

Factors associated with inconsistent condom use among people living with HIV/Aids

Fatores associados ao uso inconsistente do preservativo entre pessoas vivendo com HIV/Aids
Factores asociados al uso inconsistente del preservativo entre personas viviendo con VIH/SIDA

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ABSTRACT

Objective: to analyze the prevalence and factors associated with inconsistent use of condoms among people living with HIV/Aids (PLWHA). **Method:** it is a cross-sectional study with 228, with individual interviews conducted in 2011. A multivariate analysis was performed with a logistic regression model. **Results:** 143 participants met the inclusion criteria, and the prevalence of inconsistent condom use was 28.7%. However, there was greater adherence among men (79.3%). In the multivariate analysis, the independent variable daily use of alcohol (OR=11.02; 95% CI 1.84, 65.92; p=0.021) was associated with inconsistent condom use. The chance of men making consistent condom use was higher than women (OR=0.36, 95% CI 0.15, 0.81; p=0.015). **Conclusion:** the prevalence of inconsistent condom male use among PLWHA was low, however, evidenced greater compliance among men over women with a statistically significant difference and the daily use of alcohol was associated with inconsistent condom use.

Key words: Condoms; HIV Infections; Sexual Behavior; Risk Factors; Transmissible Disease Prevention

RESUMO

Objetivo: analisar a prevalência e fatores associados ao uso inconsistente do preservativo masculino entre pessoas vivendo com o HIV/Aids (PVHA). **Método:** estudo transversal realizado em serviços de atendimento especializados (SAE), com 228 PVHA. Realizou-se análise multivariada com modelo de regressão logística. **Resultados:** 143 participantes preencheram os critérios de inclusão e a prevalência do uso inconsistente do preservativo foi de 28,7%. Observou-se maior adesão entre os homens (79,3%). Na análise multivariada, a variável independente uso diário do álcool (OR=11,02; IC95% 1,84;65,92; p=0,021) teve associação com o uso inconsistente do preservativo. A chance dos homens fazerem uso consistente do preservativo foi maior que as mulheres (OR=0,36; IC95% 0,15;0,81; p=0,015). **Conclusão:** a prevalência do uso inconsistente do preservativo masculino entre PVHA foi baixa, entretanto foi evidenciado maior adesão entre os homens em relação as mulheres com diferença estatisticamente significativa e o uso do álcool diariamente mostrou-se associado com o uso inconsistente do preservativo.

Descritores: Preservativos; Infecções por HIV; Comportamento Sexual; Fatores de Risco; Prevenção de Doenças Transmissíveis.

RESUMEN

Objetivo: analizar la prevalencia y factores asociados al uso inconsistente del preservativo masculino entre personas viviendo con el VIH/SIDA (PVHA). **Método:** estudio transversal con 228, con entrevistas individuales realizadas en 2011. Se realizó análisis multivariado con modelo de regresión logística. **Resultados:** 143 participantes completaron los criterios de inclusión

y la prevalencia del uso inconsistente del preservativo fue de 28,7%. Entre ambos, se observó mayor adhesión entre los hombres (79,3%). En el análisis multivariado, la variable independiente uso diario del alcohol (OR = 11,02; IC95% 1,84;65,92; $p=0,021$) tuvo asociación con el uso inconsistente del preservativo. La oportunidad de los hombres hacer uso consistente del preservativo fue mayor que en las mujeres (OR = 0,36; IC95% 0,15;0,81; $p=0,015$). **Conclusión:** la prevalencia del uso inconsistente del preservativo masculino entre PVHA fue baja, entre ambos fue evidenciado mayor adhesión entre los hombres en relación a las mujeres con diferencia estadísticamente significativa y el uso del alcohol diario se mostró asociado con el uso inconsistente del preservativo.

Palabras clave: Preservativos; Infecciones por VIH; Comportamiento Sexual; Factores de Riesgo; Prevención de Enfermedades Trasmisibles

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INTRODUCTION

There is more than three decades since the discovery of infection with Human Immunodeficiency Virus (HIV) remains a global health problem. It is estimated that there are about 35 million people living with HIV worldwide, being approximately 1 million and a half only in Latin America⁽¹⁾ and Brazil has 757,042 registered cases⁽²⁾.

