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Title: Assessing Students Knowledge On The Use Of NSAIDs At Lusaka Apex Medical University.

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ABSTRACT

General objective: To describe the knowledge on the use of NSAIDs specifically Ibuprofen in students studying at Lusaka Apex Medical University.

Study method: A cross sectional study was employed using a self administered questionnaire. A sample size of 270 students was included and the unit analysis was all students studying at Lusaka Apex Medical University in 2017. The variables age, gender, faculty, level of knowledge on clinical use, side effects, drug-drug interactions and source of knowledge on the use of Ibuprofen were captured and analysed using SPSS version 24.0

Result: A total of 270 students took part in this study. From the 270 students, there were more females 51.5% (139) than males 48.5% (131) and the majority of students were between 26-30 years of age 37.8% (102). Most of the students were from the Faculty of Health Sciences 26.3% (71). In this study, it was found that most students identified the use of Ibuprofen for management of pain 57.8% (156) and a high number of students did not know the side effects of Ibuprofen 78.5% (212) (p=0.443). Most of the students did not know of any drugs that could interact with Ibuprofen 54.1% (146) (p=0.003) and a large number of students obtained information regarding the use of Ibuprofen by reading the leaflets 48.5% (131).

Conclusion: It was noted that students are more knowledgeable on the use Ibuprofen for pain management. Students are knowledgeable on the side effects of Ibuprofen (p=0.443) but are not knowledgeable the drug-drug interactions of Ibuprofen (p=0.003). The source of knowledge on the use of Ibuprofen was mostly obtained from reading the leaflets.

Key words: Pain, OTC, analgesic, Ibuprofen, awareness, knowledge, NSAIDs, self medication, misuse, abuse.

I. INTRODUCTION

Self-medication is a common problem worldwide and is defined as the use of non-prescription drugs without supervision of a physician for the treatment of self diagnosed disorders or symptoms and might become a serious health problem (Mooataz et al., 2016; Barbara et al., 2015; Fariba et al., 2014; Girma et al., 2011). It is influenced by various factors such as education, family, society, law, availability of drugs and exposure to advertisements (Mooataz et al., 2016; Gupta et al., 2013; Girma et al., 2011).

Non-steroidal anti-inflammatory drugs (NSAIDs) are a class of medications used in the treatment of pain, inflammation, and fever. These medications are common, affordable, easy to access and hence they are commonly used for treating injuries and for general pain management (Safila et al., 2014; Gupta et al., 2013; Sonia et al., 2013; Girma et al., 2011; Awad et al., 2005). However, NSAIDs have well-documented side effects and the efficacious nature of these medications has been brought into question. Studies have revealed that there is an increase in trends of self medication with NSAIDs particularly among the youth (Mooataz et al., 2016; Murtaza et al.,2014;Gupta et al., 2013; Girma et al., 2011). Only 18% of physicians educate their patients about safe drug taking, storing, and disposal practices. A growing body of evidence shows that many health care professionals lack the proper knowledge and attitude for effectively managing pain, leaving many patients to endure a reduced quality of life. This lack of knowledge begins in basic educational programs (Murtaza et al.,2014; Wahinuddin et al., 2012;Bushra et al., 2012).

Studies regarding students' knowledge on the use of NSAIDs have been conducted worldwide showing a lack of sufficient knowledge regarding correct use of NSAIDs among university students (Mooataz et al., 2016; Barbara et al., 2015; Murtaza et al., 2014; Shanwer et al., 2014). Adolescents and young adult students have a low perception of the risk and more knowledge about the drugs and their use, which is what prevents them from seeking advice from physicians or pharmacists for their problems and are likely to self medicate with

drugs like NSAIDs (Zalika et al., 2010). In 2011, 35% of adult Americans used OTC medications on a regular basis (Barbara et al., 2015).

In both developed and developing countries, there are growing concerns over the use of OTC medicines especially NSAIDs and the tendency of misuse has been reported among high school and university students due to the lack of knowledge regarding their use. In addition, poor implementation of drug policies and lack of information given out on the correct use, side effects and drug-drug interactions of NSAIDs adds to the problems on the use of these drugs (Murtaza et al., 2014).

