

# Sexually Transmitted Infections Among Jordanian Women Knowledge, Attitudes and Behaviors

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**Abstract—** This study aims to assess the knowledge, attitudes, and behaviors of the Jordanian's women about sexually transmitted infections (STIs). A cross-sectional correlational descriptive design was applied. A convenience sampling technique was utilized in this study to select 173 women. The response rate was 60%. Self-administered questionnaire was utilized for collecting data for this research. World Health Organization (WHO) guideline was followed for translation.

**Index Terms—** Sexually Transmitted Infections, Knowledge, Attitudes, Behaviors, Women, Jordan, Primary health center.

## I. BACKGROUND

Sexual intercourse has been linked to the transmission of over 30 different germs, parasites, and viruses (World Health Organization, 2018). The most common sexually transmitted disease is caused by eight of these infections. Four of the eight infections are gonorrhea, syphilis, trichomoniasis, and chlamydia, however, they are currently treatable. Moreover, human immunodeficiency virus (HIV), herpes simplex virus, hepatitis B, and human papilloma virus (HPV) are the other four incurable viral infections (World Health Organization, 2018). Symptoms or sickness caused by incurable viral infections can be adjusted or minimized with treatment (Cates, 1990; Newman et al., 2015; World Health Organization, 2021).

In high-income countries, accurate STI diagnostic tests are frequently used. These are particularly beneficial for detecting asymptomatic illnesses (World Health Organization, 2018). An STI might exist without any evident signs or symptoms of the disease. Genital ulcers, urethral discharge or burning in men, vaginal discharge, and abdominal pain are all common STI symptoms (Newman et al., 2015; World Health Organization, 2021).

Every day, around one million sexually transmitted infections (STIs) are acquired. In 2016, the World Health Organization reported that 376 million new infections with one of four sexually transmitted infections (STIs) being occurred: syphilis (6.3 million), gonorrhea (87 million), chlamydia (127 million), and trichomoniasis (156 million) (World Health Organization, 2018). More than 500 million individuals live with genital HSV (herpes) infection, with an estimated 300 million women

infected (World Health Organization, 2018).. Hepatitis B is a disease that affects an estimated 240 million individuals worldwide (World Health Organization, 2018). Vaccination can protect patients from both Human papillomavirus (HPV) and hepatitis B infections (Newman et al., 2015; World Health Organization, 2021).

Beyond the acute effects of the infection, STIs can have catastrophic implications. STIs like as syphilis and herpes can raise the chance of HIV infection by three times or more. Sepsis, newborn mortality, stillbirth, newborn conjunctivitis, prematurity and low birth weight, pneumonia, and congenital malformations can all be caused by STI transmission from mother to child (World Health Organization, 2018). In 2016, an estimated 1 million pregnant women had active syphilis, resulting in about 350 000 poor birth outcomes, 200 000 of which were neonatal mortality stillbirths (World Health Organization, 2018). Every year, HPV infection leads to 570 000 new instances of cervical cancer and over 300,000 deaths. In women, sexually transmitted infections (STIs) like chlamydia and gonorrhea are primary causes of infertility and pelvic inflammatory disease (PID) (Newman et al., 2015; World Health Organization, 2021).

Primary prevention of STIs (including HIV) is available through behavioral and counseling approaches. Pre- and post-test counseling for STIs and HIV, comprehensive sexuality education, condom advocacy, and safer sex/risk-reduction counseling (Newman et al., 2015; World Health Organization, 2021). These treatments should be tailored to the requirements of teenagers and aimed at critical populations such as persons who inject drugs. Counseling can facilitate individuals in identifying the indicators of sexually transmitted infections (STIs) and increase the probability of them seeking treatment or convincing a sexual partner to do so. However, the effectiveness of these therapies is still hindered by insufficient training of healthcare professionals, limited public awareness, and a persistent and widespread stigma around sexually transmitted infections (STIs). (Newman et al., 2015; World Health Organization, 2021).

Barrier measures like condoms, when utilized appropriately and regularly, are one of the most effective ways to protect against STIs, including HIV. Female condoms are safe and effective;

however, they are not used as commonly as male condoms by national programs (Newman et al., 2015; World Health Organization, 2020).

Attempts to stop the spread of STIs are currently ineffective. Despite significant efforts to uncover simple interventions that help minimize dangerous sexual behavior, changing one's behavior remains a difficult task (Looker et al., 2015; Newman et al., 2015). It is critical to concentrate on well-defined communities, consult extensively with the designated target audiences, and include them in the design, implementation, and assessment processes (Looker et al., 2015; Newman et al., 2015). People seeking STI testing, and treatment face many issues. Poor service quality, stigmatization, insufficient resources, and little or no sexual partner follow-up are among them. STI services are given independently in many countries and are not included in primary health care, family planning, or other regular health treatments (Looker et al., 2015; Newman et al., 2015). Due to a lack of suitable materials, laboratory capacity, and qualified employees, many services are unable to perform screening for asymptomatic infections. The poorest people, who have the greatest incidences of STIs, frequently lack access to competent health care (Newman et al., 2015; World Health Organization, 2018).

