ORIGINAL ARTICLE

# Content Analysis of Analgesics Dispensed in Retail Drug Outlets in Obiaruku, Delta State, Nigeria: A Surrogate-type Approach.


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## ABSTRACT

Background
Medicines can be potentially dangerous when used wrongly. This work examined drug combinations in pain management among attendants in retail drug outlets in Obiaruku, Delta State, Nigeria.

Objectives
The objective of this study was to describe drug combination in the management of pains by attendants working in community pharmacies and patent medicine shops (PMSs)

Method
This was a cross-sectional descriptive study using the "surrogate shopper" approach to explore the real day-to-day practices and extract required information in twelve retail drug outlets located in the study area. Conversations were tape recorded and thereafter composition of single doses of pain relievers recommended by attendant was analyzed. Ethical approval for the study was obtained from the Ethics committee, Delta State University Abraka.

Results
A total of 12 retail outlets were visited. The average number of pills contained in a single dose pain reliever was 6.80±2.35 (for pharmacy outlets) and 5.33±1.32 (for PMSs), $p>0.05$. Piroxicam (14, 73.7%) was most frequently used NSAID. More than half, 63.2% of the attendants included single tablet of Prednisolone, 5mg in their pain relief combination. Other drugs not indicated for analgesia were included in the single dose combo. This includes Vitamin B complex (2, 10.5%), cod liver oil, Sulfadoxine–pyrimetamine(1, 5.3%), Salbutamol and Ferrous sulphate (1, 5.3%) and multivitamin (12, 63.2%).There was no significant difference in pain management practices between Pharmacies and Patent medicine stores (PMSs) ($p>0.05$).

Conclusion
Polypharmacy and irrational use of non-steroidal anti-inflamatory drugs (NSAIDs) was a common practice among shop attendants in retail drug outlets, resulting in avoidable drug therapy problems and posing serious risk to public health.



KEY WORDS: Analgesics; Pharmacy; Drugoutlets Obiaruku; Surrogate shopper; Drug combination

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## INTRODUCTION

Chronic pain is very widespread and affects both the young and elderly. [1]Disability and huge economic burden resulting from pain makes it a major global public health problem. Itis estimated that globally 20% of adults suffer from chronic pain.[2]Pain affects the quality of life of the sufferer irrespective of source and type.[3] Several studies have shown that the most prevalent reason for physician consultations by patients is pain[4-5], with a majority of them receiving suboptimal pain relief. [6-9 ] In many resource limited countries of the world sufferers depend on self- management or recommendations from friends, acquaintances, patent medicine dealers and pharmacies for relief of chronic pain and so may not recieve the quality of care obtainable in specialized settings such as a hospitals.[10] The purpose of this study was to describe drugs combination dispensed for the management of pains among attendants working in community pharmacies and patent medicine shops (PMSs) in Obiaruku, Delta State, Nigeria

## METHOD

**Study site:** This was a cross-sectional descriptive study conducted in Obiaruku town; headquarter of Ukwuani Local Government Area located in Delta North Senatorial District, Delta State, Nigeria. Its geographical coordinates are 5°51´N 6°09´E. As at 2005, the population of Obiaruku was put at 68 710, disaggregated by sex (33 090 males and 35 620 females). [1 1] Obiaruku is basically a cosmopolitan town occupied by the Ukwani people, the Urhobos, Yoruba, and the Nomadic Hausa and Fulani people. The people depend on a general hospital as well as a number of primary health care centers and private clinics for medical care. Three pharmacies and some medicine stores provide the drug needs of the community. Ethical approval was obtained from the Research ethics committee, Delta State University, Abraka.

Discussions were secretly recorded by means of a recording device without the knowledge of the attendants. Conversations were transcribed and analyzed later.The type of outlet and a serial number were written on each single-dose pack immediately after leaving the outlets for easy sorting.

**Data Analysis**

Recorded conversations were replayed, transcribed and relevant socio-demographic variables were extracted and entered into a data collection form. Each single dose was carefully observed to obtain the following: total number of pills per dose; total number of no steroidal anti-inflamatory drugs (NSAIDs) per dose; total number of painkillers per dose; strengths of pills. All data entered

into excel spread sheet were exported to SPSS version 20 spread sheet for descriptive and inferential statistics. Differences in contents of single doses from Pharmacies and PMSs were explored using Chi square. Level of significance was set at 95% confidence and all p-values greater than 0.05 were insignificant.

