

ORIGINAL RESEARCH

Women's Knowledge of Sexually Transmitted Diseases in Telafer City, Iraq



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Abstract

Background: Knowledge of sexually transmitted diseases (STDs) is essential in protecting women from the devastating effects of these infections. This is the first study that attempts to assess the knowledge about one of the most embarrassing diseases in women with Islamic Turkmen culture.

Purpose: This study aimed to assess women's knowledge of STDs in Telafer City and its association with sociodemographic factors.

Methods: This cross-sectional study involved 451 women over 18 years old from Telafer City in Iraq. The study was conducted using a convenient sampling technique from 1 December 2021 to 15 June 2022. The study's data were collected using a STDs knowledge questionnaire. Descriptive statistics of mean, standard deviation, frequency, and percentage were used to describe sociodemographic characteristics and the level of knowledge of STDs among women. In addition, the inferential statistics of ANOVA and Fisher's exact test were used to determine the association between the women's characteristics and knowledge.

Results: The study signaled that the overall mean score of knowledge of STDs was (6.67±5.85). The vast majority of participants had a low level of knowledge about STDs (73.8%; n=333). Only about (14.4%; n=64) had moderate knowledge, and approximately (11.8%; n=53) of women were highly knowledgeable about STDs. The study also proved the presence of a statistically significant positive association between women's knowledge regarding STDs with marital status ($p<0.000$) and educational level ($p<0.000$).

Conclusion: The majority of respondents showed low level of knowledge about STDs. Marital status and educational level were associated with this knowledge. This study necessitates the construction and employment of a women-tailored health education program about STDs in Iraq and Telafer City.

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1. Introduction

Despite the Covid-19 pandemic, epidemiological surveillance systems and the World Health Organization (WHO) made it clear that there are terrible infections of up to one million people per day with sexually transmitted diseases (STDs) around the world (Centers for Disease Control and Prevention, 2020; World Health Organization, 2021). Women constitute the largest proportion of these infections (Daiane de Peder et al., 2020; Richner, 2022). This huge prevalence of STDs has made these infections a preoccupation for public health systems and women's healthcare organizations in many countries, especially the developing ones (Zheng et al., 2022).

Unfortunately, the Iraqi health surveillance systems do not provide complete epidemiologic data about the prevalence and incidence of STDs in the country. Despite the scarcity of these data, some factors increase the likelihood of STD occurrence among Iraqi women, such as war, displacement, poverty, unemployment, and illiteracy. This possibility of high STD prevalence is reinforced by some studies conducted in a number of Iraqi governorates during the past decade. These studies revealed that the female-to-male ratio of STD is (8:1) and the rates of infection with Chlamydia, Trichomoniasis, and syphilis among women reached about, (58.2%, 3.18%, and 3%) respectively (Al-Abbas & Radhi, 2019; Al Jumaily, 2022; Hassan, 2015; Nouraddin & Alsakee, 2015).

Clinically, STDs are any communicable diseases that are transmitted from one person to another through oral, vaginal, or anal sex (Fasciana et al., 2022). There are about thirty germs (bacteria, viruses, and parasites) that can be transmitted through sexual contact. However, eight of these pathogens account for the vast majority of sexually transmitted infections in the world.

Four of these eight diseases are curable at present (syphilis, gonorrhea, chlamydia, and trichomoniasis) and responsible for infecting about 374 million individuals in 2020 (U.S. National Library of Medicine, 2022; World Health Organization, 2021). The remaining four are incurable and caused by viruses [hepatitis B, herpes simplex virus (HSV or herpes), human immunodeficiency virus (HIV), and human papillomavirus (HPV)] (U.S. National Library of Medicine, 2022).

The biopsychosocial burden of sexually transmitted diseases ranges from mild to severe (Drago et al., 2016). These diseases can cause many physical complications which may be rich to the killing of the victim, such as pelvic inflammatory diseases, cervical cancer, prematurity, low-birth weight, stillbirth, and neonatal death, as well as the predisposition of patients to other diseases, such as viral hepatitis and HIV (Garcia & Wray, 2022; National Academies of Sciences & Medicine, 2021). Further, these diseases have profound psychosocial problems such as anxiety, depression, social stigma, divorces, and the huge costs of treatments. In Islamic societies, the real dilemma of these diseases lies in the fact that most of them are asymptomatic and considered taboo conditions (Albarghali & Othman, 2020; Lee & Cody, 2020).

