



Assessment of analgesic usage among the patients in Bingham University Teaching Hospital

Builders M.I¹, Bassi P.U²

¹Department of Pharmacology and Therapeutics, College of Health Sciences, Bingham University, Jos, Nigeria. ²Department of Pharmacology and Therapeutics, College of Health Sciences, University of Abuja, FCT, Nigeria.

*Corresponding Author: modupebuilders@yahoo.com

Received: 18.11.16; Accepted: 18.08.17; Published: 21.08.17

ABSTRACT

Background: Analgesics are the most commonly used drugs not only to relief of pain and fever but also for their anti-inflammatory effect. Inappropriate use of these drugs had led to increased risk of unwanted effects such as adverse drug reactions. **Aim:** This study was conducted to evaluate the attitudes of patients to analgesic usage in a tertiary hospital in Northern part of Nigeria. **Method:** Male and female patients attending the out-patient clinic were assessed using a structured questionnaire on the pattern of analgesic usage. **Results:** Out of the 97 participants, 71.1% were female. About forty seven percent (47.1%) of the respondents reported to have used analgesic to treat headache. Acetaminophen was the most used analgesic among the (75.5%) respondents. Majority of the patients (79.1%) were on self-medication. Half of the respondents administered acetaminophen three times a day. Some of the respondent (47.4%) who were traders, drivers, tailors, hairdressers, and construction workers used acetaminophen for three days. **Conclusion:** There is need for continue analgesic education programme for the patients. This will go a long way to reduce unnecessary analgesic usage and the possible side effects.

Key words: Analgesic, opioids, prostaglandins, pain, narcotics, NSAIDS

INTRODUCTION

Pain is a medical condition which interferes with a person's quality of life and general function, this discomfort is managed by analgesics.^[1] Analgesics can be classified as non-narcotic (non-opioid) which include acetaminophen, aspirin, non-steroidal anti-inflammatory drugs (NSAIDs) and narcotic analgesics.^[2]

Acetaminophen (paracetamol) induces analgesia through central but not peripheral inhibition of prostaglandin. It is used for mild pain, fever, as an alternative for aspirin and lacks anti-inflammatory activity. Therapeutically, acetaminophen is used for pain relief in the symptomatic treatment of various musculoskeletal and joint disorders.^[3] Acetaminophen does not cause

gastrointestinal problems like the NSAIDs. At a toxic dose, paracetamol saturates the hepatic pathway normally involved in its metabolism, hence it is been metabolized by an alternative pathway to N-acetyl-p-benzoquinone imine(NABQI), a toxic metabolite, which is inactivated by glutathione.^[3] Excess NABQI causes necrosis of the liver and renal tubules since glutathione may be easily depleted.^[4]

Aspirin (acetyl salicylic acid) has analgesic, anti-inflammatory and antipyretic properties which many analgesics do not have. The analgesic activity is due to its peripheral effect as well as direct effect on the CNS.^[3] The dose of aspirin depends on the condition being treated. The types of pain usually relieved by aspirin are those of low intensity that arise from integument structures rather than from viscera, especially headache, myalgia, rheumatoid arthritis and rheumatic fever, neuralgia, dysmenorrhea and arthralgia. The adverse effects associated with aspirin are gastrointestinal effects, blood disorders, auditory and vestibular disturbances, skin reactions.^[5]

Non-steroidal anti-inflammatory drugs (NSAIDs) have analgesic, anti-inflammatory and anti-pyrexia effects.^[6] NSAIDs reduce pain by reversibly or irreversibly inhibiting cyclooxygenase 1 and 2 (COX 1 and COX 2) enzymes involved in the synthesis of unstable precursors of prostaglandins. They include ibuprofen, piroxicam, diclofenac, and naproxen and have been used successfully to relieve biliary pain, acute pain of renal colic, postoperative pain, mild pain of sickle cell crisis, and ectopic bone formation pain and dysmenorrhea.^[7] The most common side effects of NSAIDs are gastrointestinal. The inhibition of prostaglandin formation in the stomach wall can lead to inflammation, bleeding and ulceration. NSAIDs can also cause acute renal failure and renal papillary necrosis (analgesic nephropathy), which can progress to end-stage renal failure.^[8]

