

Women's Reproductive Health Status in Urban Slums in Southeast Iran in 2017: A Cross-sectional Study

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ARTICLE INFO

Article type:
Original article

Article History:
Received: 01-Oct-2019
Accepted: 08-Dec-2019

Key words:
Reproductive Health
Prenatal Care
Family Planning Services
Suburban Population
Poverty area

ABSTRACT

Background & aim: Reproductive health has been documented as international human rights. In this respect, residing in slums can lead to poor reproductive health status due to reduced access to healthcare services. Therefore, the present study was conducted to determine women's reproductive health status in urban slums in southeast Iran.

Methods: In this cross-sectional study, a total number of 400 married slum-dwelling women in southeastern Iran were selected through random sampling in 2017. The inclusion criteria were marriage, residence in slum areas, and age group of 15-49 years. To collect the data, the Reproductive Health Needs Assessment questionnaire was completed using face-to-face interviews. Descriptive statistics were employed to analyze the data using SPSS software (version 19).

Results: 67.8% of sample were women who were married before the age of 18. Also 36% of the subjects had more than four children, and 79.9% of them experienced an inter-pregnancy interval of less than 3 years. Moreover, 96.8% of the participants received prenatal care services, and 81% of the individuals used family planning methods. Unintended pregnancies experienced by 26% of the subjects, and 59% of them suffered from reproductive tract infections within the last year. The prevalence rate of sexual and physical violence were 40% and 20.5%, respectively.

Conclusion: Although the coverage of prenatal, childbirth, and family planning services was appropriate in this region, the domains of family planning, physical and sexual violence, as well as marriage age in women living in urban slums, were undesirable and required more efforts to be improved by reproductive health professionals.

► Please cite this paper as:

Khayat S, Dolatian M, Fanaei H, Navidian A, Mahmoodi Z, Kasaeian A. Women's Reproductive Health Status in Urban Slums in Southeast Iran in 2017: A Cross-sectional Study. *Journal of Midwifery and Reproductive Health*. 2020; 8(1): 2069-2082. DOI: 10.22038/jmrh.2019.43532.1516

Introduction

The World Health Organization (WHO) defined reproductive health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Moreover, reproductive health

addresses the reproductive processes, functions, and systems at all stages of life (1). Today, reproductive health rights are acknowledged as part of human rights (2). Even with improvements in the provision of reproductive

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health services across the world, inequalities in terms of access to such services have led to a rising trend in maternal morbidity and mortality (3). In this regard, slum-dwelling women are among the groups affected by such inequalities (4).

The results of studies have also revealed that women's reproductive health indicators in slums have been lower than those in other women (5, 6). In addition, these women have been almost always encountering problems in the domains of reproductive health, such as domestic violence, physical violence during pregnancy and breastfeeding, malnutrition during pregnancy, marriage, and pregnancy in childhood and adolescence, as well as inadequate reproductive and prenatal healthcare services (6-8).

For instance, physical violence during pregnancy and breastfeeding was reported by 56% of women residing in the slums of west Delhi, India (8). Pregnant women living in slums are also more affected by malnutrition due to low income, inadequate food, and bad eating habits; therefore, they are likely to suffer from various diseases (9). Age at marriage and pregnancy is similarly low among slum-dwelling women. In this regard, the results of a study carried out in Bengal showed that 9.3% of women were married before the age of 15, and 55% of them were married during 16 and 18 years of age. Moreover, 51.2% of them gave birth to their first child before the age of 20 (10).

In Luanda, Angola, 60.4% of mothers experienced four prenatal visits, and only 16.9% of such women received complete prenatal care services (11). As reported for women living in the urban slums of Dhaka, Bangladesh, 88.5% of them were reported with homebirth, and 11.5% of them experienced childbirth in hospitals. Furthermore, the delivery agent in 33.3% of cases was one of the family members (12). Pregnancy care is poor in suburban areas that can lead to more maternal mortality and morbidity (4). Moreover, the results a study conducted in Delhi, India, showed that reproductive healthcare services in the poorer areas of the city were lower than the optimal level, and living in slums contributed to inadequate provision of such services (7).

