Intervention to improve the knowledge of sexually transmitted infections (STIs) and syndromic management among community pharmacists in Lagos state, Nigeria

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Sexually transmitted infections (STIs) remain a public health problem in most parts of the world. The syndromic management approach is based on an STI syndrome and it offers many benefits in the struggle against STIs. Community pharmacists are one of the most accessible and trusted health care professionals. They are well located to reach millions of individuals with STI prevention and control messages and other strategies. This study assesses the knowledge, attitude and practice of community pharmacists of STIs and syndromic management, and provides training as an intervention. The study was a cross sectional pre and post type involving 202 community pharmacists in the 11 zones of Lagos State. Pre-tested questionnaires were self-administered to the community pharmacists before and after training on STI and syndromic management. The findings of this study showed that about 16% of the community pharmacists had good knowledge of STIs and 53% of them had good knowledge on syndromic management. After the training intervention, there was an improvement in their knowledge on STIs and syndromic management of STIs (54 and 70%, respectively). The assessment of the knowledge of community pharmacist on STIs and syndromic management shows that there is need for continuous education in these areas, especially in the early detection and management of the condition.

Key words: Sexually transmitted infections (STIs), syndromic management, community pharmacist, Lagos State.

INTRODUCTION

Sexually transmitted infections (STIs) are a group of over 30 infectious diseases which are all transmitted mainly by sexual contact (Tesfaye et al., 2000). Several sexually transmitted infections, in particular HIV and syphilis can also be transmitted from mother to child during pregnancy and childbirth or while breast feeding and through blood products and tissue transfer (WHO, 1997). STIs remain a public health problem of major significance in most parts of the world. The incidence of acute STIs is believed to be high in many countries (RHR, 2010).

In tropical communities with a high prevalence of STIs, these diseases rank only second to malaria in their socioeconomic impact (Lowndes and Fenton, 2006). In developing countries, prevalence figures of STIs among adolescents in some African countries showed that 20.6% of females and 13.2% of males had at least one STI (Rassjo et al., 2006).

STIs and their complications rank in the top five disease categories for which adults seek health care. Infection with STIs can lead to acute symptoms, chronic infection and serious delayed consequences such as infertility, ectopic pregnancy, cervical cancer, anogenital cancer, neonatal and infant infection and the
untimely death of infants and adults. Men can also experience complications, such as inflammation in the testicles or prostate gland, and painful erections (Rassjo, 2006; CDC, 2011).

The appearance of HIV and AIDS has focused greater attention on the control of STIs as there is a strong correlation between the spread of STIs and HIV transmission, and both ulcerative and non-ulcerative STIs have been found to increase the risk of sexual transmission of HIV (RHR, 2010).

Major challenges in providing STI services have been access, effective treatment and sex education (Tesfaye et al., 2000; Buve et al., 2001). Timely and effective care for STIs can reduce their toll by preventing transmission and sequelae (Khattabi et al., 2000). The most effective means to avoid becoming infected with or transmitting a sexually transmitted infection is to abstain from sexual intercourse or to have sexual intercourse only within a long-term, mutually monogamous relationship with an uninfected partner. Male latex condoms, when used consistently and correctly, are highly effective in reducing the transmission of HIV and other STIs (CDC, 2011).

Management of sexually transmitted infections

Traditionally, diagnosis of a presumed STI has been based on either clinical diagnosis which is often inaccurate and incomplete or laboratory diagnosis (aetiological diagnosis) which is most accurate but complex, very expensive, and may delay treatment (Bosu, 1999). Clinical diagnosis is the most common in many low-resource settings where laboratory services are not available or where providers are not trained in or do not recognize the effectiveness of the syndromic approach (http://www.engenderhealth.org/pubs/hiv-aids-sti, 2003).

To overcome this problem, a syndrome-based approach to the management of STI patients has been developed and promoted in a large number of countries in the developing world (Kamali et al., 2003; Lush et al., 2003; Meheus, 1984; WHO, 2001a).