While in many countries the number of new infections of people with HIV continues to decline, a decline of 75% in 10 countries and by more than 50% in 27 countries in Latin America, there was a decline in new infections of 3% between 2005 and 2013. However, we observe different standards between countries, for example, in Mexico, in the same period, were the decrease was 39% while in Brazil, that is the country with the largest number of people living with HIV/Aids in the region, the number of new infections increased 11%⁽¹⁾.

Worldwide, the majority of new HIV infections occur through sexual contact. Heterosexual transmission is increasing, and women are about three times more prone to acquire HIV from a male partner than a man from a woman⁽³⁾. In Latin America the Conjoint United Nations Program of HIV/Aids (UNAIDS) estimated that about 450,000 women living with HIV in 2013, just in Brazil, the estimate is nearly that half that amount, 210,000 are women⁽¹⁾.

Heterosexual relationships are often characterized by a sexual division of power, for many couples, unprotected sex can be interpreted as intimacy and trust, acting as a barrier not only to the use of condoms, but communication about safe sex in general⁽³⁾.

In Brazil, the free condom distribution policy started in 1994 and was distributed to health services across the country. According to the Ministry of Health, the distribution of input prevention grew by over 45% between 2010 to 2011, rising from 333 million to 493 million of units⁽²⁾.

Nevertheless, the sexual transmission of HIV is the most prevalent, and in women, 86.8% of cases registered in 2012 resulted from heterosexual sex with HIV-infected people. Among men, 43.5% of the cases were by heterosexual contact, 24.5% by homosexual and 7.7% by bisexual⁽²⁾.

Among people living with HIV/Aids, the consistent use of condoms is an important preventive measure among serodiscordant and seroconcordant couples, as it aims to prevent reinfection of already resistant strains to antiretroviral drugs,

reducing viral burden during sex and avoid transmission other sexually transmitted infections.

The risk of HIV transmission in serodiscordant couples varies widely according to the type and frequency of sexual activity as well as the viral burden of the infected partner⁽⁴⁻⁵⁾.

In this sense, in the full health care perspective, health services should be structured to include aspects of sexual life, including the guarantee of prevention materials, as well as assistance targeted to the preventive aspects, since the fact that the condom is distributed for free, does not eliminate the barriers of cultural, social and emotional nature involving in unprotected sexual practices.

The inconsistent use of male condoms has been reported in studies conducted in countries with different levels of development⁽⁶⁻⁹⁾ which suggest that interventions for HIV prevention should involve complex issues related to couples⁽¹⁰⁻¹¹⁾.

In this sense, this study aimed to analyze the prevalence and factors associated with inconsistent use of condoms among people living with HIV/Aids.

METHOD

It is a cross-sectional and analytical study performed in Ribeirão Preto, São Paulo, in 2011, with 228 members of two specialized services in the care of people living with HIV/Aids (PLWHA).

Study participants were men and women living with HIV/Aids over the age of 18, sexually active in the last three months, aware of their status of HIV/Aids for at least six months and who were in clinical follow-up in the studied services. Constituted as an exclusion criterion: individuals with inactive sex life, which had no clinical or cognitive condition to participate in the interview, and confined individuals such as prisoners and institutionalized, living in safe houses.

Data were collected through individual interviews, in the ambulatory rooms before or after medical consultation. Subjects who met the inclusion criteria were invited to participate in the study. Two interviewers, previously trained by the study coordinator, conducted the interviews.

A structured questionnaire containing questions about socio-demographic characteristics was used (gender, age, income, schooling) and clinical (T-CD4 cell count, detectable viral burden or undetectable, comorbidities).

About the use of alcohol they were asked about the consumption in the last three months and laid out four options for answers: Daily (use seven days a week), common (use of three to six times a week), occasional (once a week or less per week) and did not use alcohol.

They also were asked about aspects of affective-sexual life (sexual orientation), the factors related to the sexual partner as the type of partnership (steady or casual) and serological diagnosis of the partner's HIV (reagent, non-reactive or do not know). The male condom use was assessed through the use of questioning frequency (always, sometimes, never) in the last three months and the consistent use was considered for those who always reported use that is, in all sexual relations; while the inconsistent use was considered in those who reported using sometimes or never.

