

**Community Awareness of Adverse Effects of Nonsteroidal Anti-inflammatory Drugs in Ilala Municipality, Dar es Salaam**M. JANDE<sup>1\*</sup>, G. KONGOLA<sup>1</sup>, A. LIWA<sup>1</sup>, M. JUSTIN-TEMU<sup>2</sup> AND J.W. MWANGI<sup>3</sup><sup>1</sup>*Department of Clinical Pharmacology, Catholic University of Health and Allied Sciences-Bugando, P.O. Box 1464, Mwanza, Tanzania.*<sup>2</sup>*Department of Pharmaceutics, Muhimbili University of Health and Allied Sciences, P.O. Box 65013, Dar es Salaam, Tanzania.*<sup>3</sup>*Department of Pharmacognosy and Pharmacology, University of Nairobi, P.O. Box 19676-00202, Nairobi, Kenya.*

**A cross sectional descriptive study was conducted within Ilala Municipality in Dar es Salaam, Tanzania. A structured questionnaire was used for data collection. A total of 196 community members were recruited into the study. The participants were asked to provide information on what drugs they took when they had pain and if they knew any adverse effects associated with the use of non-steroidal anti-inflammatory drugs. They were also asked if they had been given any education by health personnel on the adverse effects of non-steroidal anti-inflammatory drugs. Fifty two percent of the participants responded that when they had pain, they bought pain killers from pharmacies while 42% said they would go to hospital for treatment. About 4% drank a lot of water when they had a headache, while 1% performed massage at the site of pain. One percent visited traditional healers to seek treatment for the pain. Only 8% of the study participants knew some adverse effects caused by non-steroidal anti-inflammatory drugs. Hence, there is a need for health personnel to educate patients on the potential adverse effects of the non-steroidal anti-inflammatory drugs.**

**Key words:** Non-steroidal anti-inflammatory drugs, adverse drug reactions, community knowledge, Ilala Municipality

**INTRODUCTION**

Nonsteroidal anti-inflammatory drugs (NSAIDs) are drugs with analgesic, antipyretic and anti-inflammatory effects [1]. Adverse drug reactions (ADRs) associated with NSAIDs include gastrointestinal tract (GIT) effects such as nausea and vomiting, dyspepsia, gastric ulceration/bleeding, diarrhoea and renal effects [2]. There are some differences in the propensity of individual agents to cause gastrointestinal ADRs. Indomethacin and piroxicam appear to have the highest prevalence of gastrointestinal ADRs, while ibuprofen (lower doses) and diclofenac appear to have lower prevalence rates [1]. NSAIDs are associated with a relatively high incidence of renal dysfunction such as salt and fluid retention, and hypertension

[1]. NSAIDs may aggravate renal impairment, especially when used in combination with other nephrotoxic agents like angiotensin converting enzyme inhibitors and diuretics [3].

In a study done in Jordan on the awareness and frequency of potential adverse effects of NSAIDs among the Jordanian patient population, it was shown that the overall use of NSAIDs during the year 2003 was 69% with diclofenac taking the lead [4]. In a study done in America in 2002, on the use of NSAIDs, aspirin was found to be the most commonly used over-the-counter (OTC) NSAID either alone or in combination with other drugs. Reasons for use of aspirin were prevention of myocardial infarction or stroke (43.2%), analgesic (44.2%) and in alleviating arthritis symptoms (24.5%) [5].

\*Author to whom correspondence may be addressed.

A study performed to assess the public perception of over-the-counter pain relievers focusing on NSAIDs, revealed that ibuprofen was the most frequently used OTC drug. Sixty percent of the OTC users did not know that NSAIDs caused any side effects, while 29% of exclusive OTC users did not believe that they were at risk of side effects from NSAIDs [6].

A study done in India in 2005 revealed that nearly half (47%) of all patients had taken an NSAID for over a year and over a third (35%) of them did not know of any adverse effects due to NSAIDs but 53% cited potential GIT toxicity. A few participants who had any knowledge of ADRs of NSAIDs got the information from a variety of sources including drug information leaflets, general practitioners and the media [7].

