A CROSS-SECTIONAL STUDY ÒN PREVALENCE OF SELF MEDICATION OF ANALGESICS AMONG MECHANICS WORKING AT SUAME MAGAZINE, GHANA

ABSTRACT

Background: The misuse of analgesics is a growing concern globally, particularly among populations engaged in physically demanding occupations. Mechanics at Suame Magazine are frequently exposed to strenuous activities that can lead to various forms of body pain. This occupational hazard often results in the self-medication of pain relief drugs, which can escalate into abuse. The easy accessibility of over-the-counter analgesics further compounds this issue, as many individuals resort to these medications without understanding the potential risks involved.

Aims: This study assessed the prevalence of analgesic misuse among mechanics (fitting workers) working at Suame Magazine, along with association between occupational pain and analgesic abuse.

Study design: Cross-sectional study.

Place and Duration of study: Suame Magazine of the Kumasi metropolis, Ashanti region of Ghana between August 2023 and January 2024.

Methodology: The study employed a pre-designed structured questionnaire to collect data on analgesic misuse. The study was conducted among 420 mechanics (fitting workers) at Suame magazine. Purposive non-randomized sampling technique was used to select the mechanics (fitting workers) for the study. Data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 20 and Microsoft Excel software (2016).

Results: The findings revealed a high prevalence of analgesic misuse (97%) among the sampled respondents primarily driven by occupational pain and lack of awareness regarding potential harm. The abuse was predominantly for managing body pain (43.3%), muscle pain (27.8%), headaches (19.6%), and inducing sleep (9.3%). Paracetamol (36.1%), paracetamol/diclofenac combination (19.6%), and paracetamol/aspirin/caffeine combination (29.9%) were the most frequently misused analgesics. Even though 97% of the respondents admitted of abusing analgesics, an overwhelming 55% of the mechanics lacked awareness on the adverse effects of analgesics.

Conclusion: The study highlights the critical need for educational initiatives targeting mechanics on safe medication practices. It also calls for healthcare professionals, particularly those in pharmacies, to provide comprehensive drug education, covering indications, contraindications, and potential side effects.

Keywords: Analgesic abuse, Occupational hazard, prevalence

1. INTRODUCTION

Pain management remains one of the most relevant therapeutic priorities as it can serve as a measure of the severity and activity of an underlying condition, as well as a predictive indicator often used by most clinicians [1]. Currently, there is paucity of data on the epidemiology of pain, mainly because of the subjective nature of the symptoms and a lack of agreement regarding specific diagnosis and definitions of the condition. Many pain conditions are sporadic, with the majority reporting recurred symptoms but not the incident for first-time [2]. However, in spite of this, a world-scale epidemiology report of 2022 produced by Murray et al., shows an age-related prevalence of chronic pain conditions of 37.3% in developed countries and 41.1% in developing countries, with an overall prevalence of 38.4% [3].

According to the International Association for the Study of Pain (IASP), chronic pain affects about 20 % of the adult population, particularly women and the elderly in developed countries. About 30-40 % suffer musculoskeletal and joint pains, whereas neck and back pain accounts for another 30%. Headache and migraine account for less than 10% of the cases [4]. A worldwide study indicates that pain in primary care is at least as prevalent in developing countries as in developed ones [2]. In Ghana, over 60% of the adult population complains of lower back pain, popularly referred to as waist pains at one time or the other in lifetime, with a higher prevalence in females (56%) than males (44%) leading to high incidence of analgesics abuse [5].

Analgesics are drugs that are used in the management of pain. They act via several mechanisms to decrease pain peripherally by reducing the generators of the mediators of pain at the site of tissue damage, or centrally by inhibiting higher centers involved in the transmission and perception of pain [6]. Analgesic use is a phenomenon that is receiving increased research attention for many reasons including the high prevalence or incidence of users and the serious consequences to physical, psychological, and social functioning if analgesics are used in a problematic way. Some of the consequences associated with problematic analgesics or painkillers use include falls among older persons, respiratory depression, decreased memory, decreased attention, co-ordination problems, withdrawal from family and friends, and even death [7,8].