All data were cataloged and organized in an electronic spreadsheet and double typing. Statistical analysis was performed using SPSS software version 17.0. The frequencies of the variables and their confidence intervals were included, as well as gross and adjusted analysis to determine the variables associated with the inconsistent use of condoms.

Bivariate analysis was performed using the Chi-square test to analyze the association between socio-demographic variables, and those related to affective-sexual life, clinical and life habits with consistent and inconsistent use of male condoms in the last three months.

To verify which factors increase the probability of inconsistent classification, it was performed multivariate logistic regression. Independent used variables were socio-demographic variables (gender, age, schooling, marital status, employment, income) related to affective-sexual life (sexual orientation, relationship type, diagnosis of sexual partnership, partner in medical segment) clinics (CD4 lymphocyte count, viral burden, infection classification, presence of comorbidities) and lifestyle (alcohol use).

Due to a large number of independent variables in the model it was decided as a first step the elimination of variables, by the use of the automatic selection procedure called 'stepwise.'

This procedure performs the insertion and removal of independent variables based on the stipulated level of significance. The statistics of the Wald test was used, adopting p-value <0.20 for the candidate variable get into the model. For output, if p-value were greater than 0.10 the variable was removed.

The approval by the Ethics in Research Committee of the Ribeirão Preto Nursing School was obtained by following the recommendations of the National Health Council Resolution 196/96. The participants were informed about the study objectives and guaranteed seal and anonymity of the information. The Informed Consent and Informed (IC) was read for individuals with low schooling. The interview was performed after reading and consent of the patient and signed the Informed Consent.

RESULTS

Of the total of 505 registered in the service, 228 people were interviewed and of these 143 participants met the inclusion criteria. Of these, 82 (57.3%) were male, and 90 participants (62.9%) were aged above 35 years old, with a mean age of 39 years.

As to schooling, it was found that 84 (58.7%) reported incomplete elementary education (less than eight years of study) and only 17 (11.9%) had higher education. Concerning income, 122 (85.3%) of respondents reported receiving up to three minimum wages per month.

About the clinical aspects relevant to HIV, 70 (49.0%) had T-CD4 greater than 500 cells/mm³, and 53 (37.0%) T-CD4 less than 200 cells/mm³. Regarding Viral Burden (CV), 75 (52.4%) had an undetectable Viral Burden. Furthermore, in 86 (60.1%) were identified comorbidities.

As for the aspects of affective-sexual life, it was identified that 79.0% declare themselves as heterosexual, 44.0% had relationships with serodiscordant partners, and 34.2% lived with seroconcordant partner; and, 21.6% were related to people with serological evaluation for HIV unrealized or unknown (Table 1).

Table 1 - Sample characterization according to affective-sexual life of PLWHA, Ribeirão Preto, São Paulo, Brazil, 2011

Variable	Total	Use of condoms		p value
	N = 143	Consistent n = 102	Inconsistent n = 41	
	n (%)	n (%)	n (%)	
Socio-demographic variable				
Gender				
Male	82 (57.3)	65 (79.3)	17 (20.7)	0.015*
Female	61 (42.7)	37 (60.7)	24 (39.3)	
Age Group				
21 to 35	53 (37.1)	35 (66.0)	18 (34.0)	0.283
Above than 35	90 (62.9)	67 (74.4)	23 (25.6)	

