Factors associated with the reproductive health of women living with HIV in Iran

Sepideh Shikhansari, Zahra Bostani Khalesi, Enayatollah Homaei Rad

Student Research Center, Guilan University of Medical Sciences, Rasht, Iran
Social Determinants of Health Research Center, Guilan University of Medical Sciences, Rasht, Iran

ARTICLE INFO

Article history:
Received 22 September 2021
Received in revised form 16 October 2021
Accepted 22 October 2021
Available online 28 October 2021

Keywords:
Reproductive health
HIV-Positive
Women

ABSTRACT

Background: Insight on reproductive health status in women living with HIV is associated with improved psychological well-being, health behaviors, and physical wellness. The overall aim of this paper is to gain insight into the reproductive health of women living with HIV and related factors.

Method: An analytical cross-sectional study was carried on women living with HIV (N = 112) attending high-risk behavior consultation centers in Rasht and Tehran, Iran. The sampling of respondents was in the form of consecutive and available. The data gathering including questionnaires that were divided into three parts: sociodemographic and health characteristics, reproductive behaviors information, and reproductive health assessment tool for women living with HIV.

Result: The sub-dimension of responsible behavior received the highest total mean score (54.27 ± 22.18). The mean scores in the sub-dimension of coping with the diagnosis, life instability, disease disclosure, disease-related concerns, and support needs for self-care were 50.14, 49.23, 44.27, 40.08, 38.25, and 33.25 respectively.

Conclusion: The results clearly showed that the reproductive health situation of women living with HIV needs particular attention. Strategic planning and context-specific interventions are needed to improve women's access and utilization of reproductive health services.

Introduction

RH encompasses a wide range of events and conditions, which take place throughout the life span [1]. RH status of individuals is affected by numerous factors, “ranging from sexual behavior and attitudes, social factors, biological and genetic predisposition, and economic, cultural and psychosocial determinants” [2]. RH may also be influenced and affected by illness, violence, and sexuality [3]. Poor RH is one of the barriers to development, affecting the health status of millions [4]. Women are one of the most vulnerable groups to the consequences of poor RH and as such face numerous threats including, sexually transmitted disease [5]. Women are more likely than men to engage in unplanned and unprotected sex with multiple partners and have been shown to lack the skills to negotiate safer sex practices [7]. The HIV/AIDS prevalence rate of girls and women is half the HIV-positive adult population, an estimated 20.1 million [8]. Women are extremely vulnerable to HIV, for various reasons [9]. Considering the prevalence of 340 million new cases of STD each year, after childbirth-related causes, STDs are the second cause of healthy life lost in women [10]. HIV in women particularly young females causes reduced intimacy, fears of infecting partners; reduce sexual function, sexual interest/arousal disorder, and changes in body image [11]. HIV-infected women have special needs in RH, including services and information protecting their own health, family planning, as well as preventing transmission of HIV from mother to child [6]. One of the main health concerns among WHL and its negative impacts on their RH is AIDS [10]. HIV/AIDS is closely linked with RH, so that prevention, management, and counseling have become important elements of comprehensive RH care programs [3]. Because of the negative consequences that often accompany HIV, women need insight into their rights [6]. WLH must have the knowledge and skills to deal with the disease and its consequences [12]. Adequate knowledge about the RH of WLH enables them to self-management [13]. Self-management allows WLHs to take care of themselves and maintain their physical health in HIV-related conditions [5].
To date, much less attention has been paid to the reproductive health intentions, and needs of WLH. Although some previous studies have the RH needs assessment of women in Iran, the situation of women is still largely unknown. In comparison, there have been few studies of therapy and support programs on RH of WLH [14]. Since awareness of the RH status of WLH allows RH counseling to be provided to fit their situation and improving RH. The overall aim of this paper is to gain insight into the RH of WLH.