Sexually transmitted infections (STIs) affect women more frequently than men (Al-Maharma et al., 2019). Beyond the direct effect of the infection, STIs have major reproductive health effects, including mother-to-child transmission, cervical cancer, pelvic inflammatory disease (PID), and infertility (Al-Maharma et al., 2019). Women may experience fewer symptoms than men, particularly in cases of chlamydia and gonorrhea infections; even if they do, they may not recognize the symptoms as those of a STI. As a result, they are less likely to seek treatment and receive it. Unfortunately, pervasive stigma exists in low- and middle-income nations due to a lack of public awareness and skilled health care workers (Al-Maharma et al., 2019). Pervasive STI stigma, a lack of public knowledge and educated health care providers, inaccessibility, unavailability, and expensive diagnostic tests for STIs among women hinder STI treatment and follow-up efforts in low- and middle-income countries (Al-Maharma et al., 2019).

In order to maintain a low prevalence rate of AIDS, especially among high-risk groups, the national AIDS plan for 2012-2016 was designed and updated in conjunction with the United Nations Program on AIDS (MOH, 2017). The prevalence of infectious diseases has decreased from 3.5 per 1,000 people in 1998 to only 1.09 per 1,000 people in 2011 (High Health Council, 2016). In Jordan, the mortality rate from communicable diseases has reached 84 deaths per 100,000 people, which is significantly lower than the global average of 230 deaths per 100,000 people (High Health Council, 2016; MOH, 2017).

## II. SIGNIFICANCE OF THE STUDY

Women constitute the greatest percentage of the population of Jordan (51%) (High Health Council, 2016). It is also essential that their level of knowledge, attitude, and conduct about

sexually transmitted illnesses have a substantial influence on community health and the prevention of infection among women. Knowing this knowledge, attitude, and behavior regarding sexually transmitted infections among Jordanian women are of paramount importance to the Jordanian authorities and public health managers who are developing proper sex prevention programs and strategies. These programs and strategies can help reduce the incidence of sexually transmitted infections and lead to a decrease in community and national economic status as well as in the status of women and the Jordanian family.

The findings of this study will contribute to the existing pool of information and enhance the understanding of the subject matter, attitude, and behavior surrounding sexually transmitted illnesses. In addition. While these patients may be involved in identifying how the right and suitable awareness approach may be used to battle this virus, they may be just as crucial in identifying ways to lower the risk of infection. Moreover, the data may serve as a baseline from which future study involving Jordanian women might be conducted.

## III. MATERIAL AND METHODS

### A. Design

This study employed a cross-sectional correlational descriptive design to address the research issues. Empirical studies conducted across different groups and circumstances provide evidence in favor of implementing screening programs. (Kesmodel, 2018). The researchers adopted a cross-sectional correlational design to explore and describe the presence of an association between the outcomes of curiosity with potential risk factors in a specified population at a specific point in time. This design is considered cost-effective, time saving and easy which was widely used in public health studies (Kesmodel, 2018).

### B. Settings

This study was conducted in five primary health care services, Amman. Jordan. Primary health care services are managed through a large network of ministry of health-affiliated primary health care centers (375 primary health care centers, 95 comprehensive health centers, and 205 village centers, 387 dental clinics and 448 Motherhood and Childhood Center). With the assistance of field clinics and eight comprehensive medical facilities, the Royal Medical Services is engaged in the provision of primary health care services. Through its 24 medical clinics, the United Nations

Relief and Works Agency (UNRWA) also offers primary health care. The Jordanian Association for Family Planning and Protection has 19 clinics to offer services to the public. This is in addition to the contribution made by the private sector to these services via the hundreds of general practitioners' clinics that have sprung up across the country (HHC, 2016). In Amman, around 125 ministry of health-affiliated primary health care centers (Ministry of Health, 2021).

### C. Population and Sampling

The target population was all Jordanian women, whereas the

accessible population was all women living in Amman. In 2020, Jordanian population was around 10806000 people. Of them, 5084.000 were female (Department of Statistics, 2021). Jordan has a population density of 115 persons per square kilometer (298 people per mi<sup>2</sup>). The urban population accounts for 91.5 percent of the total. Jordan has a median population age of 23.8 years. The average person has a 75.01-year life expectancy. Around 42% of population is in Amman (n=4536500). Of them, around 2100500 is female. Around 64% aged more than 18 years (High Health Council, 2016; MOH, 2017).