The good news here is that many sexually transmitted diseases can be prevented by adopting certain easy and inexpensive healthy sexual behaviors such as condom use and vaccination (Fontes et al., 2017; Gaydos et al., 2021; Umami et al., 2021; Workowski et al., 2021; Zenebe, 2022). Despite the great efforts that have been made to find an easy way to facilitate people's engagement in these protective behaviors, many people refrain from following it, and changing risky sexual behaviors is still a complex challenge (World Health Organization, 2021).

Generally, a lot of behavioral change models, such as the health belief model and precaution adoption model, pointed out that knowledge is an essential factor on which healthy behavior depends (Green & Murphy, 2014; Weinstein et al., 2020). It should be noted here that many previous studies showed a significant lack of women's knowledge about STDs worldwide. Furthermore, the lack of knowledge was not related to one category of women, as studies have shown an STD knowledge deficit among women of all ages and social classes, as well as pregnant and bisexual ladies (Baldeh & Isara, 2019; Ekşi & Kömürcü, 2014; Kowalczyk & Nowosielski, 2019; Parenti et al., 2023; Volck et al., 2013; Zizza et al., 2021). Concerning Muslim culture, one systematic review of several studies also showed the lack of STD knowledge among women. Iraq is not included in this review because of the absence of any estimated literature on such a topic (Alomair et al., 2020). However, the literature review study indicates that only one study regarding STD knowledge was conducted in Iraq during the past decade. This study revealed the fluctuation in Arabic women's knowledge about STDs in Southern Iraq (Naeem et al., 2020).

It is essential to find out whether Iraqi women of Turkman Muslim culture have sufficient information about how to deal with sexually transmitted diseases. It is also important to know the relationship between women's knowledge about these diseases and their sociodemographic characteristics. This knowledge will contribute to future plans for dealing with these embarrassing diseases among Muslim women. Therefore, this study aimed to assess women's knowledge of sexually transmitted disease and its association with their sociodemographic characteristics in Telafer City, Iraq.

2. Methods

2.1 Research design

This quantitative study employed a descriptive cross-sectional design to assess women's knowledge of sexually transmitted diseases and its association with sociodemographic factors.

2.2 Setting and samples

The study was carried out in Iraq, Nineveh governorate, Telfer City, from 1 December 2021 to 15 June 2022. The city of Telafer is located in Northwestern Iraq and has a population of about 300,000 people, the majority of whom are Muslim Turkmen (Knappe, 2023). The target population for this study was women who are attending Primary Health Care (PHC) center in Telafer City. The sample size is calculated by using a sample size determination equation for a cross-sectional study with the following parameters [women knowledge estimated at 50% (because no previous study about STDs knowledge in Telafer City; level of significance = 5%; z-score corresponding $Z_{\alpha} = 1.95$; and desired precision (E) = 5%) (Wang & Cheng, 2020). These data of equations indicated that the minimum sample size required for conducting the study is

384 subjects. Since it is not easy to obtain the consent of Muslim women to talk about STDs, so, it was essential to adopt the non-probability convenient sampling method. Generally, this type of sample is considered to be at risk of bias (Gray et al., 2016). In order to avoid this risk, 500 women were invited to participate in the study. Invitation and recruitment of participants were carried out with the help of a gynecologist physician and nurses at the PHC center, who informed the women to go to the nurse's room to receive health care services and participate in the study by interviewing with the investigator. Inclusion criteria in this study included any women attending primary health care centers at an age more than 18 years old. Exclusion criteria included females with severe psychological illness. The final sample recruitment process resulted in the acceptance of 451 women to participate in the study.