However, reproductive health and its dimensions are essential for women, family, and

social health (4). As a result, there was a need to improve reproductive healthcare services for slum-dwelling women. In this regard, no study has been conducted in Iran up to now to investigate the reproductive health status of this group of women. Considering that the residence in urban slums in southeastern Iran has an increasing trend (13), this study was carried out to determine reproductive health status in this group.

Materials and Methods

The present descriptive cross-sectional study was conducted in 2017. The study population included the women of reproductive age living in the urban slums of Zahedan, Iran. To this end, a total number of 400 women were selected as the study samples. The sample size was determined using Cochran's formula for an unknown population ($n = z^2 pq / d^2$). The accuracy of $d=0.05$, $q=0.5$, and $P=0.5$, as well as 95% confidence interval ($z=1.96$), were also confirmed, and the sample size was calculated at 384 individuals. To ensure and increase the accuracy of the sample size, it was considered 400 individuals.

The inclusion criteria in this study were being married, residency in the slums of Zahedan, and age range of 15-49 years. The exclusion criteria were having specific diseases influencing women's reproductive health status, such as diabetes, hypertension, depression, chronic kidney disease, heart disease, and thyroid disease. One-stage cluster random sampling was used to select the study population. In this regard, a list of community health centers in the urban slums was prepared, and each center was chosen as a cluster. Four community health centers were randomly selected after that. The researcher explained the study objectives to the women who referred to centers, and those willing to participate were selected as the study samples. In each center, sampling continued up to reaching 100 individuals. Moreover, sampling lasted for 6 months from April to September 2017.

The research instrument was the Reproductive Health Needs Assessment questionnaire completed by the researcher using face-to-face interviews. All interviews were performed in a quiet room alone in this study. The given questionnaire could evaluate

reproductive health status in different domains, including healthcare services during pregnancy, childbirth, and postpartum period, breastfeeding, family planning methods, reproductive tract infections (RTIs), HIV, as well as physical and sexual violence. The Reproductive Health Needs Assessment questionnaire was developed by the United Nations Population Fund in 2008 (14). The questionnaire was translated by Khani, and then, its validity and reliability were verified in this study (15). In the present study, content validity was investigated and confirmed by 10 experts. Reliability was similarly confirmed through the administration of a pretest/posttest on a total of 30 individuals, and the intraclass correlation coefficient was obtained at 0.78.

To collect the data, the code of ethics (IR.SBMU.RETECH.REC.1395.244) was received from the Ethics Committee of Shahid Beheshti University of Medical Sciences in Tehran, Iran. After obtaining permission for sampling, coordination was also made with community health centers. Full explanations were then provided to the participants about data collection procedures, objectives, importance of the study, and confidentiality of information. The written consent form was also taken from the individuals provided that they were willing to participate in the study. After collecting the required data, SPSS software (version 19) was used for data analysis. Furthermore, descriptive statistics, such as frequency, percentage, as well as mean and standard deviation, were employed to describe demographic characteristics and reproductive health status.

Results

A total of 400 women participated in the present study. The mean age of the study samples was 26.5 ± 6.15 years, and that of their spouses was 31.12 ± 7.35 years. Moreover, the mean value of marriage age in the study samples was reported as 17.05 ± 3.88 years. In addition, 67.8% ($n=271$) of the women were married at the age of 18, and 25% ($n=100$) of them were

illiterate. In addition, 60% ($n=240$) of the participants had an elementary and middle school education, and 15% ($n=60$) of them had a high school education. Furthermore, 95% of the women were housewives in this study.

The number of pregnancies in 36% of the samples was more than four pregnancies. They also experienced their first pregnancy before the age of 20 (65.3%). Interpregnancy interval in 79.9% of these women was less than 3 years. Moreover, the majority (80.4%) of the participants did not have a history of cesarean section (C-section). In addition, 96% of these individuals benefitted from prenatal care services, and most (84.2%) of them received such services from community health centers by healthcare staff (72%). Moreover, 81% of the study samples gave birth in hospitals, and delivery agents in 76.5% of the cases were midwives. Furthermore, 85.3% of these individuals had exclusive breastfeeding, and 90.7% of them received postpartum care services (Table 1).