In countries like Pakistan, the frequency of self medication was high in educated youth despite the fact that the majority were aware of the harmful effects of self medicating. NSAIDs are the common drugs used for all types of pain. Excessive and inappropriate use of these medications can have many side effects on the health of students and it was found that 49.2% of students were not aware of the side effects of NSAIDs (Fariba et al., 2014; Yasmin et al., 2011). Use of analgesics was found to be very high among Iranian students and that could be due to the source of information about analgesics being inappropriate (Sarahroodi et al., 2012). It was found that students needed to be educated about the long term adverse effects of drugs like NSAIDs which were highly self prescribed (Sujatha et al., 2015).

In Africa, studies conducted in nursing and medical students noted inadequate knowledge of pain and its management (Eyob et al., 2013). In Mozambique, anti-inflammatory analgesic drugs have been the most frequently used drugs with Ibuprofen being one of the most frequently used (Lucas et al., 2007).

Currently, there are no studies available in Zambia regarding the knowledge on the use of NSAIDs among university students. Hence, the purpose of this study was to describe the knowledge on the use of NSAIDs, specifically Ibuprofen in students studying at Lusaka Apex Medical University in 2017.

II. RESEARCH METHOD

This chapter will address the methods and procedures that were used to address the research objectives. It will describe the study design, study population, study site, sample size, sampling technique, procedure, data collection and analysis, inclusion and exclusion criteria.

2.0.1 Study design

A cross-sectional study was carried out and data was collected from students at that point of time.

2.0.2 Study population

The unit analysis was students from Lusaka Apex Medical University in Lusaka (N= 7000) and included all the students from the five faculties at the university. These included the Faculty of Health Sciences, Faculty of Medicine, Faculty of Nursing, Faculty of Medical Radiation Sciences and Faculty of Pharmacy, Nutrition and Dietetics. The students in these faculties were from the first to the last year of study of their respective programmes.

2.0.3 Study site

The site of study was Lusaka Apex Medical University which includes the main campus in Chalala where the Faculty of Nursing is located, Roma Campus which consists of the Faculty of Medicine, Foxdale Campus where the Faculty of Health Sciences and Faculty of Medical Radiation Sciences are located and the Tick Campus which has the Faculty of Pharmacy, Nutrition and Dietetics.

2.0.4 Sample size

There was no prevalence of NSAID use among university students in Zambia. Hence, in my calculation, I used a 50% prevalence rate to determine my sample size with a confidence interval of 95%.

$$n = \frac{Z^2 \times P(1-P)}{d^2} = \frac{1.96^2 \times 0.5(1 - 0.5)}{(0.05)^2} = \underline{385 \text{ students}}$$

Where; P= 50%, d= 5%, Z= Score (1.96)

Since my target population was less than 10 000, I adjusted the sample size based on the number of students at Lusaka Apex Medical University.

$$n(\text{actual}) = \frac{n}{1+ (n/N)} = \frac{385}{1+ (385/7000)} = \underline{\textbf{365 students}}$$

2.0.5 Sampling Technique

Stratified random sampling was used to select students from each faculty at Lusaka Apex Medical University. All ID's of participants meeting the inclusion criteria were entered into a column named 'ID No.' in excel database. The faculty for each student was entered in a separate column named 'Faculty'. Another column named 'Random' was included in which a formula was entered in the first cell; =rand(). This gave a function that created a random value between 0 and 1. To generate a value for each student this first cell was selected and clicked twice on the lower right hand corner. This created a function for each of the students in the excel spreadsheet. To store these random values, the column 'Random' was selected, copied and the option 'paste values' was selected from the paste option. The next step involved highlighting all the columns from the top, selecting the data option and clicking on 'sort'. A box appeared and everything was cleared by clicking on 'delete level'. Next, the faculty from which the random sample was required was entered by first clicking on 'Add level' then 'sort by' and selecting 'Faculty'. To sort the random values that were generated earlier, the 'Add level' button was clicked again, and in the 'then by' box, the option 'random' was selected. This was run and a stratified sample was extracted. This then allowed to take a random stratified sample on the excel spreadsheet and the first 73 ID's were selected from each faculty.

2.0.6 Inclusion Criteria

- All students at Lusaka Apex Medical University equal to and above the age of 18.
- All students irrespective of their gender.
- Students from all the five faculties at Lusaka Apex Medical University.

2.0.7 Exclusion Criteria

- Students that were not studying at Lusaka Apex Medical University.
- Students studying at Lusaka Apex Medical University who were less than 18 years old.