Variable	Total	Use of condoms		p value
	N = 143 n (%)	Consistent n = 102 n (%)	Inconsistent n = 41 n (%)	
Schooling R**				
Elementary School	84 (58.7)	49 (65.3)	26 (34.7)	0.037*
High School	42 (29.4)	35 (83.3)	07 (16.7)	
Higher Education	17 (11.9)	14 (82.4)	03 (17.6)	
Income R**				
Up to 3 minimum wages	122 (85.3)	85 (69.7)	37 (30.3)	0.291
More than 3 minimum wages	21 (14.7)	17 (81.0)	04 (19.0)	
Variables related to affective-sexual life				
Sexual orientation R**				
Heterosexual	113 (79.0)	78 (69.0)	35 (31.0)	0.398
Homosexual	19 (13.3)	16 (84.2)	03 (15.8)	
Bisexual	11 (7.7)	08 (72.7)	03 (27.3)	
Partner Diagnosis R**				
Seropositive to HIV	49 (34.3)	30 (61.2)	19 (38.8)	0.064
Seronegative to HIV	63 (44.0)	51 (81.0)	12 (19.0)	
Untested/do not know	31 (21.7)	21 (67.7)	10 (32.3)	
Partnership Type R**				
Fixed/steady	116 (81.1)	80 (69.0)	36 (31.0)	0.195
Not fixed /occasional	27 (18.9)	22 (81.5)	05 (18.5)	
Variables related to the clinical aspects				
T-CD4 Count				
Over than 500	70 (49.0)	44 (71.0)	18 (29.0)	0.842
499-200	20 (14.0)	44 (73.3)	16 (26.7)	
Less than 200	53 (37.0)	14 (66.7)	07 (33.3)	
Viral burden				
Undetectable	75 (52.4)	52 (69.3)	23 (30.7)	0.579
Detectable	68 (47.6)	50 (73.5)	18 (26.5)	
Comorbidities				
Yes	86 (60.1)	65 (75.6)	21 (24.4)	0.167
No	57 (39.9)	37 (64.9)	20 (35.1)	
Variables related to lifestyle				
Alcohol use				
Daily	08 (5.7)	02 (25.0)	06 (75.0)	0.008*
Frequently	30 (20.9)	26 (40)	04 (60)	
Occasionally	52 (36.4)	37 (79.2)	15 (29.8)	
Never	53 (37.0)	37 (69.8)	16 (30.2)	

Notes: * Chi-square test; R** mentioned variables.

About condom use, in general, the prevalence of inconsistent use was 28.7%. However, when comparing the adherence by gender, there is greater adherence to men (79.3%) than among women with statistically significant difference ($p=0.005$).

Individuals with higher schooling levels ($p < 0.037$), and who reported never having used alcohol ($p < 0.008$), had higher rates of adherence to condoms (Table 02).

Although not observed statistically significant differences, consistent condom use was higher in individuals over the age of 35 years ($p < 0.283$), who had partner with negative serology HIV ($p < 0.064$), and also with the occasional partner ($p < 0.195$). As the viral burden count was identified that 73.5% of subjects with detectable viral burden were inconsistent using condom.

The results of the multivariate analysis showed that the variable daily use of alcohol was associated with inconsistent

condom use (OR = 11.02; 95% CI: 1.84; 65.92). Also, it was observed that being male was constituted as a protective factor for consistent use compared to women (Table 2).

Table 2 - Result of the logistic regression analysis: independent variables associated with the use of male condoms, Ribeirão Preto, São Paulo, Brazil, 2011

Variable	Adjusted Odds ratio	95 % CI	P value
Gender			
Male	0.36	0.15 – 0.81	0.015
Female	1.00		
Alcohol use			
Daily	11.02	1.84 – 65.92	0.021
Frequently	0.50	0.14 - 1.78	
Occasionally	1.17	0.48 – 2.83	
Never	1.00		

DISCUSSION

A prevalence of 28.7% of inconsistent condom use among people living with HIV/Aids was identified. This result highlights the need for interventions to improve adherence to preventive practices in health services accompanying these individuals. The inconsistent condom use was also reported in studies conducted in other countries^(6,9,12).

There are few studies in Brazil about the inconsistent condom use among people living with HIV/Aids⁽¹³⁻¹⁴⁾. In this sample, it was observed that more than 60% of them were sexually active.

It has been seen that women living with HIV differentiate more inconsistent use of condoms (39.3%) than men. A study performed by women from all regions of Brazil also showed low rates of adherence to condoms⁽¹⁴⁾. A research conducted in Italy corroborated these results, showing that among 343 interviewed women, the prevalence of inconsistent condom use was 44.3%⁽⁷⁾. This result is alarming as the male condom is man use and their use depends primarily on the negotiation between the couple, which reinforces the need for the distribution of condoms and counseling for training and empowering women to negotiate condom use.

Also, a meta-analysis showed that behavioral interventions have little effect on the increase in condom use among women living with HIV. The authors recommend using a combination of interventions to reduce viral burden between these women and their partners, which are promoting the use of condoms, family planning offer and advice⁽¹⁵⁾.

Several aspects related to gender inequalities⁽¹⁶⁾ determine low power of women's sexual negotiation, making them more likely to have unprotected sex increasing consequently their chances of exposure to HIV. These aspects can be observed in a study, that shows high rates of women infected by their steady partners and inconsistent use of condoms⁽¹⁴⁾.