This study employed a multisampling approach. Out of the 125 basic health care centers in Amman that are linked with the Ministry of Health, five were chosen. These five centers specifically contained clinics for sexually transmitted infections. Following the acquisition of necessary ethical approval, a convenience sample method was employed to enlist women who frequent sexual transmitted disease clinics. This approach is employed due to its cost-effectiveness and ability to attract a large number of individuals, while also providing convenient access to them.

To guarantee the samples in this study are diverse and representative of the whole study population, many inclusion criteria were meticulously examined and assessed. This process began by specifically selecting women who are Jordanian nationals, aiming to achieve accurate generalization of results, older than the age of 18, residing in the selected city, and accepting the participation in the study. Based on that, women who have no Jordanian nationality, who are under the age of 18, did not visit the targeted centers, and refuse to engage in the research were excluded.

#### *D. Ethical consideration*

All needed steps were carried out to ensure human rights for the participants. First, ethical approval was obtained from the scientific research committee and the ethics committee at the school of medicine and the school of graduate studies at the University of Jordan and from ministry of health. Next, the approvals were taken from targeted primary care clinic management office. All subjects were received a consent letter before data collection. The consent form which contains the consent to participate in the study, a description of the study purpose, and the participant's rights, was signed and collected from each participant. Data collection procedure was designed to ensure the ethical principles of participants' voluntary participation, privacy, confidentiality, anonymity, and the right to withdraw from the study at any time without any consequences. Study's soft copy materials were stored in a password protected computer and the study's hardcopy materials stored in a locked cabinet at locked office, supervisor office, at the University of Jordan. Permission for using the measurement tools was taken from the primary author of the tool to use.

#### *E. Data Collection Procedure*

The task to get information from women was included in this study. The sample was approached directly by the researcher. The researcher selected five primary health centers in Amman,

Jordan. The researcher asked about the date and time of sexual transmitted disease clinics in these centers. After that, the researcher went to these clinics to recruit the women who visits these during the data collection period. The researcher recruited the women in waiting area before entering the clinics.

The researcher checked the sample eligibility. The researcher offered a quick review of the study aims, purpose, and techniques. Women who accepted to participate were thereafter asked to complete the survey in a private clinic. This filling was considered the consent on participation. Women were urged to take their time to answer. The completed questionnaire was included in the envelope that encloses the questionnaire. To see whether the material in the folder is comprehensive and free of missing data, the researcher examined the folder just before beginning the data analysis.

Afterwards, the data was submitted to the data for analysis.

#### *F. Instrument*

Self-administered questionnaire was utilized for collecting data for this research. The supervisor organized the questionnaire based on the content evaluation, which comprised five components. The initial segment of the questionnaire commences with the cover page, succeeded by an elucidation of the study's objectives, the requirements imposed on the participants, a designated area for participants to affix their signatures, and the researcher's contact details.

The second section of the questionnaire is composed of socio-demographical data that was developed by the researcher. It contains the social determinants (age, marital status, what do you do to earn a living, educational level, and health insurance). The third part contains of the knowledge of participants regarding STIs covered by 26 questions that were developed by Boroumandfar in 2016 (Boroumandfar et al., 2016). The fourth part contains of the attitude of participants regarding STIs covered by 19 questions developed by Boroumandfar in 2016 (Boroumandfar et al., 2016). The fifth part contains of the behavior of participants regarding STIs covered by 20 questions developed by Boroumandfar in 2016 (Boroumandfar et al., 2016).

The validity index was over 0.6 in each one (knowledge, attitude and behavior with regard to STIs). There was just a little increase in the overall content validity index when applying the three sets of standards. Cronbach alpha for knowledge was 0.80, and for attitude, it was 0.79, with the exception of behavior was 0.85. (Boroumandfar et al., 2016).

#### *G. Statistical Analysis*

The analysis was conducted using the Statistical Package for Social Science (SPSS) V.20, which facilitated both descriptive and inferential analyses of the data. The descriptive statistics were used to find out demographic information, including age, sex, and educational attainment, as well as discover knowledge, attitudes, and behaviors. The Pearson correlation coefficient was utilized to determine the link between the knowledge, attitudes, and behaviors of the Jordanian's women about sexually transmitted infections (STIs) and between these variables and some demographic characteristics such as age and number of children (continuous data). T test and ANOVA were

used to identify the differences in knowledge, attitudes, and behaviors according to demographic characteristics (nominal and ordinary data).