2.0.8 Ethical Consideration

The study received ethical approval from Lusaka Apex Medical University. Consent was sought and participant confidentiality was upheld.

2.0.9 Procedure

A quantitative approach was used to collect the relevant information by administering a questionnaire that helped to assess the knowledge of Lusaka Apex Medical University students on the use of Ibuprofen. The questionnaire was administered after participants had signed a consent form (Appendix III). After collecting the data it was entered in SPSS file and analysed using SPSS version 24.0.

2.1.0 Data Collection

The data collected in order to answer the research questions included; knowledge on clinical use, side effects and drug-drug interactions of Ibuprofen and the source of knowledge on the use of Ibuprofen. This data was collected using a self administered questionnaire which was adopted from Murtaza et al. (2014), but modified to suit the design of this study (Appendix IV).

2.1.1 Variables

The following variables (table 1) were used to meet the research objectives:

Table 1: Operational variables, definitions and scale of measurement.

No	VARIABLE	DEFINITION	SCALE OF MEASUREMENT
1	Age	Grouped; • 18-20 • 21-25 • 26-30 • 31-35 • >35	Categorical
2	Gender	Sex of participant	Nominal

3	Faculty of student	• Faculty of Health Sciences • Faculty of Medicine • Faculty of Nursing and Midwifery Sciences • Faculty of Medical Radiation Sciences • Faculty of Pharmacy, Nutrition and Dietetics	Nominal
4	Knowledge on the use of Ibuprofen	What students know about the use of Ibuprofen	Categorical
5	Knowledge on the side effects of Ibuprofen	Whether students know about the side effects of Ibuprofen	Categorical
6	Knowledge on the drug-drug interactions of Ibuprofen	Whether students know the drug-drug interactions of Ibuprofen	Categorical
7	Source of knowledge on Ibuprofen	Where knowledge on the use of Ibuprofen is obtained from.	Categorical

2.1.2 Data analysis and interpretation

An SPSS datasheet (Appendix II) was designed with the variables and their definitions. The variables were coded for easy entry and analysis. Each answer in the questionnaire had corresponding codes to enable entry of data in the datasheet. Once data was collected it was entered into the SPSS database (v24.0) as codes and was analysed. Percentages were calculated for categorical and nominal variables and these were presented as bar charts (table 2). A Chi square test was used to find the association of students and their knowledge on the side effects and drug-drug interactions of Ibuprofen (Table 4, Table 5).

Table 2: Data analysis

No.	VARIABLES	DESCRIPTIVE ANALYSIS	FIGURE ANALYSIS
1	Age	Percentage	Table
2	Gender	Percentage	Table
3	Faculty of student	Percentage	Table
4	Knowledge on the use of Ibuprofen	Percentage	Bar chart
5	Knowledge on side effects of Ibuprofen	Percentage	Bar chart
6	Knowledge on drug-drug interactions of Ibuprofen	Percentage	Bar chart
7	Source of knowledge on use of Ibuprofen	Percentage	Bar chart

2.1.3 Data Management

Raw data collected was transformed to numeric values which were then entered on SPSS. The data was managed using SPSS version 24.0.

III. RESULTS

These results are based on the specific objectives of this study.

3.1 Demographic characteristics of students

Table 3: Demographic characteristics of students

DEMOGRAPHIC VARIBALES	% FREQUENCIES
No. of students = 270	
Gender	
Male	48.5
Female	51.5
Age (years)	
18-20	24.8
21-25	19.6
26-30	37.8
31-35	14.8
>35	3.0
Faculty	
Faculty of Health Science	26.3
Faculty of Medicine	17.8
Faculty of Nursing and Midwifery Sciences	25.9
Faculty of Medical Radiation Sciences	14.8
Faculty of Pharmacy, Nutrition and Dietetics	15.2

Table 3 shows that a total of 270 students took part in this study. From the 270 students, 51.5% (139) were females and 48.5% (131) were males. The majority of students were between 26-30 years of age 37.8% (102). Most of the students were from the Faculty of Health Sciences 26.3% (71).

3.2 Knowledge of students on the use of Ibuprofen

In this study, it was found that most students identified the use of Ibuprofen for management of pain 57.8% (156) followed by its use in fever 27.8% (75), inflammation 7.8% (21), as a sleeping aid 5.2% (14) and other uses 1.5% (4)(Figure 1).

