Comparison of Reproductive Health and its Related Factors in Vulnerable and Non-vulnerable Women

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Research

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Abstract

Introduction:

Women's health is supposed to be one of the indicators of development. Reproductive health is an important part of women's health. Vulnerable women are a group of women whose reproductive health needs to be given special attention. The aim of this study was to compare reproductive health and its related factors in vulnerable and non-vulnerable women.

Methods

This cross-sectional study was conducted on women covered by special centers for vulnerable women (n = 250) and comprehensive health centers (n = 250). The samples were randomly selected from Isfahan (Iran) from October to December 2017. The research tool was a researcher-made questionnaire completed by the researcher using interview method. Internal reliability of the questionnaire was confirmed to be 0.89 using Cronbach's alpha. The data were analyzed in SPSS 20 using descriptive statistics, independent t-test, chi-square, Mann-Whitney, Pearson and Spearman tests. $P < 0.05$ was considered to be significant.

Results

The results showed that the mean total score of reproductive health in the non-vulnerable group (81.41) was significantly higher than that of the vulnerable group (68.6). The mean total score and the score of reproductive health components, except for access to and receipt of health services and healthy reproductive counseling, were significantly different between the two groups ($P < 0.05$). Having an addicted spouse and unsafe sex were the most prevalent features associated with high risk behaviors. Smoking and alcohol consumption were significantly higher in the vulnerable group ($P < 0.01$).

Conclusion

According to the results, reproductive health status of vulnerable women is inappropriate in all dimensions. Given the importance of this issue, the development and implementation of special health programs for this group seems to be necessary in order to promote their reproductive health.

Plain English Summary:

Women's health is supposed to be one of the indicators of development. Reproductive health is an important part of women's health. Women exposed to the risks of social harms are one of the groups whose reproductive health is very important. Vulnerable women include: 1) women drug users, 2) spouses of drug users, 3) women with unsafe sexual relations and 4) women with a history of

imprisonment in themselves or their spouse. 250 vulnerable women from special centers for vulnerable women and 250 women from comprehensive health centers participated. The aim was to investigate the reproductive health status of vulnerable women and compare it with that of non-vulnerable ones. Assessment of reproductive health and its promotion in women can reduce physical and psychological injuries, mortality and, in a wider scope, promote the level of health in a society. Although many reproductive health services are provided by health centers to vulnerable women, there are still gaps in reproductive health services. Not all vulnerable women go to health and counseling centers and access to all of these women is difficult; as such, some of these women are deprived of access to health services which brings about unpleasant consequences. Maintenance and promotion of women's health will promote family health and, at the highest levels, maintain the health of our society. So there is a need for inter-departmental cooperation and team works in all levels of this area.

Introduction

The expansion of reproductive health and addressing its various dimensions at national and international levels are essential steps in providing the society and family health with a focus on women's health[1] (p1667). Women of reproductive age are exposed to greater risks[2]. Although overlooked, reproductive health problems are among the major causes of mortality[3]; maternal mortality rate in developing countries in 2017 was 415 cases per 100,000 live births, while it has been 12 per 100,000 live births in Europe and North America[4]. It is estimated that 32 million women and girls of reproductive age live in critical status, all of whom need sexual information and reproductive health services[5]. These figures are indicative of the necessity of examining the high-risk groups and mortality-related factors in women of reproductive age. Researchers also report the lack of studies in the areas of family planning services as well as gynecology and neonatal emergency care[6]. Women exposed to the risks of social harms are one of the groups whose reproductive health is very important and, because of the increased prevalence of infectious diseases such as accrued immunodeficiency syndrome (AIDS), are considered specifically. Social harms are diverse, relative and variable phenomena[7]. Vulnerable women include: 1) women drug users, 2) spouses of drug users, 3) women with unsafe sexual relations and 4) women with a history of imprisonment in themselves or their spouse[8(p5)].