2.3 Measurement and data collection

Data were collected using a sexually transmitted disease questionnaire that was completed through interview methods. Each interview takes about 10 minutes. The expectation of a low level of reading ability among some of the participants was the reason for choosing this method of data collection. The interviewing of samples was carried out by the investigator privately in a one-to-one manner in the nurse's room of the Primary Health Care Center. The questionnaire consists of two parts as follows: Part I: This part tries to measure the sociodemographic characteristics of the participant and includes questions about women's age, marital status, and educational level. Part II: This part was developed to measure the participants' knowledge about STDs. Specifically, in this part, the Sexually transmitted disease knowledge questionnaire (STD-KQ) was employed. This scale was developed by Jaworski and Carey (2007) and translated into the Arabic language by Albanghali and Othman (2020). The scale consists of 27 items measured in True(T), False(F), and Do not Know(DK) format. The score of items ranged from zero to one (zero for each wrong and do not know the answer and one for the right answer); the total score of the questionnaire ranged from (0-27) with a higher score indicating higher STD knowledge. The level of knowledge for participants was calculated by the following cut-off points [low; (0-8), moderate (9-17), high (18-27)]. These cut-off points are suggested based on the instrument's total score divided by the three levels of knowledge. The STD-KQ demonstrated good validity and reliability in several studies worldwide (Mansor et al., 2020; Pourmarzi et al., 2016; Teixeira et al., 2015; Weaver, 2015). However, to verify the validity and reliability of the scale for this study, the questionnaire was presented to ten experts in the field of medicine and nursing. According to the expert's opinion, one question was modified to accommodate the participants' characteristics. The changed item was question number 23 (A man can tell by the way his body feels if he has Hepatitis B); the question is changed to (A woman can tell by the way her body feels if she has Hepatitis B). The questionnaire's internal consistency was measured by Kuder-Richardson Formula 20 (KR-20) with (10) participants who were excluded from the study. The overall reliability of the scale was acceptable ($\alpha=0.8$). The validity of the questionnaire was estimated by the opinions of experts and previous studies' validity scores (Albanghali & Othman, 2020; Weaver, 2015).

2.4 Data analysis

Data were analyzed using Statistical Package for Social Science (SPSS) software for Windows version 25. Descriptive statistics of mean, standard deviation (SD), frequency (f), and percentage (%) are used to describe participants' characteristics and STD knowledge. On the other hand, the inferential statistics of one-way Analysis of Variance (ANOVA) and Fisher's exact test are used to measure the differences in knowledge mean score and the associations between participants' STD knowledge and sociodemographic characteristics. The p -value $<.05$ indicates a significant association.

2.5 Ethical considerations

Ethical approvals for conducting the study were obtained from the University of Telfer/ College of Nursing and the primary health care center in the approval letter with the number 413 dated 1 December 2021. A thorough adherence to ethical principles, including the 1964 Helsinki Declaration and later additions or adjustments, were applied in this study. Informed consent was obtained from all women engaged in the study. The consent form included an invitation for women to participate in the study by defining the study title, objectives, expected results, and desired outcomes. The women were informed that all data be confidential and not be used for

purposes other than the study. Consent was obtained from the women through their signatures on the form. The study was conducted under the research program of the Nursing College at the University of Telafer.

3. Results

3.1 Sociodemographic characteristics of the participants

Table 1 indicates that the mean and SD of participants' age are (28.54±8.72) years old. Most of the participants (48.6%; n= 219) are in the age group of (18-25) followed by those in age (26-35) years old (30.4%; n=137). Concerning marital status, most of the participants are married (55%; n= 248), followed by those who are single (28.6%; n=129). Finally, regarding the level of education, it is obvious that only (6.9%; n=31) of women graduated from university and awarded Diploma and/or Bachelor's degree certificates.

Table 1. Sociodemographic characteristics of the study participants (n=451)

Characteristics	f	%
Age in years (Mean (SD) = 28.54 (8.72))		
18-25	219	48.6
26-35	137	30.4
36-45	81	18.0
46-55	14	3.1
Marital status		
Single	129	28.6
Married	248	55.0
Divorced	14	3.1
Widowed	60	13.3
Educational background		
Elementary school	153	33.9
Intermediate school	122	27.1
High school	145	32.2
University	31	6.9

3.2 Knowledge of sexually transmitted diseases among women in Telafer City

Table 2 shows the level of knowledge about sexually transmitted diseases among women in Telafer City. The table indicates that the overall STD knowledge Mean and SD is (6.67±5.85). Most of the women (73.8%; n=333) who participated in the study have a low level of knowledge. On the other hand, this table also reveals that the level of knowledge is moderate (14.4%; n=65) among the participants. Finally, only (11.8%; n=53) of women demonstrated a high level of STD knowledge.