A study conducted in Turkey showed that about 85.4% and 11.5% of the patients were aware of the GIT and other systems-related adverse effects respectively. It was also reported that 50% of the patients had learned of the adverse effects from doctors, 18.8% received information from the package inserts, 20.3% had experienced adverse effects while using these drugs, 10% had learned about the adverse effects from friends and 0.8% from their pharmacists [8].

In a study done in Malaysia on the awareness of patients attending the rheumatology clinic hospital on the adverse effects of NSAIDs, 54% of patients obtained information regarding the adverse effects of NSAIDs from medical staff or surfing the internet and from printed material, while the remaining 45.8% were naive of such knowledge [9].

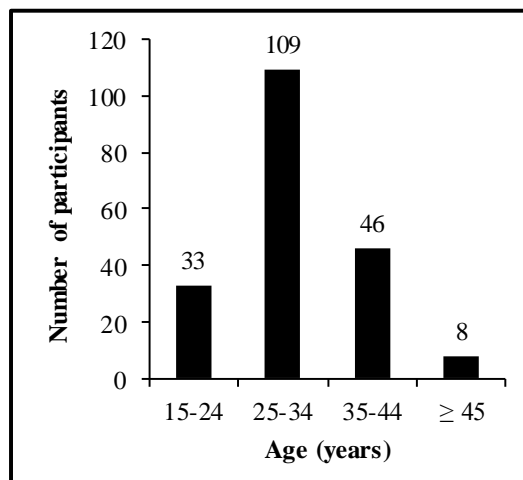
However, little is known about the awareness of the Tanzanian community on the adverse drug reactions caused by NSAIDs, justifying the need for this study.

## METHODOLOGY

A descriptive cross sectional study was conducted in Ilala Municipality, Dar es Salaam. The study participants were community members mainly individuals involved in construction sites and some students. Out of 209 participants who were initially recruited, 196 participants gave consent to participate in the study. A structured questionnaire was used for data collection. Participants were required to mention the measures they took when they had pain, and if they sought medication, they were requested to indicate the drugs they used. The participants were also asked if they knew of any side effects of the drugs that they took for relieving pain. For those who knew some side effects of the drugs, they were asked to reveal their source of information. The collected data was analyzed using the SPSS computer software.

## RESULTS

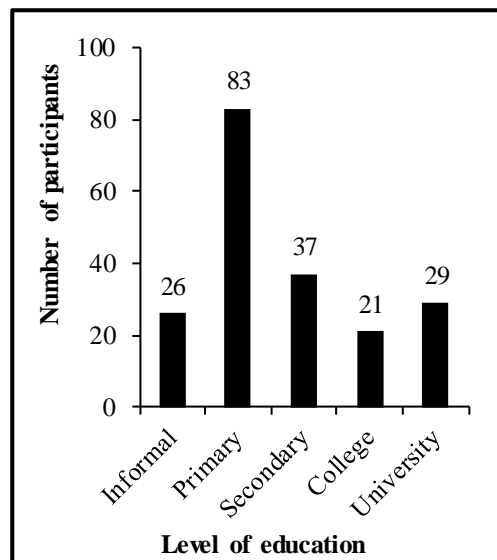
The age distribution of the study participants is shown in Figure 1. Majority of the participants (109) were in the 25 to 34 years age group, while only 8 participants were in the 45 and above years age group.