Method and Material

An analytical cross-sectional study was carried on WLH (N = 112) referring to high-risk behavior consultation Centers in Rasht and Tehran, Iran. The high-risk behavior consultation centers in Iran are free centers that provided expert assessment, consultation, and other health services to people living with HIV/AIDS. The sampling of respondents was in the form of consecutive and available. The inclusion criteria were sexually active WLH (15–49 years), have sufficient cognitive ability to provide informed consent, Iranian nationality, having the ability to read and write, not being so addicted, able to answer questions, not having a history of serious psychiatric disorders and mental illness approved by a doctor. Not responding to the questionnaire items completely and being in the advanced stages of AIDS was the exclusion criterion.

The data gathering including self-administered questionnaires that were divided into three parts. The first part focused on the sociodemographic and health characteristics of the respondents such as age, education, location, occupation, marital status, and HIV stage. The second part focused on reproductive behaviors information such as the history of unwanted pregnancy, access to RH information, contraceptive methods, number of pregnancies, and children. The third and most encompassing part focused on information flows regarding topics related to RH. RH assessment scale for HIV-positive women was developed by Behboudi-Moghadam et al. [15] with 36 items in six sub-dimensions including life instability (8 items), responsible behavior (4 items), coping with the diagnosis (7 items), disease-related concerns (8 items), support needs for self-care (6 items), and disease disclosure (3 items). The scores of the HIV-positive women's RH questionnaire span from 0 to 174 as a 6-point rating scale (not at all: 6, very rarely: 5, rarely: 4, below average: 3, average: 2, much:1, extremely: 0). In order to determine the validity of the HIV-positive women's RH questionnaire, quantitative content validity was used based on content validity ratio and content validity index according to the opinions of a 10 member panel consisting of the university faculty members. The test-retest method was used for assessing measurement reliability, whereby the reliability coefficient was obtained as 98%. In order to determine the internal consistency of the items, the Cronbach alpha coefficient was employed, which was obtained as 0.713.

Ethical clearance was obtained from the Guilan University Ethics Committee (IR.GUMS.REC.1398.207). Permission to conduct the research was obtained from the behavioral disorders consulting clinic. All subjects who participated in the study had received routine health services and there were aware of their HIV status. Written informed consent was obtained from all participants before the participant enters the research.

The quantitative survey was administered to 118 WLH. After excluding six participants because of incomplete data on disclosure variables, data for 112 WLH were included in the statistical analysis. Data were analyzed by using SPSS Statistics for Windows, Version 16.0 (IBM SPSS Statistics for Windows, Version 16.0, Chicago, SPSS Inc.). Descriptive and inferential statistics were applied for data analysis, whenever applicable. Descriptive statistics focused on the demographic characteristics of participants. Inferential analyses focused on the factors associated with the RH of participants. P-value < 0.05 was considered significant.

To date, much less attention has been paid to the reproductive health intentions, and needs of WLH. Although some previous studies have the RH needs assessment of women in Iran, the situation of women is still largely unknown. In comparison, there have been few studies of therapy and support programs on RH of WLH [14]. Since awareness of the RH status of WLH allows RH counseling to be provided to fit their situation and improving RH. The overall aim of this paper is to gain insight into the RH of WLH.

Method and Material

An analytical cross-sectional study was carried on WLH (N = 112) referring to high-risk behavior consultation Centers in Rasht and Tehran, Iran. The high-risk behavior consultation centers in Iran are free centers that provided expert assessment, consultation, and other health services to people living with HIV/AIDS. The sampling of respondents was in the form of consecutive and available. The inclusion criteria were sexually active WLH (15–49 years), have sufficient cognitive ability to provide informed consent, Iranian nationality, having the ability to read and write, not being so addicted, able to answer questions, not having a history of serious psychiatric disorders and mental illness approved by a doctor. Not responding to the questionnaire items completely and being in the advanced stages of AIDS was the exclusion criterion.

