual interest in older adults, which makes these people even more vulnerable to STIs, among them HIV³¹.

Therefore, it is vital to engage in further research on this topic to contribute to a better understanding of elderly sexuality and to promote the development of public policies focused on sexual health and prevention of STI/HIV/AIDS, ensuring improved care for the most vulnerable elderly.

This study aims to evaluate knowledge and attitudes about the sexuality of elderly with HIV, as well as to characterize the sample by socioeconomic and demographic variables, diagnosis time, depressive symptoms, presence or absence of comorbidities and functional capacity.

Methods

This is a descriptive, quantitative, cross-sectional study carried out from October 2016 to May 2017 in the services of reference for the care to HIV-infected patients in Recife (PE). The study sample consisted of 241 older adults with HIV of both genders enrolled as of 2009.

The inclusion criteria were to be enrolled in the services of reference in the period established for the research (as of 2009); having used ART for at least 04 weeks; with a minimum age \geq 60 years – a condition that defines the elderly person as per Law No. 8842/94, which addresses the National Policy of the Elderly, and participating in the study on a voluntary basis by signing the

informed consent form. Elderly with cognitive impairment assessed through the Mini-Mental State Examination (MMSE) were excluded. This instrument has six categories that evaluate, time and place orientation, immediate memory, attention, calculation, recall of words, language and visual construction.

A questionnaire was applied with questions regarding socioeconomic and demographic characteristics (age, ethnicity/skin color, marital status, gender, schooling, income and religion), comorbidities and time of diagnosis mentioned in the medical record. Depressive symptoms, functional capacity, knowledge and attitudes about sexuality in aging were also evaluated.

The comorbidities recorded in the medical records were systemic arterial hypertension (SAH), diabetes mellitus (DM), cardiovascular diseases (CVD), osteoporosis, osteoarthritis, neurological diseases, respiratory diseases, neoplasms, depression, smoking and renal dysfunction.

Depressive symptoms were evaluated by the Geriatric Depression Scale (GDS). The scale used in this study (15-item GDS) was elaborated by Sheikh and Yesavage from the elements of the original scale that most strongly correlated with the diagnosis of depression³². Functional capacity was assessed through the Functional Assessment Scale (Barthel Index), which identifies the level of independence of the subject to perform ten basic activities of daily living: eating, personal hygiene, toilet use, bathing, dressing and undressing, sphincter control, walking, moving from chair to bed, climbing and going down the stairs³³.

The level of knowledge and attitudes about sexuality was evaluated through the Aging Sexual Knowledge and Attitudes Scale (ASKAS), adapted and validated for Brazil in 2008 by Viana³⁴. It consists of questions related to sexuality changes in old age, such as sexual activity, masturbation, menopause, impotence, and sexual desire. It contains twenty questions (false/true) that measure knowledge and eight (disagree/agree) that assess attitudes. The lower the respondent's score, the higher the knowledge about sexuality in old age and a positive attitude concerning the elderly's interest in sex³⁴.

The data were tabulated using the Excel program, and the resulting data from the socioeconomic and demographic questionnaire were analyzed and Wald's test was applied to compare proportions. Frequency tables and charts were used to describe and summarize the results.

The relationship between attitude and knowledge about sexuality in aging was analyzed using

Spearman's correlation because the data did not show a normal distribution. Knowledge and attitude were compared by socioeconomic and demographic factors, presence or absence of comorbidities, time of diagnosis, depressive symptoms and functional capacity, using non-parametric techniques due to the lack of normality of the studied variables.

The variables with two categories were submitted to the Mann-Whitney's U test, and those with more than two categories, to the Kruskal-Wallis test. The significance level of $p < 0.05$ was adopted. InfoStat's statistical program was used to perform the analyses.

The study was submitted to and approved by the Research Ethics Committee of the Federal University of Pernambuco, as per Resolution 466/12 of the MS, regarding the development of scientific human research.

Results

Among the participants, the prevalent age range ranged from 60 to 82 years, with a mean age of 64.98 (+4.32) years, as observed in Figure 1. Socioeconomic and demographic characteristics showed a significantly higher distribution for males (62.7%) against females (37.3%). As for the variable marital status, the highest percentage was among the single (34.4%), followed by the married / with a partner (30.7%), with no significant differences between them (Table 1).