Taking different types of pills was the contraceptive method used by the participants with the highest frequency (31.2%) as the current family planning method. Among 76 individuals using no family planning methods, the most frequent reason was their tendency to become pregnant (43.4%). Community health centers recognized as the place to receive family planning services were also reported with the highest percentage (83%) among the study samples. Moreover, the highest frequency (74%) of the study samples had no history of unintended pregnancies. Among 104 individuals experiencing unintended pregnancies, the highest percentage (86.5%) did not attempt abortion. Moreover, most (92.3%) of them used family planning methods before such pregnancies. In this regard, pills were reported as the most frequent (57.7%) family planning method employed prior to unintended pregnancies (Table 2).

Table 1. Pregnancy characteristics of suburban women of Zahedan, Iran, in 2017

Characteristics	Frequency (%)
Number of pregnancy (n=400)	
0	20 (5)
1	66 (16.5)
2	79 (19.8)
3	91 (22.7)
4≤	144 (36)
Age at first pregnancy (years) (n=380)	
20>	248 (65.3)
20-35	132 (34.7)
35<	0
Interval between pregnancies (years) (n=314)	
3≥	250 (79.9)
3<	64 (20.1)
Receiving prenatal care (n=380)	
Yes	368 (96.8)
No	12 (3.2)
Number of prenatal care (n=380)	
0	12 (3.2)
4>	29 (7.6)
4≤	339 (89.2)
Onset of prenatal care (months) (n=368)	
4≥	306 (83.2)
4<	62 (16.8)
Place of prenatal care (n=368)	
Health center	310 (84.2)
Midwife office	2 (0.6)
Obstetricians' office	56 (15.2)
Prenatal care provider (n=368)	
Doctor	56 (15.2)
Midwife	47 (12.8)
Health workers	265 (72)
Live birth in the last pregnancy (n=380)	
Yes	368 (96.84)
No	
Stillbirth	10 (2.6)
Abortion	2 (0.52)
Type of delivery (n=378)	
Normal Vaginal Delivery	304 (80.4)
Cesarean section	74 (19.6)
Place of delivery (n=378)	
Maternity facilities	48 (12.7)
Hospital	306 (81)
Office	3 (0.8)
Home	21 (5.5)
Delivery care provider (n=378)	
Doctor	72 (19)
Midwife	289 (76.5)
Other people	17 (4.5)
Receiving postpartum care (n=378)	
Yes	343 (90.7)
No	35 (9.3)
Exclusive breastfeeding (n=368)	
Yes	314 (85.3)
No	54 (14.7)

Table 2. Distribution of family planning and unwanted pregnancy history in suburban women of Zahedan, Iran, in 2017

Characteristics	Frequency (%)
Current family planning method (n=400)	
Types of pills	125 (31.2)
Emergency	0
Condom	93 (23.3)
Types of injections	54 (13.5)
Breastfeeding	0
Intrauterine device	7 (1.8)
Withdrawal	41 (10.3)
Vasectomy	1 (0.2)
Tubectomy	0
Calendar method	0
None	76 (19)
Reason for not using family planning methods (n=76)	
Intention to become pregnant	33 (43.4)
Husband's desire to have a child	10 (13.2)
Couples tend to pregnancy	14 (18.4)
Lack of sexual activity	6 (7.9)
Not allowed by husband	2 (2.6)
Disapproval of religion or culture	1 (1.3)
Being in postpartum period	5 (6.7)
Side effects and disadvantages of used methods	2 (2.6)
Not having enough information about methods	3 (3.9)
Recognition place to receive family planning services (n=400)	
Health center	332 (83)
Behavioral disease counseling center	11 (2.8)
Private clinic	2 (0.5)
Pharmacy	21 (5.2)
None	18 (4.5)
I do not know	16 (4)
Unwanted pregnancy history (n=400)	
Yes	104 (26)
No	296 (74)
Abortion attempt (n=104)	
Yes	14 (13.5)
No	90 (86.5)
Use of family planning methods before unwanted pregnancies (n=104)	
Yes	96 (92.3)
No	8 (7.7)
Employed family planning methods prior to unwanted pregnancies (n=104)	
Types of pills	60 (57.7)
Emergency	0
Condom	14 (13.5)
Types of injections	6 (5.8)
Breastfeeding	0
Intrauterine device	0
Withdrawal	15 (14.4)
Vasectomy	0
Tubectomy	1 (1)
Calendar method	0
None	8 (7.6)