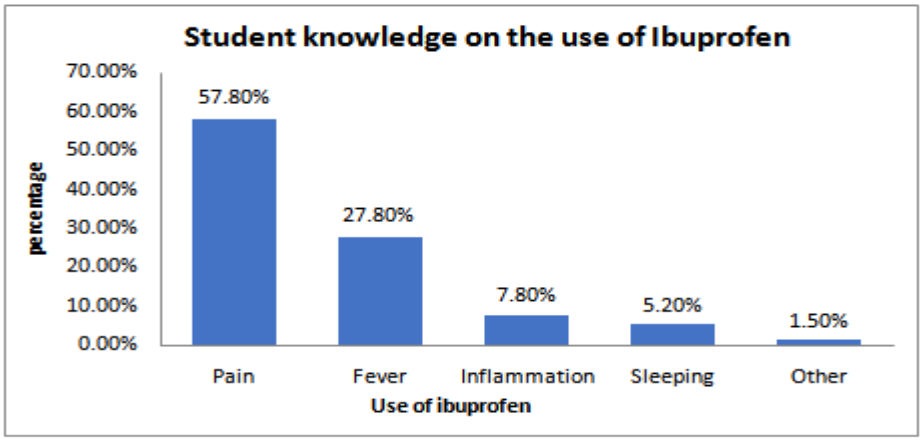

Figure 1: Knowledge of students on the use of Ibuprofen

3.3 Knowledge of students on the side effects of Ibuprofen.

In this study, it was found that a high number of students did not know the side effects of Ibuprofen 78.5% (212) while only 21.5% (58) knew (Figure 2).

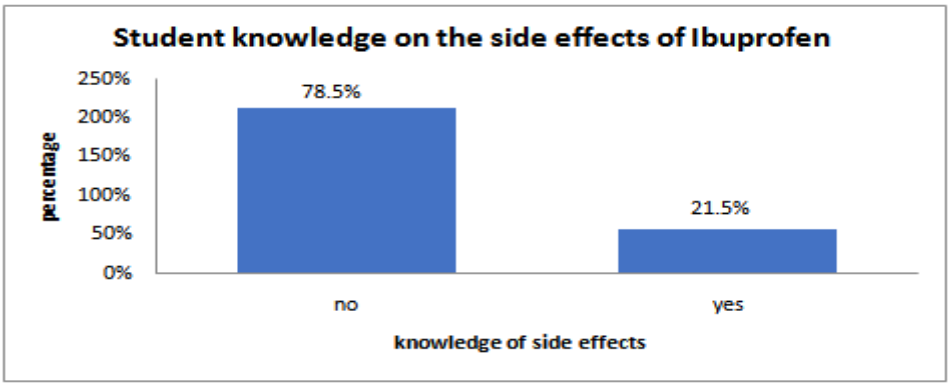

Figure 2: Knowledge of students on the side effects of Ibuprofen

3.4 Knowledge of students on the drug-drug interactions of Ibuprofen.

The study revealed that most of the students did not know of any drugs that could interact with Ibuprofen 54.1% (146). However, 25.2% (68) identified blood pressure medicines followed by 12.2% (33) that identified blood thinners and a very small number of students 8.5% (23) identified anti-diabetic medications (Figure 3).