The first group of women consists of women drug users. According to the United Nations Office on Drugs and Crime (UNODC) in 2018, one-third of all drug users and one-fifth of the world injecting drug users are women[9]. All addiction-related injuries can be shown specifically in this group. Another group is the wives of drug users. Studies have shown that women who are not drug users but the wives of addicted men can be subject to different injuries[10, 11]. The next group includes women with unsafe sexual relations. As a "key population," these women are often at risk of HIV transmission that is due to having multiple sex partners and not using condom[12]. There is no precise statistics about the prevalence of unsafe sexual relations in Iran. Estimations fluctuate between 4000-30,000 street women in 2001 and 200,000-300,000 women with unsafe sexual relations in 2005[13, 14].

Another group consists of the women with a history of imprisonment. According to the studies of world prisoner's website (2018), the number of women prisoners in Iran has changed from 5,850 in 2010 to 6,880 in 2014[15]. Imprisonment by itself can increase the vulnerability of women and jeopardize access to health services[16]. This vulnerability will be exacerbated by childbirth and motherhood in prison[17]. The last group includes women whose spouse has a prison record. These women may have multiple sexual partners or, because of addiction, may be engaged in any risky sexual behavior[18].

Studies have been conducted on reproductive health issues of vulnerable women. Among many others, in a study on pregnant women, 25% of all women were drug users, of whom 3% placental abruption, 13% meconium staining, 33.4% fetal growth restriction, 31% gestational age of less than 37 weeks and 7% neonatal mortality[19]. Similarly, another study showed that women drug users are more prone to risky sexual behaviors, non-use of condoms, sharing syringe for injection, and smoking[20]. In fact, not only pregnancy and childbirth related issues, but also other reproductive health components are under threat in this group of women. The results of a study in Ethiopia showed that 29% of women with unsafe sexual relation had had an unwanted pregnancy in the last two years, and 60% had experienced an abortion[21]. Another study conducted on 30 women with unsafe sexual relation found that 10% of them had experienced pregnancy[22]. A study conducted on 241 women prisoner showed that 89% of women were pregnant at the time of incarceration, and two-thirds of them did not want their current pregnancy. Access to prenatal care had been insufficient for 36% of women, and 15% also reported various types of violence during pregnancy[23].

In studies on reproductive health of women in Iran and around the world, most of the focus has been on a specific group of vulnerable women or the prevalence of sexually transmitted infections; thus, no comprehensive study was found examining reproductive health and its components in these women. This is while that there are other damaging consequences, including unintended pregnancy, abortion, pre-pregnancy increased risk factors, and fetal and neonatal injuries. Given the fact that vulnerability in each society is epidemiologically different and can have a different impact on the reproductive health of the involved women, addressing all aspects of reproductive health in vulnerable women seems to be necessary in each culture and country. Therefore, with the aim of determining and comparing the reproductive health status of vulnerable and non-vulnerable women and the related factors, the present study was designed and performed in order to take a positive step in promoting the health of these women.

Methods

This cross-sectional study was carried out from October to December 2017 on 250 vulnerable and 250 non-vulnerable women in Isfahan, Iran.

Inclusion criteria: Iranian citizenship, resident of Isfahan, willingness to participate in the study, being in reproductive age, having sexual relationship, and pregnancy experience in the past five years. Data collection tool was a two-part researcher-made questionnaire: part one consisted of 25 multiple-choice

