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# Association between partner violence, and the appearance of symptoms of sexually transmitted infections, and reproductive tract infections among Afghan refugee women in Iran: a cross-sectional study

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## Abstract

**Background** Partner violence suffered by refugee women is a topic of debate. Symptoms of sexually transmitted infections (STIs) and reproductive tract infections (RTIs) may be a consequence of this violence. This study aimed to determine the possible associations between partner violence and the appearance of symptoms of STIs/RTIs among Afghan women in Iran.

**Methods** This cross-sectional population-based household survey was conducted with 188 reproductive-age Afghan refugee women residing in a refugee settlement in a selected city of Iran in 2016-17. Data were collected using four self-report instruments: A Socio-demographic characteristics form, the Assessment of Intimate Partner Violence, Women's self-reported STIs/RTIs-associated symptoms, and the Multi-Country Study on Women's Health and Domestic Violence against Women. The SPSS software version 22 was used for data analysis and comparisons between variables, and the significance level was established at $P<0.05$. Also, the bivariate logistic regression model evaluated odds ratios (OR) with a 95% confidence interval (CI).

**Results** Most women reported at least one symptom related to STIs/RTIs (70.7%) during the last year. 'No condom use' ($P=0.015$) (OR = 3.25; 95% CI = 1.26–8.39) and 'having unusual sex' ($P=0.009$) (OR = 3.75; 95% CI = 1.26–15.49) were found to be a statistically related significant relationship with the reported STIs/RTIs-associated symptoms. Most women (66.9%) neither sought help for their STI/RTI symptoms by healthcare nor received treatment. IPV was positively associated with STIs/RTIs-associated symptoms ($P<0.001$), having a history of STIs/RTIs diagnosis ($P<0.001$), and experiencing at least one of the most specific STIs/RTIs-associated symptoms (vaginal discharge and genital ulcers) ($P<0.001$). Women who had experienced any STIs/RTIs-associated symptoms experienced more sexual abuse from their spouses compared to women without any history of STIs/RTIs-reported symptoms ($P<0.001$).

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**Conclusions** Based on the results, self-perception of the presence of STIs/RTIs-associated symptoms among the Afghan refugee population is considerable. Moreover, the high prevalence of IPV and its strong links with the self-perception of the presence of STIs/RTIs-associated symptoms underline the urgent need for developing, testing, and implementing appropriate and timely interventions for managing STIs/RTIs and IPV simultaneously in refugee camps/settlements to tackle both violence and STIs/RTIs among refugee couples.

**Keywords** Refugee, Intimate Partner violence, Sexually transmitted infections, Reproductive Tract infections

## Introduction

The migration crisis is one of the most pressing global challenges [1, 2]. Currently, worldwide displacement is at the highest level ever recorded [2]. The number of refugees steadily increases daily, and the estimated refugee population reached an unprecedented 19.6 million individuals worldwide in 2015 [2, 3]. According to this global refugee crisis, the '*New York Declaration for Refugees and Migrants*' was adopted by the United Nations in 2016 to coordinate an approach to addressing the worst refugee crisis since the end of World War II. The prevention and response to partner violence against refugees were the main commitments of this document [4].

Intimate Partner Violence (IPV) is a significant public health issue worldwide [5, 6]. There is increasing concern among humanitarian organizations about the extent and effects of IPV among refugees and internally displaced persons [7, 8]. IPV has been recognized as the most common form of gender-based violence in camp settings [9, 10]. Approximately 30% of women worldwide have been victimized by IPV in their lifetime, according to the World Health Organization (WHO) [11]. Based on the WHO's definition, IPV is "any behavior within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship" [12]. Moreover, WHO reported in 2021 that nearly 307 million partnered women suffered from IPV in the year preceding the study [13]. Furthermore, findings have shown a very high prevalence of IPV among refugee women reaching as high as 80% among Afghan refugees in Iran [14].

Conflict-affected women, refugee women, and internally displaced women [15] often experience high levels of IPV [16] and its associated reproductive health problems, including sexually transmitted infections (STIs) and reproductive tract infections (RTIs) [17, 18]. STIs are also known as RTIs, but RTIs are a group of infections that affect the female and male reproductive organs. STIs are one of these infections passed from one person to another through sexual contact [19, 20]. STIs/RTIs are a significant public health problem and a leading cause of morbidity among men and women in developing countries [21, 22]. WHO estimates that 374 million new cases of curable STIs will occur worldwide in 2020 and 34 million in the Middle East [23, 24]. In addition, there were an estimated 67.6 million prevalent and 26.2 million incident STIs in the United States in 2018, similar among men and women [25]. Furthermore, the WHO European Region (2018) reported that There is limited evidence available for STIs in the refugee and migrant population. Still, some studies find a higher prevalence of STIs in refugee and migrant women while others find the prevalence to be similar to that of non-migrants [26].