Regarding schooling, most of the individuals had between 1-4 years (28.6%), 5-8 years (24.5%) and 9-11 years (23.2%) of study, between these categories. The analysis of the ethnicity/skin color variable showed that the elderly who self-declared as browns (60.1%) were predominant. As for religion, the highest percentage was among Catholics (51.9%).

The elderly who participated in this research mostly lived with at least one relative (68.9%). There were more elderly pensioners (64.7%) and more than half of the respondents (55.6%) had an income of 1-2 minimum wages, and 56.9% of participants reported a full contribution to the household income. Table 2 shows that most of the elderly had between 11 and 20 years of HIV infection diagnosis (51.9%) and at least one comorbidity (78.8%). Regarding the elderly's functional capacity, we found that most were independent (84.2%). Concerning depressive symptoms, the older adults identified without depressive symptoms prevailed (67.22%).

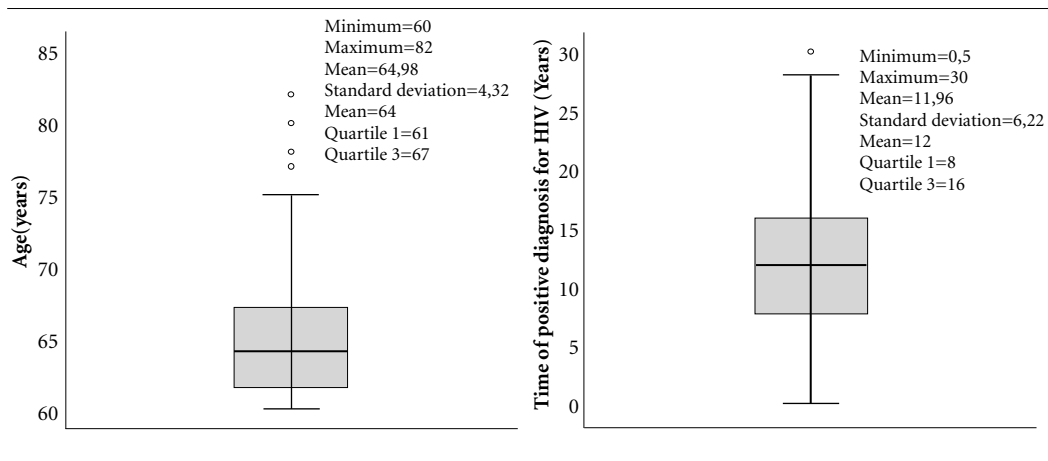


Figure 1. Distribution of the variable age (left) and time of positive diagnosis for HIV (right).

In the research about knowledge and attitudes concerning sexuality, participants had a good level of knowledge (mean of 29.77) and a very positive attitude (mean of 14.85) vis-à-vis sexuality in aging. Table 3 shows that there was a significant association between the level of knowledge about sexuality and the variables gender ($p < 0.002$), schooling ($p < 0.001$), religion ($p < 0.025$), depressive symptoms ($p < 0.014$) and HIV diagnosis time ($p < 0.043$).

Knowledge scores were significantly higher for male participants, for those attending school, participants without depressive symptoms, individuals diagnosed with HIV for more than 12 years, and for non-religious and other faiths elderly (Spiritist, Umbanda). The level of knowledge of the elderly concerning sexuality had no significant association with the variables marital status ($p = 0.342$), income ($p = 0.153$), ethnicity ($p = 0.687$), functional capacity ($p = 0.175$), age ($p = 0.299$) and comorbidity ($p = 0.101$).

The more conservative attitudes towards sexuality in aging were strongly associated with the variables gender ($p < 0.007$), schooling ($p < 0.001$), income ($p < 0.0022$), religion ($p < 0.0207$) and HIV diagnosis time ($p < 0.009$). Older women, illiterate participants, evangelicals and Catholics, and individuals with less than 12 years of HIV diagnosis time tend to have more conservative attitudes. Attitude scores did not show a significant association with factors age ($p = 0.513$), marital status ($p = 0.869$), ethnicity/skin color ($p = 0.391$), functional capacity ($p =$

0.869), depressive symptoms ($p = 0.117$) and comorbidities ($p = 0.218$) (Table 3).