Syndromic management is often the best approach in low-resource settings. It also reduces the potential for inaccuracy when providers rely on the clinical approach alone. In this approach, diagnosis is based on the identification of syndromes, which are combinations of the symptoms the client reports and the signs the health care provider observes. The recommended treatments are effective for all the diseases that could cause the identified syndrome. There is evidence that the syndromic approach is effective and has had an impact on the STI epidemic (Ghys et al., 2002; Kamali et al., 2003; Nagot et al., 2004; Steen, 2001; WHO, 2007).

The WHO has recommended including the treatment for Herpes Simplex Virus-2 (HSV-2) in the management of genital ulcers, especially in settings where HSV-2 prevalence is 30% or higher (WHO, 2003).

Though syndromic management is effective, but it has advantages and disadvantages. The advantages include treatment given at first visit, avoids unnecessary return visit for laboratory results while disadvantages include over-diagnosis and over-treatment (Mayaud and Mabey, 2000, 2004).

Roles of the pharmacist/community pharmacists

Pharmacists should learn to identify individuals in their practice that may be at risk or have contracted an STI, encourage appropriate screening and provide necessary education on STIs.

Pharmacists empowered with information on Syndromic management of STIs should be able to take proper history and examine patients to classify syndrome, use flowcharts to guide the management of detected syndrome, provide effective treatment and appropriate counselling including advice on sexual behaviour, promotion and/or provision of condoms, partner notification and treatment of sex partners (Kamali et al., 2003).

A study showed that health providers in the Nigerian informal sector showed inadequate knowledge of the appropriate treatment methods for STIs. There was evidence of inadequate counselling of adolescents, a poor attitude towards the promotion of condom use, and inadequate use of referral opportunities (Speizer et al., 2003). The review assessed adolescent reproductive health interventions in developing countries. The authors concluded that most interventions appeared to have a positive effect on knowledge and attitudes, but the effect on behaviour was less consistent (Speizer et al., 2003).

According to some investigators, "involving pharmacists in the diagnosis and treatment of STIs may not be the ideal situation, but in Ghana, they do play a critical role in reaching affected individuals by providing accessible, well stocked, private and rapid service to communities" (Mayhew et al., 2001).

Community pharmacists are one of the most accessible and trusted health care professionals. They are accessible to the public, located in large numbers, and the trust shared between pharmacists and the public combine to afford a unique opportunity to reach millions of individuals with STI prevention and control messages and other strategies (Stergachis, 1999). They are well positioned to be an important resource for many diseases and medical conditions including STI prevention and control.

Study objectives

The objectives of this study were as follows:
1. To assess the basic knowledge of community pharmacists in STIs and syndromic management.
2. To determine the approaches adopted by community pharmacists in identifying and managing STIs.
3. To provide information on STIs and syndromic management of STIs to community pharmacists and determine the impact of this intervention.

MATERIALS AND METHODS

Study area

Lagos State which consist of 11 zones of community pharmacies according to the Pharmaceutical Society of Nigeria (Lagos State) and Lagos State Branch of the Association of Community Pharmacists of Nigeria (ACPN).

Study population

A sample size of 202 community pharmacies was calculated at 95% confidence interval and \pm 5\% margin of error from a total population of 428 registered pharmacies in Lagos State.

Procedure for data collection

Pre-intervention

Questionnaires were given to community pharmacists to fill (that is, self administered) in their pharmacies to get an initial assessment of their knowledge 2 weeks after the training.

Data analysis

Descriptive statistics which were mainly frequencies and percentages were generated for the study. Chi square statistical analysis was employed to test for any statistical significance. Response to the knowledge questions were graded and the scores added up, where Good = score of 70% and above; Average = 45 to 69%, and Poor = below 45%.

Study limitations

Emphasis was made on only 6 common STIs that were implicated in the 4 syndromes highlighted by WHO. These were gonorrhoea, chlamydia, candidiasis, syphilis, genital herpes, and trichomoniasis. HIV/AIDS a very common and important STI was not dealt with because of the specialization required in its management.

Only 61 pharmacists participated in the training. This may not allow for generalization of the study to other settings.

