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Management of Sexually Transmitted Infections by Community Pharmacists in Lagos, Nigeria: a Cross-sectional Study

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ABSTRACT

Background: Sexually Transmitted Infections (STIs) are of public health importance in Nigeria. Timely interventions could alleviate STI-associated symptoms, and delay transmission. This study investigated how Community Pharmacists responded to complaints of STI-associated symptoms and explored factors that hinder these efforts.

Methods: A cross-sectional, descriptive study was carried out among 48 Community Pharmacists in Surulere Local Government Area of Lagos. Data were collected using a pretested self-administered, semi-structured questionnaire that comprised demographic characteristics of the pharmacists and the patients, STI symptoms, and services provided by the community pharmacists. Descriptive and inferential statistics were used to summarize the data using SPSS version 20.0. A P-value of <0.05 was considered significant.

Results: More than half of the Community Pharmacists (58.3%) were females, with 56.3 % having < 5 years of practice experience. An average of 10 patients presented to the pharmacies daily with STI-associated symptoms. Most patients (97.9%) were aged 18 to 49 years, and are mainly females (70.8%). The most common STI-associated complaints in females were vaginal discharge (93.8%) and urethral discharge (70%) in men. On any STI-related visit, the pharmacist elicited information on the history of present symptoms (92%), medications taken before the pharmacies' visit (88%), onset and duration of symptoms (85%). They suggested medications (94%), counseled patients on medication use (89%), offered preventive care (Condom use (83.3%); abstinence (31.3%), and referred patients to hospital (79%). Un-resolving symptoms (86.8%) were the main reason for referrals. The Pharmacists failed to confirm patients' identities and did not follow up with the patients in 45.8% of the visits. They suggested metronidazole (89.6%) most, followed by Azithromycin (85% and Ciprofloxacin (79%). Patients' reluctance to open up was the main obstacle to the provision of STI management services in the community.

Conclusion: Community pharmacists provided a wide range of STI management services of which treatment, medication counseling, and preventive care are the most common. There is a need for pharmacists to improve on referrals and follow-ups to ensure continuity in care.

1. Introduction

Sexually transmitted infections 'STIs' are infections caused by pathogens that are contracted and transmitted predominantly through sexual intercourse and remain one of the top five reasons adults seek health care. They are classified as either curable 'Chlamydia, Gonorrhoea, Syphilis, Trichomonas), or incurable (Herpes Simplex, Human Papillomavirus, Human Immunodeficiency Virus) [1, 2]. Globally, the burden of STIs is huge. According to the World Health Organisation (WHO), more than a million people acquire a curable sexually transmitted infection every day with an estimated 376 new infections every year[1, 3]. About 80% to 90% of the global burden of STIs resides in low and middle-income countries, with Africa having the highest burden due to poorly treated or untreated STIs[3,4].

In Nigeria, although there is limited epidemiological data on STI prevalence due to poor surveillance systems and limited or no access to diagnostic testing, available evidence suggests that STIs are common with a prevalence rate of up to 23% in both low-risk populations and high-risk sex workers [4-6]. STIs predominantly affects young adults aged between 15 and 49 years, resulting in acute genital symptoms such as penial discharge, vaginal discharge,

lower abdominal pain, or chronic infections with associated long term consequences such as ectopic pregnancy, pelvic inflammatory disease, cervical cancer, infertility, and risk of acquiring HIV[1, 4]. It affects people irrespective of age, gender, or socio-economic class. STIs occur more frequently in females than males and sometimes remain asymptomatic, contributing to the associated burden[7-9]. Given the burden of STIs, early diagnosis with effective management is critical and remains a major component of control programs[7]. In Nigeria, primary health care is ill-equipped to provide reproductive health services, attributable to lack of resources, poor access, and inadequate health care professionals[10]. This gap in the health continuum has strategically positioned community pharmacies to render reproductive health services [9, 10]. The syndrome-case management of STIs is a strategy provided at the community level due to easy accessibility and proximity. It has been advocated and integrated into primary health care [1,9]. It is simple, cost-effective, and based on recognition of the syndromes, followed by standardized treatment to take care of the causative organisms without a laboratory test [11]. Studies carried out in Nigeria and in other countries have shown that community pharmacists offer a wide range of health services apart from the traditional role of dispensing [12-16]. However, little is known about the type of services provided by pharmacists when managing complaints from males and females seeking treatment for STI symptoms in the community. This study, therefore, aimed to assess community pharmacists' management of STI-associated symptoms in Surulere Local Government area of Lagos State.