and yes/no questions related to baseline characteristics including demographic characteristics and some other factors. Part two, that was related to reproductive health components, consisted of 64 yes/no questions in four dimensions: reproductive health features 12 questions, pregnancy related issues (pre-pregnancy, pregnancy, childbirth and postpartum) 42 questions, access to and receipt of health services and family planning 4 questions, and safe sexual relation 6 questions. Qualitative and quantitative content and face validity were determined based on the opinion of 15 faculty members, and content validity index and content validity ratio were determined to be 0.98 and 0.85 respectively. Internal reliability of the tool was determined and Cronbach's alpha was calculated to be 0.89. Owing to the limited number of centers for vulnerable women's centers, five centers covered by Isfahan University of Medical Sciences and Isfahan Welfare Organization were selected purposefully. By quota and using simple random sampling method, 60, 60, 50, 50 and 30 vulnerable women were selected from five centers respectively. For non-vulnerable women, out of the six comprehensive health centers that in terms of location and socio-cultural context, were close to the centers of vulnerable women, 3 were randomly selected and, quota-based, 85, 85 and 80 women were selected respectively from these three centers by simple random sampling method. The questionnaires were completed by the researcher through questioning and interviewing. Data analysis was performed using SPSS software (version 20) and independent t-test, Mann-Whitney, Pearson, Spearman and chi-square tests. Quantitative and qualitative descriptive findings were reported as mean and standard deviation, and in the form of number and percentage. P-value less than 0.05 was considered significant.

Results

The aim of this study was to investigate the reproductive health status of vulnerable women and compare it with that of non-vulnerable ones. Based on the results, the distribution of marital status and residence of the subjects was significantly different between the two groups ($P < 0.05$). Moreover, the frequency of the ability to pay health care costs in the last three years was significantly higher in the non-vulnerable group than that of the vulnerable group ($P < 0.01$) (Table 1).

Table 1
Comparison of Frequency Distribution of Individual baseline Factors in Vulnerable and Non-vulnerable Women

Variable	Total (N = 500) N (%)	Non- vulnerable (n = 250) N (%)	Vulnerable (n = 250) N (%)	Chi-square test	
				χ^2	p value
Marital status					
Married	403(80.6)	246(98.4)	157 (62.8)	125.5	< .001
Divorced	50(10)	2(0.8)	48 (19.2)		
Widow	5(1)	1 (0.4)	4(1.6)		
Temporary marriage	6(1.2)	0(0)	6(2.4)		
Live separately	36(7.2)	1(0.4)	35 (14)		
Job					
Employee	21(4.2)	14(5.6)	7(2.8)	27.9	< .001
manual worker	36(7.2)	6(2.4)	30 (12)		
housewife	438(87.6)	230(92)	208(83.2)		
Others	5(1)	0(0)	5(2)		
Residence status					
Personal	133(26.6)	85(34)	48(19.2)	14.4	.002
Rental	287(57.4)	128(51.2)	159(63.6)		
With parents	73(14.6)	34(13.6)	39(15.6)		
Ability to pay for health care in the last three years	246(49.2)	156(62.4)	90(36)	34.8	< .001
Level of Education	(N = 500) N (%)	(n = 250) N (%)	(n = 250) N (%)	Mann-Whitney test Z	p value
Illiterate and elementary	211(42.2)	97(38.8)	114(45.6)	1.4	.14
Primary high school and diploma	259(51.8)	134(53.6)	125(50)		
Academic	30(6)	19(7.6)	11(4.4)		
Economic level					

Variable	Total (N = 500) N (%)	Non- vulnerable (n = 250) N (%)	Vulnerable (n = 250) N (%)	Chi-square test	
				χ^2	p value
Good	35(7)	24(9.6)	11(4.4)	6.1	< .001
Medium	232(46.4)	144(57.6)	88(35.2)		
poor	**233(46.6)**	**82(32.8)**	**151(60.4)**		

The results also showed that the mean number of pregnancies in the vulnerable group was higher than that of the non-vulnerable group (P < 0.05) (Table 2).