STIs spread more rapidly in places where communities are disrupted [27]. In addition, STIs have become urgent concerns for populations affected by armed conflict and migration (both forced and voluntary). Poverty, powerlessness, and social instability affect the spread of STIs in these conditions, which are characterized by the lives of most refugees and internally displaced persons [28]. According to Balsara (2010) on reproductive tract disorders among Afghan refugee women in Pakistan, over three-fourths of studied women were affected by RTIs [29]. STIs-related risk behaviors are highly prevalent among female IPV victims [30]. There are findings that sexual violence alone or jointly in conjunction with physical violence is most strongly associated with women's risk of STIs [31]. A national representative sample of cohabiting couples in six developing countries shows that IPV increases the risk of self-reported sexually transmitted infections for women who are married [31]. Moreover, some other studies show that IPV enhances the risk of STIs [31, 32]. Kishor (2006) found that in the four countries studied, the likelihood of having self-reported STIs is almost twice as high among ever-married women who have experienced spousal violence than women who have not [33]. In addition, abused women, compared with their nonabused counterparts, are more likely to report a history of fewer Pap examinations, barriers to seeking healthcare, and other reproductive health complications [34]. The gender-related constraints in most countries make it less likely that women will seek treatment for STIs, especially if they experience violence or live in fear of it [31].

As mentioned before, research documenting the likelihood of the experience of IPV being an independent risk factor for STIs among women is also beginning to emerge [31]. Much of the evidence for the IPV–STIs association pertains to the developed world, and there is little evidence of this association in developing countries [or in humanitarian settings] [34]. Moreover, few studies have been conducted on refugees or displaced populations. Since the global refugee crisis, the increasing rate of IPV

against refugee women [35], and the adverse reproductive health outcomes associated with IPV [34, 36–40], researchers and policymakers have turned this field into a priority for research evidence [41, 42].

Worldwide, Afghans constitute the second-largest refugee population after Syrians [43]. Iran is one of the countries with a large number of immigrants and refugees in the Middle East [44], and it currently ranks as the third-largest refugee-hosting country in the world [43, 45]. However, refugee women's health and well-being are not the center of focus in Iran similar to other countries. This study aimed to determine associations between IPV and the appearance of symptoms of STIs/RTIs among Afghan refugee women living in a refugee settlement in Iran. The participants' help-seeking behaviors and the treatments they had received for STI/RTI problems were also examined.

## Materials and methods

### Study design

A cross-sectional population-based household survey was conducted among child-bearing aged (14–49) Afghan refugee women at a refugee settlement in Semnan province, Iran, from 2016 to 2017.

### Study population and setting

This study was conducted at one of the Afghan refugee settlements in Iran, which had approximately 3700 registered Afghan refugees, including 887 households. The inclusion criteria for inclusion were: (1) being a registered refugee by UNHCR (United Nations High Commissioner for Refugees) and BAFIA (the Ministry of Interior's Bureau for Aliens and Foreign Immigrants' Affairs) (2), having Afghan nationality (3), living in a refugee camp/settlement (4), living with her spouses during the last 12 months (5), being at their reproductive age (14–49 years old), and (6) willingness to participate in the study. The exclusion criteria were (1) widows (2), not living with their spouse during the last year, and (3) those who declined to participate in the study.

The sample size was calculated by using a finite population sample size calculation formula with a 95% confidence level and 0.01% margin of error. A total of 188 household samples of married women were selected from a list of family health record numbers of all registered refugee families using a single-stage systematic random cluster sampling technique. IPV exposure was an independent variable, and the women's reported STIs/RTIs-associated symptoms in the 12 months preceding the survey, and the status of their help-seeking behaviors were considered dependent variables.

### Instruments and data collection

House-to-house visits were carried out for data collection. After obtaining verbal and written informed consent, women were interviewed face-to-face in a private place in their house. The study was presented as a 'women's reproductive health study' to the household members. Due to the sensitive nature of the study subject and considering safety reasons, women were asked not to reveal the topic of the study to others. Data collection instruments were a socio-demographic characteristics form, the Assessment of Intimate Partner Violence, Women's self-reported STIs/RTIs-associated symptoms, and the Multi-Country Study on Women's Health and Domestic Violence against Women.

#### *Socio-demographic characteristics form*

This researcher-made two-section form included variables such as Part 1, which included age, religion, household size, education level, employment status, and length of displacement. Part 2 included questions about marital/obstetric and reproductive characteristics (marital status, polygamy, marriage age, age at first pregnancy, number of children, history of abortion, history of unwanted pregnancy, condom use, contraceptive method adoption, and having forced anal sex). Some information related to the current husbands was obtained from the women, including cigarette and alcohol/drug use.

#### *Assessment of Intimate Partner Violence (IPV)*

A validated Farsi version of The Revised Conflict Tactics Scale (CTS2) [46], a 74-item self-report instrument [30], was used. Merghati-Khoei et al. (2015) found its reliability in Iran to be 0.73 using Cronbach's alpha. The CTS2 classifies conflict on six levels based on the number of violent episodes during the intimate relationship: Level 1–2 = 1–2 episodes, Level 3 = up to 5 episodes, Level 4 = up to 10 episodes, Level 5 = 11 to 20 episodes, and Level 6 = more than 20 episodes. A score of > 25 is considered severe IPV. Overall, the CTS2 is divided into five domains: physical assault, injury, psychological aggression, negotiation, and sexual coercion. For each violent behavior, the question is asked both about perpetration and victimization. Women who reported committing violent behaviors in the past year were considered IPV perpetrators and were considered victims when their partners perpetrated violent behaviors against them. Women could, therefore, be classified as victims only, perpetrators only, neither, or both [20]. In this study, Intimate Partner Violence was defined as 'self-reported physical, sexual, psychological violence and injury victimization by a male spouse of women as an intimate partner' [47].