#### IV. RESULTS

##### A. Demographics

As Table 1 shows, the total number of participants was 173 women knowing that the response rate was 60%. The mean value of their ages was 33.07 (SD=9.80). Most participants earned university degree (n=86,50%) and secondary school (n=39, 23%). Most women were married (n=96.50%). The mean value of the number of family members was 4.60 (SD=1.94). The mean value of monthly family income was 752.9 JD (SD=823.2). Most of the participants were employed (n=96.55%)

##### B. Women Knowledge level about Sexually Transmitted Infections

This section answered the first research question, which was "What is the level of knowledge concerning sexually transmitted infections among Jordanian women?"

As table two shows, the total mean value of women's knowledge about STI was 0.59 (SD=0.16), which is considered moderate where 59% was the mean score of correct answers. The first most known information about STI was the ability to transmit AIDs through intercourse (mean=0.97, SD=0.17), where around 97% of women answered the related questions correctly, and only 3% did not know the answer.

Concurrently couples Treatment for STIs was the second (mean=0.95, SD=0.22), where around 95% of women answered the related questions correctly, and only 3% and 1% did not know the answer and incorrectly answered the question, respectively. The need for STI treatment for both men and women was the third (mean=0.94, SD=0.23), where around 94% of women answered the related questions correctly, and only 6% did not know the answer and incorrectly answered the question

TABLE I  
SAMPLE DEMOGRAPHIC

Characteristics	Results
Age (Mean, SD)	33.07(9.80)
<i>Educational Level (n, %)</i>	
• Secondary School	39(23%)
• Diploma Degree	25(14%)
• University Degree	86(50%)
• Graduated Degree	23(13%)
<i>Marital Status (n, %)</i>	
• Single	56(33%)
• Married	96(55%)
• Divorced	21(12%)
<i>Number Family members (Mean, SD)</i>	4.60(1.94)
<i>Monthly family Income (Mean, SD)</i>	752.9(823.2)
<i>Employment Status (n, %)</i>	
• Housewife	56(32%)
• Employed	96(55%)
• Retired	20(13%)
<i>Total</i>	173(100%)

TABLE 2  
WOMEN KNOWLEDGE LEVEL CONCERNING SEXUALLY TRANSMITTED INFECTIONS

STATEMENT	Correct Answer	Inorrect Answer	Unknown	Mean (SD)*
1. AIDS can be spread through sexual intercourse.	168(97%)	0(0%)	5(3%)	0.97(0.17)
2. Concurrent administration of treatment for sexually transmitted infections (STIs) in couples is recommende	164(95%)	1 (1%)	8(5%)	0.95(0.22)
3. Both men and women need thorough venereal disease therap	163(94%)	5(3%)	5(3%)	0.94(0.23)
4. Female venereal infections are diagnosed via genital system examination.	144(83%)	15(9%)	14(8%)	0.83(0.37)
5. Women may experience vaginal infection following sexual intercourse.	133(77%)	15(9%)	25(14%)	0.77(0.42)
6. When undergoing therapy for sexually transmitted infections, it is imperative to utilize a condom during sexual intercourse.	132(76%)	6(3%)	35(20%)	0.76(0.43)
7. High-risk sexual conduct and STIs can result from drug usage.	127(73%)	18(10%)	28(20%)	0.73(0.44)
8. Shaking hands can spread gonorrhea. **.	121(70%)	14(8%)	38(22%)	0.70(0.46)
9. High vaginal secretions and itching can indicate STIs in women.	116(67%)	37(21%)	20(12%)	0.67(0.47)
10. Dirty hands spread venereal diseases in men and women.	113(65%)	38(22%)	22(13%)	0.65(0.48)
11. Men's urethra and semen outflow are same.	112(65%)	51(29%)	10(6%)	0.65(0.48)
12. High odorless discharges are usual during menstruation.	102(59%)	44(25%)	27(16%)	0.59(0.49)
13. Oral sex can spread venereal infections.	97(56%)	42(24%)	34(20%)	0.56(0.50)
14. STIs induce intercourse discomfort and urination.	95(55%)	12(7%)	66(38%)	0.55(0.50)
15. Lower STI risk in anal intercourse **.	94(54%)	29(17%)	50(29%)	0.54(0.50)
16. Men may not show symptoms of venereal infections.	93(54%)	44(25%)	36(21%)	0.54(0.50)
17. Genital warts indicate STIs.	90(52%)	19(11%)	64(37%)	0.52(0.50)
18. An emergency contraceptive tablet should be administered after rape.	89(51%)	17(10%)	67(39%)	0.51(0.50)
19. Treatment can cure gonorrhea.	88(51%)	11(6%)	74(43%)	0.51(0.50)
20. Normal penis secretions in the morning.	79(46%)	16(9%)	78(45%)	0.46(0.50)
21. Hepatitis B is STI.	75(43%)	32(18%)	66(38%)	0.43(0.50)