The data gathering including self-administered questionnaires that were divided into three parts. The first part focused on the sociodemographic and health characteristics of the respondents such as age, education, location, occupation, marital status, and HIV stage. The second part focused on reproductive behaviors information such as the history of unwanted pregnancy, access to RH information, contraceptive methods, number of pregnancies, and children. The third and most encompassing part focused on information flows regarding topics related to RH. RH assessment scale for HIV-positive women was developed by Behboudi-Moghadam et al. [15] with 36 items in six sub-dimensions including life instability (8 items), responsible behavior (4 items), coping with the diagnosis (7 items), disease-related concerns (8 items), support needs for self-care (6 items), and disease disclosure (3 items). The scores of the HIV-positive women's RH questionnaire span from 0 to 174 as a 6-point rating scale (not at all: 6, very rarely: 5, rarely: 4, below average: 3, average: 2, much:1, extremely: 0). In order to determine the validity of the HIV-positive women's RH questionnaire, quantitative content validity was used based on content validity ratio and content validity index according to the opinions of a 10 member panel consisting of the university faculty members. The test-retest method was used for assessing measurement reliability, whereby the reliability coefficient was obtained as 98%. In order to determine the internal consistency of the items, the Cronbach alpha coefficient was employed, which was obtained as 0.713.

Ethical clearance was obtained from the Guilan University Ethics Committee (IR.GUMS.REC.1398.207). Permission to conduct the research was obtained from the behavioral disorders consulting clinic. All subjects who participated in the study had received routine health services and there were aware of their HIV status. Written informed consent was obtained from all participants before the participant enters the research.

The quantitative survey was administered to 118 WLH. After excluding six participants because of incomplete data on disclosure variables, data for 112 WLH were included in the statistical analysis. Data were analyzed by using SPSS Statistics for Windows, Version 16.0 (IBM SPSS Statistics for Windows, Version 16.0, Chicago, SPSS Inc.). Descriptive and inferential statistics were applied for data analysis, whenever applicable. Descriptive statistics focused on the demographic characteristics of participants. Inferential analyses focused on the factors associated with the RH of participants. P-value < 0.05 was considered significant.

Table 1
Socio-demographic and health characteristics participants.

| Characteristics         | Categories          | N (%) |
|-------------------------|---------------------|-------|
| Age                     | 15–24               | 2(1.78) |
|                        | 25–34               | 13(11.6) |
|                        | 35–44               | 62(55.35) |
|                        | > 45                | 35(31.25) |
| Mean                    | 36.4 ± 1.48         |       |
| Employment              | Household           | 49(43.75) |
|                        | workers             | 27(24.1) |
|                        | Employee            | 17(15.17) |
|                        | Self- employed      | 19(16.96) |
| Alcohol and Substance   | Yes                 | 58(51.78) |
|                        | No                  | 54(48.21) |
| Smoking                 | Yes                 | 63(56.25) |
|                        | No                  | 49(43.75) |
| Average monthly income  | < 5 million         | 51(45.53) |
|                        | 5–10 million        | 39(34.82) |
|                        | > 10 million        | 22(19.64) |
| Education               | None                | 2(1.78) |
|                        | Primary school      | 11(9.82) |
|                        | Secondary school    | 35(31.25) |
|                        | High school diploma | 53(47.32) |
|                        | College             | 11(9.82) |
| Marital status          | Single              | 22(19.64) |
|                        | Married             | 73(65.17) |
|                        | Separated(divorced) | 13(11.6) |
| HIV stage               | Asymptomatic        | 64(57.14) |
|                        | Symptomatic         | 48(42.85) |
| Residence place         | Urban               | 79(70.53) |
|                        | Rural               | 33(29.46) |

Result

The participants had an age range from 17 to 52 with 36.4 ± 1.48 years. The majority (47.32%) of the participant's status education was a diploma. The most common (43.75%) occupation was Household. Most of the participant (65.17%) was married (Table 1).

The condom (82.14%) was one of the prevailing methods of birth control used among the respondents due to its availability while also being a method mentioned in clinics. Oral contraceptives as modern family planning methods were the second priority among that most of the respondents. RH information source among most of the participants was the internet (58.51) and medical staff (25.53). Although they were satisfied with the quality of the RH services they received in clinics, the majority of WLH surveyed report of the internet (Table 2).