#### *Women's self-reported STIs/RTIs-associated symptoms*

A standard gender-specific questionnaire on STIs-associated symptoms (women-specific questionnaires including 12 symptoms) was used to obtain information regarding the presence of related symptoms of STIs/RTIs [48]. The questionnaire estimated the current experience of specific and non-specific STIs-associated symptoms, reactions to symptoms, and willingness to seek treatment. The questionnaire was standardized through a pilot study by Nassirian et al. (2016), and the Kuder-Richardson reliability of questions was around 0.57 [48]. STIs/RTIs were said to be present when the respondent reported the presence of one or more symptoms related to STIs/RTIs during the past year. In addition, a question was asked to determine if a woman had any STIs/RTIs diagnosis by health care providers (HCPs) in the past year (having had a history of occurrence of any STIs/RTIs).

#### *Multi-country study on women's health and domestic violence against women*

The participants' help-seeking behaviors related to the STIs/RTIs-associated symptoms were investigated using a standardized questionnaire [49]. Several questions were asked from the previous questionnaire for assessing protective behaviors for STIs and RTIs [49], along with a modified version of part 3 of the 'Multi-country Study on Women's Health and Domestic Violence against Women' instrument [38]. This questionnaire was developed by the World Health Organization for public health research in different cultures, with a focus on interpersonal violence [38]. According to the following questions, protective behaviors related to STIs/RTIs were assessed among women: 'Have you ever used a condom with your current partner to prevent diseases?', 'Have you ever asked your current partner to use a condom?', and 'Has did your current partner ever refuse to use a condom to prevent diseases? In what ways did he let you know that he disapproved of using a condom?' Finally, the participants were asked about their specific obstacles or barriers to obtainment health services, especially reproductive health services, such as free access to condoms and some other contraception methods, seeking care, and follow-up treatment for STIs/RTIs.

### Ethical considerations

This study was approved by the Ethics Committee of Tehran University of Medical Sciences with registration number IR.TUMS.SPH.REC.1395.1051. All participants' rights were preserved, and verbal and written informed consent from all respondents and their supervisor or legal guardian was obtained due to specific cultural issues and high illiteracy among participants. Moreover, the ethical principles of the Declaration of Helsinki were followed, and the researchers ensured that all participants were informed that their participation was voluntary and that they could leave at any time.

### Statistical analysis

The data was analyzed using SPSS version 22 (2013). Descriptive statistics (calculating percentage and proportions) were used to describe the socio-demographic characteristics, the self-perception of the presence of STIs/RTIs-associated symptoms, help-seeking and protective behaviors, and different types of IPV among Afghan refugee women. Bivariate analyses examined the association between IPV statuses with the self-perception of the presence of STIs/RTIs-associated symptoms, as well as associations between demographic/marital characteristics with the self-perception of the presence of STIs/RTIs. Chi-square, fisher exact tests, and independent *t*-tests were used to test for significant associations between categorical variables. All reported *P*-values are 2-tailed with statistical significance set at 0.05. Bivariate logistic regression was used to explore the relationship between women's socio-demographic and marital/reproductive characteristics with the self-perception of the presence of STIs/RTIs-associated one or more symptoms in the past 12 months [31]. According to the references, the variables that had $P < 0.25$ in the initial analysis were included in the regression model [50, 51]. The bivariate logistic regression model evaluated odds ratios (OR) with a 95% confidence interval (CI).

## Results

### Socio-demographic and marital/reproductive characteristics

The average age of participants was 27.73 ± 7.17 years. Most of the women (67.4%) attended a primary school (40.7%) or were illiterate (26.7%). Most participants were housewives (97.3%) and belonged to the Shia/Islam religion (68.3%). The duration of displacement for more than one-third of women (66.6%) was between 21 and 30 years. None of the women had consumed alcohol or had used drugs in their lives. A small percentage of the male spouses consumed alcohol (4.3%). Only about 1.1% of women reported living with a drug-using husband. Regarding marital and reproductive variables, the average marriage age of participants was 17.02 ± 3.14 years. Predominantly, their first intercourse was reported close to their marriage age and after that. Women's mean age at first pregnancy was 18.16 ± 3.37 years and less than half (44.1%) had more than three children. Most of the participants (72%) were not used a condom during vaginal sex with their partners. Among women, more than a quarter of them (26.1%) had a history of lifetime unwanted pregnancy, and less than one-fifth (19.1%) experienced any terminated pregnancy. Only one of the refugee women

reported having extramarital sexual partners. All of the women had only male sexual partners, and none of them had any sexual encounter with a woman. About 11.7% of women have had forced anal sex by their spouses (The non-response rate in this part of the questionnaire was 0.5% ((Table 1). Also, there was no significant difference in the self-perception of the presence of STIs/RTIs due to socio-demographic characteristics. When analyzing marital/obstetric characteristics with self-perception of STIs/RTIs symptoms, differences were observed according to a 'history of unusual sexual relations' ($P=0.027$), 'condom use' ($P=0.02$), and 'type of contraceptive method' adopted by participants ($P=0.04$) over the 12 months before the survey, with greater perceived symptoms among women who reported not having used a condom ($P=0.02$).