Table 2
Comparison of the Descriptive Indicators of Reproductive Characteristics in Vulnerable and Non-vulnerable Women (N = 500)

Variable	Non- vulnerable (n = 250) mean(SD)		Vulnerable (n = 250) mean(SD)	Independent t-test	
				t	p value
Pregnancy	2.46 (1.60)		2.86 (1.45)	2.77	.006
Childbirth	2.15 (1.37)		2.39 (1.47)	1.73	.08
Child	2.12 (1.34)		2.25 (1.18)	1.01	.31
The number of times visiting Health Centers (per year)	2.32 (1.73)		2.53 (2.54)	0.87	.39
Type of last delivery	**Total (N = 500) N (%)**	**(n = 250) N (%)**	**(n = 250) N (%)**	**Chi-square test**	
				χ^2	p value
Cesarean section	183(36.6)	82(32.8)	101(40.4)	3.43	.06
Vaginal delivery	317(63.4)	168(67.2)	149(59.6)		

Additionally, frequency distribution of risk factors showed that the rate of smoking and alcohol consumption in the vulnerable group was significantly higher than the non-vulnerable group (P < 0.01) (Table 3).

Table 3
Comparison of the Frequency Distribution of High Risk Factors in Vulnerable and Non-vulnerable Women

Variable	Total (N = 500) N (%)	Non- vulnerable (n = 250) N (%)	Vulnerable (n = 250) N (%)	Chi-square test	
				χ^2	p value
Smoking					
Past	29(11.6)	2(0.8)	27(10.8)	14.8	< .001
Present	39(7.8)	0(0)	39(15.6)		
Never	405(84.6)	248(99.2)	175(70)		
Past and present	9(1.8)	0(0)	9(3.6)		
alcohol consumption					
Past	26(5.2)	1(0.4)	25(10)	41.1	< .001
Present	7(1.4)	0(0)	7(2.8)		
Never	466(93.2)	249(99.6)	217(86.8)		
Past and present	1(0.2)	0(0)	1(0.4)		

The highest mean score of reproductive health was in the women with addicted spouses (41.6%) and the lowest mean total score of reproductive health belonged to addicted women (36.61%) (Table 4).

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Table 4
Frequency distribution and the mean total score of reproductive health of vulnerable women according to vulnerability status

Descriptive index vulnerability status	N (%)	Mean(SD)
Addicted	17(6.8)	36.61 (14.72)
Addicted spouse	104(41.6)	71.12 (12.23)
Imprisoned spouse	8(3.2)	95.70 (11.21)
Having unsafe sex	39(15.6)	72.87 (16.10)
Addict and addicted spouse, imprisoned spouse	23(9.2)	59.32 (9.24)
Addict and having unsafe sex	15(6)	65.27 (14.98)
Addicted spouse and imprisoned spouse	6(2.4)	68.56 (9.14)
Addicted spouse and unsafe sex	23(9.2)	64.40(14.44)
Addict, addicted spouse and unsafe sex	10(4.8)	51.75 (23.69)
Addict, addicted spouse, imprisoned spouse and unsafe sex	5(1.2)	83.30 (6.50)
Total	100(250)	67/76 (11/11)

The mean total score of reproductive health in the non-vulnerable group was significantly higher than that of the vulnerable group ($P < 0.05$). A comparison of the components of this variable has been shown in Table 5.

Table 5
Comparison of the mean total score and the score of components of reproductive health in vulnerable and non-vulnerable women

Study group	Non-vulnerable Mean(SD)	Vulnerable Mean(SD)	Independent t-test	
			t	p value
Total Reproductive Health Score	81.4 (11.1)	68.6(14.7)	11.4	< .001
Reproductive Health Components score including: • Healthy Reproduction Feature	90.5 (7.1)	82.9 (9.5)	10.0	< .001
• Pregnancy-related issues include: 1. Pre-pregnancy care	50.5(42.3)	26.5 (39.9)	6.5	< .001
2. Pregnancy Care	79.5 (18.3)	58.03(31.9)	9.2	< .001
3. Delivery care	93.6 (10.3)	83.5 (19.0)	7.3	< .001
4. Postpartum care	80.9 (21.6)	65.9 (23.6)	7.3	< .001
• Access to and receipt of proper reproductive health and counseling services	69.2 (35.0)	65.1 (41)	1.1	.23
• Safe sex related issues	88.0(9.7)	73.0(21.1)	9.3	< .001

In the vulnerable group, the score of reproductive and health characteristics was inversely correlated with the age and number of pregnancies; the total score of reproductive health and pre-pregnancy care was also inversely correlated with the number of pregnancies ($P < 0.05$). Other items are reported in Table 6.