22. <i>Kissing spreads HIV.</i> **	63(36%)	86(50%)	24(14%)	0.36(0.48)
23. <i>Vagina is a female external genitalia organ.</i>	59(4%)	112(65%)	2(1%)	0.34(0.48)
24. <i>Groin lumps may indicate STIs.</i>	42(24%)	13(8%)	11(68%)	0.24(0.43)
25. <i>STIs can be prevented by genital washing after rape.</i>	39(23%)	74(43%)	60(35%)	0.23(0.42)
26. <i>Female condoms protect STIs better than male ones.</i>	38(22%)	42(24%)	93(54%)	0.22(0.42)
<i>Total</i>	59%	-	-	0.59(0.16)

\*\*"Yes" was scored as 1 while "No" and "Unknown" were scored as 0.

\*\* The score of the statement was reversed.

The first least known information about STI was efficient of female condoms in prevention of STIs (mean=0.22, SD=0.42), where around 22% of women answered the related questions correctly, and 54% and 24% were did not know the answer and incorrectly answered the question, respectively.

The probability to prevent the STI by rinsing the genital system was the second (mean=0.23, SD=0.42), where around 23% of women answered the related questions correctly, and 35% and 43% were did not know the answer and incorrectly answered the question, respectively. Considering groin lump as signs for STI was the third (mean=0.24, SD=0.43), where around 24% of women answered the related questions correctly, and 68% and 8% were did not know the answer and incorrectly answered the question, respectively.

### C. Women Attitude's Level about Sexually Transmitted Infections

This section answered the second research question which was "What are the attitudes concerning sexually transmitted infections among Jordanian women?"

As table 3 shows, the total mean value of women's attitudes toward STI was 1.35/2 (SD=0.21), which is considered moderate. The first highest perceived attitude toward STI was the ability to cure the STIs and did not remain for lifelong (mean=2.00, SD=0.00), where around 100% of women perceived this attitude.

The corruption may not result because talking about women's sexual relations was the second (mean=1.97, SD=0.17), where around 97% of women perceived this attitude, and only 3% did not know the answer. The ability to prevent STIs by condom was not absolute was the third (mean=1.79, SD=0.54), where around 85% of women perceived this attitude, and only 6% and 9% did not know the answer and/or did not perceive this attitude, respectively.

TABLE 3  
WOMEN ATTITUDE CONCERNING SEXUALLY TRANSMITTED INFECTIONS

STATEMENT	CORRECT ATTITUDE	NOR CORRECT OR INCORRECT	INCORRECT ATTITUDE	MEAN (SD)*
1. <i>Infection with some STIs is lifelong.</i> **	173(100%)	0(0%)	0(0%)	2.00(0.00)
2. <i>Talking about women's sexual relation leads to their corruption</i> **.	168(97%)	5(3%)	0(0%)	1.97(0.17)
3. <i>Condom can absolutely prevent STIs</i> **.	147(85%)	15(9%)	11(6%)	1.79(0.54)
4. <i>HIV test is a shame</i> **.	146(84%)	12(7%)	15(9%)	1.76(0.60)
5. <i>I'm nearly guaranteed no STIs with condom use.</i>	147(85%)	9(5%)	17(10%)	1.75(0.62)
6. <i>Only sexual relation with a prostitute contaminates men with STIs.</i>	136(79%)	24(14%)	13(8%)	1.71(0.60)
7. <i>Financial hardships might lead women to become prostitutes.</i>	135(78%)	12(7%)	26(15%)	1.63(0.73)
8. <i>I will have less fear of STIs by receiving information about them.</i>	102(59%)	57(33%)	14(8%)	1.51(0.64)
9. <i>Personal hygiene protects women against venereal illnesses.</i>	114(66%)	20(12%)	39(23%)	1.43(0.84)
10. <i>STIs should be disclosed to a spouse or sexual partner.</i>	20(69%)	4(2%)	49(28%)	1.41(0.90)
11. <i>STIs are harmless and require no treatment.</i> **.	120(69%)	3(2%)	50(29%)	1.40(0.91)
12. <i>Women with addictions ignore their venereal infections.</i>	86(50%)	23(13%)	64(37%)	1.13(0.93)
13. <i>Sexually transmitted infections affect men and women.</i> **.	81(47%)	31(18%)	61(35%)	1.12(0.90)
14. <i>Women's examination is not a shame.</i>	70(40%)	43(25%)	60(35%)	1.06(0.87)
15. <i>Contraceptives also prevent STIs.</i>	81(47%)	21(12%)	71(41%)	1.06(0.94)
16. <i>STI assumption by doctors prevents me from obtaining treatment.</i> **.	66(38%)	46(27%)	61(35%)	1.03(0.86)
17. <i>Due to the fear of not keeping my STIs secret confidential, I avoid referring to health care centers</i> **.	73(42%)	22(13%)	78(45%)	0.97(0.94)
18. <i>Lack of affection from the spouse may lead to wife's infidelity.</i>	42(24%)	22(13%)	109(63%)	0.61(0.85)
19. <i>Addiction may lead to prostitution.</i>	11(6%)	45(26%)	117(68%)	0.39(0.61)
<i>Total</i>	-	-	-	1.35(0.21)

\*\* correct agreement” was scored as 2, “incorrect agreement” was scored as 0,” Nor agree or disagree” was scored 1.

