

Sexually transmitted infections in Morocco: acceptance of expedited partner therapy in a context of social vulnerability

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KEYWORDS	ABSTRACT
associated factors, expedited partner therapy, sexual partner, sexually transmitted infections, women of reproductive age.	Background and objectives: Untreated partners contribute to high rates of reinfection with sexually transmitted infections. Partner treatment, therefore, remains an important element in the treatment and control of these infections. In this context, the present study aims to investigate the acceptability, for women of childbearing age, of expedited partner treatment in the presence of a sexually transmitted infection syndrome and to determine the associated factors. Methods: This is a descriptive and analytical cross-sectional study. The study was conducted in urban and rural health centers in the province of Essaouira, Morocco. All women of childbearing age who consulted the health centers and agreed to complete the questionnaire were recruited. A questionnaire was used to study respondents' acceptance of partner treatment in the presence of a sexually transmitted infection syndrome. Univariate and multivariate statistical analyses were performed. Finding: A total of 1100 women of reproductive age participated in the study. The average age of the respondents was 30.6 years $\pm$ 8. In total, 53.5% of respondents said they would agree to give their partner expedited therapy to the partner. The multivariate analysis found that the acceptability of expedited therapy is correlated with marital status, distance to care facilities, educational level, and socio-economic level according to household income. Conclusions: More than half of the 1100 women of childbearing age surveyed accepted the idea of expedited partner therapy. In this sense, the implementation of partner support strategies, including education and outreach programs, should be considered to anchor preventive behaviors related to these infections.

Introduction

With more than 374 million new cases of cureable sexually transmitted infections (STIs) worldwide each year, they represent a significant burden of morbidity [1]. Untreated STIs can lead to serious and irreversible health problems [2]. In this sense, untreated partners contribute to high rates of re-infection by STIs [3, 4]. Treatment by partners is essential to preventing the spread of these infections [5]. Partner treatment (also called expedited partner therapy) reduces transmission, prevents seizures, gives an opportunity to discuss protected sex, and can thus help reduce transmission in the population [6]. This is one of the stages of the syndromic approach adopted in the management of STIs in healthcare structures in Morocco [7].

Expedited Partner Therapy (EPT) refers to the process in which the sexual partner is treated without being seen by a provider. "The two main methods of EPT involve the index patient issuing to the partner a prescription that the partner will then complete in a pharmacy or, more commonly, delivering the drug directly to the partner, which can be partner therapy" [8, 9]. EPT is a method of treating a patient's sexual partners without medical assessment or preventive advice [10]. This method of partner treatment is part of the algorithms of syndromic care for IST, launched by the World Health Organization (WHO) [6], adopted, and widespread in all basic care structures in Morocco [7].

In Morocco, ETP consists of proposing a syndrome treatment to the partner of the STI-positive patient (giving the tablets directly to the infected person for the partner, without the partner having consulted a doctor or nurse), advising on quick testing for HIV and syphilis, and promoting the use of condoms [7]. However, some patients are still skeptical about accepting this method. In a study on patterns and determinants of patient-adopted therapy among healthcare consumers, most respondents (18-47 years old) were hypothetically willing to provide treatment to their partners (83%), but fewer were willing to follow it if it was offered by their partners (69%). Another survey assessed how comfortable respondents were with the treatment administered by the patient, with 78% of respondents saying they would be comfortable giving an ETP, while 65.4% and 53.3% said they would agree to receive an ETP in cases of symptomatic or asymptomatic infection, respectively [11].

Patient characteristics can affect the likelihood of accepting EPT [4]. The acceptance of EPT did not vary depending on the sex or age of the patient [12], but other studies have shown that women were more likely to accept EPT for their partners than men [13, 14]. Participants who had a relationship for more than four months with a primary sexual partner and who planned to have sex again with the partner were more likely to accept EPT [15]. The willingness to accept EPT was also associated with the belief that this method helps to stop the spread of the disease [16]. Additionally, people were more likely to accept the EPT if their healthcare provider recommended it and if the drug was sealed with a provider note [16].