Table 6
Relationship of the mean total score of reproductive health and its components with some underlying factors in the two groups

Group Components:	Age r(p value)	Gravida r(p value)	The economic situation r(p value)
non- vulnerable Reproductive health status	-0.210(.001)	– 0.411(< .001)	0.363(< .001)
Reproductive Health Components score including: • Healthy reproduction Feature	-0.368(< .001)	0.273(< .001)	0.391(< .001)
• Pregnancy-related issues include: 1. Pre-pregnancy care	-0.182(.004)	0.286(< .001)	0.287(< .001)
2. Pregnancy Care	-0.032(0.61)	0.214(< .001)	0.192(< .001)
3. Delivery care	0.055(.39)	0.131(.04)	0.045(.48)
4. Postpartum care	-0.047(.46)	0.140(.02)	0.037(.56)
• Access to and receipt of proper reproductive health and counseling services	0.029(.64)	0.119(.06)	0.116(.06)
• Safe sex related issues	0.012(.86)	-0.065(.31)	-0.047(.46)
vulnerable Reproductive health status	0.037(0.56)	-0.264(< .001)	0.242(< .001)
Reproductive Health Components score including: • Healthy reproduction Feature	-0.133(0.03)	0.225(< .001)	0.172(< .007)
• Pregnancy-related issues include: 1. Pre-pregnancy care	0.055(.39)	0.258(< .001)	0.273(< .001)
2. Pregnancy Care	0.100(.12)	0.149(.02)	0/097(0/13)
3. Delivery care	-0.033(.60)	0.047(.46)	-0.097(.13)
4. Postpartum care	0.048(.45)	0.003(.96)	-0.021(.74)
• Access to and receipt of proper reproductive health and counseling services	0.115(.06)	0.074(.24)	-0.027(.68)
• Safe sex related issues	0.134(.05)	0.087(.22)	-0.109(.13)

Discussion

Assessment of reproductive health and its promotion in women can reduce physical and psychological injuries, mortality and, in a wider scope, promote the level of health in a society. Given the importance of reproductive health, the present study compared this variable in the vulnerable and non-vulnerable women in Isfahan. Comparing the demographic characteristics, the results of the study showed that the economic level of vulnerable women was lower. Poverty can expose one to social harms. On the other hand, social harms are themselves the cause of poverty. Combined together, these two factors will exacerbate the negative effects of each other. Results of a study suggested that low-income women are more exposed to addiction and prostitution[24]. A study on women heads of households showed that in women with low economic status, 0.3% had high tendency, 24.6% had moderate tendency and 45.39% had low tendency to drug use[25].

Furthermore, economic level can be a factor associated with receiving health services so that people with low economic levels are less likely to receive these services that is due to the high costs of health services.

A study found that participants in pre-pregnancy care had higher levels of income and education[26]. The results of a study on 30 women with unsafe sexual intercourse showed that some of them had unsafe sexual intercourse during pregnancy, which was caused by financial problems[22]. The results of the present study with regard to economic problems are in line with the above mentioned studies. According to these studies, as economic problems can be a factor related to social harms and lack of access to health services, a special attention should be paid to economically vulnerable groups in terms of vulnerability and access to health services. Providing low-cost or free services through allocating special governmental funding for this group or attracting public participation can be considered.