2. Method

2.1 Study Setting/Design

The study was carried out in Surulere Local Government Area (LGA) of Lagos State, Southwest Nigeria. Surulere is a residential and commercial area located on the mainland of the metropolitan city of Lagos, with a land area of 27.05 km^2 [17]. Lagos is the most populous city in Nigeria with diverse ethnic groups, located in the southwest of Nigeria with latitude and longitude of 6.51790 N, 3.35780 E respectively. This was a cross sectional, descriptive study carried out among community pharmacists.

2.2 Study Population/Sampling

A list of all registered pharmacies in Surulere were obtained from the Pharmacist Council of Nigeria (PCN). There were 52 registered community pharmacies in Surulere LGA as of the time of this study. Of the 52 registered Pharmacies located within the study area, three pharmacies were closed down and one was functioning without a pharmacist and so were excluded from the study leaving a total of 48 registered pharmacies for the survey. Registered Pharmacists who have worked in the pharmacies for a minimum of six months and consented to take part in the study were enrolled for the survey. Interns, youth-corper pharmacists, and students on industrial training (IT) were excluded from the survey.

2.3 Data Collection Instrument/Data Collection

A pretested semi-structured self-administered questionnaire developed following a thorough review of literatures was used for the study [1, 3, 18]. Participation was entirely voluntary and anonymity was assured. It took between 15-20 minutes to fill the questionnaires. The questionnaire comprised of three sections. The first section had information on the pharmacists' demographic characteristics. The second section contained information on the pharmacies such as the operational hours and work schedule, the number of pharmacists per shift and, and number of patients that visits the pharmacies with a complaint of STIs-associated symptoms. The third section had the demographic characteristics of the patients, the common STIs symptoms patients complain of a three-tiered measure of the information pharmacists elicited from patients (always, sometimes, and never), and the type of services provided by pharmacists such as history taking, treatment, advice on sexual behaviour, promotion of condom use, partner notification and treatment and follow up. The questionnaire was pretested among ten Community Pharmacists practicing in Mushin LGA. The responses obtained led to the removal and/or reframing of some questions for clarity. The Pharmacists were approached during working hours and administered the questionnaire. They were provided with the study information leaflet, and on giving verbal consent, were recruited. On the occasions of having two pharmacists on duty, only one filled the questionnaire. The Pharmacists were also asked to identify factors that influence the provision of STI-related services in the locality.

2.4 Ethical Approval

The Ethical approval for the study was obtained from the Health Research Ethics Committee of College of Medicine, University of Lagos with Assigned Number: RGEEC/37/2015. Informed consent was obtained from the pharmacists. The questionnaires were coded for anonymity.

2.5 Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences version 20 (SPSS Inc., Chicago, USA). Frequencies and percentages were used to describe categorical data such as sociodemographic (gender, ethnicity, educational status), types of STI- associated symptoms, medication use. Chi-squared test was used to determine the association between the categorical variables and patient's referral to hospital and follow-up of patients. Statistical significance was set at $p < 0.05$.

3. Results

3.1 Sociodemographic Characteristics

The sociodemographic characteristics of the Community Pharmacists are presented in Table 1. The survey findings revealed more female pharmacists (28; 58.3%), than males (20; 41.7%). Most of them were Christians (37; 77.1%) and are predominantly of the Yoruba tribe (25; 52.1%). Most Pharmacists (88%) had BPharm (42; 87.5%), with less than 5 years post-graduation (27; 56.3%). The age and gender distribution of the patients with STI associated symptoms are shown in Figure 1

Table 1: Sociodemographic Characteristics of the Community Pharmacists

Characteristics	Frequency (n)	Percent (%)
Gender		
Male	20	41.7
Female	28	58.3
Religion		
Christian	37	77.1
Muslim	11	22.9
Duration of practice		
< 5	27	56.3
5-10	13	27.1
11-15	1	2.1
≥16	7	14.6
Educational Qualifications		
Bachelors in Pharmacy/Pharm D	42	87.5
Other Professional qualifications	6	12.6

