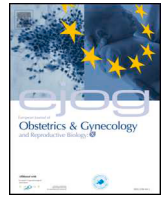




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## Factors associated with the reproductive health of women living with HIV in Iran

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### 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.

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### 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].

**Abbreviation:** RH, Reproductive Health; WLH, Women Living with HIV; AIDS, Acquired immunodeficiency syndrome; HIV, Human Immunodeficiency Virus; STD, Sexually Transmitted Disease

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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 fits 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 Behboodi-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 (%)
<b>Age</b>	15–24	2(1.78)
	25–34	13(11.6)
	35–44	62(55.35)
	> 45	35(31.25)
	Mean	36.4 ± 1.48
<b>Employment</b>	Household workers	49(43.75)
	Employee	27(24.1)
	Self-employed	17(15.17)
<b>Alcohol and Substance use</b>	Yes	19(16.96)
	No	58(51.78)
<b>Smoking</b>	Yes	54(48.21)
	No	63(56.25)
<b>Average monthly income</b>	< 5 million	49(43.75)
	5–10 million	51(45.53)
	> 10 million	39(34.82)
<b>Education</b>	None	22(19.64)
	Primary school	2(1.78)
	Secondary school	11(9.82)
	High school diploma	35(31.25)
	College	53(47.32)
<b>Marital status</b>	Single	11(9.82)
	Married	22(19.64)
	Separated/divorced	73(65.17)
	Widowed	13(11.6)
<b>HIV stage</b>	Asymptomatic	4(3.57)
	symptomatic	64(57.14)
<b>Residence place</b>	Urban	48(42.85)
	Rural	79(70.53)
		33(29.46)

## Result

The participants had an age range from 17 to 52 with  $36.4 \pm 1.48$  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  $44.27 \pm 1.63$ . The sub-dimension of responsible behavior received the highest total mean score ( $54.27 \pm 22.18$ ). The sub-dimension of support needs for self-care was the lowest scored  $33.25 \pm 16.32$  (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

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

Characteristics		N (%)
<b>HIV-positive partner</b>	Yes	90()
	No	22()
<b>Number of pregnancy</b>	0	29(25.89)
	1	52(46.42)
	2	27(24.1)
	≥ 3	4(3.57)
<b>Number of children</b>	0	31(26.67)
	1	54(48.21)
	2	25(22.32)
	≥ 3	2(1.78)
<b>Number of HIV-positive children</b>	No	17()
	≥ 1	2(1.78)
	I don't know	62()
<b>History of unwanted pregnancy</b>	Yes	33(29.46)
	No	50(44.64)
<b>Access to RH information</b>	Yes	94(83.92)
	No	18(16.07)
<b>RH knowledge sources</b>	Medical staff	24(25.53)
	Radio and television	2(2.12)
	Friend and family	3(3.19)
	Internet	55(58.51)
	Poster	8(8.51)
	Books/newspapers/magazines	2(2.12)
<b>Current contraceptive use</b>	Yes	98(87.5)
	No	14(12.5)
<b>Contraceptive methods</b>	Condom	92(82.14)
	dual contraceptive methods	3(2.67)
	Coitus interrupts	1(0.89)
	Intrauterine device (IUD)	0(0)
	Oral contraceptives (OC)	1(0.89)
	Ligation	1(0.89)

**Table 3**  
The mean and standard deviation of the total score RH and sub-dimensions among participants.

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

their fertility have become in conflict with theories of societies, their reproductive rights, and People's judgments [18]. Today, HIV-positive women experience a conflict with their access to fertility information, one of which is the use of anti-inflammatory drugs such as Retroviral that reduces the risk of vertical transmission of the virus from mother to fetus, thus giving women hope for pregnancy and a healthy baby [19]. On the other hand, is a stigma caused by a disease that has the opposite effect other aspects of women's

**Table 4**  
Multiple regression analysis of the variables associated with RH sub-dimensions.

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

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 is 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 México 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% Percentage of 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

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.

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