The results of the present study showed that smoking and alcohol consumption were significantly different between the two groups. Using these two substances by women can endanger their reproductive health, especially during the pregnancy. While a lot of attention is currently paid to smoking during pregnancy, the use of alcohol and drugs is not sufficiently considered[27]. Not only does smoking reduce the health of those at risk, it also leads to adverse consequences for women of childbearing age, including infertility, abortion, preterm birth, and so on[28].

A study on female Chinese immigrants in using secondhand smoke found that smoking was more prevalent in lower-educated women, women who were cohabiting with a man, and women who used alcohol once or twice a week. Cigarettes and alcohol are often consumed concomitantly, and women who drink alcohol often cannot refuse to smoke. The results of the present study on the concomitant use of cigarettes and alcohol in women are almost consistent with the above study. Consumption of these two substances in vulnerable women exacerbates the complications of their vulnerability. As such, the inclusion of a program for curbing and reducing the use of these substances in counseling programs of vulnerable women seems to be essential. On the other hand, it can be said that alcohol and cigarette users are more likely to be vulnerable. Consumers of these two substances should, therefore, be given

special attention in terms of vulnerability. Overall, various underlying factors can affect the reproductive health of individuals that need further research and attention.

According to the results of the present study, there is a concurrence of social harms in some subjects of the vulnerable group. Each of these harms or injuries can be the cause or effect of other harms. In a study, 16% of women with unsafe sex were drug users[29]. The results of the present study, in terms of the concurrence of social harms in some women, are in line with the above research. This concurrence can exacerbate the complications of vulnerability. In fact, groups with more than one vulnerability factor need more attention and services. In the present study, the mean total score of reproductive health was significantly different between the vulnerable and non-vulnerable groups. Studies have shown that social harms affect women's reproductive health. For instance, addiction of women or their spouses can make them do risky behaviors such as unsafe sex, thereby endangering their sexual and reproductive health[30]. The results of the present study, in terms of the impact of these factors on the reproductive health of women, are in line with the above study. Being in vulnerable groups, because of its nature and effects, can decrease the attention of women to the importance of pregnancy and childbirth issues, and this can be an extra risk factor for their health. Therefore, effective planning and counseling can reduce the irreparable consequences of these harms on women's reproductive health. No similar study was found comparing this variable in the two groups.

According to the results of this study on the components of reproductive health, only the mean score of access to and receipt of health services and healthy reproductive counseling was not significantly different between the two groups. This result suggests both vulnerable and non-vulnerable women have received equal services in the research setting. However, their access to health services was 70%, showing that 30% of the women of both groups have been deprived of the required health services.

Positive developments in reproductive health have been reported in several studies around the world; these developments, however, have not been comprehensive. Poor or limited reproductive health services can be improved through humanitarian interventions before the crisis[31]. A study conducted on 136 men and women with unsafe sexual relations found that the access of the participants to health services had been insufficient. Deprivation of treatment and hostility of the caregivers was prevalent[32]. However, the percent of accessibility to health services was not reported in this qualitative study. Overall, in terms of poor access to health services, the results of the present study were similar to the results of the above research. Given the importance of health services provision, especially for vulnerable groups, the health system needs to pay special attention to the provision of health services to all women.

The results of the present study showed that the mean score of other components of reproductive health was significantly different between the two groups so that it was lower in the vulnerable group, and some components obtained very low scores. The results of a study showed that drug users are more susceptible to high-risk sexual behaviors, non-use of condoms, sharing syringe for injection, and smoking. In fact, reproductive health components are at risk in this group of people[20]. The results of another study in this area showed that the female participants of the study had at least one pre-

pregnancy risk factor such as an unhealthy lifestyle (smoking, alcohol, substance abuse) that could place them in a vulnerable group[33].

Another study on the pregnancy experiences of the women with unsafe sexual relations revealed that they had at least one abortion. In fact, they also were faced with the complications of pregnancy and childbirth[22]. The results of the present study on the perturbation of reproductive health and its components in vulnerable women are in line with the above research. Pregnancy and childbirth issues in vulnerable women, because of the sexually transmitted diseases in this group of women, should be considered more specifically. Therefore, research on all aspects of reproductive health and emphasis on pregnancy and childbirth issues and its consequences in all vulnerable groups is necessary.