\*\* The score of the statement was reversed.

The first lowest perceived attitude toward STI was the prostitution could result from addiction (mean=0.39, SD=0.61), where around 6% of women perceived this attitude, and 68% and 26% did not know the answer or they did not perceive this attitude, respectively. Wife’s infidelity could result from the lack of affection from the husband was the second (mean=0.61, SD=0.85), where around 24% of women perceived this attitude, and 63% and 13% did not know the answer or did not perceive this attitude, respectively. Referring to healthcare centers keeping the information confidentially was the third (mean=0.97, SD=0.94), where around 42% of women perceived this attitude, and 45% and 13% did not know the answer and did not perceive this attitude, respectively.

#### D. Women behaviors Concerning Sexually Transmitted Infections

This section answered the third research question which was “What are the behaviors concerning sexually transmitted infections among Jordanian women?”

As table 4 shows, the total mean value of women's practice toward STI was 1.45/2 (SD=0.21), which is considered high. The first highest performed practice was the avoiding of oral sex (mean=1.59, SD=0.49), where around 59% performed this practice, and 41% did not know the answer.

Taking the medication with the partner concurrently was the second (mean=1.54, SD=0.52), where around 55% performed or will perform this practice of diagnosed with STI, and only 44% and 1% did not know the answer or did not perform this practice. The avoiding sex with the partner when he suffers from STS was the third (mean=1.53, SD=0.52), where around 54% of women performed this practice, and 45% and 1% did not know the answer and did not perform or will not perform this practice, respectively.

TABLE 4

#### WOMEN BEHAVIORS CONCERNING SEXUALLY TRANSMITTED INFECTIONS

STATEMENT	CORRECT PRACTICE	NOR		MEAN (SD)*
		CORRECT OR INCORRECT	INCORRECT PRACTICE	
1. I abstain from engaging in oral sexual activity.	102(59%)	71(41%)	0(0%)	1.59(0.49)
2. For the treatment of sexually transmitted infections (STIs), I simultaneously provide medicine to both myself and my spouse/sexual partner.	95(55%)	76(44%)	2(1%)	1.54(0.52)
3. I refrain from engaging in sexual activity while my spouse is experiencing genital system infection, edema, or inflammation.	94(54%)	77(45%)	2(1%)	1.53(0.52)

4. I will urge my partner to seek treatment if he has genital warts.	92(53%)	80(46%)	1(1%)	1.53(0.51)
5. I refrain from engaging in sexual activity while my partner is experiencing a genital system infection, edema, or inflammation.	92(53%)	78(45%)	3(2%)	1.52(0.54)
6. I will strongly advocate for my sexual partner to get medical treatment if he develops genital warts.	91(53%)	81(47%)	1(1%)	1.52(0.51)
7. I shall cleanse my reproductive system before and after sexual intercourse.	94(54%)	75(43%)	4(2%)	1.52(0.55)
8. I resist when offered more money for unprotected sex.	92(53%)	79(46%)	2(1%)	1.52(0.52)
9. I am capable of refusing to engage in unprotected high-risk sexual activities.	83(48%)	88(51%)	2(1%)	1.47(0.52)
10. If burning and irritation occur after intercourse, I shall seek medical care.	85(49%)	80(46%)	8(5%)	1.45(0.58)
11. If I notice or come into contact with a wart in my genital area, I will seek medical care.	80(46%)	88(51%)	5(3%)	1.44(0.55)
12. After successfully treating the infection and inflammation in my genital system, I continue with regular follow-up appointments.	80(46%)	82(47%)	11(6%)	1.40(0.61)
13. I avoid anal intercourse to avoid STIs.	74(43%)	91(53%)	8(5%)	1.38(0.57)
14. If my husband is unwilling to wear a condom, I opt for the usage of a female condom.	66(38%)	96(55%)	11(6%)	1.32(0.59)
15. If my sexual partner is unwilling to wear a condom, I will opt for utilizing a female condom.	64(37%)	98(57%)	11(6%)	1.31(0.59)
16. I use condoms before intercourse.	55(32%)	105(61%)	13(8%)	1.25(0.58)
17. I use condoms with my the partner.	58(34%)	90(52%)	25(14%)	1.19(0.67)
Total	-	-	-	1.45(0.40)

\*\* Agree” was scored as 2, “disagree” was scored as 0,” Nor agree or disagree” was scored 1.