Also, current relationship satisfaction, income, and having borrowed a drug from a friend were all positively correlated with accepting ETP [15]. The reasons for patients' refusal to notify partners were mainly that the partner was already treated, the patient was worried about his partner's reaction, he feared that the partner would not accept the proposed treatment, or he did not know how to contact the partner [16]. Due to significant data on the prevalence of STIs at the level of the province of Essaouira, 38.6% had STIs syndrome [17] in 2022. This situation can be explained by the unprotected passing sexual relationships that spouses working in large cities may have given the provincial economic stagnation, the perception of STIs as a taboo subject, and, above all, the inadequate treatment. In this context, this study aimed to study the acceptability of women of reproductive age to the idea of giving and receiving expedited partner therapy (ETP) against a sexually transmitted infection syndrome in a context of social vulnerability.

Materials and methods

Design and study area

We included a total of 1 100 women of reproductive age in this cross-sectional study. The study was conducted in the province of Essaouira, which is part of the Marrakech-Safi region, a city on the Atlantic Ocean located 174 km west of the city of Marrakesh and 173 km north of Agadir. The province had a total population of 77 966 inhabitants in 2014, divided into two axes, the Haha axis and the Chiadma axis. It is characterized by a rural predominance of 77.6%. It is the fifth poorest province in Morocco, with a poverty incidence of 22.1% [18]. The rate of illiteracy is 48.9%, with women affected at 60%. [19]. Health conditions are characterized by a ratio of one primary health care facility per 6 511 inhabitants, higher than observed at the national level (12 373) [20]. However, 49% of women should run 6 kilometer to reach the nearest health training [21]. The health infrastructure consists of 69 primary health care facilities in urban and rural areas.

Study target population

The study was conducted among women of childbearing age in the 20 urban and rural health areas of the province of Essaouira in 2022. These centers are located within a radius of 0 to 132 kiometrs from the city of Essaouira (the capital of the province).

Inclusion and exclusion criteria

Reproductive-age women residing in the province of Essaouira and attending the health centers at the place of the study were included in the study. Women who refused to participate in the study, those whose health conditions did not allow the survey to be conducted, the foreign population (not Moroccans), and health workers were excluded.

Sample and recruitment of study participants

The sample size was calculated on the basis of an error range of 5.0%, a confidence interval (IC) of 95% for a total population of 65037 women of reproductive age in the province of Essaouira [20] and an anticipated proportion of the population rejecting expedited therapy to the partner of 50%. The calculation was carried out on the site of the sample size calculator, OpenEpi [22]. The minimum sample size required for the study was 384 people. With a presumed response rate of 90%, a sample of approximately 1,100 participants was included. The sample ($n = 1100$) was distributed across the twenty urban and rural primary health care centers based on the percentage of the reproductive-age women's population served by each center [21]. In each health district, participants were randomly selected before giving their consent to participate in the study during their visits to the study sites until the number of participants per center was reached. The interviews were conducted after the care or services for which the women visited the center.

Conduct of the survey

In each health district, participants were chosen at random, before giving their agreement to take part in the study during their visits to the survey sites until the number of participants per center was reached. Interviews were conducted after the care or services for which the women had visited the center.

Data collection and ethical considerations

A face-to-face questionnaire survey was used to collect data from respondents. After giving their informed consent, participants were asked whether they agreed to the idea of giving expedited therapy to the partner against an STI. Socio-demographic and health-related information such as age, place of residence, level of education, distance from health facility, standard of living according to household income, age of first sexual intercourse, number of sexual partners in the last 12 months, condom use, were requested. The questionnaire was reviewed and corrected several times, and translated into Arabic. It was pre-tested and completed. The study was approved by the research ethics committee of the Taroudant Polydisciplinary Faculty [01/REC/22] and informed consent was obtained from each subject.

Data management and statistical analysis

Data management and statistical analysis were carried out using SPSS (Statistical Package for the Social Sciences) for Windows (ver. 18.0; SPSS Inc., Chicago, IL, USA). Categorical variables were described by numbers and proportions, and quantitative variables by their measures of central tendency and dispersion. In addition, univariate and multivariate logistic regression analyses were conducted to identify factors associated with the acceptance of giving and receiving expedited therapy to the partner for an STIs. The chi-square test (χ^2) or Fisher's exact test, were performed according to their conditions of application. All independent variables with a p-value <0.05 in the univariate analysis were included in the multivariate logistic regression analysis. P values <0.05 were considered to indicate statistical significance.