The increasing prevalence of analgesic or painkiller misuse is a serious problem that has been linked to an increase in deaths involving these strong painkillers [8]. A study conducted by Fingleton et al., (2016) examined the prevalence of misuse, abuse and dependence of over-the-counter (OTC) medication in the UK general population [9]. A high prevalence of misuse, abuse and dependence of OTC medication was found generally, but painkillers were the most misused and abused OTC medications. However, prevalence rates are thought to be even higher in some developing countries in Africa like Egypt (Mumtaz et al., 2011; Ghandour, Sayed & Martins, 2012). According to Badzi and Ackumey, (2017), there is a high rate of analgesics abuse or misuse by construction workers in the Ga-East municipality of the Greater Accra region. Serious adverse effects may be experienced with the use of analgesics even with recommended doses over short periods of time [7]. It has been argued that because some analgesics contain psychotropic substances such as caffeine and codeine, addiction is apparent which leads to misuse. Frequent use and overuse of analgesics may lead to several health complications such as gastro-intestinal bleeding and ulcers. Unfortunately, many users of analgesics are not aware of these adverse effects. However, very little research exists on the use of analgesics in Ghana. The widespread use of and the adverse health implications associated with overuse of analgesics necessitates the need to examine the incidence and reasons for the abuse of analgesics among mechanic (fitting or magazine workers) who by their nature of their profession are prone to pain and stress. The main objectives of this study were to assess the common analgesics of misuse, reasons for misuse and knowledge of

adverse effects of associated with the use of analgesics among mechanic (fitting) workers at Suame magazine.

2. MATERIAL AND METHODS

2.1 Study Design

This study employed a descriptive cross-sectional design to assess the common analgesics of abuse, reasons for abuse and knowledge of adverse effects of associated with the use of analgesics among mechanic (fitting) workers at Suame magazine in the Kumasi metropolis.

2.2 Study area

This study was conducted in the Suame Magazine Sub metro of the Suame Constituency of the Kumasi metropolis in the Ashanti region of Ghana. Suame Magazine is where light manufacturing, metal casting, and vehicular repairs are done and where most skills are acquired on the job [11]. It is approximately 1.8 km long and 0.3 km wide, it is geographically situated at latitude 6°46'00" North and longitude 1°38'00" West. Suame Magazine is more than half a square kilometer and is populated by an estimated 200,000 artisans and 12,000 shop-owning entrepreneurs. It is the most industrialized zone in Ghana and one of the largest industrialized zones in Africa (Figure 1).

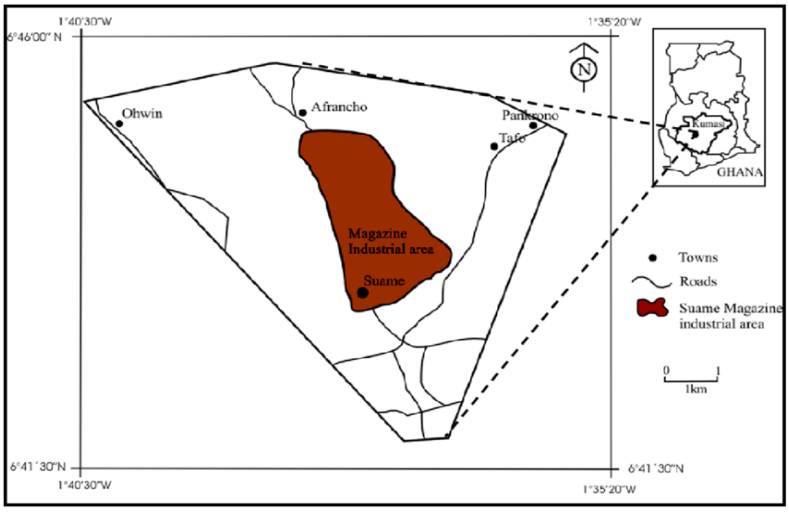

Figure: 1 Map of Suame magazine in the Suame constituency

2.3 Target population

The target population, or the population from which respondents selected for the study were mechanic (fitting workers) at Suame Magazine who consented to participate in the study. They included people who were owners of business and middlemen.