\*\* The score of the statement was reversed.

The first lowest performed practice was using the condom when having sex with the husband (mean=1.19, SD=0.40), where around 34% performed this practice, and 25% and 52% did not know the answer and did not perform this practice, respectively. Wearing the condom before starting the sex was the second (mean=1.25, SD=0.58), where around 32% performed this practice, and only 6% and 57% did not know the answer or did not perform or will not perform this practice. Wearing the condom if the husband did not interest in wearing it was the third (mean=1.31, SD=0.59), where around 32% of women performed or will perform this practice, and 8% and 61% did not know the answer and did not perform this practice,

respectively.

### E. Relationship between Study Variables

This section answered the fourth, fifth, and sixth research questions which were :

- Is there a significant relationship between the level of knowledge and attitudes concerning sexually transmitted infections among Jordanian women?
- Is there a significant relationship between the level of knowledge and behaviors concerning sexually transmitted infections among Jordanian women?
- Is there a significant relationship between the attitudes and behaviors concerning sexually transmitted infections among Jordanian women?

As table 5 shows, the results showed that there was a significant statistical correlation between knowledge and attitude toward STIs ( $r=0.1527$ ,  $p$  value=.0458). However, the results showed that there were no significant statistical correlations between knowledge and practice and between attitude and behaviors concerning STI ( $p>.05$ )

TABLE 5  
RELATIONSHIP BETWEEN STUDY VARIABLES (R, P VALUE)

VARIABLES	KNOWLEDGE	ATTITUDES	BEHAVIORS
<i>Knowledge</i>	1		
<i>Attitudes</i>	0.1527 .0458*	1	
<i>Behaviors</i>	0.0287 .707	0.0305 .690	1

\*The result is significant at  $p < .05$

### F. Study Variables according to Women Demographics

This section answered the fourth, fifth, and sixth research questions which were :

- What are the differences in the level of knowledge concerning sexually transmitted infections according to demographic characteristics among Jordanian women?
- What are the differences in the attitudes concerning sexually transmitted infections according to demographic characteristics among Jordanian women?
- What are the differences in the behaviors concerning sexually transmitted infections according to demographic characteristics among Jordanian women?

As table 5 shows, the results showed that there were significant differences in attitude concerning STIs according to educational level ( $F = 0.942$ ,  $P$  value= .421) and employment status ( $t = 2.541$ ,  $P$  value= .0119) where the women with a university degree and who were employed or retired may cause this differences since they had a higher mean value.

TABLE 6  
STUDY VARIABLES ACCORDING TO WOMEN DEMOGRAPHICS

CHARACTERISTICS	KNOWLEDGE		ATTITUDE		BEHAVIORS	
	MEAN	P VALUE	MEAN	P VALUE	MEAN	P VALUE
<i>Educational Level (n, %)</i>						
• <i>Secondary School</i>	0.559	F = 0.94239	1.24	F = 8.689	1.44	F = 0.376
• <i>Diploma Degree</i>	0.614	P = 0.582	1.31	P = 1.42	1.37	P = 1.48
• <i>University Degree</i>	0.582	value= .421	1.42	value= .00002*	1.48	value= .7698
• <i>Graduated</i>	0.617		1.31		1.46	
<i>Marital Status (n, %)</i>						
• <i>Single and Divorced</i>	0.59	t= 0.0013	1.38	t= 1.596	1.41	t= 1.180
• <i>Married</i>		P = 0.961		P = 0.112		P = 0.239
<i>Employment Status (n, %)</i>						
• <i>Employed</i>	0.58	t= 0.304	1.40	t= 2.541	1.42	t= 0.465
• <i>Retired</i>		P = 0.761		P = 0.0119*		P = 0.642
• <i>Housewife</i>						
	r	P value	r	P value	R	P value
Age	.0971	>.05	0.079	>.05	0.042	>.05
Number Family members	0.082	>.05	0.058	>.05	0.059	>.05
Monthly family Income	0.065	>.05	0.3052	.0000*	0.0408	>.05

\*The result is significant at  $p < .05$

Moreover. The results showed that is significant correlation between monthly family income and the attitude concerning the STIs. All other correlations and differences were non-significant at  $p < .05$ .

### V. LIMITATIONS

The study was conducted in primary health center in Amman. The sample size was small and did not present the national survey. The improper presentation from different population segment is seen. So, the generalization of results to all Jordanian women was restricted due to selection bias (sample and setting).