Table 2 presents the result of binary logistic regression for some marital/reproductive health variables with past year experience of one or more STIs/RTIs-associated symptoms in refugee participants. 'Having unusual sex with partner' ($P=0.009$) (OR = 3.75; 95% CI = 1.26–15.49) and 'no condom use' ($P=0.015$) (OR = 3.25; 95% CI = 1.26–8.39) were associated with an increased vulnerability to experience any STIs/RTIs-associated symptoms in a logistic regression.

### Experience of STIs/RTIs-associated symptoms and recent diagnosis

At least one of the STI/RTI symptoms was observed in 133 (70.7%) women. Table 3 represents that the most common associated symptoms of STIs/RTIs reported by the refugee women were pruritus/vaginal itching (39.9%) followed by dyspareunia (36.2%), lower abdominal pain (35.6%), vaginal discharge (34.6%) and dysuria (31.9%). None of the women complained of the inguinal lump. Prevalence of the most specific STIs/RTIs-associated symptoms, such as vaginal discharge and genital ulcers, was 34.6% and 1.1%, respectively.

### Association between IPV exposure and self-perception of symptoms of STIs/RTIs

Women's exposure to IPV was associated with self-perception of symptoms of STIs/RTIs ($P<0.001$) (Table 4). Based on the presence of one or more symptoms reported, Table 5 shows the association between exposure to specific abuse domains and self-perception of the presence of STIs/RTIs. Women who reported experiencing physical (94.1% vs. 5.9%, $P<0.001$), sexual (82.0% vs. 18.0%, $P<0.001$), both physical/sexual IPV (82.3% vs. 17.7%, $P<0.001$), and multiple forms of IPV (92.3% vs. 7.7%, $P<0.001$) over the 12 months before the survey had a higher self-perception of the presence of STIs/RTIs compared to women in non-abusive relationships (82.3% vs. 17.7%, $P<0.001$).

Table 6 shows the result of Binary logistic regression for the past years' experience of specific abuse domains of IPV and self-perception of the presence of STIs/RTIs among Afghan refugee participants. Women who experienced physical ($P=0.004$), sexual ($P<0.001$), and multiple forms of violence ($P<0.001$) were more likely to have STIs/RTIs compared to women who did not experience any IPV.

### Association between self-perception of symptoms of STIs/RTIs and related healthcare-seeking/protective behaviors

The distribution of healthcare-seeking behaviors and self-perception of the presence of symptoms of vaginal discharge and/or vaginal ulcers are shown in Table 7. The majority of women, regardless of whether they perceived symptoms or not, did not seek medical attention ($P=0.022$).

### Association between IPV exposure and healthcare-seeking/protective behaviors related to STIs/RTIs-associated symptoms

Women who reported experiencing any type of IPV over the 12 months before the survey adopted less healthcare-seeking behaviors than women who did not experience any abusive relationships (68.6% vs. 53.3%, $P=0.009$). There was no statistically related relationship between experienced IPV and protective behaviors (Table 8). According to a binary logistic regression model, women who experienced injurious IPV were significantly more likely to seek healthcare services than women who did not experience IPV ($P<0.042$) (OR = 3.34; 95% CI = 1.04–10.73) (Table 9).

## Discussion

The present study investigated the relationship between IPV and STIs/RTIs among Afghan refugee women in Iran.

The findings of this study revealed that sexual coercion is significantly associated with the presence of STIs. Consistent with the present findings and according to one survey by Delkhosh et al. IPV exposure is associated with a negative reproductive health outcome among Afghan refugee women in Iran [52]. Regarding the self-perception of symptoms of STIs/RTIs, the present findings are in line with Balsara's study, which revealed that over three-fourths (76.7%) of Afghan refugee women who live in the Haripur camps in Pakistan reported to the health clinics with reproductive complaints had a provisional diagnosis of an RTIs [29]. Approximately 60% of women attending antenatal clinics had infected reproductive tracts (RTIs) in another study by Mayaud et al. to determine the prevalence of sexually transmitted infections in Rwandan refugee camps in Tanzania [53]. Based on a population-based survey, the prevalence

**Table 1** Distribution of socio-demographic and reproductive variables according to self-perception of the presence of STIs/RTIs symptoms ($n=188$)