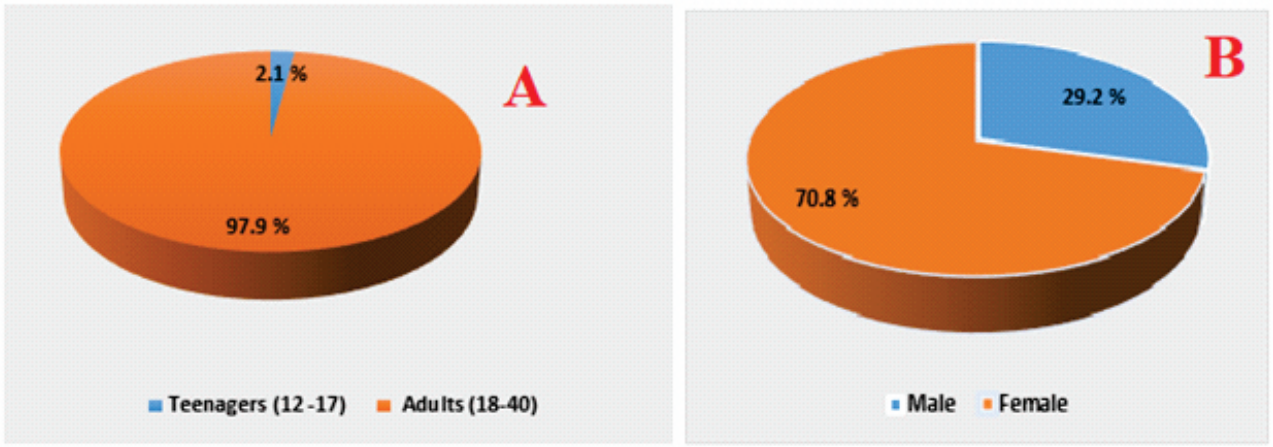

Figure 1: (A) Age indicated in years and (B) Gender distribution of the patients assessed

3.2 Prevalence of STI associated symptoms

An average 10.13 ±9.7 visits were due to sexually transmitted infection symptoms. Vaginal discharge (45; 93.8%), and vaginal irritation (41; 85.4%) were mostly common in female patients, while urethral discharge (34; 70.8%) was prevalent in males. (Table 2).

Table 2: The distribution pattern of STI-related symptoms among the patients

STI symptoms	Frequency (n)	Percentage (%)
Vaginal discharge	45	93.8
Vaginal irritation	41	85.4
Lower abdominal pain	25	52.1
Bleeding between periods in Women	6	12.5
Painful urination	37	77.1
Genital ulcers	21	43.8
Urethral discharge	34	70.8
Irritation inside the penis	22	45.8
Testicular pain in men	10	20.8
Scrotal swelling	6	12.5

3.3 Types of services rendered by Community Pharmacists

Community Pharmacist in responding to complaints of STI associated symptom, elicited various information from the patients and provided different service to them. Table 3 shows the types of the information elicited from the patients. The Pharmacists reported taking history of present symptoms (44; 91.7%) including onset of the symptoms (40; 83.8%), duration of the symptoms (14; 85.4%) and, inquiring on medications taken before coming to the pharmacy (42; 87.5%). However, almost half of the pharmacists (22; 45.8%) never asked about the patients' identity.

Table 3: Information gathered by the Community Pharmacists

Information elicited from the patients	Always N (%)	Never N (%)	Sometimes N (%)
Patient identity	14 (29.2)	22 (45.8)	12 (25)
History of present symptoms	44 (91.7)	1 (2.1)	3 (6.3)
Onset of symptoms	40 (83.3)	1(2.1)	7 (14.6)
Duration of symptoms	41 (85.4)	3 (6.3)	4 (8.3)
Actions taken before coming to the pharmacy	40 (83.3)	1 (2.1)	7 (14.6)
Medications taken before coming to the pharmacy	42 (87.5)	2 (4.2)	4 (8.3)
If sexual partner is symptomatic for STI related symptoms.	33 (68.8)	4(8.3)	11 (22.9)

Table 4 presents the type of services pharmacists renders to patients with complaint of STIs associated symptoms. The result revealed that pharmacists generally provided treatment (45; 93.8%), medication counselling (43; 89.6%), preventive services (40; 83.3%), and referrals to hospital (38; 79.2%). About half of them (22; 45.8%) did not follow up the patient. They rendered preventive services such as sexual partner notification and treatment, advice on use of condom, abstinence from sex and counselling on the need for single sexual partner. The pharmacist referred patients to either hospital (38; 79.2%) or laboratories (27; 56.3%) mainly due to un-resolving (33; 68.8%) symptoms (Table 5)

Table 4: Services provided by community pharmacists to patients with STI symptoms

Types of Services	Frequency (n)	Percent (%)
Preventive Services	40	83.3
Need for single sexual partner	27	56.3
Treat sexual partner	40	83.3
Condom use	40	83.3
Abstinence	15	31.3
Treatment	45	93.8
Education and counselling		
On life style adjustment	38	79.2
On medication use	43	89.6
Referrals		
To hospitals	38	79.2
To laboratories	27	56.3
Follow-up of patients	22	45.8

Table 5: Conditions necessitating patients' referral to hospital by Community Pharmacists

Conditions necessitating referral to hospital (n = 38)	Frequency (%)
All new STIs symptoms	14 (36.8%)
Un-resolving symptoms even after treatment with prescribed drugs	33 (86.8%)
lower abdominal pain	14 (36.8%)
Un-resolving genital ulcers	18 (47.4%)
HIV positive patients	1 (2.1%)

Different classes of antibiotics were available in most pharmacies as shown in Table 6. Metronidazole was mostly suggested for use for the patients.