The participants felt shame in answering the questionnaire. Some items were not answered at all such as participation in-group and anal sex. The findings of this study have been limited to the perspectives, views, and knowledge of the participant's women. The partner view was not considered.

Moreover, the researchers have faced some difficulties during the data collection related to the time constrain to conduct the research and unavailability of time for the participants since they were stressed and busy. In addition, some staff was uncooperative with researchers to find eligible participants, and they interrupted the conversation with patient although the recruitment was conducted in private room. The type of data collection is the self-administered. However, the participant may not answer the real perception as results of the Hawthorne effect.

## VI. IMPLICATIONS

### A. *Implication for education*

This study has showed immoderate knowledge and attitude concerning STIs. The user's text is empty. These findings emphasize the need of further developing teaching programs for health care providers, patients, and family members.

Furthermore, these discoveries may serve as an incentive to further explore and utilize alternative instructional tools, such as online health portals, in order to improve the education of both staff and patients about the prevention of sexually transmitted infections., early detection, treatment, and follow up. Moreover, the results indicate the importance of building the trust between health providers and patients in term of information confidentiality and prevention stigma.

### B. *Implication for practice*

Moreover, the findings of this study have important implications for health professionals, including nurses and physicians, who play a key role in the patient education process, diagnosis, and treatment. The health care providers should focus on patient education about the disease, prevention, detection treatment options, complications, and treatment side effects. Moreover, they should consider the patient confidentiality and privacy.

The health care providers should encourage the patients and their partner to actively participate in the treatment plan and to take ask the needed questions and concerns. A psychosocial support team should be requested during the diagnosis discussion to help the patients during this period and to decrease the fear and its related symptoms such as anxiety and depression, and to support the partner.

Health doctors have the ability to create support groups, which might include several individuals who share the same condition and concerns. The moderation of this group will be entrusted to a professional member. It is crucial to conduct a psychosocial evaluation for every patient at an early stage, prior to diagnosis, in order to determine the specific areas that healthcare providers should take into account throughout the treatment process.

### C. *Implication for nursing research*

This study provides baseline data for future medical, public health, and nursing research. This study is the first comprehensive study that has been conducted in Jordan to explore the knowledge, attitude, and behaviors concerning sexual transmitted disease (STIs) among Jordanian women.

Our results have highlighted the current situation and describing the context, relationship, and contributing factors. This may help other researchers explore more details about this topic. Should do further research to investigate help-seeking behaviors, knowledge, behaviors, and attitudes with specific STIs. Moreover, the impact of cultural beliefs on these variables is recommended to be examined in future. study. The high sample size may be needed in future study from different regions to enhance the generalization of data.

### D. *Implication for Health Authorities*

The current research offers the baseline data of patients with the purpose of providing information to health authorities. Health officials may use this information to identify gaps and build action plans, such as making resources available, providing education and providing supervision to assist women learn more and improve their attitudes, actions, and behaviors.

## VII. RECOMMENDATIONS

The current study has presented the valuable information explored knowledge, attitude, and behaviors concerning sexual transmitted disease (STIs) among Jordanian women. This information may be used as a foundation for health care providers, researchers, educators, and stakeholders to improve and achieve the most benefits in practice, research, education, and management.

## VIII. DECLARATIONS

Institutional Review Board Statement: Ethical approval was obtained from the Institutional Ethics Committee (REDACTED).

Informed consent statement: Informed consent was acquired from all subjects.

The authors report no conflict of interest in this work.

## IX. DATA AVAILABILITY STATEMENT

The current study data will be available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

## X. CONCLUSION

Knowledge, attitudes, and behaviors of Jordanian's women about sexually transmitted infections (STIs) were moderate. The research recommended developing structured awareness and consultation program for women and developing further research.

The total number of participants was 173 women. The total mean value of women's knowledge about STI was moderate where 59% was the mean score of correct answers. The ability to transmit AIDs through intercourse, concurrently couples Treatment for STIs, The need for STI treatment for both man and women were the highest known knowledge

The total mean value of women's attitudes toward STI was moderate. The ability to cure the STIs and did not remain for lifelong, the corruption may not result because talking about women's sexual relations, and the ability to prevent STIs by condom was not absolute were the highest perceived attitudes.

The total mean value of women's practice toward STI was high. The highest performed behaviors were the avoiding of oral sex, taking the medication with the partner concurrently, and

avoiding sex with the partner when he suffers from STS

The results showed that there was a significant statistical correlation between knowledge and attitude toward STIs. However, the results showed that there were no significant statistical correlations between knowledge and practice and between attitude and behaviors concerning STI

The results showed that there were significant differences in attitude concerning STIs according to educational level and employment status. Moreover, the results showed that there is significant correlation between monthly family income and the attitude concerning the STIs.

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