RESULTS

Out of 202 community pharmacists in this study, 110 had within 10 years post-qualification experience while the remaining 92 graduated between 11 and 20 years ago. Among those that graduated within 10 years, 47 (43%) of them were males and 63 (57%) were females, whereas 64 (70%) of those that graduated between 11 t and 20 years ago were males and 28 (30%) females. Overall there were about 55% males and 45% females (Table 1).

On the questions of knowledge on STIs, 12 (11\%) of those that graduated within 10 years scored good grades, 47 (43\%) scored average grades while 51 (46\%) scored poor grade. Among those that graduated between 11 and 20 years ago, 21 (22\%) scored good grades, 42 (46\%) scored average grades while 29 (32\%) scored poorly. Overall 16\% had good knowledge on STI, 44\% had average knowledge and 40\% had poor knowledge (Figure 1).

On how they would identify STIs in patients, 31 (28\%) of those that graduated within 10 years relied solely on laboratory investigations, 9 (8\%) used clinical diagnosis, 7 (6\%) adopted syndromic management, 28 (25\%) used the combination of clinical and syndromic approach while 23 (21\%) opted for combination of laboratory, clinical and syndromic management. Among those that graduated between 11 and 20 years ago, 28 (30\%) adopted solely laboratory diagnosis, 2 (2\%) clinical diagnosis, 5 (5\%) syndromic diagnosis, 19 (21\%) adopted the combination of clinical and syndromic approach whereas 34 (37\%) opted for combination of laboratory, clinical and syndromic management (Table 1).

Response to whether they have heard and where they first heard of syndromic management, 86 (78\%) of those that graduated within 10 years have heard of syndromic management. Among those that have heard, 58\% heard from undergraduate level and some at work and personal
Table 1. Demography and responses of community pharmacists on STIs.