In addition, 59% of the study samples had colored or nontransparent vaginal discharge, and 19.8% of them suffered from genital injuries during the past year. In this regard, 81.9% of the individuals with vaginal discharge, as well as

genital problems and injuries, experienced therapeutic interventions. Moreover, 2.8% of the participants' spouses were affected with genital injuries over the past year, which were not mostly treated (78.2%; Table 3).

Table 3. Distribution of reproductive tract infections in suburban women of Zahedan, Iran, in 2017

Characteristics	Frequency (%)
Having colored or nontransparent discharge during the past year (n=400)	
Yes	236 (59)
No	164 (41)
Having genital injuries during the past year (n=400)	
Yes	79 (19.8)
No	321 (80.2)
Treatment of discharge and injuries (n=243)	
Yes	199 (81.9)
No	44 (18.1)
Husband genital injuries during the past year (n=400)	
Yes	11 (2.8)
No	389 (97.2)
Husband treatment (n=234)	
Yes	53 (21.8)
No	190 (78.2)
Place of treatment for husband or wife (n=201)	
Health center	5 (2.5)
Doctor or midwife office	184 (91.5)
Hospital	3 (1.5)
Pharmacist	7 (3.5)
Self-curing	2 (1)

Among the HIV modes of transmission, contaminated syringes and needles were the most frequent (61.5%) modes of transmission reported by the study samples, and mass media was selected as the method with the highest percentage (59.5%) by which the required information was obtained. Most (67.1%) of the

participants were not aware of HIV testing sites. The highest frequency (51.2%) of the study samples were not willing to receive free counseling and HIV testing services since they had a reason defined as "I do not consider myself at risk" (Table 4).

Table 4. Distribution of knowledge and practice about HIV/AIDS in suburban women of Zahedan, Iran, in 2017

Characteristics	Frequency (%)
Informed about ways of HIV transmission (n=400)	
Yes	270 (67.5)
No	130 (32.5)
Details of being informed about ways of HIV transmission (n=400)	
Sex	
Yes	241 (60.2)
No	159 (39.8)
Mother to fetus	
Yes	160 (40)
No	240 (60)
Breastfeeding	

Characteristics	Frequency (%)
Yes	148 (37)
No	252 (63)
Syringe and needle	
Yes	246 (61.5)
No	154 (38.5)
Transfusion of blood and products	
Yes	201 (50.2)
No	199 (49.8)
Common tattoo tools	
Yes	212 (53)
No	177 (47)
Common blade	
Yes	224 (56)
No	176 (44)
Source of information about AIDS (n=400)	
Mass media	
Yes	239 (59.5)
No	161 (40.5)
Health services	
Yes	78 (19.5)
No	322 (80.5)
People	
Yes	125 (31.5)
No	275 (68.5)
Nongovernmental organizations	
Yes	2 (0.5)
No	398 (95.5)
Other places	
Yes	52 (13)
No	348 (87)
HIV testing during the past year (n=400)	
Yes	45 (11.2)
No	355 (88.8)
Informed about location of HIV testing (n=400)	
Yes	131 (32.9)
No	269 (67.1)
Desire to receive free HIV counseling and testing (n=400)	
Yes	316 (79)
No	84 (21)
Reason for reluctance to receive free counseling and testing in terms of HIV (n=84)	
I do not consider myself at risk	43 (51.2)
I do not want to know about my condition	15 (17.8)
I cannot go there	4 (4.8)
I am afraid to know about my condition	17 (20.2)
Shame and embarrassment	5 (6)

In addition, 20.5% of these individuals were assaulted in the past year. Furthermore, 40% of

the study samples suffered from coerced sex by their husbands (Table 5).