2.4 Sample Size Determination

The sample size was determined using the Yamane's formula 1967,

$$n = N/(1 + Ne^2)$$

Parameters in the formula include the following: *n,* which represents the corrected sample size*, N* which is the sample size, *e* which is the precision or margin of error (0.05) [12]. The sample size was calculated as follows:

$$n = \frac{200000}{(1 + 200000 \times 0.05^2)}$$

$$\frac{200000}{501}$$

$$= 399.202$$

The sample size was calculated to be approximately 399. In order to adjust for an anticipated 5% nonresponse rate and also improve statistical power, a total of 420 participants were recruited.

2.5 Inclusion and exclusion criteria

All mechanic (fitting) workers above 18 years who consented to participate in the study were included; however, those below 18 years as well as those who did not consent to participate were excluded.

2.6 Sampling technique

Purposive random sampling technique was used to select only mechanics (fitting workers) at Suame magazine.

2.7 Data collection and Technique

The questionnaire was meticulously drafted to ensure clarity and relevance, and then pretested among mechanic workers who were excluded from the main data collection. The statements were adapted from WHO's pain management guidelines. The questionnaire had both open ended and close ended questions which reflected the aims of this research. The open-ended questions were meant to give respondents more room to express themselves. The close ended questions had possible answers out of which the respondents were required to select the appropriate answer accordingly. The questionnaires were distributed to the respondents at their workshops.

2.8 Data Organization, Entry and Analysis

Data collected from the field in the form of 420 completed questionnaires were numbered (1-420) in order to facilitate the data's entry into the Statistical Package for the Social Sciences (SPSS) version 20 software and to avoid double recording of information from the same questionnaire. The raw data collected from the field with the questionnaires were coded into the SPSS and Microsoft Excel software. After the data had been entered, descriptive analysis, using frequency tables, bar graphs and pie charts were derived. The analysis was guided by the key objectives and research questions and the analysis was done in relation to the literature reviewed.

3. RESULTS AND DISCUSSION

3.1 BACKGROUND CHARACTERISTICS OF RESPONDENTS

The demographic breakdown of the respondents revealed a predominant male representation at 89%, with females comprising the remaining 11% (Figure 2). The age distribution indicated that the majority, 51%, were within the 26-35 age bracket. The 36–45-year age group accounted for 24% of the participants. Those aged 46-55 years made up 9%, while a minor 1% were 17 years or younger. Respondents aged 56 years or older constituted 2% of the sample (Table 1). In terms of marital status, a significant 62 % were married, 34 % were single, and 4 % were divorced (Figure 3). This demographic profile provides insight into the varied backgrounds of the mechanics involved in the study, highlighting the prevalence of younger, married males in this occupational sector.