Table 2. Knowledge of sexually transmitted disease among study participants (n=451)

Variable	Category	f	%
Knowledge	Low	333	73.8
	Moderate	64	14.4
	High	53	11.8
	Mean (SD)	6.67 (5.85)	

Notes: f = Frequency; % = Percentage; minimum knowledge score =0; maximum knowledge score =27; level of knowledge cut-off points: [low (0-8), moderate (9-17), high (18-27)].

3.3 Association between knowledge of STD and sociodemographic characteristics

A one-way ANOVA was conducted to compare the effect of age, marital status, and educational background on the sexually transmitted disease knowledge mean score. The analysis of variance showed that the effect of marital status, $F(3,447) = 16.394, p=000$ and the educational background $F(3, 447) = 14.143, p=000$ on STD knowledge score was significant. In addition, the results of Fisher's exact test ($p<.001$) indicate a significant association between sexually transmitted disease knowledge and each marital status and educational background (Table 3).

Table 3. Associations between participants' sociodemographic characteristics and knowledge of STD (n=451)

Items	Knowledge of STD									P*
	M	SD	P	Low		Moderate		High		
				f	%	f	%	f	%	
Age										
18-25	6.38	5.68	.245	172	51.7	19	29.2	28	52.8	.436
26-35	7.24	6.39		95	28.5	21	32.3	21	39.6	
36-45	6.17	6.21		62	18.6	15	23.1	4	7.5	
46-55	8.85	5.44		4	1.2	10	15.4	0	00	
Marital Status										
Single	4.93	5.47	.000	189	56.8	37	56.9	22	41.5	.000
Married	7.46	7.68		116	34.8	9	13.8	4	7.5	
Divorced	10.85	5.06		4	1.2	10	15.4	0	0	
Widowed	10.80	7.91		24	7.2	9	13.8	27	50.9	
Educational Background										
Elementary school	6.27	6.97	.000	92	27.6	23	35.4	47	71.2	.000
Intermediate school	6.47	4.91		93	27.9	19	29.2	14	21.2	
High school	6.62	6.82		130	39.0	10	15.4	5	7.6	
Graduated	9.96	5.57		18	5.4	13	20.0	0	00	

STD: Sexual Transmitted Disease; f: Frequency; %: percentage; P*: results are based on Fisher's exact test; the p-value is significant at <0.05.

4. Discussion

Knowledge of sexually transmitted diseases is the cornerstone in preventing, controlling and ultimately reducing the incidence of these infections. For this reason, this study was conducted to assess women's knowledge about sexually transmitted diseases in Telafer City. The study indicated a low level of knowledge about sexually transmitted diseases among women as well as the presence of a significant association between women's STD knowledge and their educational background and marital status. Unfortunately, no previous studies conducted in Telafer City enable us to compare the results of the current study with it. However, the results of this study are consistent with a number of previous international studies that demonstrated a lack of knowledge about STDs, not only among developing countries but also in developed ones (Al-Gburi et al., 2023; Alomair et al., 2020; Baldeh & Isara, 2019; Subbarao & Akhilesh, 2017)

Married, younger and middle adulthood women without a university degree made up the majority of the study participants. This age period is considered the stage of sexual activity for women, which prompts them to visit maternity and gynecological services providers. This result is consistent with a number of studies that showed the willingness of women at this age period to obtain information about sexually transmitted diseases (Sakha et al., 2013; Shukla & Kaur, 2013). Whatever the case, the failure of the majority of Telafer City women to complete their university graduation needs further investigations to clarify the reasons behind this problem. In general, the lack of public and private universities in the City before 2014, the difficult security conditions that passed through the City in the past era, in addition to some societal traditions that restrict women from learning may be among these reasons.