Table 5. Distribution of physical and sexual violence in suburban women of Zahedan, Iran, in 2017

Characteristics	Frequency (%)
Physical violence in the past year (n=400)	
Yes	82 (20.5)
No	318 (79.5)
Sexual violence by husband (n=400)	
Yes	160 (40)
No	240 (60)

Discussion

The purpose of the present study was to investigate the reproductive health status of women residing in urban slums in southeast Iran. Considering the safe maternity domain, the issues, such as child and adolescent marriage, adolescent pregnancy, pregnancy with short intervals, and high birth rates, have been reported. The mean age of marriage for women in Iran in 2015 was equal to 25 years (16). However, in the present study, 67.8% of the samples were married under the age of 18. In this regard, 55% of women residing in urban slums in Duncan, Canada, were also married under the age of 18 (17).

Based on the results of the present study and those in other investigations, early marriage was considered a characteristic of slum-dwelling. Among the causes of early marriage were poverty, gender inequality, acceptance of early marriage in adolescence by parents, high fertility and child mortality rates, as well as vulnerable occupations (18). It should be noted that the aforementioned factors are abundant in the lifestyle of individuals dwelling in slums. Since early marriage can have consequences for individuals, families, children, and communities, dealing with this problem among those living in slum populations requires considerable attention.

The high number of pregnancies with short intervals in adolescents characterized women's reproductive status in the present study. Accordingly, 65% of the study samples experienced their first pregnancies at the age under 20 years. In addition, 67% of women living in Chennai slums, India, reported their first childbirth at the age of 20 years (19). In the present study, most of the study samples had more than four children, and their pregnancy intervals were reported as less than 3 years. Mean pregnancy intervals in women residing in

the urban slums of Luanda were 39.1 ± 23.5 months, and there were 3.6 children per woman (11).

Moreover, the mean age of mothers (i.e., 18.42 ± 3.6 years) in the slums of Zahedan during the first pregnancy was lower than those in other Iranian populations. For instance, the mean age of the first pregnancy in women residing in the city of Birjand was 25 ± 4.1 years (20). It should be noted that adolescent pregnancy with short intervals could expose mothers to risks of economic aspects (i.e., poverty and unemployment) and health-related ones, such as gestational diabetes, intrauterine growth retardation, preterm labor, C-section, stillbirth, placenta previa, anemia, and maternal mortality (21). As a result, high-risk adolescent pregnancies in women residing in slums, high number of children, and interpregnancy short intervals could all threaten the lives of women and their children and consequently lead to a defective cycle of social, cultural, and economic problems.

Considering prenatal care services, 96.8% of the study samples received such services in the present study. In this regard, 89.2% of these women received care for more than 4 months, and 83.2% of them received such care services before pregnancy for 4 months. In Luanda, 98.5% of women at least received one prenatal-period care service, and 60.4% of mothers experienced four prenatal visits. In addition, 76.5% of these individuals received the first care services in the first 20 weeks of pregnancy. Moreover, 16.9% of these women benefitted from complete prenatal care services (11).

In general, the status of prenatal care services provided for the slum-dwelling women in Zahedan was better than that in Luanda. The reason for such a discrepancy was the provision of free and available services, as well as prenatal care services by female healthcare providers.

Furthermore, In the present study, those women were investigated who referred to the health centers, and all suburban women did not intend to participate in the study.

One of the important health indicators in the health systems of each country is the delivery place and agent. According to the WHO statistics, maternity coverage performed by a person with sufficient skills in 2014 in Iran was reported as 99% (22). In this study, 5.5% of the deliveries were conducted at home, and the agent of delivery in 4.5% of the cases was a person without sufficient skills. In contrast, childbirth was performed by unskilled people in 27.1% and 33.3% of slum-dwelling women in Manisa, Turkey, (23) and Dhaka (12), respectively. Moreover, 33.4% and 88.5% of women living in the urban slums of Manisa (23) and Dhaka (12) experienced homebirth, respectively.