Narcotic analgesics are also known as opioid analgesics. They are subdivided into strong opioids which include full agonists such as morphine, diamorphine, hydromorphone, methadone, pethidine, oxycodone, levorphanol, fentanyl and alfentanil. Partial agonists such as etazocine, butorphanol,

halbuphine and dezocine.^[3,5] They are mainly used in the treatment of severe acute opioid sensitive pain and chronic opioid sensitive cancer pain. Drug dependence and withdrawal syndrome are common with morphine or related drugs.^[3]

Codeine is traditionally the weak opioid analgesic of choice, alternatives include dextropropoxyphene and dihydrocodeine. They are often given with non-opioid analgesics for the treatment of moderate to severe opioid sensitive pain. Opioid drugs produce analgesia through opioid receptor binding on cell membranes, producing simultaneous activity at multiple presynaptic, postsynaptic, and nervous system sites. Constipation, respiratory depression, generalized pruritus are adverse effects associated with these analgesics.^[7]

The relationship between pain and regularity of analgesic use had been studied. Blamey *et al.*^[9] had shown that people in more pain tended to take analgesics more regularly and pre-emptively (particularly before sleep). Age, gender, education and occupation of patients had been linked to chronic pain, such as backache, musculoskeletal pain and headaches/migraines.^[10, 11] According to Hargreaves *et al.*, age is closely associated with continuous analgesic use, which may explain why age can also have an effect on the prevalence of gastrointestinal damage due to analgesics.^[12]

Patients often have inadequate knowledge and misconceptions on analgesic usage, improved patient education may reduce unnecessary analgesic usage and chronic renal failure in the community according to Builders *et al.*, Murtaza *et al.*, and Jafari *et al.*^[13,14,15]

Since analgesics are widely available, used, abused and misused, a better understanding of patients' attitude to analgesic usage is needed to determine the extent of problem use of analgesics as well as help to improve the quality of life by educating people about the appropriate use of these drugs.^[13]

Therefore, the aim of this study was to assess the attitude and knowledge of the patients

towards analgesic usage at the outpatient clinic of this tertiary health institution.

METHODOLOGY

Study design

This cross-section study involved universal sampling of patients in the outpatient department of Bingham University Teaching Hospital for a period of 4 months, January to April 2016. The questionnaire was divided into two sections A and B. Section A comprised of 5 closed questions including demographic information (gender, age, marital status, education and occupation) while section B contained 9 open questions relating to type of pain, name, frequency, duration of analgesics taken before hospital visit and prescriber of the analgesic with several options for each question.

The Ethical Committee of the Department of Health Research and Ethics Committee, Bingham University Teaching Hospital gave the approval for this study.

Study population

Patients who were 11 years and above and who were waiting at outpatient clinic to see their physicians participated in this study. The outpatient clinic is made up of people of different classes and socio-economic background from different areas in Jos. The interviews were based on the free and informed consent of the study participants.

Outcome measures

The primary hypothesis was that usage of analgesics is associated with patient attitude. Patient attitude was included in the analysis if one or more of the following characteristics were recorded on the questionnaire: Age, sex, education, occupation, frequency and duration of analgesics.

Statistical analysis

Analyses were conducted using SPSS software Version 20.0. Statistical tests were two-sided, and bivariate analysis was done with Pearson test to investigate association at 0.05 and 0.01 levels of significance.

RESULTS

Figure 1 shows the age and sex of the patients. Most of the participants were females (71.1%). The majority of the respondents (56.7%) were between 31 to 40 years and above. There was a significant association between the age and sex of the patient.

Approximately 54.8% of the participants who were traders, tailors, constructive workers and hairdressers reported to use analgesics to treat headache, general body pain, stomach pain, chest pain, and other pains like joint pain, back pain, menstrual pain, and toothache and so on. The association between the patients' occupation and pain treatment was significant as indicated in figure 2.

Acetaminophen was the most commonly used analgesic ranging from patients with primary (10.2%), secondary (27.6%), undergraduate (24.5%), graduate (12.2%) and none (1%) according to their education level. There was no significant association between the analgesic usage and level of education of the patient as shown in figure 3.

In figure 4, majority of the respondents (79.1%) answered that they used the analgesics without prescription. The prescription of the analgesic was not associated with the educational level of the patient.