The mean and standard deviation of the total RH score of the participants was equal to 44.27 ± 1.63. The sub-dimension of responsible behavior received the highest total mean score (54.27 ± 22.18). The sub-dimension of support needs for self-care was the lowest scored 33.25 ± 16.32 (Table 3).

Multiple regression analyses were performed to identify the factors associated with RH sub-dimensions. Overall, being married, being employed, and having children were associated with higher score RH. The complete model was displayed in Table 4.

Discussion

The total score RH and five sub-dimensions scores were all below 50 (on a cut-off). This suggests that participants had a low reproductive health score.

In this study, 25.89% of participants tended to become pregnant in the future. In the study of Hajizadeh et al., was reported that 34% of women and 44.2% of men want to have children in the future [16]. A study published in 2009 in Argentina showed that 64% of women and 73.1 men reported that they wanted to have children [17]. The results of a study in the Kenya showed that HIV-positive women on
disease that has the opposite effect other aspects of women's and a healthy baby [19]. On the other hand, is a stigma caused by a virus from mother to fetus, thus giving women hope for pregnancy as Retro viral that reduces the risk of vertical transmission of the virus to the sexual partner and also from mother to fetus, and is more cost-effective in preventing virus transmission [28].

### Table 2
Reproductive behaviors information of WLH (N = 112).

| Characteristics                          | N (%) |
|------------------------------------------|-------|
| HIV-positive partner                     | Yes   | 90( ) |
|                                         | No    | 22( ) |
| Number of pregnancy                      | 0     | 29(25.89) |
|                                         | 1     | 52(46.42) |
|                                         | 2     | 27(24.1)  |
|                                         | ≥3    | 4(3.57)   |
| Number of children                       | 0     | 31(26.67) |
|                                         | 1     | 54(48.21) |
|                                         | 2     | 25(22.32) |
|                                         | ≥3    | 1(1.78)   |
| Number of HIV-positive children          | No    | 17( )   |
|                                         | ≥1    | 2(1.78)  |
|                                         | I don’t know | 62( ) |
| History of unwanted pregnancy            | Yes   | 50(44.64) |
|                                         | No    | 48(39.2)  |
| Access to RH information                 | Yes   | 18(16.07) |
|                                         | No    | 82(72.93) |
| RH knowledge sources                     | Medical staff | 49.8(45.3) |
|                                         | Radio and television | 24(21.5)  |
|                                         | Friend and family | 55(49.7)  |
|                                         | Internet | 33(30.21) |
|                                         | Poster  | 8(7.12)   |
|                                         | Book/newspapers/magazines | 2(1.82)  |
| Current contraceptive use                 | Yes   | 98(87.5)  |
|                                         | No    | 14(12.5)  |
| Contraceptive methods                    | Condom | 92(82.14) |
|                                         | dual contraceptive methods | 3(2.67) |
|                                         | Coitus interrupts | 1(0.89)  |
|                                         | IUD    | 0(0)      |
|                                         | Oral contraceptives (OC) | 1(0.89)  |
|                                         | Ligation | 1(0.89)  |

The mean and standard deviation of the total score RH and sub-dimensions among participants.

| Sub-dimensions                  | Mean | SD |
|---------------------------------|------|----|
| Disease-related concerns        | 38.25| 2.02|
| Life instability                | 49.23| 1.97|
| Coping with the diagnosis       | 50.14| 1.34|
| Disease disclosure              | 40.08| 26.04|
| Responsible behavior            | 54.27| 22.18|
| Support needs for self-care     | 33.25| 16.32|
| Total score                     | 44.27| 1.63|

Reproductive health include psychological concerns in HIV-positive women, including the mental state of individuals and their lives [20].