Deliveries among women residing in the slums of Zahedan were healthier and more hygienic in terms of delivery sites and agents, compared to the deliveries of female slum-dwellers in other countries. The reasons for these differences were the provision of free maternity services in equipped state-owned centers, good coverage of prenatal care services, as well as women's awareness of complications and consequences of homebirth, through prenatal education. In addition, the participants in the present study were women who referred to the health centers. In addition, the construction of maternity facilities within slums contributed to solving cultural, social, and economic problems in slum-dwelling women in order to have safe and hygienic deliveries.

The type of delivery was another issue in the domain of safe maternity that was examined in this study. Accordingly, it was observed that 19.6% of the deliveries were performed through C-section. Among Indian women, 5.5% of the deliveries in slum-dwelling females were carried out through C-section (24). According to the WHO, the standard rate of C-section was within the range of 10-15%, and higher values could not be justified (25). As released by the WHO in 2015, the mean rate of C-section in the world during 2006-2012 was reported as 17% (22). The rate of C-section in women residing in the urban slums of Zahedan was higher than

that reported for Indian counterparts, standard rate released by the WHO, and global average. It should be noted that C-section can also have adverse effects on mothers and infants. Maternal mortality during C-section is three times higher than that in normal delivery. Apart from the risks of this surgery (e.g., infection, organ damage, or need for blood transfusion), several side effects may occur after C-section, such as thromboembolic complications, uterine rupture, infertility, or even placental abnormalities, including placenta previa and placenta accreta.

Similarly, neonates born through C-section are more likely to be hospitalized and suffer from respiratory disorders, type I diabetes, and allergies (26). Given the reproductive patterns in women residing in slums (high rate of pregnancies with short intervals), lack of financial resources for controlling pregnancy by physicians and provision of personal vehicles so that they could reach an equipped center for immediate treatments at risky times, there is a need for much more attention when it comes to determine C-section for these women.

Another issue considered for safe maternity was postpartum care. In this regard, 9.3% of the women in this study and 54% of poor women residing in Delhi did not receive postpartum care services. The results of studies also revealed that failure to receive postpartum care was strongly associated with socioeconomic status, large household size, living in nonnuclear families, ethnic minorities, service delivery sites, and polygamy (7). Receiving postpartum care services by slum-dwelling women in Zahedan was much better than those in Delhi. Therefore, easy and free access to such services near slums, as well as prenatal and childbirth education, could be the reasons for the proper conditions of providing postpartum care services.

Another issue considered in the domain of reproductive health was family planning methods. According to the WHO, family planning coverage in Iran was 77.4% (22). In the present study, 81% of the samples used one of the family planning methods, particularly pills as the most commonly used ones. In this regard, 80.2% of slum-dwelling women in Manisa (23), 50% of Indian women residing in urban slums, and 27% of poor women in Delhi were benefitting from

modern family planning methods (27). The use of contraceptives by women in Zahedan was higher, compared to that by women residing in the slums of India; however, 104 study samples, more than a quarter of the participants, experienced unintended pregnancies.

The results of a study conducted by Dinc et al. (2007) also showed the total fertility rate and consequently unintended pregnancies in slum-dwelling women were higher than those in other urban counterparts. However, the use of contraceptive methods among these women was lower than that reported for urban individuals (28). It should be noted that high-quality family planning services are considered among critical issues in the prevention of unintended pregnancies. Therefore, the provision of proper counseling, especially when starting one of the contraceptive methods or replacing such methods was important to increase awareness and reduce unintended pregnancies (29).

It is noteworthy that the quality of family planning services can also affect their acceptance and continued use (30). Given the high rates of unintended pregnancies and specific reproductive patterns in slums, there is a need for improved family planning services. Proper counseling and engaging key figures, such as *maulvis* (i.e., religious scholars), and inclusion of spouses in counseling programs (e.g., through obligatory premarital counseling) can have an impact on the success of these programs in slums. Considering that many inhabitants of slums were fluent in Baluchi with higher understanding levels than Persian, it would be useful to consider this issue and use the given language for training and counseling services. Family planning education is required to be considered in terms of care for men.