Table 6: Medications used in the management of STI associated symptoms

Class/names of Medications	Frequency (n)	Percent (%)
Quinolones		
Ciprofloxacin	38	79.2
Macrolides		
Azithromycin	41	85.4
Erythromycin	12	25
Cephalosporins		
Ceftriaxone	41	85.4
Cefixime	21	43.8
Tetracyclines		
Doxycycline	27	56.3
Tetracycline	6	12.5
Macrolides		
Erythromycin	12	25
Nitroimidazole		
Metronidazole	43	89.6
Tinidazole	24	50
Quinolones		
Ofloxacin	25	52.1
Penicillins		
Amoxicillin	8	16.7
Trimethoprim/sulfamethoxazole	5	10.4
Anti-fungals		
Fluconazole	3	6.3
Nystatin	42	87.5
Miconazole	29	50.4
Clotrimazole	28	58.3
Antivirals	43	89.6

3.4 Factors affecting pharmacists' provision of STIs services

Major barriers to pharmacists' provision of STIs related services in the community setting include patients' reluctance to open up, their impatience on getting to the pharmacy, interest in just buying a medication and insufficient fund. Only few pharmacists sited unavailability of medication (6%) and insufficient time due to work overload (33%) as barriers (Figure 2).

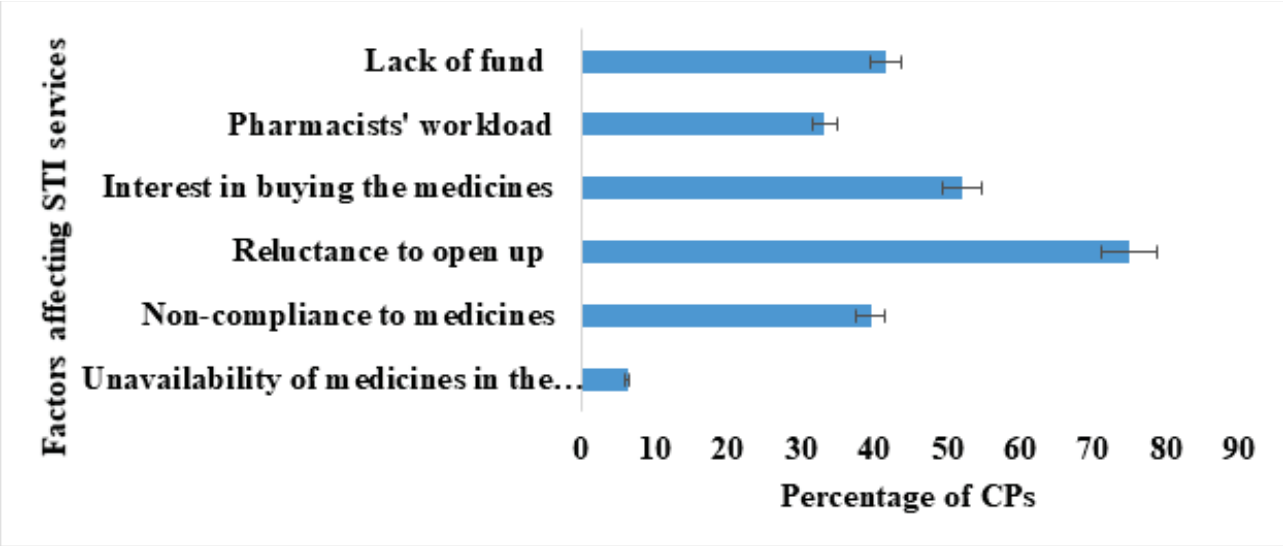

Figure 2: Factors affecting Community Pharmacists' provision of STI management services

1. Discussion

This study revealed relevant insights on the types of services rendered by community pharmacists to patients with complaints of STI symptoms, the frequency of occurrence of these symptoms, and factors militating against the STI services in the community.

Community pharmacists provided a wide range of services interned to relieve the symptoms and curb the spread of STIs. The pharmacists elicited information from patients in terms of the history of the present symptoms including onset and duration of symptoms, medicines taken before the visit, and the status of sexual partners. These insights into the patients' disease history were necessary as they equipped the pharmacists with adequate knowledge to accurately evaluate the patients and make an informed decision regarding the type of service to provide for patients' needed health outcomes [18]. Only one-third of the pharmacists elicited information on the patient's identity. This inadequate inquiry on patient identity could have posed a challenge to patients' follow-up and continuity in care, as documented in this study. The low rate of patient follow-up attributable the non-availability of patients' medical records, or inadequate information on the patient identity that has been reported elsewhere [15].