In the study, one of the dimensions of RH was the disease-related concerns, which included parents’ concerns, physical problems, and psychological problems caused by the disease in HIV-positive women. The mean and standard deviation of this sub-dimension was 38.25(2.02). The mean and standard deviation of life instability was 49.23 (1.97). It means that most participants felt anxious. Depression and anxiety were higher among HIV-positive women than in men, and depression levels were higher among single, divorced, and widowed women than married women [21]. Other factors affecting the reproductive health sub-dimensions of HIV-positive women were sexual relations and instability in life [22]. One of the factors that affected the psychological issues of the participants, especially in married people, was the instability of marital life [23]. HIV-positive women are more vulnerable to various forms of physical, sexual, and emotional violence [24]. A study published in 2012 in Mexico showed that 93% of participants experienced at least one type of violence. 67.5% of participation was experienced three types of violence. 55% of participants’ physical violence, 90% Psychological violence, 75.5 Emotional violence, and 40% of them had experienced economic violence [25].

The mean and standard deviation of responsible behavior is 54.27 (22.18). This included being sexually responsible involves respecting your partner, the use of family planning methods, and the use of condoms, apprise their sexual partners about their infection, and the use of dual contraceptive methods to prevent the spread of the disease and unwanted pregnancy. In this study, only 2.67% of participants used dual contraceptive methods, and the other contraceptive methods were used less than condoms, this may be due to the growing emphasis of health care providers on condom use. The results of other studies showed that despite the fact that the WHO has approved the use of all contraceptive methods for HIV-positive women [26,27], however, in a study of infected women, very few of them used contraceptives methods compared to the general population [28]. The use of family planning methods by HIV-positive people not only prevents unwanted pregnancies but also reduces the transmission of the virus to the sexual partner and also from mother to fetus, and is more cost-effective in preventing virus transmission [29]. It is recommended to provide consultation services to all women with HIV on the use of the dual contraception methods (condom with another method of contraception).

The mean and standard deviation of disease disclosure is 40.08 (26.04). One of the most important cases in the spread of HIV is the disclosure of the disease, which is one of the most important aspects of reproductive health, and more participants mentioned stigma caused by the disease as one of the reasons for non-disclosure of the disease [30]. Studies show that people who are constantly exposed to the disease are less likely to engage in unsafe behaviors [18, 20, 28]. Failure to disclose the disease is due to fear of rejection by the sexual partner [21]. It is also possible that after the sexual partner realizes the patient’s condition, the sexual support of the sexual

### Table 3
Multiple regression analysis of the variables associated with RH sub-dimensions.

| Variables                     | Disease-related concerns β | Life instability β | Coping with the diagnosis β | Disease disclosure β | Responsible behavior β | Support needs for self-care β | Overall score β |
|-------------------------------|----------------------------|-------------------|-----------------------------|----------------------|------------------------|-----------------------------|----------------|
| Age                           | -0.21                      | -0.04             | 0.01                        | 0.31                 | -0.07                  | -0.02                       | -0.06          |
| Education                     | 0.01                       | -0.03             | 0.02                        | -0.12                | 0.03                   | 0.19                        | 0.05           |
| Employment                    | 0.08                       | 0.04              | 0.22                        | 0.15                 | 0.07                   | 0.14                        | 0.07           |
| Marital status                | 0.12                       | 0.18              | 0.13                        | 0.32                 | 0.16                   | 0.17                        | 0.11           |
| HIV stage                     | 0.04                       | 0.04              | 0.02                        | 0.26                 | 0.09                   | 0.01                        | 0.16           |
| Number of children            | 0.02                       | 0.07              | 0.03                        | 0.21                 | 0.04                   | 0.14                        | 0.08           |
| Access to RH information      | -0.05                      | -0.01             | 0.02                        | 0.13                 | 0.05                   | -0.04                       | 0.03           |

Adj. R² = 0.26 Adj. R² = 0.11 Adj. R² = 0.18 Adj. R² = 0.31 Adj. R² = 0.25 Adj. R² = 0.12 Adj. R² = 0.22
partner is lost [10]. HIV-related stigma is one of the strongest obstacles to effectively structural inequalities, discrimination by health care providers, and as a result, the rights of individuals [12].