The most frequently used analgesic acetaminophen was administered by 75.5% of the subject once to thrice a day, the association between the acetaminophen and frequency of administration was highly significant as shown in figure 5.

About 68.9% of the business patient administered the acetaminophen from 1 day to more than 7 days followed by 14.2% of the civil servant, there was a high significant association between the occupation of the patient and duration of treatment of acetaminophen as indicated in figure 6.

Builders and Bassi: Analgesic usage among patients

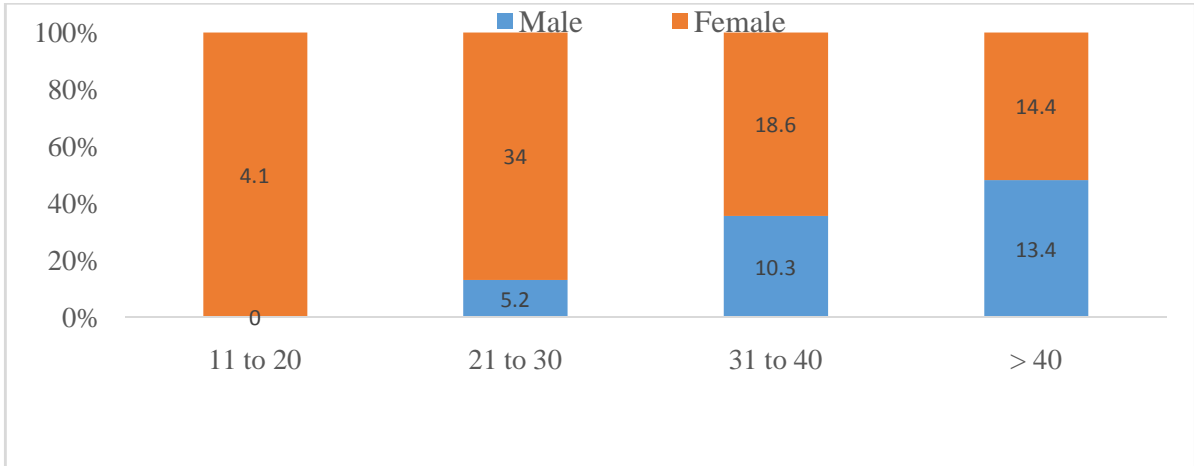


Figure 1: Gender and age distribution of the patients
 ** Correlation is significant at the 0.01 level (2-tailed)