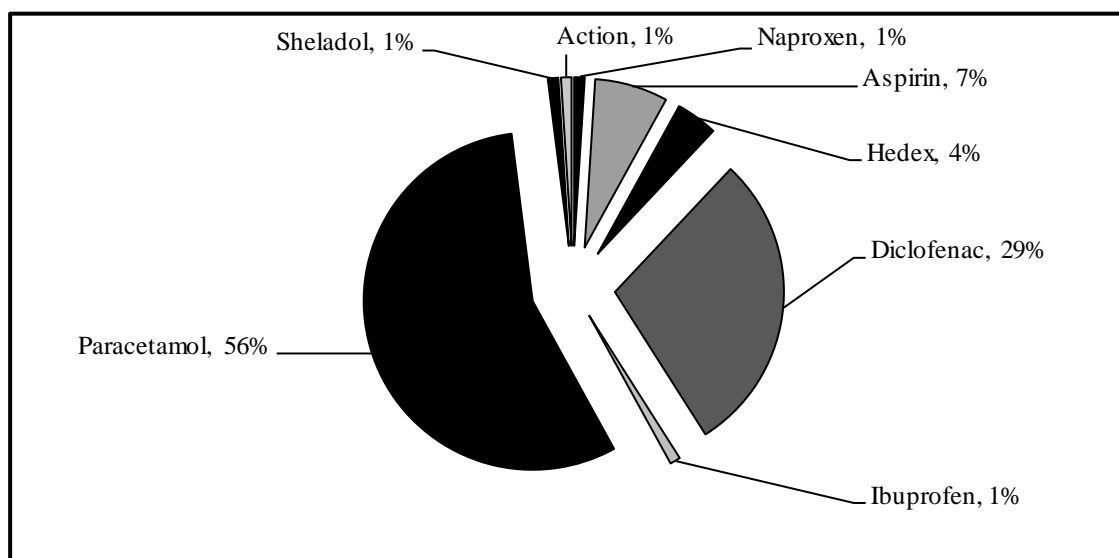
**Figure 1. Age distribution of study participants.**

Out of the 196 participants, 112 (57%) were females and 84 (43%) were males. Fifty participants were students, while the remaining 146 participants were working in construction sites. Participants with primary education were 83 and those with secondary education were 37. The level of education of the participants is shown in Figure 2.

Many participants (52%) preferred buying drugs from pharmacies, while 42% opted to go to hospital for treatment. Others visited traditional healers (1%), while 4% drank a lot of water when they experienced headaches and about 1% did not take any action. When participants were asked if they were given any medicine when they visited a health facility they all responded positively, and the drugs given are shown in Figure 3.



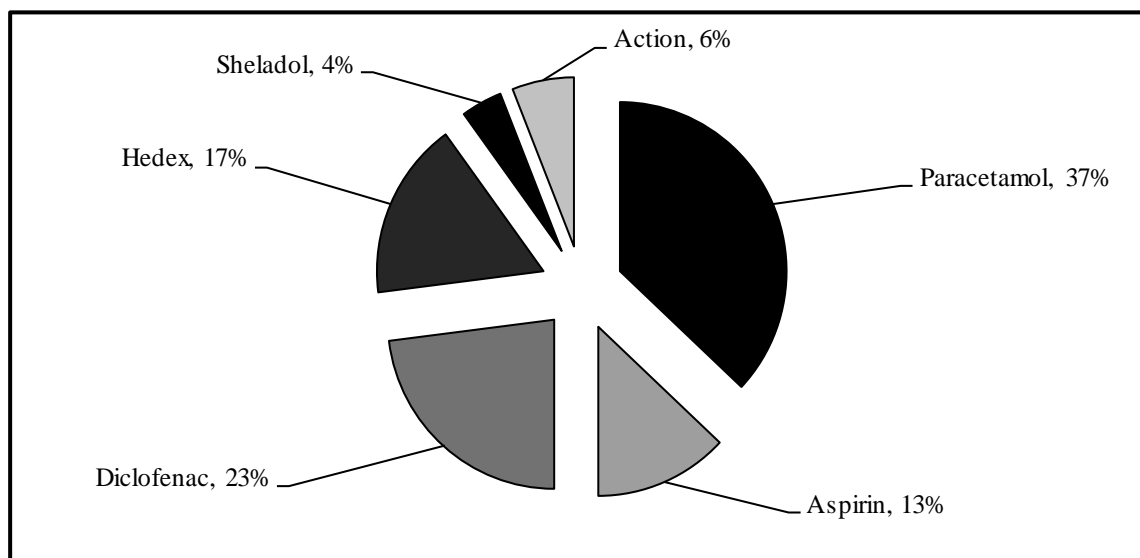
**Figure 2. Level of education of the study participants.**