| Variables | no. of STIs/RTIs | | no. of No STIs/RTIs | | Total | | *P*-value |
|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | |
| **Duration of displacement** | | | | | | | |
| < 20 | 29 | 70.7 | 12 | 29.3 | 41 | 22.1 | |
| 21–30 | 88 | 71 | 36 | 29 | 124 | 66.6 | 0.992 |
| > 31 years | 15 | 71.4 | 6 | 28.6 | 21 | 11.3 | |
| **Household size** | | | | | | | |
| 2–3 | 79 | 69.9 | 34 | 30.1 | 54 | 29 | |
| 4–5 | 52 | 71.2 | 21 | 28.8 | 84 | 45.2 | 0.871 |
| > 6 | 131 | 70.4 | 55 | 29.6 | 48 | 25.8 | |
| **Religion** | | | | | | | |
| Islam/Shia | 94 | 74 | 33 | 26 | 127 | 68.3 | |
| Islam/Sunni | 38 | 64.4 | 21 | 35.6 | 59 | 31.7 | 0.231 |
| **Educational level** | | | | | | | |
| illiterate | 35 | 70 | 15 | 30 | 50 | 26.7 | |
| primary | 52 | 68.4 | 24 | 31.6 | 76 | 40.7 | 0.787 |
| secondary or higher | 45 | 73.8 | 16 | 26.2 | 61 | 32.6 | |
| **Employment status** | | | | | | | |
| housewife | 129 | 70.9 | 53 | 29.1 | 182 | 97.3 | |
| employed | 3 | 60 | 2 | 40 | 5 | 2.7 | 0.632 |
| **Husband's smoking** | | | | | | | |
| yes | 31 | 79.5 | 8 | 20.5 | 39 | 20.9 | |
| no | 101 | 68.2 | 47 | 31.8 | 148 | 79.1 | 0.236 |
| **Husband's alcohol consumption** | | | | | | | |
| yes | 8 | 100 | 0 | 0 | 8 | 4.3 | |
| no | 124 | 69.3 | 55 | 30.7 | 179 | 95.7 | 0.107 |
| **Husband's drug use** | | | | | | | |
| yes | 2 | 100 | 0 | 0 | 2 | 1.1 | |
| no | 130 | 69.9 | 56 | 30.1 | 186 | 98.9 | > 0.999 |
| **Polygamy** | | | | | | | |
| yes | 8 | 66.7 | 4 | 33.3 | 12 | 6.4 | |
| no | 124 | 70.9 | 51 | 29.1 | 175 | 93.6 | 0.75 |
| **Number of children** | | | | | | | |
| 0–1 | 40 | 74.1 | 14 | 25.9 | 54 | 29 | |
| 2–3 | 57 | 69.5 | 25 | 30.5 | 82 | 44.1 | 0.771 |
| > 4 | 34 | 68 | 16 | 32 | 50 | 26.9 | |
| **History of abortion** | | | | | | | |
| yes | 28 | 77.8 | 8 | 22.2 | 36 | 19.1 | |
| no | 104 | 68.4 | 48 | 31.6 | 152 | 80.9 | 0.316 |
| **History of unwanted pregnancy** | | | | | | | |
| yes | 35 | 71.4 | 14 | 28.6 | 49 | 26.1 | > 0.999 |
| no | 97 | 69.8 | 42 | 30.2 | 139 | 73.9 | |
| **Usage of condom** | | | | | | | |
| yes | 30 | 57.7 | 22 | 42.3 | 52 | 28 | |
| no | 102 | 75.6 | 33 | 24.4 | 135 | 72 | 0.020* |
| **Usage of contraceptive method** | | | | | | | |
| yes | 106 | 71.1 | 43 | 28.9 | 149 | 79.7 | |
| no | 26 | 68.4 | 12 | 31.6 | 38 | 20.3 | 0.842 |
| **Method of contraception** | | | | | | | |
| pill | 20 | 66.7 | 10 | 33.3 | 30 | 16.1 | |
| injectable | 11 | 100 | 0 | 0 | 11 | 5.9 | |
| IUD | 5 | 83.3 | 1 | 16.7 | 6 | 3.2 | |
| condom | 30 | 57.7 | 22 | 42.3 | 52 | 27.6 | |

**Table 1** (continued)

| Variables | no. of STIs/RTIs | | no. of No STIs/RTIs | | Total | | *P*-value |
|---|---|---|---|---|---|---|---|
| | *N* | % | *N* | % | *N* | % | |
| TL | 1 | 100 | 0 | 0 | 1 | 0.5 | |
| abstinence/withdrawal | 38 | 80.9 | 9 | 19.1 | 47 | 25 | 0.040* |
| lactation | 0 | 0 | 1 | 100 | 1 | 0.5 | |
| none | 26 | 68.4 | 12 | 31.6 | 38 | 21.2 | |
| **Having unusual sex** | | | | | | | |
| yes | 20 | 90.9 | 2 | 9.1 | 22 | 11.7 | |
| no | 113 | 68.1 | 53 | 31.9 | 166 | 88.3 | 0.027* |
| | **Mean ± SD** | | **Mean ± SD** | | **Mean ± SD** | | ***P*-value** |
| **Age** | 28.05 ± 7.4 | | 26.96 ± 6.58 | | 27.73 ± 7.17 | | 0.349 |
| **Marriage age** | 17.03 ± 3.37 | | 17 ± 2.53 | | 17.02 ± 3.14 | | 0.941 |

*Significance at the 0.05 level

**Table 2** Bivariate logistic regression model for self-perception of presence STIs/RTIs symptoms

| Variables | OR (95% CI) | *P*-value |
|---|---|---|
| **Household size** | | |
| 2–3 | 1.24 (0.41–3.76) | 0.707 |
| 4–5 | 1.41 (0.59–3.40) | 0.434 |
| > 6 | 1 | |
| **Religion** | | |
| Islam/Shia | 1 | 0.455 |
| Islam/Sunni | 0.67 (0.24–1.88) | |
| **Husband's smoking** | | |
| yes | 1.94 (0.78–4.86) | 0.1 |
| no | 1 | |
| **Usage of condom** | | |
| no | 3.25 (1.26–8.39) | 0.015* |
| yes | 1 | |
| **Usage of contraceptive method** | | |
| no | 1.12 (0.46–2.74) | 0.801 |
| yes | 1 | |
| **Having unusual sex** | | |
| yes | 3.75 (1.26–15.49) | 0.009* |
| no | 1 | |

* Significance at the 0.05 level

**Table 3** Frequency distribution of STIs symptoms among study participants

| Symptoms | *N* | % |
|---|---|---|
| Pruritus | 75 | 39.9 |
| Dyspareunia | 68 | 36.2 |
| Lower abdominal pain | 67 | 35.6 |
| Vaginal discharge | 65 | 34.6 |
| Dysuria | 60 | 31.9 |
| Frequent urination | 44 | 23.4 |
| Postcoital pain | 33 | 17.6 |
| Groin pain | 29 | 15.4 |
| Rectal discharge | 12 | 6.4 |
| Postcoital bleeding | 8 | 4.3 |
| Genital ulcer | 2 | 1.1 |
| Inguinal lump | 0 | 0 |

of STIs-associated symptoms in the Iranian population was considerable [48]. About 85% of women and 36% of men in high-risk groups and the general population of Iran experienced at least one episode of STI symptoms in their lifetime [54].