A positive correlation ($r = 0.42$; $p < 0.0001$) was observed between the scores of knowledge and those of the attitude, indicating that those with a lower level of knowledge have a more conservative attitude towards the elderly sexuality (Figure 2).

Discussion

The study population consisted of seniors with HIV of both genders, with a predominance of males, corroborating data from the MS and the State Health Secretariat of Pernambuco (SESPE), where men are still the most affected by this infection, including those aged 60 years or more^{3,35}. These findings were also compared with those of other studies, which showed similar results^{21,22,36}.

However, the number of HIV cases among females has increased considerably over the years in the country across all age groups. This growth reveals female vulnerability, determined by biological aspects and by social, economic and cultural factors, with an emphasis on gender roles, unbalanced power relations and the naturalization of violence against women³⁷.

Considering that a little more than half of the elderly had between 11 and 20 years of HIV diagnosis and that the prevalent age group corresponded to 60-69 years, it may be that some

Table 1. Distribution of socioeconomic and demographic variables of elderly with HIV assisted in referral services. Recife (PE), Brazil, 2017.

Variables	n	%
Gender		
Male	151	62.66
Female	90	37.34
Marital status		
Single	83	34.44
Married / with partner	74	30.71
Widower	45	18.67
Separated / divorced	39	16.18
Schooling		
Illiterate	25	10.37
1-4 years	69	28.63
5-8 years	59	24.48
9-11 years	56	23.24
Above 11 years	32	13.28
Ethnicity/skin color		
White	61	25.31
Black	33	13.69
Yellow	1	0.41
Brown	145	60.17
Indigenous	1	0.41
Religion		
Roman Catholic	125	51.87
Evangelical	68	28.22
Spiritist	9	3.73
Other	9	3.73
No religion declared	30	12.45
Household composition (n° of relatives)		
0	75	31.12
1	79	32.78
2	38	15.77
3	30	12.45
4	8	3.32
5	6	2.49
6	3	1.25

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of this public became infected in adulthood, but due to the increased survival, caused by the use of ART, these people managed to reach old age. This is even a well-documented aspect in the literature, where it is observed that many older adults were less than 50 years old when they contracted HIV³⁸.

Most of the participants in this study belong to the lower social class, with fewer resources and

Table 1. Distribution of socioeconomic and demographic variables of elderly with HIV assisted in referral services. Recife (PE), Brazil, 2017.

Variables	n	%
7	2	0.83
Origin of financial resources		
No own income	0	0
Salary or formal activity	19	7.88
Retired and/or pensioner	38	15.77
Pensioner	156	64.73
Doesn't know	18	7.47
Did not answer	0	0
Retired or pensioner and with salary or formal activity	10	4.15
Contribution to household income		
Totally	137	56.85
Partially	86	35.69
Does not contribute	18	7.47
Income (minimum wage)		
0	15	6.22
< 1 minimum wage	27	11.20
De 1-2 minimum wages	134	55.60
De 3-4 minimum wages	36	14.94
> 4 minimum wages	29	12.03

p < 0.05.

Table 2. Distribution of variables, time of diagnosis, depressive symptoms, comorbidities and functional capacity of the elderly with HIV assisted in services of reference. Recife (PE), Brazil, 2017.

Variables	n	%
Time of diagnosis		
≤ 10 years	93	38.59
11-20	125	51.87
21-30	23	9.54
Comorbidities		
No comorbidity	51	21.16
At least 1	190	78.84
Functional capacity		
Total dependence	0	0
Severe dependence	1	0.41
Moderate dependence	15	6.22
Very light dependence	22	9.13
Independence	203	84.23
Depressive symptoms		
Normal	162	67.22
Light depression	67	27.80
Severe depression	12	4.98

p < 0.05.

Table 3. Knowledge and attitudes scores regarding socioeconomic and demographic, functional capacity, depressive symptoms, comorbidity and time of diagnosis variables of the elderly with HIV assisted in services of reference. Recife (PE), Brazil, 2017.