Results

Sociodemographic characteristics of the women studied

The characteristics of the women studied are given in table 1. 36% were over 35, with an average of 30.6 ± 8.1 years. The median age was 30. Women from the city of Essaouira accounted for 37.2% and those from rural areas for 62.8%. The average distance to the nearest healthcare facility was 5.6 km ($\sigma = 6.3$), with 33.4% of women having to travel more than 6 km to access care. Illiterate women accounted for 35.2%. Married women accounted for 94.6%. Inactive women represented 90.1% of the sample. The proportion of women who belonged to a household with a relatively low socio-economic level was 80.5%. As for medical coverage, almost half the women (55%) had it.

Table 1: Characteristics of the women studied

Variables	Modalities	Number of respondents n (%)
Age group	< 35	704 (64)
	≥ 35	396 (36)
Place of residence	Urban	409 (37,2)
	Rural	691 (62,8)
Distance to care facilities	< or = 3km	326 (29,6)
	>3km and < or = 6 km	407 (37)
	>6 km	367 (33,4)
Marital status	Married	1040 (94,6)
	Unmarried	60 (5,4)
Educational level	Illiterate	388 (35,2)
	Primary school	478 (43,2)
	Secondary and above	234 (21,3)
Professional occupation	Salaried/Employee ^a	49 (4,5)
	Self-employed worker ^b	56 (5,1)
	Inactive (Unemployed) ^c	991 (90,1)
Socio-economic level by household income	Retired	4 (0,4)
	Low	886 (80,5)
	Medium to high	214 (19,5)
Health coverage	Yes	605 (55%)
	No	495 (45%)

n: number of respondents, % : Percentage, ^a: According to the Haut-Commissariat au Plan of the Kingdom of Morocco, an active salaried person, a salary from a public or private employer, in return for work performed. ^b: According to the Haut-Commissariat au Plan of the Kingdom of Morocco, any salaried person working on his own account, running his own business or carrying on a commercial activity, but who does not employ salaried workers, ^c: Includes the unemployed, as well as housewives and students.

Sexual relationship and acceptance of expedited partner therapy

Table 2 gives information on sexual relations and acceptance of accelerated partner therapy by the respondents. In terms of age at first sexual intercourse, 89.4% were more than 18 at the time of first intercourse. Forty-six women (4%) claimed to have had two or more sexual partners in the last 12 months. Concerning acceptance of accelerated partner therapy, 53.5% of respondents said they would agree to give accelerated partner therapy.

Table 2: Information on sexual relations and acceptance of expedited partner therapy

Variables	Modalities	Number of respondents n (%)
Age of first sexual intercourse	More than 18 years	983 (89,4)
	Less than 18 years	117 (10,6)
Multiple sexual partners in the last 12 months	Yes	46 (4)
	No	1054 (96)
Condom use	Yes	115 (10,5)
	No	985 (89,5)
Acceptance of expedited partner therapy	Yes	588 (53,5)
	No	512 (46,5)

n: number of respondents, % : Percentage

Reasons given by women for refusing accelerated partner therapy

The reasons given by participants for refusing to give their partner expedited therapy are presented in table 3. Almost half the participants refused to give their partner accelerated therapy (46.5%). Most often, participants were concerned about their partner's reaction (95.2%), feared that the partner would not accept the proposed treatment (85%), and preferred that the partner have a face-to-face conversation with the caregivers. Otherwise, 6% said they didn't have their partner's phone number, and 3.5% didn't want to talk to or see their partner.

Table 3: Women's reasons for refusing expedited partner therapy

Variables	Modalities N=512	Number of respondents n (%)
Patient fears partner will not accept proposed treatment	Yes	435 (85)
	No	77 (15)
Patient worried about her partner's reaction	Yes	487 (95,2)
	No	25 (4,8)
The patient preferred to have the conversation with the partner face to face.	Yes	386 (75.4)
	No	126 (24.6)
Patient did not have her partner's phone number	Yes	31 (6)
	No	481 (94)
Patient did not want to talk or see her partner	Yes	29 (5,6)
	No	483 (94,4)
The partner was abroad	Yes	18 (3.5)
	No	494 (96.5)

n: number of respondents to the given question. % : Percentage

Acceptance of expedited partner therapy and associated factors

According to the results of the bivariate analysis (table 4), acceptance of accelerated partner-directed therapy was statistically associated in order of importance with marital status

($p < 0.001$), distance to care facilities ($p < 0.01$), education level ($p < 0.001$), socio-economic level by household income ($p < 0.001$) and number of sexual partners in the last 12 months ($p < 0.05$). After adjustment for these variables in a multivariate logistic regression (table 4), only the association with marital status [OR 0.061; CI 95 % : 0.014-0.267; $p < 0.001$], distance to care facilities [OR 0.715; CI 95 % : 0.478-1.068; $p < 0.001$], education level [OR 4.575; CI 95 % : 2.770-7.656; $p < 0.001$], socio-economic level according to household income [OR 1.333; CI 95 % : 1.032-1.722; $p < 0.05$] persist, while the link with the number of sexual partners in the last 12 months disappears [OR 1.130; CI 95 % : 0.434-2.942; $p > 0.05$] disappeared.