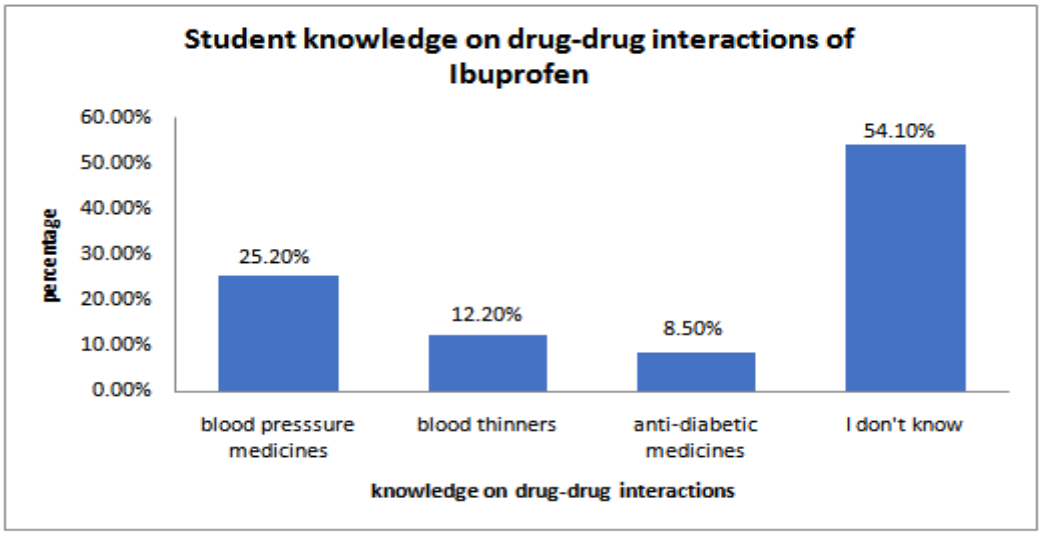

Figure 3: Knowledge of students on the drug-drug interactions of Ibuprofen

3.5 Source of knowledge on the use of Ibuprofen in students.

In this study a large number of students obtained information regarding the use of Ibuprofen by reading the leaflets 48.5% (131), 34.4% (93) obtained the information by asking relatives and friends and only 9.6% (26) obtained the information from the pharmacist. Very few students 7.4% (20) obtained the information from the doctor (Figure 4).

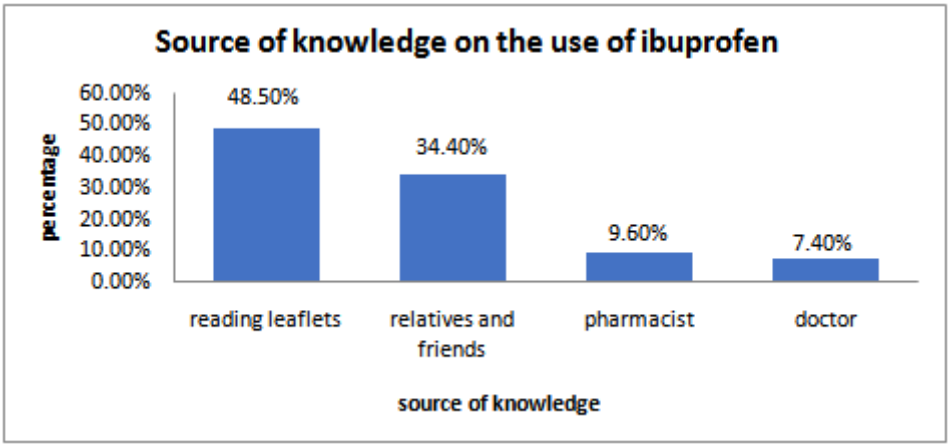

Figure 4: Source of knowledge on the use of Ibuprofen

3.6 Association of students and their knowledge on side effects and drug-drug interactions of Ibuprofen

Table 4: Chi square test; Association of students and their knowledge on the drug-drug interactions of Ibuprofen

	Asymptotic Significance (2-sided)
Pearson Chi-Square	0.003

Table 4 shows the association of students and their knowledge on the drug-drug interactions of Ibuprofen (p=0.003).

Table 5: Chi square test; Association of students and their knowledge on the side effects of Ibuprofen

	Asymptotic Significance (2-sided)
Pearson Chi-Square	0.443

Table 5 shows the association of students and their knowledge on the side effects of Ibuprofen (p=0.443).

IV. DISCUSSION

More females than males were found to have participated in this study. Most of the students were between 26-30 years of age and majority of them were from the Faculty of Health Sciences due to the high number of total students in that faculty.

This study shows that a high number of students identified the use of Ibuprofen mostly for the management of pain (57.8%) followed by its use in fever (27.8%), inflammation (7.8%), as a sleeping aid (5.2%) and other uses (1.5%). These results coincide with Murtaza et al. (2014) findings which stated that Ibuprofen was mostly used as a painkiller (54%), followed by its use in fever (28.4%), inflammation (10.6%) and as a sleeping aid (6.6%). Also in agreement are the findings of Girma et al. (2011) where NSAIDs were used for pain relief. This was in consistence with the findings of Haya et al. (2014) who stated that Ibuprofen was used mostly as a painkiller (49.5%). Woranuch et al. (2016) also stated the use of Ibuprofen as a painkiller but at a much higher percentage of 95.6%. Contrary to this, Mooataz et al. (2016) found that Ibuprofen was mostly use for relief of fever (20.4%) while pain relief only accounted for (19.4%). According to Fariba et al. (2014) findings most of the students (28.3%) used NSAIDs for treatment of pain (headache) while Shanwer et al. (2014) found that NSAIDs were used mostly for fever (52%) followed by pain (31%). Pain was the most identified reason to use Ibuprofen however Ibuprofen is an anti-inflammatory drug and most people were unaware of this.