Most symptomatic participants (nearly 70%) took no action after symptoms appeared (did not seek healthcare or receive treatment), and 3.8% treated symptoms with traditional medications. The main reason for not seeking care or receiving any reproductive health services mentioned by refugee women was the 'unaffordable/cost of receiving care'. Half of symptomatic Iranian women and men took no action after the onset of STIs/RTIs-related symptoms [48]. In the Balsara study, over 70% of Afghan refugee women reported not seeking any care and just one woman tried a home remedy. More than half of those women who experienced dyspareunia did not seek any treatment and some of them believed that pain upon sexual intercourse was normal. In addition, 33.8% of symptomatic surveyed women by the Balsara study mentioned lack of finances as the primary reason for not seeking help for their symptoms [29].

Investigating protective behaviors showed that the use of condoms was to a limited extent, by participants as a prevention method. Egmond showed that fewer than 30% of Afghan women wrongly supposed they could avoid STIs through good general hygiene and bathing. The use of condoms was rarely mentioned by women as a prevention method in that study. Fewer than one-quarter of the respondents said they had used or would be willing to use a condom as a protection method against STIs [29]. 'No condom use' was associated with an increased vulnerability to experience any STIs/RTIs-associated symptoms by surveyed refugee women. Most of the participants (72%) reported that they had not used condoms during vaginal sex. As mentioned in 'Integrating STIs/RTIs Care for Reproductive Health' by WHO, providing condoms and promoting the use of condoms is one of the steps to reduce STIs/RTIs risk [27]. There is evidence that

**Table 4** Association between past year experienced IPV with reported any STIs/RTIs-associated symptoms and STIs/RTIs diagnosis among Afghan refugee participants

| IPV | No STIs/RTIs symptoms | Presence of STIs/RTIs symptoms | No STIs/RTIs diagnosis | STIs/RTIs diagnosis |
|---|---|---|---|---|
| **No** | 23 (60.5%) | 15 (39.5%) | 32 (84.2%) | 6 (15.8%) |
| **Yes** | 33 (22.0%) | 117 (78.0%) | 75 (50.0%) | 75 (50.0%) |
| ***P*-value*** | < 0.001** | | < 0.001** | |

*Chi–square test

** Significance at the 0.05 level

**Table 5** Distribution of the different types of IPV according to self-perception of the presence of STIs/RTIs symptoms

| Type of IPV | STIs/RTIs-associated symptoms | | Total | *P*-value* |
|---|---|---|---|---|
| | Not present | Present | | |
| **Physical IPV** | 2 (5.9%) | 32 (94.1%) | 34 (100.0%) | < 0.001** |
| **Sexual IPV** | 23 (18.0%) | 105 (82.0%) | 128 (100.0%) | < 0.001** |
| **Both physical & sexual IPV** | 23 (17.7%) | 107 (82.3%) | 130 (100.0%) | < 0.001** |
| **Psychological IPV** | 14 (22.6%) | 48 (77.4%) | 62 (100.0%) | 0.174 |
| **Injury** | 1 (7.1%) | 13 (92.9%) | 14 (100.0%) | 0.068 |
| **Multiple forms of violence** | 4 (7.7%) | 48 (92.3%) | 52 (100.0%) | < 0.001** |

*Chi–square test

** Significance at the 0.05 level

**Table 6** Binary logistic regression model between the history of IPV and self-perception of the presence of sexual or reproductive infections

| Past year experience of IPV | Self-perception of the presence of STIs/RTIs | |
|---|---|---|
| | OR (95% CI) | *P*-value |
| **Physical assault** | | |
| no | 1 | 0.004* |
| yes | 8.39 (1.93-36.39) | |
| **Sexual coercion** | | |
| no | 1 | <0.001* |
| yes | 5.88 (2.96-11.68) | |
| **Psychological aggression** | | |
| no | 1 | 0.082 |
| yes | 1.88 (0.92-3.85) | |
| **Injury** | | |
| no | 1 | 0.93 |
| yes | 5.85 (0.74-45.86) | |
| **Multiple forms of violence** | | |
| no | 1 | <0.001* |
| yes | 10.11 (2.99-34.10) | |

*Significance at the 0.05 level

abusive men consistently demonstrate increased sexual risk behavior, such as inconsistent condom use, beyond the danger posed by sex with an infected male partner. On the other hand, behavioral mechanisms described by women in relationships characterized by IPV, such as limited power to refuse sex or insist on condom use, may enhance STI transmission [55].