Table 4: Univariate and multivariate regression model

Variables	Modalities	Univariate analysis		Multivariate regression			
		n(%)	P value ^a	OR	IC 95 %		P value ^a
Age group	< 35	379 (52.8)	0.772 ^{NS}	0.812	0.695	1,108	0,188 ^{NS}
	≥ 35	209 (47.2)					
Place of residence	Urban	211 (35.8)	0.186 ^{NS}	1.159	0.880	1,527	0,295 ^{NS}
	Rural	377 (64.2)					
Marital status	Married	579 (98.5)	0.000 ^{***}	0.061	0.014	0,267	0.000 ^{***}
	Unmarried	9 (1.5)					
Distance to care facilities	< or = 3km	152 (25.8)	0.000 ^{***}	0.715	0.478	1.068	0,010 ^{**}
	>3km and < or = 6 km	233 (39.6)					
	>6 km	205 (34.8)					
Educational level	Illiterate	113 (19.2)	0.000 ^{***}	4.575	2.770	7,656	0.000 ^{***}
	Primary school	329 (55.9)					
	Secondary and above	146 (24.8)					
Professional Occupation	Salaried/Employee ^a	29 (5)	0.202 ^{NS}	0.797	0.555	1.148	0.221 ^{NS}
	Self-employed worker ^b	32 (5.4)					
	Inactive (Unemployed) ^c	523 (89)					
	Retired	4 (0.6)					
Socio-economic level by household income	Low	281 (47.8)	0.000 ^{***}	1.333	1.032	1,722	0,028 [*]
	Medium to high	307 (52.2)					
Health coverage	Yes	331 (56,3)	0.356 ^{NS}	0.887	0.686	1,146	0,358 ^{NS}
	No	257 (43,7)					

Age of first sexual intercourse	More than 18 years	538 (91,5)	0.537 ^{NS}	0.675	0.333	1,368	0,276 ^{NS}
	Less than 18 years	50 (8,5)					
Partner suspected of having other sexual partners	Yes	22 (3,7)	0.481 ^{NS}	0.935	0,416	2,104	0,871 ^{NS}
	No	566 (96,3)					
Multiple sexual partners in the last 12 months	Yes	8 (1,3)	0.022 [*]	1.130	0.434	2.942	0,803 ^{NS}
	No	574 (98,7)					

% : Percentage, n : number of respondents. Statistical significance at $p < 0,05$. ^{NS} $p > 0,05$;

^{*} $p < 0,05$; ^{**} $p < 0,01$; ^{***} $p < 0,001$. ^a : According to the Haut-Commissariat au Plan of the Kingdom of Morocco, an active salaried person, a salary from a public or private employer, in return for work performed. ^b : According to the Haut-Commissariat au Plan of the Kingdom of Morocco, any salaried person working on his own account, running his own business or carrying on a commercial activity, but who does not employ salaried workers, ^c : Includes the unemployed, as well as housewives and students.

Discussion

Effective treatment is an essential pillar in the fight against STIs, as it mitigates adverse health effects and reduces the risk of onward transmission [23,24]. Antibiotic treatment can cure certain STIs, such as chlamydia, gonorrhea, syphilis, and trichomoniasis, and there are established forms of secondary prevention [5], including partner notification, screening, and treatment [5]. Treatment of STIs is usually initiated upon diagnosis, but antibiotics can also be provided presumptively, including to sexual partners, when the risk of infection is high [6].

More than half (53.5%) of respondents said they would be willing to provide expedited partner therapy in the event of infection, which corroborates the results of a survey on partnership therapy for Chlamydia trachomatis infection among adolescent girls attending school-based health centers in the USA [25] which specified that 65% of respondents agreed to provide accelerated therapy for their male sexual partner. These results could be explained by the Moroccan population's limited and insufficient access to services related to the diagnosis, treatment, and control of transmissible diseases, especially those considered taboo, such as STIs [26]. These results are a far cry from those of pregnant women on partner notification and treatment for STIs in Botswana, which stipulated that 95% said they would be willing to give medication to their partner(s) if this option was available [3].