Community pharmacists generally engaged with the treatment of the STI-associated symptoms, providing education, and counseling on medication, and preventive care. This involvement in the treatment might be as a result of patients who in the quest for immediate relief and recovery, made medication requests only. The availability of most antibiotics over-the-counter may have also contributed to increasing treatment offered by the pharmacists, although this has a lot of implications for antimicrobial resistance (AMR). In line with the findings of this study, is an exploratory study that also reported patients getting STI treatment from pharmacies and patent medicine vendors [13]. In Ghana, the acknowledgment of pharmacists as the preferred health personnel for people seeking treatment for STIs by the Government led to the development of training schemes for pharmacists which expanded their role [12]. Likewise, the preventive services offered by the CPs to patients with the complaint of vaginal discharge, urethral discharge, and genital ulcers were characterized mainly by sexual partner notification, advice on condom use, and counseling. Treating sexual partners curbs reinfection, and remains an important strategy in reducing asymptomatic bacterial infections. These preventive services are similar to those found by Okonkwo and Okonkwo (2010) in Abuja, Nigeria, where condoms,

sexual health counseling, and education were provided [13]. These findings compared to another similar study that found that community pharmacists engage in disease prevention and curative primary healthcare services [24]. Only 36.8% of pharmacists referred the STI patients to hospitals or laboratories. The pharmacists reported providing referral services mainly when symptoms remain unresolved, which may be an indication of inappropriate treatment, non-adherence to medication, reinfection, or infection with resistance strain. True to the role of the pharmacist, our study showed that medication counseling was a major service provided after medication purchase and is consistent with a Nigerian study [15]. This, however, counters the result by Abraham et al. (2017) that noted medication counseling was not frequently provided to adolescents and young adults [23].

A high prevalence of STI symptoms such as vaginal discharge in women and urethral discharge in males was found in the study area. This reflects the burden of symptomatic STIs, as many asymptomatic infections remain undetected, especially in women [14]. These findings compare with some other African studies that reported vaginal discharge as the most common STI symptom [19,20] but contrasted another study done in India where Herpes simplex virus type 2 (HSV2) was the most prevalent complaint among women [8]. The majority of the patients seeking care for STI symptoms were females (70.8%) between 18 and 49 years, which is consistent with a study done in Southwest Nigeria, where 56.3% of the population were females[7]. Another study carried out to assess the syndromic management of STIs in a primary health center in Mozambique also recorded more females (70%), compared to males[19]. These findings confirm that individuals seek care for STI-related symptoms in their immediate communities in Nigeria, and this is attributed to the easy accessibility of pharmacies [13,21]. This high number of females seeking care may be attributed either to the anatomy of their reproductive organs which makes them more susceptible to STIs or as a result of insufficient knowledge of preventive measures and inability to negotiate sex [9, 22]. Although, studies have shown that a vaginal discharge signals a vaginal infection, vaginal discharge in adolescents is a poor prediction of cervical infections caused by gonococcal pathogens[3]. Interestingly the population of teenagers in this study is low, supporting the high burden of STIs in adult females. In this study, an average of 10 patient visits to the pharmacies were due to STI-associated symptoms. This finding is comparable with a study carried out in Mexico where community pharmacists attended to an average of 10 to 50 patients with STI complaints per month [21].

There are a number of factors posited as obstacles to providing STI services to patients such as patients' unwillingness to reveal their actual health status, high interest in purchasing medications only and leaving without proper engagement with the pharmacists. This attitude displayed by patients hinders the successful provision of effective treatment and pharmaceutical care, which inadvertently affects treatment outcomes. Since untreated or inappropriately treated STIs have far reaching consequences such as infertility, there is need for adequate patient counseling to convey the message. The failure to report unavailability of drugs in the pharmacies as an obstacle to STI services, confirms that the pharmacies are adequately stocked with medicines required to treat different STI symptoms within the community setting.

This study was conducted in one Local Government Area of Lagos State and so the results may not be generalizable to other LGAs or the entire State.

5. Conclusion

Community pharmacists provided a wide range of STI management services of which treatment, medication counseling, and preventive care (condom use, sexual partner notification) are the most common. There is a need for community pharmacist to improve on referrals and follow-ups to ensure all patients receive safe and effective care and completely recover from the infections.

Disclosure

The authors declare no conflict of interest

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