The participants in the study showed a lack of knowledge about sexually transmitted diseases. Knowledge deficit was not limited to one disease, rather the women were unaware of many issues related to signs and symptoms of HIV, the risk of getting Hepatitis B through practicing anal sex, the mode of transmitting Genital Herpes, the role of Human Papillomavirus (HPV) in developing women cancer, and the available prevention methods of Chlamydia and Gonorrhea. This result is consistent with the results of studies conducted in Middle East countries (Farih et al., 2015; Naeem et al., 2020; Ortashi et al., 2013). However, it is inconsistent with studies conducted in Europe, which showed good awareness of HIV, but weak knowledge of other STDs (Drago et al., 2016). Therefore, this study agrees with the findings of a number of previous studies, which indicated the need to increase efforts in order to reduce the spread of sexually transmitted

diseases (Albarghali & Othman, 2020; Al-Gburi et al., 2023; Alomair et al., 2020; Baldeh & Isara, 2019; Drago et al., 2016; Ekşi & Kömürcü, 2014; Farih et al., 2015; Zin et al., 2019).

Unmarried women showed a lower score of STD knowledge than those who were married, divorced, and/or widowed. This may be interpreted in terms of experience and exposure, as married women are the only Islamic female group legally allowed to practice sexual activity. This engagement in sexuality may expose married women to sexually transmitted infections (STIs) more than others and ultimately improves their familiarity with such diseases. This result also can be interpreted as the unmarried woman facing more obstacles in accessing sexual health information than others. Based on these findings, it is necessary to review how to deal with single Islamic girls and encourage them to receive adequate information about sexual health and practices before marriage. This result is consistent with a study by Alomair et al. (2020) which indicated the presence of differences in the score of STD knowledge according to marital status in a number of countries.

Regarding educational background, it was found that women with a university degree certificate were the most knowledgeable participants about sexually transmitted diseases. This result is consistent with a study by Alomair et al. (2020) which indicated that STD knowledge score is higher among educated women than illiterate ones. In general, this result suggests the role of educational attainment in developing women's health capabilities and raising awareness about sexually transmitted diseases.

Despite its application in other counties, sex education programs are not implemented in Iraq. However, previous studies have proven the efficiency of such programs in reducing the incidence of STDs and increasing adherence to preventive measures such as condom use and vaccination (Morales et al., 2018; Petrova & Garcia-Retamero, 2015). Therefore, it is necessary to conduct other studies to ascertain the incidence and prevalence of STDs in Iraq and the factors related to their occurrence. It is also essential to design an Islamic, culturally sensitive, women-tailored sex health education program and include it in the curricula of Iraqi secondary schools and universities.

Ultimately, the lack of STD knowledge reveals that women and their partners in Telafer City are at risk for contracting these infections and their complications and an increased risk of engaging in unhealthy sexual behaviors. This result necessitates further efforts from the public health authorities and nursing practitioners in Iraq, particularly in Telafer City, to determine the underlying reasons for the STDs knowledge deficit among women and focus more attention on these infections during conducting women nursing clinical practices.

5. Implications and limitations

This study is useful because it is considered a preliminary step for conducting other studies regarding women's sexual health in Iraq. The result of the study could enable clinical women health care nurses to provide more interest to increase their client's awareness about STDs. On the other hand, the result of the study also can stimulate the Telafer health care district and the female reproductive care providers to develop policies that aim to reduce the incidence of STDs in the city. Finally, the study recommends developing a health education program tailored to women's characteristics in Telafer City.

The main limitation faced by the study is the refusal of nearly 50 women to participate in the study and the use of a convenient sampling technique. This limitation was bypassed by increasing the sample size to 451 instead of 384. Despite this limitation, the study provides useful results, and it is the first study that reveals the level of women's knowledge regarding STDs in Telafer City.

6. Conclusion

This study presents some scientifically and clinically important facts, as it showed that the level of knowledge about a group of the most dangerous communicable diseases (Sexual Transmitted Diseases) that seriously affects women's health is low in Telafer City. Also, the study indicated that knowledge about STDs among women is influenced by their sociodemographic status. Therefore, the study recommends conducting other studies regarding sexually transmitted diseases in Telafer City.

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Author contribution

MQB: Conceptualization, methodology, formal analysis, writing.

AAA: Reviewing, Investigation, validation, and editing.

Conflict of interest

The authors declare no conflict of interest.

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