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Prevalence, sources and purpose of self-prescribed non-opioid analgesic among health professionals in Sokoto metropolis, Nigeria: a cause for concern

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ABSTRACT

Background. Self-medication is defined as the use of medicines without a doctor's prescription. The non-opioid analgesics (NOAs) constitute one of the most commonly self-prescribed drugs globally. This study aims to determine the prevalence of NOAs self-medication, and also explore the purpose and sources of the self-prescribed NOAs among health professionals in Sokoto metropolis, Nigeria.

Methods. Data obtained from a cross-section of 205 health professionals in Sokoto metropolis, Nigeria, were used for this study. The study tool used was a well-structured questionnaire. Data analysis was done using the SPSS version 20 software.

Results. Only 36.6% of the 205 subjects were within the age range of 26 to 30 years, 38.0% were nurses. The majority (85.9%) of the subjects had self-prescribed NOAs, of which 6.8% of them had a positive history treatment for NOA overdose. Patent medicine stores (43.0%) were reported to be the most common source of acquisition of self-prescribed NOAs. The majority (63.9%) of the subjects used NOAs to get relieved from headaches. Paracetamol (79.0%) and Diclofenac (65.9%) were the top two self-prescribed NOAs among the subjects.

Conclusion. Non-opioid analgesic self-prescription is a popular practice among health professionals in Sokoto metropolis, Nigeria. All the various routes of access (e.g. hospital pharmacy) to NOAs need to be revisited in order to curb the irrational use of NOAs in Nigerian society.

INTRODUCTION

Self-medication can be defined as the act of consuming drug(s) on one's own initiative in an attempt to relieve perceived symptoms or disease [1]. Self-medication has some associated benefits, some of which include: self-care; reduction in the frequency of visits to healthcare facilities (especially in places where medical personnel are not sufficient); and reduction in the cost and time spent in accessing health care services [2,3]. However, self-medication has some lethal risks associated with it, some of which are: overdosing; under-dosing; adverse drug reactions; and systemic toxicity [4-7]. A most widely consumed self-prescribed drug-group is that of the analgesics [8-10]. Analgesics can

be broadly grouped under either the over-the-counter (OTC) drugs or the prescription-only. The OTC drugs are those medications that could be used without the physician's prescription, while the prescription-only drugs are drugs that should be consumed only when they are recommended for use by a physician [10-12]. All opioid analgesics fall strictly under the category of the prescription-only medications. However, this does not apply to all NOAs, as some NOAs are classified under the OTC medications, while the others are grouped under the prescription-only medications [12,13]. Examples of the OTC NOAs are paracetamol, ibuprofen, naproxen sodium, and the high-dose aspirin. The other NOAs (diclofenac, celecoxib, piroxicam, among others) are grouped under the prescription-only medications [10-13]. Despite the fact that some NOAs are OTC drugs and seem

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safe for general use, they should be used with strict precaution. For instance, paracetamol is an OTC NOA; its chronic use or acute overdose can cause liver failure [14].

In Nigeria, NOAs are freely available as OTC drugs, and they constitute one of the commonly self-prescribed medications among the lay Nigerian populations [9,15]. Health professionals are expected to be more rational in their use of NOAs as compared to the general public, since they are more medically knowledgeable than the lay populations [16]. There is also a popular directive suggesting that health professionals, particularly the doctors, should not treat themselves [17-19]. However, self-prescription of NOAs was also found to be highly prevalent among them [16-22].

To the best of the authors' knowledge, no published literature is available on the NOA self-medication practices among health professionals in Sokoto metropolis, Northwest Nigeria. This study aims to: determine the prevalence and sources of self-medication with NOAs among health professionals in the metropolitan city of Sokoto, Nigeria; and also explore the purpose behind their use of self-prescribed NOAs.

MATERIALS AND METHODS

This research was a descriptive cross-sectional study conducted among health professionals in the metropolitan city of Sokoto. The city of Sokoto is the capital of Sokoto State. Sokoto State is located in the extreme northwest of Nigeria, and it is close to the confluence of the Sokoto River and the Rima River [23].