## RESULTS

### Demography

A total of 12 retail outlets were visited. There were more respondents from pharmacies 10 (52.6%) than Patent Medicine Shops 9 (47.4%) and more females 10 (52.6%) than males 9(47.4%). None of the shop attendants had any medically or pharmacy related qualifications. Demographic details of shop attendants are shown in table 1 below

Table 1 Demographic details of shop attendants N=19

| Item | Frequency (%) |
|---|---|
| Male | 10(52.6) |
| Female | 9 (47.4) |
| **Educational qualification** | |
| Bachelor degree/ College | 2(10.5) |
| Diploma | 3(15.8) |
| Senior secondary school certificate | 14(73.7) |
| Pharmacy technician | 0(0.0) |
| Dispensing certificate | 0(0.0) |
| **Work experience** | |
| Above 2 Years | 13(68.4) |
| Below 2 Years | 6 (31.6) |

### Composition of Single-dose Pain Relievers

The average number of pills contained in a single dose pain reliever was 6.80±2.35 (for pharmacy outlets) and 5.33±1.32 (for PMSs), p>0.05. The use of more than one NSAID was a practice found among all shop attendants irrespective of practice setting. Table 2

**Table 2: Summary of content of single doses of pain relievers**

| tem | Outlet | | | | |
|---|---|---|---|---|---|
| | Pharmacy | | PMS | | |
| | ım | ean±sd | ım | ean±sd | value |
| ımber of pills | 3.00 | 80±2.35 | 7.00 | 33±1.32 | 141 |
| ımber of NSAIDs | 3.00 | 30±0.82 | 7.00 | 89±0.60 | 163 |
| ımber of other painkillers | 4.00 | 40±1.84 | 3.00 | 22±1.20 | 102 |

PMS= Patent medicine vendor; NSAIDs= Non- steroidal anti-inflammatory drug

Piroxicam was the most frequently used NSAIDS (14, 73.7%) in combination with ibuprofen, Table 2**.** Single doses of drugs for painrelief contained a variety of drugs including multivitamins, minerals, H2 blockers, hematinic, corticosteroids, antimalarial, and prednisolone, Table 3.

**Table3: Summary details of drugs used for pain management by attendants**

| Drug | Total N=19 | Outlet Pharmacy | PMS | $X^2$ | Df | p-value |
|---|---|---|---|---|---|---|
| B/complex | 2 (10.5) | 1 (50.0) | 1 (50.0) | 0.000 | 1 | 1.000 |
| Calcium | 12 (63.2) | 8 (66.7) | 4 (33.3) | 1.333 | 1 | 0.248 |
| Caffeine | 6 (31.6) | 3 (50.0) | 3 (50.0) | 0.000 | 1 | 1.000 |
| Chlozoxazone | 2 (10.5) | - | 2 (100.0) | | | |
| Cimetidine | 6 (31.6) | 5 (83.3) | 1 (18.7) | 2.667 | 1 | 0.102 |
| Cod liver oil | 1 (5.3) | - | 1 (100.0) | | | |
| Diclofenac | 11 (57.9) | 8 (72.7) | 3 (27.3) | 2.273 | 1 | 0.132 |
| Fesolate | 1 (5.3) | 1 (100.0) | | | | |
| Ibuprofen | 13 (68.4) | 8 (61.5) | 5 (38.5) | 0.692 | 1 | 0.405 |
| `Indomethacin | 2 (10.5) | 1 (0.5) | 1(0.5) | 0.000 | 1 | 1.000 |
| Multivitamin | 12 (63.2) | 6 (50.0) | 6 (50.0) | 0.000 | 1 | 1.000 |
| Paracetamol | 13 (68.4) | 7 (53.8) | 6 (53.8) | 0.077 | 1 | 0.782 |
| Piroxicam | 14 (73.7) | 6 (42.9) | 8 (57.1) | 0.286 | 1 | 0.593 |
| Prednisolone | 12 (63.2) | 7 (58.3) | 5 (41.7) | 0.333 | 1 | 0.564 |
| SP | 1 (5.3) | 1 (100.0) | - | | | |
| Salbutamol | 1 (5.3) | 1 (100.0) | - | | | |
| Tramadol | 6 (31.6) | 4 (66.7) | 2 (33.3) | 0.667 | 1 | 0.414 |

PMS= Patent medicine shop;SP=Sulfadoxine – pyrimetamine , Percentages are enclosed within parentheses; $X^2$ is significant at p<0.0 5

The dosages of NSAIDS dispensed varied depending on experience and practice pattern of shop attendant. Dosages were haphazard andin most cases optimal doses were employed on first contact with the patient, Table 4