Conclusion

The findings of the present study highlight the importance of addressing the RH of WLH and its associated factors. It allows reproductive health care and counseling to be tailored to the HIV status of women and assists women in making decisions on issues such as the number, spacing, and timing of pregnancies, contraceptive methods, and infant-feeding practices.

WLH should be able to access the care that suits their particular situation and needs based. Furthermore, a strong centralized system that allocates sufficient funds and resources for further developing RH-related matters of WLH is required. Given the importance of improving the quality of the services RH to HIV-positive people, examining patients’ satisfaction with services is recommended for future studies.

CRediT authorship contribution statement

SS and ZB designed the study, collected and analyzed the data, drafted the paper, EH designed the study and reviewed the paper. All the authors approved the final draft of the paper.

Competing interests

The authors declare that they have no competing interests.

Acknowledgments

The authors extend the appreciation of everyone who was participated, especially all those who were involved in data collection and logistics, and the participants who made this study possible by sharing their most private experiences living with HIV.

References

[1] World Health Organization. Consolidated guideline on RH and rights of women living with HIV. [Internet] Geneva; 2017[cited 2017 (Jul 23)]. Available from: (http://apps.who.int/iris/bitstream/10665/254885/1/9789241549990-eng.pdf?ua=1 Google Scholar).

[2] UNAIDS/WHO. UNAIDS Report on the global aids epidemic 2012 [Internet] Geneva: UNAIDS/WHO; 2012. [accesso 5 maio 2013]. Disponível em: (http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/20121210_UNAIDS_Global_Report_2012_with Annexes_en.pdf).

[3] Khosla R, Van Belle N, Temmerman M. Advancing the RH and human rights of women living with HIV: a review of UN, regional and national human rights norms and standards. J Int AIDS Soc 2015;18(5):20280.

[4] Julastuti D, Dean J, Fitzgerald L. RH of women living with HIV in Muslim-majority countries: a systematic mixed studies review. BMC Int Health Hum Rights 2020;20(1):5.

[5] Juliastuti D, Dean J, Fitzgerald L. RH of women living with HIV in Muslim-majority countries: a systematic mixed studies review. BMC Int Health Hum Rights 2020;20(1):5.

[6] Carlsson-Laloo E, Rusmer M, Mollgren Å, Berg M. Sexuality and reproduction in HIV-positive women: a meta-synthesis. AIDS Patient Care STDS 2016;30(2):56–60.

[7] Nedjat S, Moazen B, Rezaei F, Hajizadeh S, Majdzadeh R, Setayesh HR, Mohraz M, Gooya MM. RH needs of HIV-positive people in Tehran, Iran: a mixed-method descriptive study. Int J Health Policy Manag 2015;4(9):591–8.

[8] Gómez-Suárez M, Mello MB, Gonzalez MA, Ghidinelli M, Pérez F. Access to sexual and reproductive health services for women living with HIV in Latin America and the Caribbean: systematic review of the literature. J. Int. AIDS Soc. 2019;22:25273.

[9] Behbodí-Moghâdad Z, Mahmooodi Z, Atae M, Esmælizadeh Saeied S. Assessment of RH in HIV positive women that referred to high risk behavior consultation center. Aumj 2018;7(3):1–10.

[10] RH services for women living with HIV in Latin America and the Caribbean: systematic review of the literature. J Int AIDS Soc. 2019;22(4):e25273.

[11] Juliastuti D, Dean J, Fitzgerald L. RH of women living with HIV in Muslim-majority countries: a systematic mixed studies review. BMC Int Health Hum Rights 2020;20(1):5.

[12] Behbodí-Moghâdad Z, Mahajalina Z, Nasrabsâri AR, Mohraz M, Charache M. Pregnancy through the lens of Iranian women with HIV: a qualitative study. J. Int. Assoc. Provid. AIDS Care 2016;15(2):148–52.

[13] Davis A, Jiwatram-Negrón T, Primbeto V, Telletabaye V, Bilokon Y, Chubukova L, El-Bassel N. Multi-level risk factors associated with sex trading among women living with HIV in Kazakhstan: a neglected key population. Int J STD AIDS 2017;28(14):1397–404.