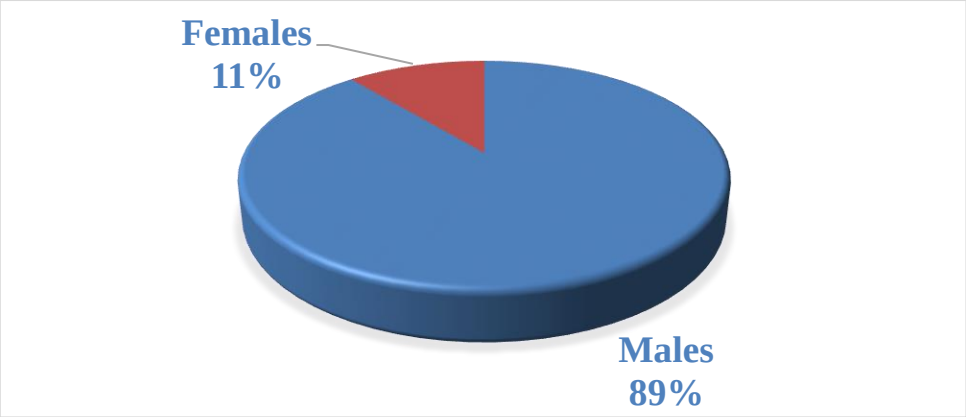

Figure 2: Gender of respondents

Table 1: Age range of respondents

AGE RANGE (YEARS)	FREQUENCY	PERCENT (%)
LESS THAN 17	-	-
18 - 25	59	14.0
26 - 35	214	51.0
36 – 45	101	24.0
46 – 55	38	9.0
56 AND MORE	8	2.0
TOTAL	420	100.0

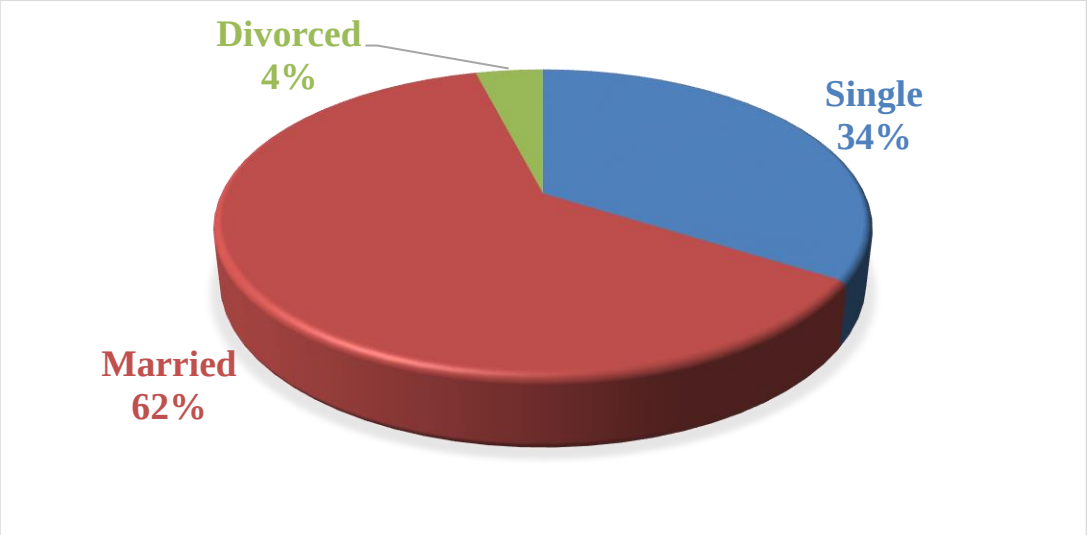

Figure 3: Marital status of Respondents

3.2 Prevalence of analgesics abuse

In the study, it was revealed that the all the respondents admitted that they had used analgesic drugs in their life. According to research conducted by Badzi and Ackumey, (2017), 100 % of construction workers interviewed in the Ga-East municipality of the Greater Accra region, Ghana uses analgesics. From the results obtained, it was found that 97% admitted engaging in analgesics misuse, only 3 % had not engaged in analgesics misuse. This was found to be a high figure and though there are currently no national figures to compare with, it was found to be in concordance with studies done in Nigeria (91.4 %) [13]. Prevalence rates are thought to be even higher in some developing countries in Africa like Egypt [14]. The very high prevalence of analgesic abuse (97 %) in this study was consistent with the conclusion of studies done by [10]. Studies conducted in Nigeria by Abdu-Aguye et al., (2017) have revealed that analgesics use was principal means by which people deal with pains without being medically examined. The authors further explained and projected that one out of every two Nigerian abuse analgesics drugs, especially in the rural areas. The 3 % of the respondents who did not indulge in analgesic abuse do take analgesics drugs but only when prescribed by a medical professional, and they do take them as instructed.