<table>
<thead>
<tr>
<th>Years of post qualification</th>
<th>≤ 10 (N = 110) n (%)</th>
<th>11-20 (N = 92) n (%)</th>
<th>Total (N = 202) n (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>47 (43)</td>
<td>64 (70)</td>
<td>111 (54.95)</td>
<td>0.0003</td>
</tr>
<tr>
<td>Female</td>
<td>63 (57)</td>
<td>29 (30)</td>
<td>91 (45.05)</td>
<td></td>
</tr>
<tr>
<td>Approach adopted for identification of STIs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab diagnosis</td>
<td>31 (28)</td>
<td>28 (30)</td>
<td>59 (29.21)</td>
<td></td>
</tr>
<tr>
<td>Clinical diagnosis</td>
<td>9 (8)</td>
<td>2 (2)</td>
<td>11 (5.44)</td>
<td></td>
</tr>
<tr>
<td>Syndromic approach</td>
<td>7 (6)</td>
<td>5 (5)</td>
<td>12 (5.94)</td>
<td>0.046</td>
</tr>
<tr>
<td>Clinical and syndromic approach</td>
<td>28 (25)</td>
<td>19 (21)</td>
<td>47 (23.27)</td>
<td></td>
</tr>
<tr>
<td>Case management approach</td>
<td>23 (21)</td>
<td>34 (37)</td>
<td>57 (28.22)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>12 (11)</td>
<td>4 (5)</td>
<td>16 (7.92)</td>
<td></td>
</tr>
<tr>
<td>Whether /Where syndromic management was first heard of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never heard</td>
<td>24 (22)</td>
<td>30 (32)</td>
<td>54 (26.73)</td>
<td></td>
</tr>
<tr>
<td>Undergraduate level</td>
<td>50 (45)</td>
<td>8 (9)</td>
<td>58 (28.71)</td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td>2 (2)</td>
<td>13 (14)</td>
<td>15 (7.43)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Personal reading</td>
<td>22 (20)</td>
<td>22 (24)</td>
<td>44 (21.78)</td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td>12 (11)</td>
<td>10 (11)</td>
<td>22 (10.89)</td>
<td></td>
</tr>
<tr>
<td>Seminar/Workshop</td>
<td>-</td>
<td>9 (10)</td>
<td>9 (4.46)</td>
<td></td>
</tr>
<tr>
<td>Roles practiced by the community pharmacists in the management of STIs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advice on sexual behaviour</td>
<td>96 (87.27)</td>
<td>75 (81.52)</td>
<td>171 (84.65)</td>
<td></td>
</tr>
<tr>
<td>Promotion of condoms</td>
<td>61 (55.45)</td>
<td>70 (76.09)</td>
<td>131 (64.85)</td>
<td></td>
</tr>
<tr>
<td>Provision of condoms</td>
<td>56 (50.9)</td>
<td>63 (68.48)</td>
<td>119 (58.91)</td>
<td></td>
</tr>
<tr>
<td>Partner screening</td>
<td>26 (23.64)</td>
<td>42 (45.85)</td>
<td>68 (33.66)</td>
<td>0.0015</td>
</tr>
<tr>
<td>Clinical follow up</td>
<td>44 (40.00)</td>
<td>23 (25.00)</td>
<td>67 (33.17)</td>
<td></td>
</tr>
<tr>
<td>Provide effective treatment</td>
<td>82 (74.55)</td>
<td>56 (60.87)</td>
<td>138 (68.32)</td>
<td></td>
</tr>
<tr>
<td>Case reporting</td>
<td>12 (10.91)</td>
<td>23 (25.00)</td>
<td>35 (17.33)</td>
<td></td>
</tr>
<tr>
<td>Non-pharmacological recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice abstinence</td>
<td>66 (60.0)</td>
<td>56 (60.87)</td>
<td>122 (60.40)</td>
<td></td>
</tr>
<tr>
<td>Have one sexual partner</td>
<td>84 (76.36)</td>
<td>75 (81.52)</td>
<td>159 (78.71)</td>
<td>0.155</td>
</tr>
<tr>
<td>Encourage condom use</td>
<td>92 (83.64)</td>
<td>59 (64.13)</td>
<td>151 (74.75)</td>
<td></td>
</tr>
<tr>
<td>Send for HIV screening</td>
<td>35 (31.82)</td>
<td>42 (45.65)</td>
<td>77 (38.12)</td>
<td></td>
</tr>
</tbody>
</table>
reading, 24 (22%) of them had never heard of syndromic management (Table 1).

Out of the 92 of those that graduated between 11 and 20 years ago only 62 (67%) had heard of syndromic management and out of which only about 13% heard from undergraduate level. Majority of them heard from personal reading (35%) and the rest at work and seminars. About 30 (33%) have never heard of syndromic management (Table 1).

Respondents were asked knowledge based questions on syndromic management as well as treatment schedule they were conversant with for the treatment of STIs. It was discovered that, 58 (53%) of those that graduated within 10 years had good scores, 23 (21%) had average grades, 19 (17%) had poor grades while 10 (9%) gave no answer to any of the questions.

For those that graduated between 11 and 20 years ago, 49 (53%) had good grades, 19 (21%) have average grades, 21 (23%) had poor grades and 3 (3%) gave no answer to any of the questions. Overall 53% had good scores, 21% average score and 20% poor score (Figure 1).

Most of the respondents that graduated within 10 years chose to send for laboratory tests if STI symptoms persisted after appropriate treatment whereas most of those that graduated between 11 and 20 years ago choose to enquire the level of adherence first.

Most of those that graduated within 10 years recommended condom use to patient as part of their STI care, whereas those that graduated between 11 and 20 years ago emphasized the need to keep one sexual partner.

Most of the pharmacists agreed that a major role in management of STIs is to provide advice on sexual behaviour. The respondents were asked if they would be interested in participating in the second phase of the study that is, the 'in-house' training, 97 (88%) of those that graduated within 10 years accepted to participate while 74 (80%) of those that graduated between 11 and 20 years ago accepted (Table 1).