The study tool adopted was a well-structured anonymous questionnaire developed from literature review [16-20,22,24].

Five (one private and four public) hospitals situated within the Sokoto metropolis were visited for this survey. The authors approached the study participants on a one-on-one basis at the clinics, laboratories, pharmacies, wards, and offices. A total of 233 subjects volunteered to participate in this study. This research data was collected in the month of October, 2017.

Out of the 233 participants that were issued questionnaires, only 207 returned theirs. During the data cleaning stage, 2 questionnaires were discarded because they were not properly filled-out. Data analysis was done using the SPSS version 20 software. The frequency distribution of all variables were determined, the comparisons of qualitative variables were done using the Chi-square test, and a p-value < 0.05 was considered statistically significant. The results were illustrated using tables and charts.

Approval to conduct this study was obtained from the State Health Research Ethics Committee, Ministry of Health, Sokoto State, Nigeria (Ref. No: SKHREC/068/017).

RESULTS

More than a third (38.0%) of the subjects surveyed in this study were nursing officers (Figure 1), close to four-tenth (36.6%) of them were within the age range of 26 to 30 years, 42.9% were from the Hausa tribe, and 30.2% had less than one year experience in medical practice (Table 1).

Table 1. Demographic profile of subjects

| Characteristics | Frequency (%) |
|---------------------|---------------|
| Gender | |
| Male | 130 (63.4) |
| Female | 75 (36.6) |
| Tribe | |
| Hausa | 88 (42.9) |
| Yoruba | 32 (15.6) |
| Igbo | 40 (19.5) |
| Others | 45 (22.0) |
| Age (in years) | |
| < 21 | 1 (0.5) |
| 21 - 25 | 31 (15.1) |
| 26 - 30 | 75 (36.6) |
| 31 - 35 | 56 (27.3) |
| 36 - 40 | 26 (12.7) |
| 41 - 45 | 7 (3.4) |
| > 46 | 8 (3.9) |
| Not specified | 1 (0.5) |
| Year(s) of practice | |
| < 1 | 62 (30.2) |
| 1 - 5 | 69 (33.7) |
| 6 - 10 | 52 (25.4) |
| 11 - 15 | 11 (5.4) |
| 16 - 20 | 4 (2.0) |
| > 20 | 6 (2.9) |
| Not specified | 1 (0.5) |

The prevalence of NOA self-medication among the subjects was very high (85.4%), to the extent that 22 (10.7%) subjects reported the use of self-prescribed NOA within the recent 7 days prior to the time of their participation in this study (Table 2). Self-medication with NOAs was found to be more common among the men and the most popular purpose of self-prescription of NOAs was for the relief of headaches (Tables 2, 3).

Paracetamol was the most commonly (79%) reported self-prescribed OTC NOA among the subjects. As high as 65.9% of all subjects had self-prescribed diclofenac, a prescription-only NOA, for their personal use (Table 4).

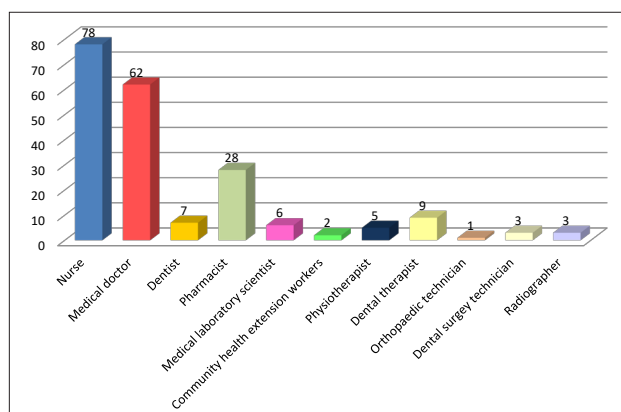


Figure 1. Professions of subjects

Table 2. Comparison between the medical profession of subjects and their rate of NOA self-prescription