3.3 Sources of information and acquisition of analgesics abuse drugs.

It was also revealed that the most prevalent source of information regarding analgesic drugs was personal recommendations from friends, accounting for 46.4% of respondents. Following closely, radio advertisements constituted the second most common source, with a 23.7% share. Sales representatives, both male and female, contributed 17.5%, while television advertisements trailed at 12.4% (Table 2). Interestingly, these findings align with research conducted in India, where friend referrals were also the predominant source of information on analgesic use [16]. However, the trend diverged slightly in Nigeria where media outlets took precedence, followed by prescription recommendations from friends [17]. Moreover, the vigorous media advertisements done by pharmaceutical companies is one of the major causes of analgesics abuse in many developing countries.

When respondents were asked about their methods of obtaining analgesic drugs, 50.5 % admitted to directly purchasing them from chemical shops. A smaller percentage (7.2 %) acquired drugs through friends, while 12.4 % relied on drug peddlers. The remaining 29.9 % obtained analgesics from pharmacies (Figure 4). Interestingly, the accessibility of chemical shops surpassed that of pharmacies due to the latter's requirement for a medical practitioner's prescription. Meanwhile, drug peddlers continue to play a significant role in disseminating information about analgesics in developing countries [18]. With a wide array of analgesic drugs available over the counter, addressing various health challenges has become more accessible.

Table 2: Sources of information on Analgesics

Sources	Frequency	Percent (%)
Advert on Radio	99	23.7
Salesmen and women	73	17.5
Advert on TV	52	12.4
Friends	194	46.4
Total	420	100.0

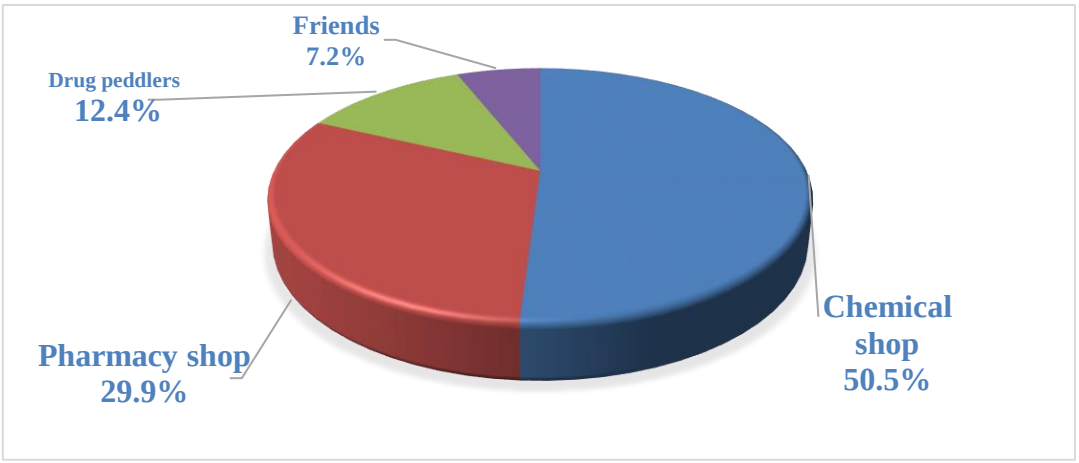

Figure 4: Acquisition of Analgesics

3.4 Reasons for Analgesic Abuse and Usage Patterns

The results also shed light on the diverse reasons behind participants' engagement in analgesic abuse. Chronic bodily pain emerges as the primary motivator, accounting for 42.1% of cases (Figure 5). Borsook et al.,(2013) further elaborate that individuals often turn to analgesics due to persistent discomfort in specific body regions. Specifically, 27.8% of respondents reported muscle pain, while 19.6% attributed their use to headaches.

Additionally, 9.3% of participants acknowledged using analgesics to facilitate sleep. In a separate investigation conducted by Badzi and Ackumey, (2017), 66.4% of respondents resorted to analgesic drugs to alleviate aches and pains. Notably, 26.6 % of individuals also relied on analgesics to induce sleep after a demanding day.