Despite the implementation of public policies, recognized progressive advances in care for PLWHA in Brazil, the preventive work and the provision of inputs, such as condoms, the epidemic continues to impose serious challenges to its control, particularly among women, adolescents, and youth.

The determinants of gender, cultural aspects and the social and economic exclusion processes have great influence on women's vulnerability to HIV/Aids and may form an obstacle to the perceived risk of infection or reinfection with HIV. Inequality between the sexes is historical, showing the power of men over women.

Also, the low perception of their vulnerability linked to the trust in the partner with the idea of Aids as a disease of the *other*, in which the *other* appears as more vulnerable to contracting the disease⁽¹⁷⁾.

In this sense, the very health services do not provide a comprehensive approach that encourages the empowerment of women and the inclusion of men in health care, as in the list of activities offered by primary care units in health, is largely directed in outpatient visits for prenatal care and family planning groups to care for the health of women focused on reproductive health and performed practically without the presence of men, reproducing the idea that reproduction is of exclusively female responsibility⁽¹⁸⁾.

Thus, public policies should ensure investments in broader actions to promote the integral health of women living with HIV/Aids, combined with inter-sectorial public policies, articulated to reduce socioeconomic inequalities of gender, to promote economic and financial autonomy and empowerment of women, recognizing and protecting their right to autonomy and freedom over their body and sexuality, at all stages of life as a fundamental dimension of life and health.

Moreover, it is necessary to invest in alternatives and expand the options for protection methods controlled by women⁽¹⁹⁾ as the female condom. Study about the female condom indicates that its offer is still very limited, although the results indicate that women are willing to meet new alternatives that avoid an unwanted pregnancy and do not cause side effects, and also conducive to the protection against STDs/Aids (double protection), showing that if condoms are made available for health care, there will be groups of people willing to adopt them⁽²⁰⁾, similar to what has been reported worldwide.

Another variable that was highlighted was the inconsistent use of condoms among individuals who were using alcohol daily, which was identified OR = 11.02; 95% CI: 1.84; 65.92 when compared to those who never ingest. This finding was corroborated by an investigation in India, where it was seen that 48% of men reported having consumed alcohol before their last sexual intercourse, and the statistical analysis it was seen that men who consumed alcohol were three times more likely not to use condoms in their sexual relationship⁽²¹⁾.

In another research conducted in sub-Saharan Africa, including Kenya, Tanzania and Namibia countries, the association between alcohol users and risky sexual behavior in people living with HIV was evaluated. The same highlights the need to integrate alcohol counseling in routine monitoring in people living with HIV/Aids⁽²²⁾. Given the many intersections between alcohol

and HIV, it is necessary the implementation of policies focusing on reducing alcohol consumption and risk behavior.

Thus, comprehensive care to people living with HIV/Aids in specialized services is being increasingly discussed and in these discussions is important that this care should include aspects of affective-sexual life with a view to promoting sexual and reproductive health of PLWHA, contemplating the use of condoms to help them overcome difficulties and emotional barriers, relational and sociocultural stemming from seropositivity to HIV, that interfere with maintaining safe sex⁽¹⁰⁾.

Thus, some authors have associated the use of alcohol to multiple sexual partnerships with consequently inconsistent condom use, which added confer a higher risk of HIV transmission⁽²³⁻²⁴⁾. In the population that already lives with viruses, such actions can confer additional risk for increased viral burden among partners and the HIV mutants infections.

It should be noted that the study has limitations related to selection of participants, as it was used non-probability sample and moreover, it is noteworthy that the patients were asked about past practices at the time of the interview that may represent a memory bias.

CONCLUSION

The prevalence of inconsistent condom use among people living with HIV/Aids was 28.7%, however evidenced greater adherence among men than among women with statistically significant difference and the daily use of alcohol was associated with inconsistent condom use.

Thus, for comprehensive care to people living with HIV/Aids in specialized services is relevant to include aspects of affective-sexual life in order to promote the sexual health of people living with HIV/Aids, covering preventive strategies such as the use of condom helping them to overcome difficulties and emotional barriers, relational and sociocultural stemming from seropositivity to HIV, that interfere with maintaining safe sex.