However, contact tracing can be difficult both for patients, who may face barriers to informing their sexual partners, and for practitioners, who need time to obtain and discuss sensitive information [27]. In this sense, for those who refused (46,5%) to give accelerated therapy to their partner, they were concerned about their partner's reaction (96.2%), feared that the partner would not accept the proposed treatment (86%), and preferred the partner to have a face-to-face conversation with the caregivers.

In relation to factors associated with acceptability of giving expedited partner therapy after analysis and regression persisted marital status [OR 0.061; CI 95% : 0.014-0.267; $p < 0.001$], distance to care facilities [OR 0.715; CI 95% : 0.478-1.068; $p < 0.001$], level of education [OR 4.575; CI 95% : 2.770-7.656; $p < 0.001$ and socio-economic level according to household income [OR 1.333; CI 95% : 1.032-1.722; $p < 0.05$]. However, it did not vary according to the woman's age, which corroborates the results of other studies on partner acceptance of accelerated therapy [9].

Moreover, these results corroborate those of other studies on ETP [14], which found that having a higher level of education and having already had an STI increased acceptance of TPE. In addition, the proposal of expedited therapy to the partner was increased if the subject was in a

long-term relationship with a sexual partner (OR: 3.07; CI₉₅ % : 1.43-6.58), considered the partner to be a primary partner (OR: 2.53; CI₉₅ % : 1.43-6.58), or had increased self-efficacy for notification [14].

These results can be attributed to the woman's low educational level, unemployment and low socio-economic level [19]. Indeed, the province of Essaouira recorded some of the highest rates of poverty and vulnerability in Morocco, reaching 9.1% and 22.2% respectively [20]. Despite Morocco's efforts to increase girls' school enrolment, 27% of the women in our study are illiterate and 57% have not progressed beyond primary school, which could limit their access to healthcare and monitor their state of health in the event of illness. In addition, women in Essaouira province experience considerable social vulnerability and precariousness. Only 9.6% have access to employment. The province of Essaouira has one of the highest income poverty rates and poverty severity indexes in the Marrakech-Safi region, at 9.06% and 0.42 respectively [19]. Indeed, the proposal of expedited partner therapy is likely to reach only a proportion of contacts, often missing those that sustain transmission in the population, as it is more effective in long-term relationships and less so in occasional short-term contacts [28]. In short, partner treatment is essential in the management of STIs cases. Treating the sexual partner will heal another person, avoid complications, and prevent new infections. Strategies to strengthen the management of sexual partners should include the adoption of partner treatment strategies and the evaluation of their implementation of patient confidentiality protection [27, 29]. This study has certain limitation. The location of the study constitutes the first constraint, which focused exclusively on people attending primary health care centers. Another limitation relates to the cross-sectional nature of the study, which only reflects respondents' current acceptability of expedited partner therapy and does not take into account changes over time.

Conclusion

This study showed that more than half (53.5%) of female respondents said they would accept expedited partner therapy. Multivariate analysis showed that marital status, level of education, place of residence, and socio-economic level according to household income were correlates of acceptance of expedited partner therapy. This means that women with access to the resources available through literacy and financial stability would be more accepting of expedited partner therapy. To reduce the impact of STIs on the individual and the community, it seems necessary to encourage women to be screened, treated, and prevented for STIs, particularly in public facilities that are free of charge, and to provide them with appropriate STIs care, including expedited partner therapy. Health program managers can make greater efforts in health education by adopting new communication and awareness-raising strategies.

Health program managers can make greater efforts in health education by adopting new communication and awareness-raising strategies. The determinants observed in this study can help shape STIs interventions in a context marked by illiteracy and poverty. Decision-makers need to act on the social determinants of health, in particular to improve women's education and socio-economic status. Further investigations are needed to compare these results.

Author contributions

NN designed the study, collected and analyzed the data, and drafted the manuscript. NN and JC were responsible for data collection and entry, and they prepared the initial draft of the manuscript. NO reviewed the collected data, interpreted the results, and contributed to the discussion. SR and NO developed the working methodology, revised the manuscript, and supervised the study. All authors read and approved the final version of the manuscript.

Declarations

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Declaration of conflict of interest

The authors declare no conflict of interest.

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Availability of data and materials

All data generated or analyzed as part of this study are included.

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