This study also shows that a majority of students (78.5%) stated that they did not know the side effects of Ibuprofen while only 21.5% of them knew. This was in agreement with the findings of Murtaza et al. (2014)

that showed 83% of the students did not know of the side effects and only 17% of them knew. These results were consistent with a study conducted by Shanwer et al. (2014) in India where he found that 84% of the students did not have knowledge of the side effects. The low level of knowledge could be attributed to lack of information given out during sale of the drug and the pharmacists assuming that the patient will read the leaflet for information which may not always be the case. Contrary to these findings, Hussein et al. (2015) found that 26% of the participants did not know the side effects of analgesics. Students knowledge on the side effects of Ibuprofen was found to be not significant (P-value = 0.443 by Pearson Chi-Square Test).

This study revealed that over half the students (54.1%) did not know any drug-drug interactions of Ibuprofen. Having knowledge of the drug interactions with Ibuprofen is very important especially for the students who take these drugs on a regular basis and may also be using other medications concurrently. Among those that knew about the drug-drug interactions, a quarter of them (25.2%) knew about blood pressure medicines, 12.2% knew about blood thinners and only 8.5% knew about anti-diabetics medications. This was close to the findings of Murtaza et al. (2014) who found that 55.2% of the students did not know of the drug-drug interactions of Ibuprofen and only 18.4% of the students knew about blood thinners. This was similar to Engy et al. (2015) findings which stated that 60.5% of the participants did not know of the drug-drug interactions while only 2.9% of them knew of anticoagulants, 4.7% of them knew of anti-diabetics and 7.6% knew of anti-hypertensives. This elaborates that the students lack in the information about drug-drug interactions of Ibuprofen. A chi square test of the students knowledge on drug-drug interactions of Ibuprofen was found to be significant (P-value = 0.003 by Pearson Chi-Square Test).

In this study the source of knowledge on the use of Ibuprofen was mostly obtained by reading leaflets (48.5%) followed by asking relatives and friends (34.4%), from the pharmacist (9.6%) and from the doctor (7.4%). This was close to the findings of Murtaza et al. (2014) who found that 20.4% of the respondents rely on leaflets, 21% of the respondents get information from the pharmacist while 60% consider the physician an important source of information. Similarly, according to the findings of Shanwer et al. (2014) and Shadi et al. (2016) the most common source of information relied on by respondents was friends and family (54.7%). According to Nirajan et al. (2014) friends and family (44.11%) remained main source of information. This shows that majority of the respondents obtain information from leaflets and this may not be interpreted correctly. On the contrary, Engy et al. (2015) found that information was mostly obtained from a pharmacist (25%), followed by a doctor (22.8%), friends and relatives (18.3%) and only 0.8% obtained the information from the internet.

The findings of this study showed that students lack the knowledge on the use of Ibuprofen. Majority of them are not aware of Ibuprofen as an anti-inflammatory drug and even though they have knowledge on the side effects, they do not know the drug-drug interactions of Ibuprofen. The source of knowledge is found to be mostly by reading the leaflets. Therefore, this calls for additional efforts to be put in place in order to increase the knowledge of students on the correct use of Ibuprofen.

V. CONCLUSION

This study investigated the knowledge on the use of Ibuprofen among students at Lusaka Apex Medical University in 2017. The conclusion is based on the findings of my four specific objectives.

It was noted that students are more knowledgeable on the use Ibuprofen for pain management. Students are knowledgeable on the side effects of Ibuprofen (p = 0.443) but are not knowledgeable the drug-drug interactions of Ibuprofen (p= 0.003). The source of knowledge on the use of Ibuprofen was mostly obtained from reading the leaflets.

Therefore,

Limitations

The following limitations to the study were identified:

- The study was carried out only in students.
- The study was carried out only at one university.
- The study only involved medical students.

Recommendations

- The university may wish to offer guidelines on the use of NSAIDs.
- The university may wish to consider the findings and consider a medication policy which may include inappropriate use of NSAIDs.
- The university may wish to conduct further research that will offer greater support and responsibility on the use of NSAIDs.

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