The implementation of more effective strategies that include the couple to face the socio-cultural and gender aspects is required. These aspects influence the difficulty of negotiation and adoption of preventive strategies regarding the re-infection by HIV and other infections through sex, such as consistent condom use.

REFERENCES

1. World Health Organization. Global Reports: UNAIDS report on the global AIDS epidemic 2014 [Internet]. Geneva, 2014[cited 2015 May 01]; Available from: http://www.unaids.org/sites/default/files/media_asset/GARPR_2014_guidelines_en_0.pdf
2. Brasil. Ministério da Saúde. Coordenação Nacional de DST-Aids. Boletim Epidemiológico Aids – DST. [Internet] Brasília: Ministério da Saúde; 2014[cited 2015 May 01]; Available from: <http://www.aids.gov.br/publicacao/2014/boletim-epidemiologico-2014>
3. LaCroix JM, Pellowski JA, Lennon CA, Johnson BT. Behavioural interventions to reduce sexual risk for HIV in heterosexual couples: a meta-analysis. *Sex Transm Infect* [Internet]. 2013[cited 2015 May 01];89(8):620-7. Available from: <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0059155/>.
4. Powers KA, Poole CP, Pettifor AE, Cohen MS. Rethinking the heterosexual infectivity of HIV-1: a systematic review and meta-analysis. *Lancet Infect Dis* [Internet]. 2008[cited 2015 May 01];8:553-63. Available from: [http://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099\(08\)70156-7.pdf](http://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099(08)70156-7.pdf)
5. Dosekun O, Fox J. An overview of the relative risks of different sexual behaviours on HIV transmission. *Curr Opin HIV AIDS* [Internet]. 2010[cited 2015 May 01];5(4):291-7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20543603>
6. Engedashet E, Alemayehu W, Gezahegn T. Unprotected sexual practice and associated factors among People Living with HIV at Ante Retroviral Therapy clinics in Debrezeit Town, Ethiopia: a cross sectional study. *Reprod Health* [Internet]. 2014[cited 2015 May 01];11(56):1-9. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4112610/pdf/1742-4755-11-56.pdf>
7. Cicconi P, Monforte AD, Castagna A, Quirino T, Alessandrini A, Gargiulo M. et al. Inconsistent condom use among HIV-positive women in the "Treatment as Prevention Era": data from the Italian DIDI study. *J Int AIDS Soc* [Internet]. 2013[cited 2015 May 01];16(1):18591. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3798584/pdf/JIAS-16-18591.pdf>
8. McGrathc N, Eaton JW, Barnighausen TW, Tanser F, Newell ML. Sexual behaviour in a rural high HIV prevalence South African community: time trends in the antiretroviral treatment era. *AIDS* [Internet]. 2013[cited 2015 May 01];27(15):2461-70. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3773237/pdf/aids-27-2461.pdf>
9. Kilembe W, Wall KM, Mokgoro M, Mwaanga A, Dissen E, Kamusoko M, et al. Knowledge of HIV serodiscordance, transmission and prevention among couples in Durban, South Africa. *Plos One* [Internet]. 2015[cited 2015 May 01];10(4):1-12. Available from: <http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0124548&representation=PDF>
10. Reis RK, Gir E. Difficulties faced by HIV mixed status couples in maintaining safe sex. *Rev Latino-am Enfermagem* [Internet]. 2005[cited 2015 May 01];13(1):32-7. Available from: <http://www.scielo.br/pdf/rlae/v13n1/v13n1a06.pdf>
11. Reis RK, Gir E. Living with the difference: the impact of serodiscordance on the affective and sexual life of HIV/AIDS patients. *Rev Esc Enferm USP* [Internet]. 2010[cited 2015 May 01];3(44):759-65. Available from: http://www.scielo.br/pdf/reeusp/v44n3/en_30.pdf