Regarding specific analgesic preferences, 36.1 % of respondents commonly abused paracetamol. Surprisingly, Tramadol abuse was minimal, accounting for only 1% in this study. The World Health Organization (WHO) has reported growing evidence of Tramadol abuse in certain African and West Asian countries, particularly through large seizures of these preparations in North and West Africa [20]. Interestingly, at Suame magazine, mechanics (fitting workers) demonstrated a preference for other analgesics over Tramadol (Figure 6). With regards to the appropriate dosing, approximately 57.7 % of analgesic abusers consumed 1-2 tablets/capsules per dose for months (Table 3). This contrasts with findings from earlier studies conducted by Badzi and Ackumey, (2017), where an impressive 61.8 % opted for 4-6 tablets/capsules per dose. Only a negligible 1 % took 6 or more tablets/capsules, compared to 2 % (Table 4).

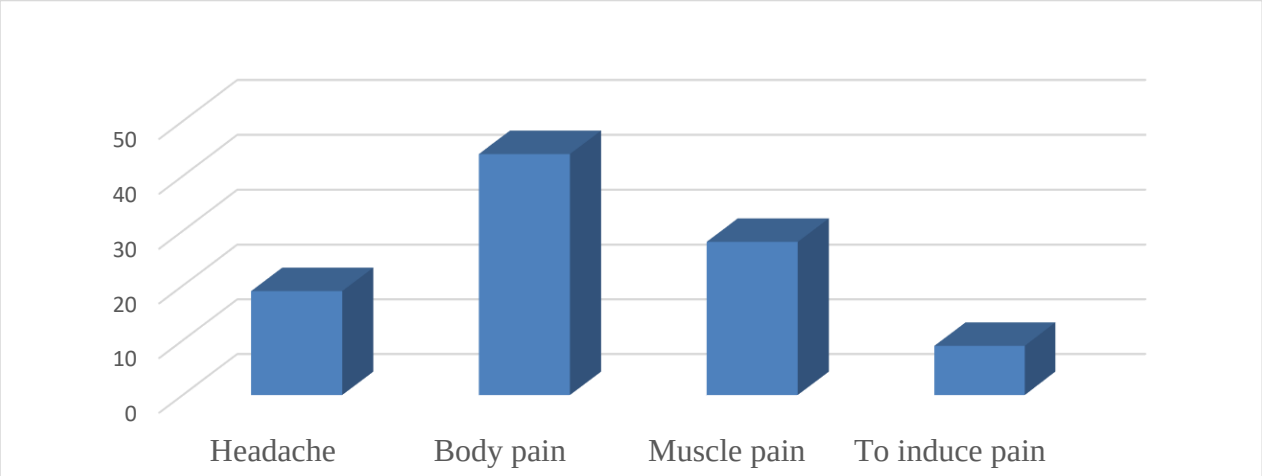

Figure 5: Reasons for analgesics abuse

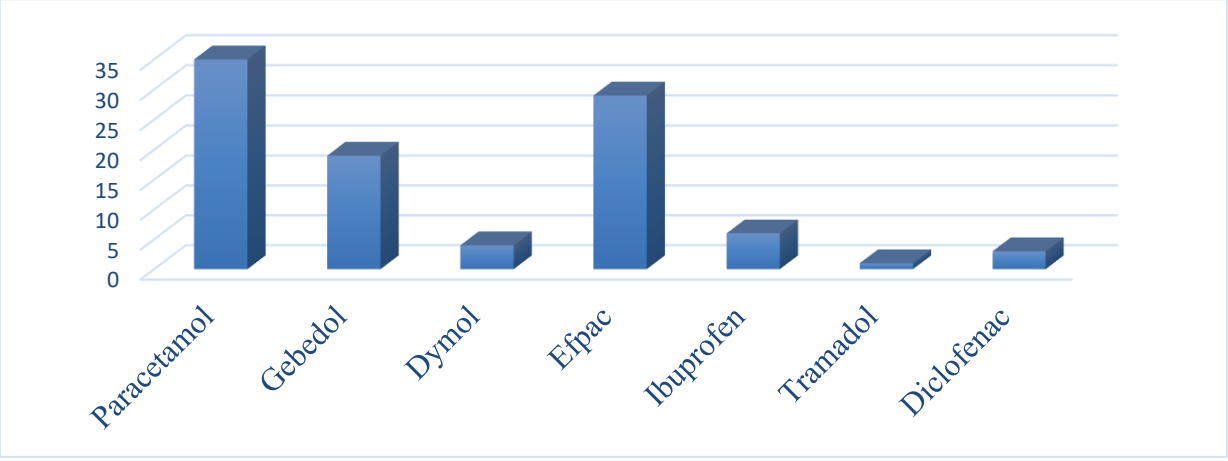

Figure 6: Common Analgesics use

Table 3: Number of tablets/capsules taken per day

Number used	Frequency	Percent (%)
1 - 2	242	57.7
3-4	152	36.1
5 - 6	22	5.2
6 or more	4	1.0
Total	420	100.0

Table 4: Duration of taken Analgesics

Period	Frequency	Percent (%)
1 – 3 months	177	42.2
4 – 6 months	134	32.0
6 – 12 months	82	19.6
1 year or more	26	6.2
Total	420	100.0

3.5 Side effects of analgesic abuse

Even though 97 % of respondents admitted to self-medication of analgesics, an overwhelming 55% does not have knowledge or education about any adverse complication from analgesic abuse, only 45 % have knowledge or education on side effects of analgesics abuse (Figure 7). This can be because of lack of awareness concerning the mechanism of drug action. Moreover, their relief from the pain is all the matters to them. This finding was consistent with the findings of a study done in Slovenia among non-health personnel where it was concluded that people with less knowledge about drugs abuse them [21]. The remaining 45 % of respondents admitted of having knowledge or education on side effects of analgesic abuse and had the commonest complications including dizziness (47.7 %), Nausea (18.2 %), headache (11.45 %), heart burn (15.9 %), whiles the remaining respondents (6.8 %) mentioned vomiting (Figure 8).