In another part of this study, we examined the relationship between some baseline characteristics and the mean scores of the reproductive health components. According to the results of the study in the vulnerable group, age was only inversely correlated with the score of reproductive health related to the features of healthy reproduction (including a history of menstrual disorders and other gynecological problems, unintended pregnancy, and illegal abortion). In other words, older women had more disorder in these areas. This may be because older people have longer fertility and are more likely to have complications and, thus, they should be considered more specifically.

According to another result of the study, the number of pregnancies was inversely correlated with the total score of reproductive health. This means that increase in the number of pregnancies will lead to more disorder in the reproductive health of women. This issue emphasizes the need of preventing multiple pregnancies in this group of women and providing them with appropriate health services. According to the results of a study, the number of pregnancies and unwanted pregnancies were among the barriers to receiving prenatal care[34]. The results also showed that economic level was directly correlated with the total score of reproductive health and some of its components. In fact, women with higher levels of economic were better able to provide their reproductive health because many of the reproductive health-related services are not free of charge and strongly economic-related. On the other hand, economic level, as a social determinant, has indirectly affected the health of these people. The results of a study on pre-pregnancy cares showed that women who received such cares had a higher level of income[26]. The results of our study are in line with this study. As such, the health care system needs to pay special attention to vulnerable women with a lower economic level. Offering free or low cost services together with engaging insurance services can be effective in this regard. No other study was found which can be compared with these results.

Overall, no other study was found with the subject of comparing reproductive health between vulnerable and non-vulnerable women. Most studies have examined a component such as drug use or unsafe sex in one of the vulnerable groups, and other components of reproductive health and other groups as well as the co-occurrence of harms in these women have been overlooked.

The lack of access to all groups of vulnerable women because of socio-cultural reasons was one of the limitations of the study. During the process of sampling, some subjects might refuse to answer some questions. In order to solve this problem, the trust of the subjects was attracted and then they were interviewed. Considering all vulnerable groups and all components of reproductive health are among the strengths of the present study. According to the results, the design and implementation of a specific reproductive and sexual health program for vulnerable women and reducing the cost of health services for this group of women can be considered.

Conclusion

The present study compared the reproductive health of vulnerable and non-vulnerable women. Although many reproductive health services are provided by health centers to vulnerable women, there are still gaps in reproductive health services (including inadequate attention to pregnancy-related issues) for these women. Not all vulnerable women go to health and counseling centers and access to all of these women is difficult; as such, some of these women are deprived of access to health services which brings about unpleasant consequences. As vulnerable women, because of having risk factors, need more information, education and care in the area of reproductive health, special cares need to be provided for them considering all components of reproductive health. There is a need for inter-departmental cooperation and team works in all levels of this area. Maintenance and promotion of women's health will promote family health and, at the highest levels, maintain the health of our society.

Declarations

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Consent for publication:

Not applicable

Availability of data and material:

If necessary, the data will be made available by the responsible author (Except for the names of vulnerable women's centers for privacy)

Authors' contributions:

EZ:

Provide an initial study idea, participated in the design of the study and carried out the sampling, participated in the statistical analysis and drafted and edited the manuscript

ZB:

Participated in the initial study idea, participated in the design of the study, helped to sampling, approved the statistical analysis and edited the manuscript

NN:

Participated in the initial study idea, participated in the design of the study, supervised the sampling, approved the statistical analysis, helped to draft and edited the manuscript

All authors read and approved the final manuscript

Competing Interests:

The authors declare that they have no competing interests (financial and non-financial).

Abbreviations:

Accrued immunodeficiency syndrome (AIDS)

United Nations Office on Drugs and Crime (UNODC)

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