In the domain of RTIs in the present study, 59% of the women had colored vaginal discharge, and 19.8% of them had genital injuries. Among slum-dwelling women in Hyderabad, India, 60% of the individuals had vaginal infectious discharge, and 4% of them suffered from genital injuries (31). The prevalence rates of 57% and 3% for vaginal discharge and genital injuries were also reported in another study on Indian women living in slums, respectively (32). Moreover, the prevalence rates of vaginal discharge and genital

injuries in Iranian women were 40% and 3.68%, respectively (Nasirian et al., 2015).

According to the aforementioned statistics, the rates of infectious discharge and genital injuries in women in the present study were much higher than those in Iran. It should be noted that vaginal discharge and genital injuries are the symptoms of RTIs that are among the most common and important public health issues and the second cause of disease burden in women in developing countries (33). The RTIs can also lead to various complications, including infertility, ectopic pregnancy, cervical cancer, menstrual disorders, abortion, and low birth weight. The RTIs, especially in case resulting in injuries can increase the chances of HIV infection and transmission (34).

Increased high-risk sexual behaviors, along with factors, such as war and social crises, lack of services for diagnosis and treatment of RTIs, as well as impact of HIV on the epidemiology of such infections, can also intermix and bring about an increase in the burden of RTIs, particularly in developing countries. Moreover, rapid migration and urbanization are considered among demographic factors that have an important role in sexual behaviors in a community and contribute to higher rates of sexual activities as business transactions and out-of-wedlock relationships and consequently increase the risks of RTIs (35).

Given the fact that part of slum-dwelling has been also caused by the expansion of urbanization and migration, there may be a change in the sexual behaviors of individuals living in such regions with high incidence rates of vaginal discharge, as well as genital problems and injuries, indicative of RTIs. Low levels of awareness and self-care, as well as lack of access to diagnostic and therapeutic services near their place of residence, could also play a role in increasing RTIs. Considering that the economic levels of slum populations and their busy lifestyles do not allow for the use of laboratory methods in order to diagnose infections, the etiology of RTIs in slums needs to be examined for appropriate syndrome treatment in these regions.

Despite the high levels of RTI symptoms, none of the samples were affected by HIV. In terms of the HIV modes of transmission, 32% of the

study samples were not informed about any modes, and mass media were the most important sources of obtaining information. In addition, 67% of the study samples were not informed about testing sites. Only 11.2% of these individuals underwent HIV tests. The results of a nation-wide study in this domain also showed that at least 88% of Iranians were aware of HIV modes of transmission, and only 6.5% of them had HIV tests (36). As a result, considering the low levels of awareness in slum-dwelling women, they were more likely to be tested for HIV than the total population in Iran.

It should be noted that HIV is one of the recognized deadliest viruses in the present era and known as a serious threat to health and economy in communities regarding high mortalities and care expenditures. Therefore, the most important controlling strategy for the HIV epidemic is care and treatment for patients, which requires the identification of the affected individuals. Considering the low levels of awareness in slum populations, there are challenges regarding the modes of transmission, testing sites, and identification of affected individuals.

On the other hand, due to the impact of migration on sexual behaviors, there is a need for more control and easier testing of AIDS in slums. Moreover, given the high rates of pregnancy in slum-dwelling women, it is better to perform HIV tests and consider them as part of essential prenatal care services. It is also necessary to have comprehensive information about HIV status and related care services for these individuals. In addition, the use of mass media is considered a key way to introduce and raise awareness of HIV, and there is a need for much more cooperation between the health sector and these media.

In the domain of domestic violence, the rates of physical and sexual violence in the present study were reported as 20.5% and 40%, respectively. Physical violence in the study samples was at a lower rate, compared to those reported for women living in Ahwaz and Marivan, Iran, who suffered from higher rates of sexual violence. The prevalence rates of physical and sexual violence in women residing in Marivan were 60% and 32.9%, respectively (37). In addition, the prevalence rates of

physical and sexual violence in women within the age range of 15-50 years living in Ahwaz were 34% and 34.2%, respectively (38). These differences might be the result of a discrepancy in the definition of violence in various sociocultural contexts in other regions and those in slums.