This study examined the relationship between some marital/reproductive health indicators among refugee participants and the self-perception of symptoms of STIs/RTIs. Those women who had 'unusual sex' with their partner showed a higher self-perception of symptoms of STIs/RTIs, based on experience with STIs/RTIs-associated symptoms. Unusual sex is one example of sexual violence that may occur in the context of intimate partnership [56]. Individuals who engage in risky sexual behaviors, such as unusual sex, are at greater risk for negative consequences including STIs [57]. Also, unusual sex was mentioned as an instance of IPV and appears to be associated with women's experience of violence in several settings [58]. Moreover, the results of a systematic review study by Ivanova et al. revealed that forced migration makes African girls and women more vulnerable to poor sexual and reproductive health (SRH) outcomes such as high-risk sexual behaviors, lack of contraception use, STIs and HIV/AIDS [59].

A statistically related relationship was found between IPV exposure and having a history of STIs/RTIs diagnosis by HCPs over the 12 months before the survey. This relationship was more significant among abused women. Specifically, women who experienced IPV were significantly at increased risk for experiencing lower abdominal pain, dysuria, frequent urination, pruritus, vaginal discharge, and dyspareunia in the previous 12 months. Hess et al. suggested that female IPV victims have a higher STIs prevalence, which confirmed that abused women were at greater risk of contracting STIs than their non-abused counterparts [60]. As shown by Salam et al. abused women suffered from reproductive tract infections significantly more than non-abused women [61]. Other studies, such as a cross-cultural study by Kishor, have confirmed this association between IPV and STIs [31, 32, 62–64]. Although IPV cannot lead to STIs in the absence of pathogen exposure, the likelihood of

**Table 7** Distribution of health care/protection-seeking behaviors and relationship with the perception of symptoms of vaginal discharge and/or vaginal ulcers

| Variables | Frequency | % | Self-perception of vaginal discharge and/or vaginal ulcers | | *P*-value* |
|---|---|---|---|---|---|
| | | | No | Yes | |
| **Healthcare-seeking behavior** | | | | | |
| Took no action | 89 | 66.9 | 53 (77.9%) | 36 (55.4%) | |
| Sought treatment/ care seeking | 38 | 28.6 | 13 (19.1%) | 25 (38.5%) | 0.022** |
| Self-treating symptoms | 6 | 4.5 | 2 (2.9%) | 4 (6.2%) | |
| **Protective behaviors** | | | | | |
| Use condoms for the prevention of infections. | 34 | 18.2 | 18 (14.8%) | 16 (24.6%) | 0.113 |

*Chi–square test

**Significance at the 0.05 level

**Table 8** Distribution of IPV history and healthcare-seeking and protective behaviors

| Experienced IPV | Healthcare-seeking behavior | | | Protective behaviors |
|---|---|---|---|---|
| | Took no action after symptoms appeared | Sought treatment/ care seeking | Self-treating of symptoms | Use condoms for the prevention of infections |
| **No** | 8 (53.3%) | 4 (26.7%) | 3 (20.0%) | 8 (21.6%) |
| **Yes** | 81 (68.6%) | 34 (28.8%) | 3 (2.5%) | 26 (17.3%) |
| ***P*-value*** | < 0.001** | | | 0.634 |

*Chi–square test

** Significance at the 0.05 level

**Table 9** Binary logistic regression models between history of IPV and healthcare-seeking and protective behaviors

| Past year experience of IPV | Healthcare-seeking behaviors | | Protective behaviors | |
|---|---|---|---|---|
| | OR (95% CI) | *P*-value | OR (95% CI) | *P*-value |
| **Physical assault** | | | | |
| no | 1 | 0.70 | 1 | 0.244 |
| yes | 1.18 (0.49–2.81) | | 1.52 (0.75–3.08) | |
| **Sexual coercion** | | | | |
| no | 1 | 0.415 | 1 | 0.851 |
| yes | 1.51 (0.55–4.1) | | 0.95 (0.55–1.62) | |
| **Psychological aggression** | | | | |
| no | 1 | 0.114 | 1 | 0.15 |
| yes | 1.85 (0.86-4) | | 1.49 (0.86–2.56) | |
| **Injury** | | | | |
| no | 1 | 0.042* | 1 | 0.141 |
| yes | 3.34 (1.04–10.73) | | 4.6 (0.6-35.22) | |
| **Multiple forms of violence** | | | | |
| no | 1 | 0.108 | 1 | 0.101 |
| yes | 0.87 (0.75–1.02) | | 1.73 (0.89–3.35) | |

* Significance at the 0.05 level

STIs infection in the presence of such exposure may be increased by partner violence [55].

Moreover, considering the association between different forms of IPV with STIs/RTIs, women who reported experiencing physical, sexual, both physical/sexual, and multiple forms of IPV had a higher prevalence of STIs/RTIs. Sigbeku et al. examined STIs prevalence among married women in Nigeria. They found that experience of physical and sexual violence, including multiple forms of violence, was significantly associated with STIs prevalence [65]. In addition, the results are in line with results from some other research that are documenting the positive association between IPV experience (sexual and/or physical) and STIs [31, 60, 62, 66], especially in developing countries for the general population of ever-married women [31].