| Variable | Response | A | B | C | D | E | F | G | H | I | J | K | X ² |
|---|----------------------------|----|----|---|----|---|---|---|---|---|---|---|----------------|
| Have you ever used a self-prescribed NOA? | Yes | 61 | 58 | 6 | 28 | 5 | 1 | 5 | 7 | 1 | 2 | 1 | 0.135, df=20 |
| | No | 13 | 4 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | |
| | I can't remember | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| How often do you use self-prescribed NOA? | Never | 8 | 2 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0.082, df=40 |
| | Rare | 15 | 22 | 1 | 6 | 0 | 1 | 4 | 2 | 0 | 0 | 0 | |
| | Sometimes | 44 | 27 | 4 | 17 | 5 | 1 | 1 | 6 | 1 | 3 | 1 | |
| | Usually | 3 | 10 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Always | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| When was the last time you self-prescribed NOA? | This week | 8 | 6 | 1 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0.246, df=40 |
| | Last week | 13 | 5 | 2 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| | Last month | 16 | 11 | 2 | 12 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | |
| | Within the past six months | 15 | 21 | 0 | 5 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | |
| | More than six months ago | 11 | 14 | 1 | 1 | 0 | 1 | 2 | 4 | 0 | 1 | 0 | |

A=Nurse; B=Medical doctor; C=Dentist; D=Pharmacist; E=Medical laboratory scientist; F=Community health extension workers; G=Physiotherapist; H=Dental Therapist; I=Orthopaedic technician; J=Dental surgery technicians; K=Radiographers

Table 3. Purpose of use of self-prescribed NOAs among subjects

| Purpose | Male (%) | Female (%) | X ² |
|---|-----------|------------|----------------|
| To reduce fever | 70 (53.8) | 37 (49.3) | 0.490, df=1 |
| To reduce inflammation | 71 (54.6) | 27 (36.0) | 0.038, df=1 |
| To reduce pains in the joints | 70 (53.8) | 30 (40.0) | 0.143, df=1 |
| To reduce headaches | 80 (61.5) | 51 (68.0) | 0.026, df=1 |
| To reduce pains during menstrual flow | N/A | 42 (56.0) | N/A |
| To reduce muscle pain | 69 (53.1) | 24 (32.0) | 0.015, df=1 |
| To reduce toothache | 45 (34.6) | 17 (22.7) | 0.149, df=1 |
| Other reasons e.g. malaise, pain prevention. etc. | 2 (1.5) | 2 (2.7) | 0.196, df=1 |

N/A= Not Applicable

Table 4. Non-opioid analgesics that had been self-prescribed by the subjects

| Generic name of NOAs | Frequency (%) |
|----------------------|---------------|
| Ibuprofen | 128 (62.4) |
| Aspirin | 43 (21.0) |
| Diclofenac | 135 (65.9) |
| Paracetamol | 162 (79) |
| Naproxen Sodium | 14 (6.8) |
| Indomethacin | 20 (9.8) |
| Aceclofenac | 41 (20.0) |
| Celecoxib | 20 (9.8) |
| Piroxicam | 6 (2.9) |

The patent medicine store was the most common place (43%) where these self-prescribed NOAs were sourced from (Table 5).

From comparisons between histories of self-prescription of NOAs with that of treatment of NOA overdose among the study subjects, it was found that those that had been treated of overdose of NOAs were its self-prescribers. Furthermore, as high as 12 (6.8%) (Table 6) out of the 175 (Table 2) self-prescribers of NOAs had been treated for NOA overdose.