Variable	N	Knowledge					Attitude				
		Mean	Standard Deviation	Median	U/H	P-value	Mean	Standard Deviation	Median	U/H	P-value
Age (Categorized using the median)											
<64 years	131	29.31	5.33	28	14380.0	0.299	14.53	5.66	13	14078.5	0.513
>64 years	110	30.33	6.05	29			15.22	6.2	14		
Gender											
Male	151	28.71	4.78	28	12539.5	0.002	13.95	5.29	12	12293.0	0.007
Female	90	31.56	6.59	30			16.36	6.58	15.5		
Marital status											
Single	83	30	5.97	28	3.32	0.342	14.98	5.55	15	0.71	0.869
Married or with partner	74	28.66	4.52	29			14.88	5.95	14		
Widower	45	31.18	6.56	30			14.78	6.52	13		
Separated or divorced	39	29.77	5.75	28			14.59	6.04	12		
Schooling											
Illiterate	25	36.8	6.24	38 c	50.08	< 0.001	19.76	6.15	21c	30.65	< 0.001
1-4 years	69	30.46	5.68	29 b			15.23	5.22	14 b		
5-8 years	59	29.98	4.7	29 b			15.29	5.61	14 b		
9-11 years	56	26.88	4.04	26 a			13.11	5.94	12 a		
Above 11 years	32	27.47	4.11	26.5 a			12.41	5.29	11.5 a		
Income											
No income	15	29.53	4.27	28	6.66	0.153	13.67	6.59	12 ab	16.52	0.002
< 1 minimum wage	27	30.78	7.76	27			17.59	6.21	19 c		
1-2 minimum wages	134	30.42	5.78	29			15.16	5.73	14bc		
2-4 minimum wages	36	27.92	4.2	27			14.19	5.45	13ab		
> 4 minimum wages	29	28.28	4.61	27			12.28	5.74	11a		
Ethnicity/skin color											
White	61	29.56	6.27	28	2.07	0.687	15.23	7.09	13	4.59	0.391
Black	33	30.12	5.93	29			16.39	6.76	16		
Yellow	1	-	-	-			-	-	-		
Brown	145	29.79	5.42	29			14.26	4.99	13		
Indigenous	1	-	-	-			-	-	-		
Religion											
Roman Catholic	125	29.88	5.58	29 b	9.31	0.025	14.83	6.06	13 ab	9.66	0.020
Evangelical	68	30.76	5.88	29.5 b			16.04	5.6	15 a		
Other	18	26.33	3.18	26 ab			13.61	7.33	10.5a		
No religion declared	30	29.13	6.15	27.5 a			12.93	4.44	12 a		
Functional capacity											
Total dependence	0	-	-	-	5.39	0.175	-	-	-	5.70	0.147
Severe dependence	1	-	-	-			-	-	-		
Moderate dependence	15	32.87	7.36	31			17.6	6.3	18		
Very light dependence	22	29.23	5.35	28			15.18	6.66	13		
Independence	203	29.56	5.51	28			14.56	5.75	13		

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Table 3. Knowledge and attitudes scores regarding socioeconomic and demographic, functional capacity, depressive symptoms, comorbidity and time of diagnosis variables of the elderly with HIV assisted in services of reference. Recife (PE), Brazil, 2017.

Variable	N	Knowledge					Attitude				
		Mean	Standard Deviation	Median	U/H	P-value	Mean	Standard Deviation	Median	U/H	P-value
Depressive symptoms											
Normal	162	28.99	5.15	28 a	8.5	0.014	14.43	5.75	12.5	4.24	0.117
Light depression	67	30.85	5.84	30 b			15.33	6.1	14		
Severe depression	12	34.33	8.53	33.5 b			17.75	6.43	18		
Comorbidity											
Absent	51	30.73	5.58	30	6894.5	0.101	15.76	6.27	15	6713.0	0.218
Present	190	29.52	5.7	28			14.6	5.8	13		
Time of HIV diagnosis in years (categorized using the median)											
≤ 12 years	131	30.4	5.7	29	12221.5	0.043	15.82	6.32	15	11923.5	0.009
> 12 years	110	29,02	5,59	28			13,69	5,18	12		

Different letters in the median column show significant differences ($p < 0.05$). Between categories of variables with more than two categories. U/H = shows the U value of the Mann-Whitney "U" test when comparing variables with two categories, or the H-value of the Kruskal-Wallis test comparing more than two categories.

lower access to good social and health conditions and, consequently, more vulnerable, agreeing with MS data³. The increased HIV incidence is correlated with unfavorable socioeconomic indicators. Individuals with few years of schooling, low income and residing in geographical areas with poor infrastructure have been the most affected by the virus³⁹. Thus, the lack of financial resources negatively influences the quality of life, compromising the individual's health⁴⁰.