In this study, most participants experienced sexual coercion. Women who experienced physical and sexual IPV were more likely to have STIs/RTIs than women who experienced other forms of IPV, according to a bivariate analysis. This finding was consistent with the cross-cultural Kishor et al. study. The odds of having an STI were highest in surveyed countries by Kishor for women who had experienced only sexual violence (the Dominican Republic and Kenya) or both physical and sexual violence (Haiti, India, Liberia, Zambia). The results showed that the experience of sexual violence was central to the IPV–STIs relationship, although the experience of

physical violence alone also increased the likelihood of women having STIs in most of the surveyed countries [31]. Displaced women and girls are vulnerable to a range of sexual violence, including sexual abuse by an intimate partner in conflict and humanitarian settings [67], and some studies document a high rate of intimate partner-perpetrated sexual violence among a conflict-affected population [68, 69]. According to Salam et al., there was a negative impact of sexual violence on women's health, with more than 80% reporting pelvic pain, over 50% reporting RTIs, and over 50% reporting symptoms of irritable bowel syndrome [61]. A possible biological pathway for the IPV–STI association is through sexual violence. As sex acts are involved in sexual violence, women are directly exposed to the risk of contracting an infected partner's sexually transmitted infection; because violence involves force, women have a lower likelihood of taking protective measures in advance of violent sex acts [31].

Women who reported experiencing any type of IPV adopted less help-seeking behaviors than women who did not experience any abusive relationships. In binary logistic regression, women who experienced harmful forms of IPV were significantly more likely to seek healthcare services. According to some studies, healthcare utilization is higher among women who are currently experiencing or have recently experienced IPV in informal settlements [70, 71]. Hess found that women who were being victimized and were not perpetrating had the most significant imbalance of power in their relationship, which could result in increased exposure to STIs and potentially less ability to seek care for infection [60]. While some of the women seek healthcare services, others may sustain injuries that affect their overall health status; however, they do not seek healthcare for a variety of reasons, including shame, embarrassment, fear of disclosure to others, fear of partner retaliation, lack of access to adequate healthcare facilities, and lack of finances [70]. Moreover, Spencer et al. (2024) revealed that Out of 3,802 Nigerian women who reported that they had experienced IPV in the past year, two-thirds (67%) of the women did not seek any help, 31% sought informal help, and only 1.9% sought formal help. Thus, higher education, witnessing their father hit their mother, husband's controlling behaviors, experiencing physical IPV, and having a physical injury were all related to informal help-seeking compared to seeking no help [72].

### Strengths and limitations of the study

Using the random sampling method and adopting the standardized and validated instruments for data collection (e.g. CTS-2 and 'WHO multi-country study on VAW questionnaire') were some of the main strengths of the current study. On the other hand, the cross-sectional design of this study prohibited concluding the causal and temporal relationships between IPV exposure and dependent variables. Also, reported prevalence figures were liable to under-reporting because of the sensitive and person-identifiable data related to research topics. Considering that this study was part of a larger study, reporting the frequency of IPV was not part of the purpose of this study, so it was not reported in the result. Moreover, the measurement of STIs was based on self-reports and involved only a symptom survey with no clinical verification. Another limitation of the study was the inability to clinically measure STIs due to implementation restrictions, financial constraints, costs associated with laboratory kits, and lack of access to health and laboratory personnel in the refugee camp. The exclusion criteria did not include any confounders that might cause bias in confirming an IPV-STIs association, such as a chronic disease such as diabetes, which increases the risk of infection, pelvic inflammatory disease, urinary tract infection, and cancer, because this is a descriptive study that is only intended for general purposes. Moreover, a survey is critical because, in most cases, it is the symptoms of the disease that cause people to visit a healthcare facility. Additionally, the data include information gathered only from women, and with input from their respective husbands.

## Conclusion

The findings showed that self-perception of the presence of STIs/RTIs-associated symptoms among Afghan refugee women is considerable and their health and well-being must be the center of focus. Therefore, designing and implementing programs to reduce the burden of these infections should also target Intimate Partner Violence screening and services, especially in the context of humanitarian settings such as refugee camps or settlements. In addition, women in violent relationships should be considered for STIs screening in healthcare centers, including primary health centers, and IPV issues should be addressed in STI prevention programs [54]. Qualitative and prospective research is needed to better define these association mechanisms, especially in humanitarian and refugee contexts.

#### Abbreviations

| | |
|---|---|
| IPV | Intimate Partner Violence |
| STIs | Sexually Transmitted Infections |
| RTIs | Reproductive Tract Infections |
| OR | Odds ratio |
| CI | confidence intervals |
| SGBV | Sexual and Gender-Based Violence |
| UNHCR | United Nations High Commissioner for Refugees |
| BAFIA | The Ministry of Interior's Bureau for Aliens and Foreign Immigrants' Affairs |
| CTS-2 | Revised Conflict Tactics Scale |
| HCPs | Health care providers |

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**Data availability**
The datasets generated and/or analyzed during the current study are not publicly available due to agreement between data holders but are available from the corresponding author upon reasonable request.

## Declarations

**Ethics approval and consent to participate**
The Ethics Committee of Tehran University of Medical Sciences approved this scientific research study with the code of Number IR.TUMS.SPH.REC.1395.1051, and conducted according to the Declaration of Helsinki. All participants received information about the study. Participation in the survey and answering each question was optional. Due to specific cultural issues and a high level of illiteracy among participants, verbally informed consent was obtained from all respondents. In addition, written informed consent was completed by their supervisor or legal guardian due to the illiteracy of some participants.

**Consent for publication**
Not applicable.

**Competing interests**
The authors declare no competing interests.

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