Moreover, women residing in the slums of Chennai and those in Mumbai, India, reported physical and sexual violence as 99% and 75%, (39), as well as 16.8% and 4.8%, respectively (40). However, the results of the present study showed that the prevalence of physical violence in the urban slums of Zahedan was at a lower rate than that among those living in the slums of India. This finding could be due to differences in the structures of communities, cultural differences and different attitudes to violence, fear of speaking publicly and disclosing problems, women's unawareness about their rights, negligence of this issue by some women, and differences in data collection instruments.

However, the rate of sexual violence indicated the need for special attention, as well as the provision of appropriate prevention and treatment programs by professionals, particularly those in the reproductive health domain. The results of relevant studies also revealed that the factors related to violence against slum-dwelling women were associated with place of residence (i.e., unfavorable socioeconomic status of a neighborhood, income per capita, unemployment rate, poor neighborhood (41), income inequalities (42), as well as residence in regions with high violence and crimes) and individual factors (i.e., early marriage, female unemployment, increased violence, large number of children, as well as women's levels of education and their economic security).

Moreover, there are other factors in this regard associated with cultural factors (i.e., dowry, prevalence of violence against women, gender inequality, and acceptance of violence against one's spouse in a community) (40, 43), as well as marital and spouse-related factors (i.e., alcohol abuse by one's spouse, having out-of-wedlock sexual relationships, age difference of 5 years or less, husband's inappropriate participation in meeting household expenditures, no awareness of wife's personal

expenses, lack of control over behaviors, and long-term marriage) (44).

Among the above-mentioned factors, personal, environmental, economic, and marital factors were also observed in women residing in the slums of Zahedan that could be related to the occurrence of domestic violence. It should be noted that domestic violence could be directly and indirectly correlated with the health status of women and families whose prevention was considered in the programs of various international organizations (45). Therefore, providing educational and counseling programs based on the evidence and context of slums could be an effective way for the reduction of domestic violence in these areas. The limitation of this study was that the survey was only conducted on women who referred to the health centers. It is suggested to perform further studies to evaluate the status of reproductive healthcare in all suburban women.

Conclusion

Although the coverage of services associated with pregnancy, childbirth, and family planning was appropriate in suburban women, their reproductive health faced difficulties in most cases. Marriage and pregnancy in adolescents, various pregnancy patterns, interpregnancy short intervals, unintended pregnancies, RTIs, as well as genital problems and injuries, were among the important issues concerning reproductive health and affecting these women. Their awareness of RTIs and HIV, as well as their modes of transmission, were insufficient in a way that 32% of these women had no information about the HIV modes of transmission.

It seemed that their use of reproductive health services was only fairly favorable in the domains of pregnancy and childbirth, and there was a need for accessible services and the increase of women's awareness of such services in remaining domains. Child and adolescent marriage could be also the source of many of such problems. The resolution of this dilemma would greatly enhance their health status. Family planning services also needed to be improved in this regard. Most women experiencing unintended pregnancies had already used family planning methods but in a

wrong manner. As a result, family planning education needed to be enhanced and adjusted according to women's individual and sociocultural conditions.

Health personnel were also required to become more familiar with culture-based education. These women correspondingly required counseling regarding pregnancy patterns in this domain. Although the risks of pregnancy were mentioned, they were not effective; therefore, the root causes of the problem were at a higher level beyond awareness that required to be examined for better planning. The need for more efforts by reproductive health professionals and adoption of practical solutions among these women were also evident.

Acknowledgements

This article was extracted from a PhD thesis in Reproductive Health at Shahid Beheshti University of Medical Sciences. The authors would like to thank the Health Assistance and Research Assistance of Zahedan University of Medical Sciences. The authors would also like to express their gratitude to the management and staff of Health Comprehensive Centers and participants for their cooperation.

Conflicts of interest

Authors declared no conflicts of interest.

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