Sixty one community pharmacists eventually participated in one on one training on STIs and syndromic management. Two weeks after the training, they were asked questions on what they were taught. On the STI questions, 33 (54%) had good scores, 21 (35%) had average grades, while 7 (11%) had poor grades on the STI questions. Meanwhile, on the syndromic management questions, 43 (70%) had good scores, 17 (28%) had average grades, while 1 (2%) had poor grade. The training improved knowledge of STIs (p = 0.00) and syndromic management (p = 0.013) and the improvement was statistically significant.

**DISCUSSION**

People infected with STIs often prefer to seek help from healthcare providers around them such as nurses, pharmacists, chemists etc. Community pharmacists are one of the most patronized options because of their close proximity to the community; they ensure confidentiality and provide care to patients without consultation fees or long waiting hours.

For the earlier reason and the need for prompt and proper management of STIs to prevent complication and spread hence community pharmacists need to be thoroughly abreast on topics such as STIs and management options (Khattabi et al, 2000; RHR, 2010; Stergachis, 1999). This study evaluated the knowledge of community pharmacists on STIs and syndromic management, assessed the approaches being
adopted in the identification of STIs and provided a training module that improved their knowledge and consequently might equip them to provide better STI care.

The in-house training in this study improved knowledge of STIs and syndromic management and the improvement was statistically significant. This is an indication that educational intervention has a role to play in improving knowledge and care practices. Also this buttresses the need for training and the impact that would be obtained from thorough education of community pharmacist on STIs and syndromic management would be worth it. A study in Ghana showed marked improvement in treatment for urethra discharge as recommended by the WHO post pharmacist training schemes (Mayhew et al., 2001).

This study showed at pre intervention that larger percentages of those that graduated between 11 and 20 years ago had good (22%) and average (46%) knowledge of STIs than those that graduated within 10 years (11 and 43%, respectively) and the difference was statistically significant. It may be inferred that the experience acquired by those that graduated between 11 and 20 years ago has given them a better grasp and practical understanding of STIs.

Most of those that graduated within 10 years (28%) chose to send their patients for laboratory investigations to identify suspected STIs whereas most of those that graduated between 11 and 20 years ago (37%) adopted case management which is better. The difference in the approaches adopted for identification of STIs between the 2 groups is however not statistically significant.

Laboratory approach is accurate when carried out properly but may take time and are quite expensive.

Syndromic management is recommended for resource-limited settings such as Lagos because it avails prompt treatment based on the signs and symptoms of the patients thus saving money, time and prevent complications from setting in (Ghys et al., 2002; Kamali et al., 2003; Nagot et al., 2004; Steen, 2001).

From this study, it was discovered that although a larger percentage of 'new pharmacists' had heard of syndromic management from school at undergraduate level while more of the 'old pharmacist' heard from personal reading but they had about the same percentages for good and average scores on syndromic management. It can be inferred that it is not only education on STI from school that can improve knowledge and subsequent adoption of syndromic management but also practical experience.

Community pharmacists displayed different trends in the actions taken when symptoms persisted after proper treatment, non-pharmacological recommendations and roles practiced in the management of STIs. This showed that there is no guideline that is being followed and management of STI patients is solely dependent on the pharmacists' discretion and knowledge. This leaves room for errors in management.

In respect to training, more of those that graduated within 10 years showed interest in their being trained and
training others than those that graduated between 11 t and 20 years ago. The reason being that most of those that graduated between 11 and 20 years ago occupy managerial or senior staff positions and expressed that time constraint would be an issue in receiving training or training others.

Only 61 pharmacists received training on STIs and syndromic management at the end of the day because of their shift schedules, break periods, peak periods etc in addition to interest.

Conclusion

The assessment of the knowledge of community pharmacist on STIs and syndromic management showed that their knowledge was low and there is need for improvement. The training intervention improved their knowledge on STIs and syndromic management of STIs. Most of the respondents agreed that a major role is to provide advice on sexual behaviour.

Every community pharmacists should have a syndromic flowchart in their premises to help in appropriate management of STIs in order to prevent complications. Also, there might be need for a national standardized treatment protocol that spells out the roles and actions they are to play in the management of STIs.

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