[14] Mehta N, Ho J, Boonsuk F, Siler AH. Investigating the role of stigma on fertility desire among HIV-positive women in Bangkok, Thailand: a qualitative study. J. Virus Erad 2018;4(3):165–9.

[15] Behbodí-Moghâdad Z, Esmælizadeh-Saeied S, Ehsâdi A, Nikhâbât-Nasrâbâdi A, Mohraz M. Development and psychometric evaluation of a RH assessment scale for HIV-positive women. Shiraz E-Med J 2016;17(6):e38489.

[16] Hajizadeh S, Nedjat S, Majdzadeh R, Mohraz M, Setayesh HR, Gooya MM. Fertility intentions of HIV patients who referred to behavioral clinics of universities of medical sciences in Tehran. J. Isfahan Med. School 2012;29(167).

[17] Gogna ML, Pecheny MM, Ilarulca I, Manelli H, López SB. The reproductive needs and rights of people living with HIV in Argentina: health service users’ and providers’ perspectives. Soc. Sci. Med. 2009;69(6):813–20.

[18] Mayhew SH, Colombini M, Kimani JK, Tomlin K, Warren CE, Integra I, Mutemwa R. Fertility intentions and contraceptive practices among clinic-users living with HIV in Kenya: a mixed methods study. BMC Public Health 2017;17(1):626.

[19] Abeje G, Motbanyor A. Demand for family planning among HIV positive women on ART: the case of South Gondar and north Wollo zones Amhara region. BMC Res. Notes 2016;9:43. https://doi.org/10.1186/s13104-016-1850-8.

[20] Ayanoore MA, Pavlova M, Grant W, Unmet RH needs among women in some west African countries: a systematic review of outcome measures and determinants. Reprod. Health 2016;13:5.

[21] Bernier A, LeFèvre M, Henry E, Verdes L, Acosta ME, Bennoussa A, Mukumi H, Cissé M, Otis J, Périru M. HIV seropositivity and sexuality: cessation of sexual relations among men and women living with HIV in five countries. AIDS Care 2016;28(1):26–31.

[22] Hoffmann IC, Santos WM, Patoim SM, Barros SM. A five-year review of vertical HIV transmission in a specialized service: cross-sectional study. Sao Paulo Med J 2016;134(6):508–12.

[23] Murshid NC, Critelli FM. Empowerment and intimate partner violence in Pakistan: results from a nationally representative survey. J Interpers Violence 2020;35(3–4):854–75.

[24] Saatad M, Behbodí-ZM, Saatad E. Comparison of depression, anxiety, stress, and related factors among women and men with human immunodeficiency virus infection. J. Hum. Reprod. Sci. 2015;8(1):48–51.

[25] Gutiérrez J, Rivera-Domonaco J, Sánchez-Levy T, Villálpando-Hernández S, et al. Encuesta Nacional de Salud y Nutrición 2012. Resultados Nacionales. Cuernavaca, México: Instituto Nacional de Salud Pública (MX), 2012. Psicología y Salud 2012:25(1):22–111.

[26] Oraby D. Women living with HIV in the Middle East and North Africa. Lancet Public Health 2018;3(2):e63.

[27] Dejong J, Battistin F. Women and HIV: the urgent need for more research and policy attention in the Middle East and North Africa region. J Int AIDS Soc 2015;18:20084a.

[28] Halperin DT, Stover J. Reynolds HV. Benefits and costs of expanding access to family planning programs to women living with HIV. AIDS 2009;23:S123–30.

[29] Messersmith LJ, Semrau KA, Anh TL, Trang NN, Hoa DM, Euler K, et al. Women living with HIV in Vietnam: desire for children, use of sexual and reproductive health services, and advice from providers. Reprod. Health Matters 2012;20(39):27–38.

[30] Wekesa, E. A new lease of life: sexual and reproductive behaviour among PLWHA in the ART era in Nairobi slums: The London School of Economics and Political Science (LSE); 2012.