In this research, as in others developed in the South and Southeast regions of the country^{36,38,40,41}, most of the elderly had a type of comorbidity. A poorly treated chronic disease can lead to elderly isolation or withdrawal from social life, dependence, and functional disability⁴².

Several evidence confirms the influence of chronic-degenerative diseases on the elderly's functionality^{43,44}. However, when evaluating the functional capacity of the participants of this study, a low prevalence of dependents was observed. This result is in agreement with another study that evaluated the functional capacity of the elderly with HIV and AIDS⁴⁵.

The low prevalence of depressive symptoms among participants in this research may have been influenced by the several years of HIV infection diagnosis since most had been living with HIV for more than 10 years. According to Leite⁴⁶, depression in the seniors with HIV is more related to the recent discovery of infection, the onset

of physical symptoms, disease progression, limitations imposed by illness and issues of psychosocial aspects involved.

Regarding the knowledge of the elderly, this research identified that the sample studied has a good knowledge about sexuality in aging. In the same direction, other studies found that older adults with HIV had a good level of knowledge about sexuality^{36,47}. However, Alam and Fadila⁴⁸ revealed that more than half of this group had moderate knowledge about sexuality in old age.

Regarding the realm of attitudes, the individuals in this study showed a very positive attitude towards the elderly's sexuality. This result is in agreement with the findings by Okuno et al.³⁶, who also used the ASKAS and identified among the seniors with HIV a liberal attitude towards sexuality.

A positive correlation was found between levels of the elderly's knowledge and attitudes regarding sexuality. Thus, individuals with higher levels of knowledge have more permissive attitudes towards older adults' sexuality. This finding is similar to the results of the study by Lee Kyung-Ja et al.⁴⁹, Mahieu et al.⁵⁰ and Senra⁵¹, but different from the findings of Alam and Fadila⁴⁸, who did not find a significant correlation between the scores of knowledge and attitudes.

It should be emphasized that greater knowledge and more permissive attitudes about the sexuality of the elderly does not necessarily indi-

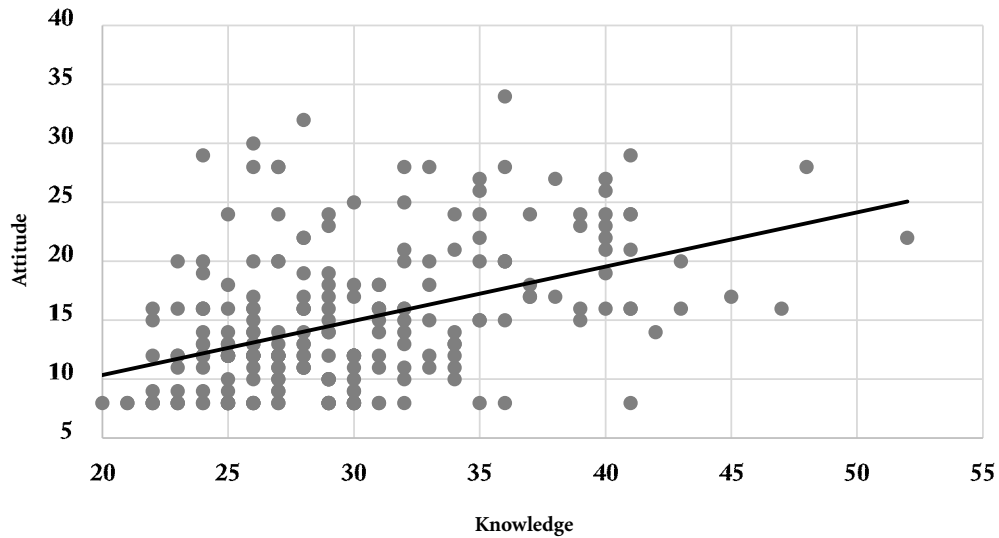


Figure 2. Positive correlation between attitudes and knowledge of elderly with HIV assisted in referral services. Recife (PE), Brazil, 2017.

cate a better understanding of the transmissibility, preventive behavior, diagnosis and treatment of STI/HIV/AIDS. However, a lack of knowledge can make the older adults more vulnerable to STI/HIV/AIDS.