Table 5. Sources of procured self-prescribed NOAs among subjects

| Source of NOAs | Frequency (%) |
|---------------------------|---------------|
| Community pharmacy outlet | 53 (25.9) |
| Hospital pharmacy | 63 (30.8) |
| Patent medicine stores | 88 (43.0) |
| Drug hawkers | 11 (5.4) |

Table 6. Comparison between histories of NOA self-prescription practices and treatment of NOA overdose among subjects

| | Have you ever been treated for overdose of NOAs before?* | | | X ² | |
|--|--|----|------------------|----------------|-------------|
| | Yes | No | I can't remember | | |
| Have you ever used a self-prescribed NOAs for yourself?* | Yes | 12 | 151 | 5 | 0.724, df=4 |
| | No | 0 | 22 | 1 | |
| | I can't remember | 0 | 2 | 0 | |

Missing values were not computed for this statistics. #Only 193 respondents responded to the two cross-tabulated questions

DISCUSSION

This study was a survey of health professionals working in five major hospitals situated within the metropolitan city of Sokoto, Nigeria. This study had provided fresh data on the prevalence, sources and purpose of use of NOAs among health professionals in this geographical area.

The prevalence rate of the use of self-prescribed NOAs in this study was 85.4%. This rate is far higher than that reported in some previous studies [16,20]. In fact, some (10.7%) of our study subjects reported the use of self-prescribed NOAs some days prior to the time of participation in this study. This may suggest that some of subjects in this study were active users of self-prescribed NOAs.

Paracetamol, an OTC drug, was the most commonly (79%) self-prescribed NOAs among the subjects in this study [10]. However, prescription-only medications like diclofenac, celecoxib, and piroxicam were found to be self-prescribed by some of the subjects. This reveals that some of the surveyed health professionals engaged themselves in irrational use of NOAs.

The most popular purpose for the use of self-prescribed NOAs by the subjects was for the relief of headaches. Other purposes for its use were also noted, and they include relief of muscle pains, inflammation, toothache, menstrual pain, joint pain, fever and others. Similar reports on analgesic use had also been documented among health professionals in Southwestern Nigeria [16].

The sources where the subjects procured self-prescribed NOAs were diverse; these sources ranged from the drug hawkers, to the patent medicine stores. Indeed, it is interesting to note that the patent medicine stores and the hospital pharmacies were the top two sources where self-prescribed NOAs were got from. In a similar study done in Malaysia [20], the hospital pharmacy was also reported to be a major source for the procurement of self-prescribed medications among health professionals, and the main reason behind its frequent utilization was because of their easy accessibility to medications in the hospital pharmacy.

Although the NOAs had been reported to have good safety profile; Their chronic use or acute overdose could cause systemic toxicity - bringing about damage to the renal and cardiovascular systems [25-27]. For instance, in the UK and Australia, about 25% of all OTC analgesic users found to have consumed an overdose of NOAs. Also, it was found that one-third of OTC NOAs users had contraindications for its use, and/or were currently on medications that could interact with NOAs [28,29]. It is alarming that 6.8% of the self-prescribers of NOAs in this study had been treated for NOA overdose. This fact establishes the need for follow-up on the health professionals with histories of overdose of self-prescribed NOAs, as this will prevent them from developing any possible complications that could arise from NOA overdose.

The irrational use of drugs, such as self-prescribing, needs to be strongly discouraged among the Nigerian public. This practice has been found to be popular among health professionals [16-22]. The health professionals are supposed to be more rational in their use of drugs; however, many of them are not [16-22]. This is a serious public health issue which calls for urgent attention. The authors would like to recommend the enforcement of stricter regulations regarding access to drugs among health professionals in Sokoto, Nigeria; this could discourage them from self-prescribing NOAs. Also, drug regulatory agencies need to pay more attention to the strict monitoring of drug dispensing in hospital pharmacies and in local communities.

This study has its limitations. This study did not enquire into the NOAs that were consumed in overdose among the study subjects. Also, the study subjects were not asked if they have any known contraindication to the use of NOAs before its self-prescription. This suggests the need for a study to explore these research gaps.

CONCLUSIONS

The use of self-prescribed NOAs was highly prevalent among the health professionals in Sokoto metropolis, Nigeria. The purposes for which these drugs were self-prescribed were diverse; however, the most common purpose for the self-prescribing was for the relief from headaches.

The patent medicine stores and the hospital pharmacies were the most common sources for the procurement of self-prescribed NOAs. More efforts need to be made to curb irrational use of drugs among health professionals, as well as among the entire public.

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