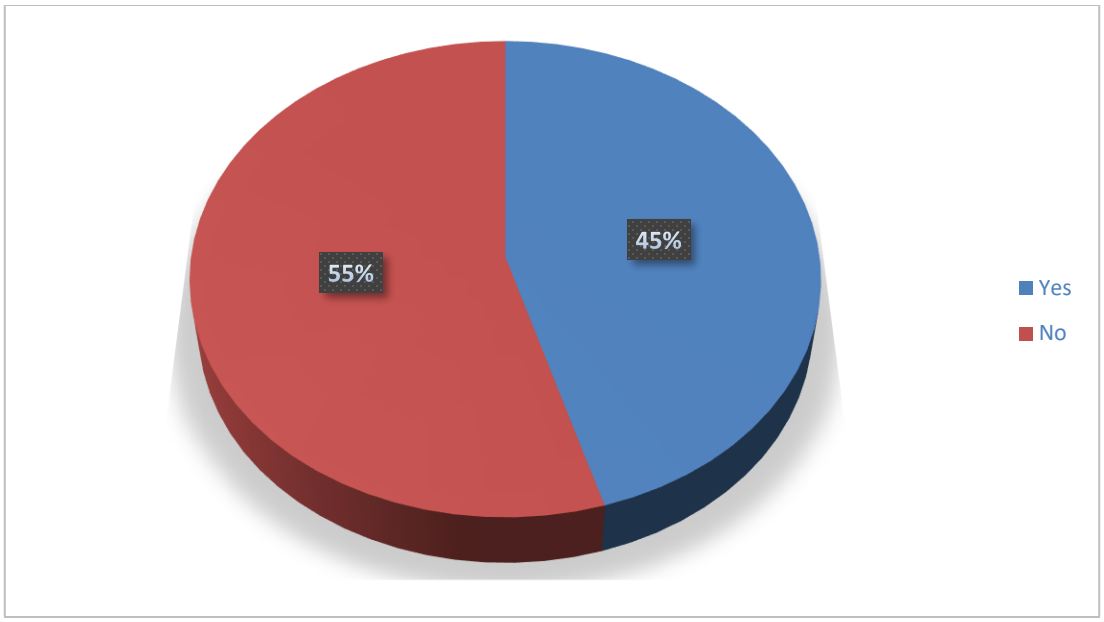

Figure 7: Knowledge/education on side effects of analgesics abuse

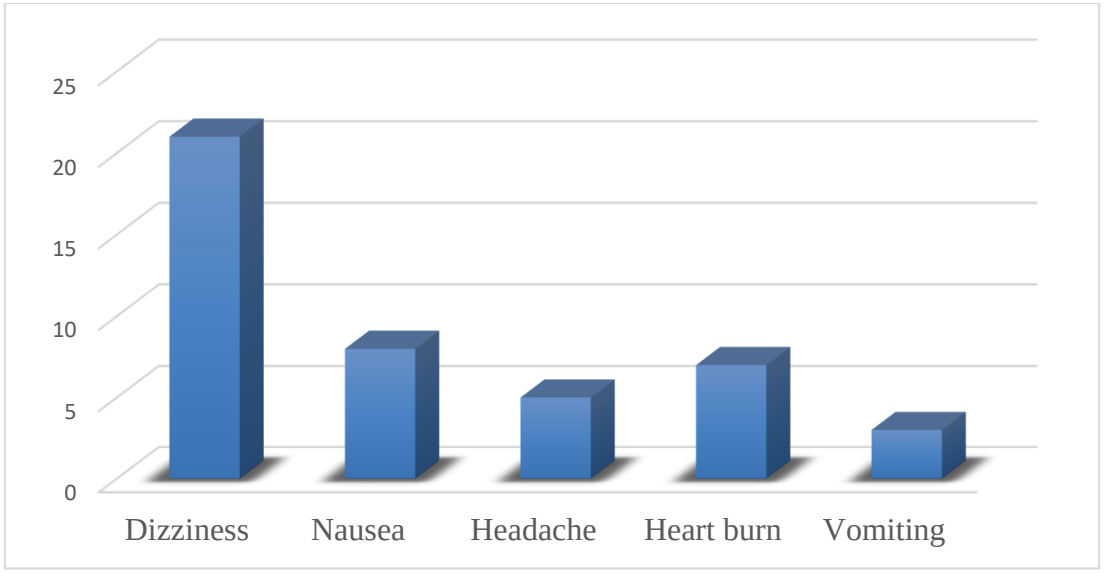

Figure 8: Common side effects known to the Respondents

4.0 CONCLUSION

This study has illuminated the critical issue of analgesic misuse among mechanics at Suame Magazine. The findings highlight a significant gap in knowledge regarding the safe use of analgesics and the potential adverse effects of their misuse. The mechanics' reliance on analgesics for occupational pain relief underscores the need for comprehensive education on medication management and the risks associated with self-medication. It is imperative that all stakeholders including healthcare providers, particularly those in pharmacies, take an active role in this educational effort. By providing clear guidance on the indications, contraindications, and possible side effects of medications to enable individuals make informed decisions about their health. Ultimately, this study advocates for a collaborative approach between healthcare

professionals and the community to reduce the prevalence of analgesic abuse and promote a culture of safe medication practices.

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AUTHORS' CONTRIBUTIONS

Priscilla Arthur-Norman designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Desmond Asamoah Bruce Otu designed the study, performed the statistical analysis, co-wrote the first draft of the manuscript and reviewed the final draft and 'Author C' managed the analyses of the study. 'Author D' managed the literature searches. All authors read and approved the final manuscript.

ETHICAL APPROVAL AND CONSENT

Ethical clearance was obtained form the royal ann college of health (Clearance Ref number). Furthermore, permission was sought from the Suame Municipal assembly before the study commenced. Written informed consent was obtained from all participants who took part in the study. Likewise, confidentiality and maintenance of anonymity were ensured by using pseudo names.

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