**Table4: Strengths of pain relievers dispensed by attendants**

| Drugs | Attendants<br>Strengths (mg) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Ibuprofen | - | 400 | 400 | 200 | 400 | 400 | - | 400 | 400 | - | 200 | 200 | - | 200 | 200 | - | 200 | 400 | |
| Paracetamol | - | - | - | 500 | 500 | 1000 | 1000 | - | 1000 | 650 | 500 | 325 | 1000 | 1500 | 325 | - | 325 | - | 650 |
| Diclofenac | 100 | - | 100 | 100 | - | - | - | - | - | 100 | 100 | 100 | 100 | 100 | 100 | 100 | - | - | 100 |
| Piroxicam | 20 | 40 | 20 | - | 20 | - | 40 | 40 | 40 | 20 | 20 | 20 | - | - | 20 | - | 20 | 20 | 20 |
| Indomethacin | - | - | - | - | 25 | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - |
| Tramadol | 100 | - | 100 | - | - | - | - | - | - | - | - | 100 | - | - | 100 | 100 | 100 | - | - |
| Caffeine | - | - | - | 30 | 30 | - | - | - | - | - | - | 30 | - | 30 | 30 | - | 30 | - | - |
| Chlozoxazone | - | - | - | - | - | - | - | - | - | 500 | - | - | - | - | - | - | - | - | 500 |
| Calcium | 300 | - | 300 | 300 | - | 600 | 600 | 300 | - | - | 600 | 300 | - | - | 300 | 300 | 300 | 300 | - |
| Prednisolone | 5 | 10 | 5 | 5 | - | - | - | 5 | - | - | 5 | 5 | - | - | 5 | 5 | 5 | 5 | - |

## DISCUSSION

Chronic pain is one of the most common reasons for hospital visits. [12]Non-steroidal anti-inflammatory drugs are the most widely prescribed drugs for relief of chronic pain. [13]Pain management guidelines recommend the use of the lowest effective dose for the shortest duration, avoidance of NSAIDs with high risk of cardiovascular events in the general population and accessing specialized pain clinics for optimum care.[14-15] However in many cases, pain management does not follow these recommendations. Most persons, especially in developing counties depend on self -management using medicines obtained from pharmacies or drug store manned by unqualified sales attendants.[16-17 ] This is especially so among elderly and poor who cannot afford standard medical care and who have a higher prevalence of chronicpain. [18-19 ] In this study majority of shop attendants practiced polypharmacy involving use of multiple NSIDs at maximum doses and addition of other classes of drugs in a single dose combo . Polypharmacy is a form of irrational drug use and can increase the risk of adverse reaction of drugs and drug interactions.[20] Nearly half of patients using NSAIDs take more than the recommended dose.[21] In a study in South East Nigeria, almost half of persons aged 60 years and above admitted taking NSAIDs daily and 80.9% took more than one NSAIDs at a time.[17]The concomitant use of more than one NSAID has no therapeutic benefits rather, increases the profile of toxicities on the Central Nervous System (CNS) hematologic, renal, and hepatic and respiratory systems.[22-26 ]

Morethan half of shop attendants, 63.2% routinely included Prednisolone 5mg in the single dose combo. This is of serious concern as the risk of gastrointestinal erosion and hemorrhage increases even further with the concomitant use of NSAIDs and corticosteroids.[27] Also drugs such as vitamin B complex (2, 10.5%), cod liver oil, Sulpfadoxine-pyrimetamine, Salbutamol and Ferrous sulphate (1, 5.3%) and multivitamin (12, 63.2%) not indicated for analgesia were found to be included in some of the single doses. This gross irrational combination of drugs may be indicative of the fact that shop attendants in the community pharmacies and PMSs in this study area lack the basic concept of pain and its pharmacological management. Rational use of drugs requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community, [28] and therefore, must be properly trained to ensure public safety

There was no significant difference in pain management practices between Pharmacies and Patent medicine stores (PMSs) in the study area, ($p>0.05$). This is understandable as there is no standard qualifications and requirements for pharmacy shop attendants in Nigeria. The scope of this study limits generalization of the results. An expanded study covering more communities could have been more informative.

### Conclusion/Recommendations

Polypharmacy and irrational use of NSAIDs was a common practice among shop attendants working in retail drug outlets in Obiaruku.This poses a serious risk to public health.There was no significant difference between community pharmacies and PMSs as regards drug use in pain management by shop attendants. There is a need for training on pain management targeted at retail shop attendants.

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