12. Yalew E, Zegeye DT, Meseret S. Patterns of condom use and associated factors among adult HIV positive clients in North Western Ethiopia: a comparative cross sectional study. *BMC Public Health* [Internet]. 2012[cited 2015 May 01];12(308):1-6. Available from: <http://www.biomedcentral.com/content/pdf/1471-2458-12-308.pdf>
13. Lima M, Schraiber LB. Violência e outras vulnerabilidades de gênero em mulheres vivendo com HIV/Aids. *Temas Psicol* [Internet]. 2013[cited 2015 May 01];21(3):947-60. Available from: <http://pepsic.bvsalud.org/pdf/tp/v21n3/v21n3a11.pdf>
14. Santos NJS, Barbosa RM, Pinho AA, Villela WV, Aidar T, Filipe EMV. [Contexts of HIV vulnerability among Brazilian women]. *Cad Saúde Pública* [Internet]. 2009[cited 2015 May 01];25(Sup2):321-33. Available from: <http://www.scielo.br/pdf/csp/v25s2/14.pdf> Portuguese.
15. Carvalho FT, Gonçalves TR, Faria ER, Shoveller JA, Piccinini CA, Ramos MC, et al. Behavioral interventions to promote condom use among women living with HIV. *Cochrane Database Syst Rev* [Internet]. 2011[cited 2015 May 01];7(9):1-35. Available from: <http://apps.who.int/rhl/reviews/CD007844.pdf?ua=1>
16. Hardee VS, Ayer LA, Rose GL, Naylor MR, Helzer JE. Alcohol, moods and male-female differences: daily interactive voice response over 6 months. *Alcohol Alcohol* [Internet]. 2014[cited 2015 May 01];49(1):60-5. Available from: <http://alcalc.oxfordjournals.org/content/49/1/60.long>
17. Silva CM, Vargens OMC. Women's perception about female vulnerability to STD and HIV. *Rev Esc Enferm USP* [Internet]. 2009[cited 2015 May 01];43(2):399-404. Available from: <http://www.revistas.usp.br/reeusp/article/viewFile/40371/43309>
18. Pinheiro TF, Couto MT. Sexualidade e reprodução: discutindo gênero e integralidade na atenção primária à saúde. *Physis* [Internet]. 2013[cited 2015 May 01];23(1):73-92. Available from: <http://www.scielo.br/pdf/physis/v23n1/05.pdf>
19. UNFPA. Fundo de População das Nações Unidas. Preservativo feminino: das políticas globais à realidade brasileira. Brasília: UNFPA [Internet]. 2011[cited 2015 May 01]; Available from: http://www.unfpa.org.br/arquivos/preservativo_feminino.pdf
20. Kalckmann S, Farias N, Carvalheiro JR. Evaluation of continuity of use of female condoms among users of the Brazilian National Health System (SUS): longitudinal analysis in units in the metropolitan region of São Paulo, Brazil. *Rev Bras Epidemiol* [Internet]. 2009[cited 2015 May 01];12(2):132-43. Available from: http://www.scielo.br/pdf/rbepid/v12n2/en_04.pdf
21. Rizwan SA, Kant S, Goswami K, Rai SK, Misra P. Influence of alcohol on condom use pattern during non-spousal sexual encounter in male migrant workers in north India. *J Postgrad Med* [Internet]. 2014[cited 2015 May 01];60(3):276-81. Available from: <http://www.jpg-online.com/article.asp?issn=0022-3859;year=2014;volume=60;issue=3;spage=276;epage=281;aulast=Rizwan>
22. Medley A, Seth P, Pathak S, Howard AA, DeLuca N, Matiko E, et al. Alcohol use and its association with HIV risk behaviors among a cohort of patients attending HIV clinical care in Tanzania, Kenya, and Namibia. *AIDS Care* [Internet]. 2014[cited 2015 May 01];26(10):1288-97. Available from: <http://www.tandfonline.com/doi/pdf/10.1080/09540121.2014.911809>
23. Choudhry V, Agardh A, Stafström M, Östergren PO. Patterns of alcohol consumption and risky sexual behavior: a cross-sectional study among Ugandan university students. *BMC Public Health* [Internet]. 2014[cited 2015 May 01];14(128):1-11. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3933239/pdf/1471-2458-14-128.pdf>
24. Shiferaw Y, Alemu A, Assefa A, Tesfaye B, Gibermedhin E, Amare M. Perception of risk of HIV and sexual risk behaviors among University students: implication for planning interventions. *BMC Res Notes* [Internet]. 2014[cited 2015 May 01];162(7):1-8. Available from: <http://www.biomedcentral.com/content/pdf/1756-0500-7-162.pdf>