**Figure 3. Drugs given at health facilities for the relief of pain.**

NSAIDs were the most commonly preferred as over-the-counter drugs for relief of pain (Figure 4). Majority of patients (41%) preferred to use paracetamol or Sheladol<sup>®</sup> obtained from pharmacies for pain relief. The reasons given by participants for using a particular type of NSAID included immediate relief of pain, cost effectiveness, availability at home and the fact that the

particular NSAID was prescribed to them. The type of pain for which NSAIDs were sought included headache (54%), arthritis (27%), dysmenorrhoea (9%), abdominal pain (5%) and fever (2%). The duration of NSAID use varied from one day to more than a year, *viz.* 1 to 7 days (53%), 1 week to 3 weeks (17%), 1 month to 11 months (6%), and from 1 year and above (24%).



**Figure 4. NSAIDs used as over-the-counter drugs.**

## DISCUSSION

This study has shown that only 16 participants (8%) had any knowledge about adverse effects of NSAIDs, while 87 participants (44.4%), despite having education which could have helped them search for adverse effects of NSAIDs in the media, did not do so. The 8% of the participants who had some information on ADRs got the information from doctors, pharmacists and package inserts. This percentage is much lower than that observed by Jobanputra [7] where 78% of participants got information from package inserts and healthcare workers, while 28% of participants learnt about the adverse effects from the media.

In the present study, about 14% of participants had informal education while 42% had primary education, implying low literacy levels. These participants were not in a position to understand health matters discussed in the media (the internet included). It is possible that the low literacy level in our study population could have played a part in the observed differences with literature accounts due to their diminished capacity to acquire knowledge on ADRs from various sources.

About 52% of the participants purchased over-the-counter NSAIDs as it was much cheaper and easier for them to do so, than seeing a doctor which would entail paying a consultation fee, waiting to see a doctor and obtaining a prescription. Forty two percent of the participants were ready to go through the normal process to see a doctor and obtain a prescription. About 180 patients were seen by a pharmacist or a medical practitioner while in the process of obtaining their medicines and were therefore in a position to be given some education on ADRs.

This study has shown that only 16 (8%) patients had any education on ADRs. It is apparent that pharmacists and doctors did not take time to educate their patients on ADRs. Patients who neither purchased drugs from pharmacies nor went to see medical practitioners could not be expected to have any knowledge on adverse drug reactions. Quite a high number (94%) of participants used NSAIDs, which are notorious in causing ADRs. It is unfortunate that only 8% of these participants had any knowledge of ADRs of the drugs. Health workers should therefore endeavour to provide education on ADRs of NSAIDs to the patients.

**CONCLUSION**

About 92% of the participants in this study did not know the side effects of NSAIDs. There is a need for healthcare personnel (pharmacists, doctors, and others) to educate the patients on the side effects of NSAIDs. Those dispensing over-the-counter drugs should have a medical background in order to enable them educate patients on the adverse effects of NSAIDs and other drugs.

**REFERENCES**

- [1] S. Rossi. Australian Medicines Handbook. Australian Medicines Handbook Pty Ltd., Adelaide. 2006.
- [2] G.A. Green. Clin. Cornerstone 3(5), 2001, 50-59.
- [3] M.C. Thomas. Med. J. Aust. 172, 2000, 184-185.
- [4] A.M. Albsoul-Younes, S.K. Jabateh, S.M. Abdel-Hafiz and S.A. Al-Safi. Saudi Med. J. 25(7), 2004, 907-911.
- [5] J. Thomas, W.L. Straus and B.S. Bloom. American J. 979, 2002, 2215-2219.
- [6] C.M. Wilcox, B. Cryer and G.J. Triadafilopoulos. Rheumatol. 32(11), 2005, 2218-2224.
- [7] P. Jobanputra, V. Arthur, M. Pugh, F. Spanuth, P. Griffiths, E. Thomas and T.J. Sheeran. Rheumatol. 44(5), 2005, 633-637.
- [8] H. Yilmaz, S. Gurel and O. Ozdemir. Turk. J. Gastroenterol. 16(2), 2005, 89-92.
- [9] S. Wahimmuddin, S. Ong Ping and I. Rosi. Oman Med. J. 27(6), 2012, 505-508.
-