In the studies by Okuno *et al.*^{36,47}, women showed higher levels of knowledge about sexuality in old age. However, in this study, male participants evidenced greater knowledge. Santos and Assis⁵² state that the lack of information on sexuality in aging is a consequence of prejudice constructed from a model of normative and repressive education, directed, especially, to females. Thus, older women face more significant challenges in acquiring knowledge about sexuality and achieving a healthy sexual life⁵³.

Data from this study showed that people with more advanced education have a high level of knowledge about sexuality, as reported by Alam and Fadila⁴⁸. Individuals with many years of schooling have greater access to primary care services and, consequently, more significant contact with sexuality-related information, besides better assimilating guidance by professionals⁵⁴.

From the data analyzed, we observed that the elderly with no depressive symptoms had higher knowledge about sexuality in aging. Depressive seniors may lack interest in developing activities that were previously enjoyable, lack of energy, difficulty concentrating, memory loss and cogni-

tive deficits; which may make it difficult to obtain information⁵⁵.

Studies conducted with people living with HIV and over 50 years of age have shown that aging with the virus has led to self-acceptance, wisdom and a positive attitude toward life^{43,56}. This research showed that the population diagnosed with HIV for more than 12 years knew about sexuality.

In this research, older women, illiterate participants, evangelical and Catholic religion practitioners, and those with less than 12 years of HIV diagnosis had more conservative attitudes regarding the elderly's sexuality. This finding is in agreement with that of Lee Kyung-Ja *et al.*⁴⁹, who reported that older women were more conservative about sexuality than older men. On the other hand, studies showed that there was no significant difference in attitude between men and women regarding the sexuality of older adults^{36,48}.

The set of beliefs and moral values found in culture, society and religion imposed on females a position of inferiority compared to males, and of submission to sexual practices. The conservative attitudes evidenced by women in this study are reflections of oppressive sexual patterns, full of prejudice, created by a society that limits and silences female sexuality. Talking about sexuality still causes discomfort, fear and modesty, especially among older women who avoid exposing

their sexual experiences and develop a reserved posture and negative attitudes on this topic.

The level of schooling may influence attitudes toward sexuality in aging. People with more advanced education tend to have a more favorable attitude about sexuality in aging^{36,49,51}. Corroborating the literature, the elderly participants of this study with higher levels of education showed more permissive attitudes.

Religious aspects also contribute to a limited view of sexuality by relating sexual experiences to something sinful⁵⁷. Thus, older practitioners of the Catholic and Evangelical religions showed more conservative sexual attitudes. This result is similar to that reported by Lee Kyung-Ja et al.⁴⁹. The idea that sex is naturally associated with pleasure is rejected by religious morality by restricting its exercise to those who, supported by religious values, wish to form a family. Through its rules and doctrines, religion works as an instrument for regulating sexual behavior and practices⁵⁸.

This study has limitations inherent to its cross-sectional design, which does not allow establishing a cause and effect relationship, limiting itself to discuss the association between the studied variables. Also, since the sample was

non-probabilistic and of convenience, the results obtained cannot be extrapolated to the entire population of seniors with HIV and are restricted to the public in question only. The associations found indicate the need for longitudinal studies to identify the influence of these variables on the knowledge and attitudes about the sexuality of the elderly population living with HIV.

Conclusion

The results of this research led us to conclude that older women, illiterate participants, practicing evangelical and Catholic religion, and the seniors with less than 12 years of HIV diagnosis had fewer knowledge and more conservative attitudes about elderly sexuality. The lack of knowledge favors the development of negative attitudes toward sexuality in aging, which may contribute to increasing the susceptibility of the elderly to HIV.

There is a clear need to promote among the elderly, especially those in situations of greater vulnerability, preventive and health education actions that favor reflection, behavior change, reduced vulnerability and stigma in the face of HIV/AIDS and other ISTs.

Collaborations

RB Aguiar participated in the conception and design of the study, collection, analysis and interpretation of data, writing of the article and final approval of the manuscript. MCC Leal participated in the design and orientation of the research, critical review of the text and final approval of the manuscript. APO Marques participated in the relevant critical review of the intellectual content and final approval of the version to be published.

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