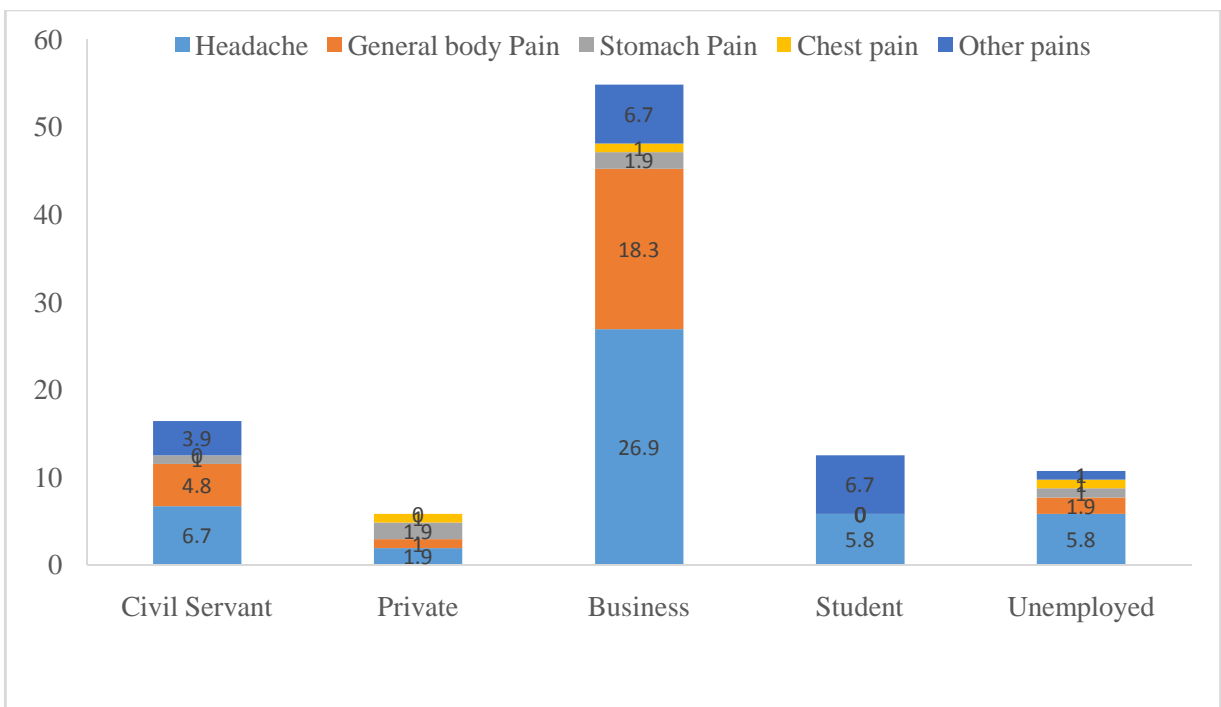


Figure 2: Distribution of patients according to pain treatment
 ** Correlation is significant at the 0.01 level (2-tailed)

Builders and Bassi: Analgesic usage among patients

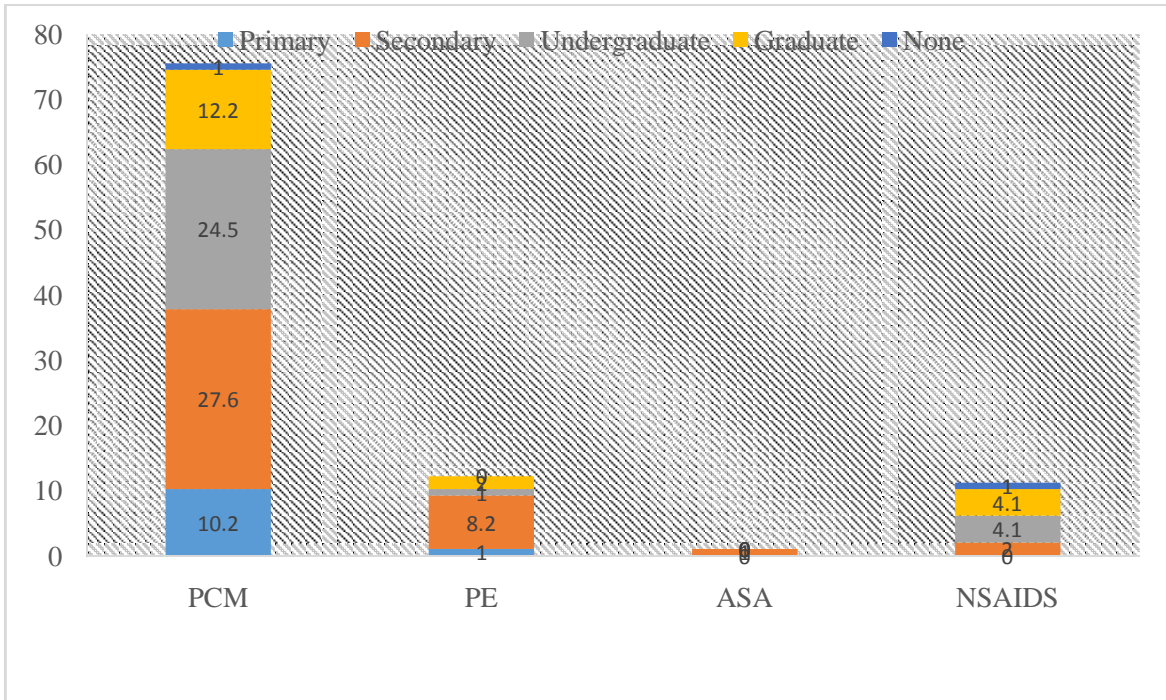


Figure 3: Relationship between patient educational level and analgesic usage
 Keys: PCM; Acetaminophen, PE; Acetaminophen+ Caffeine, ASA; Acetylsalicylic acid; NSAIDS; Non-steroidal anti-inflammatory drugs

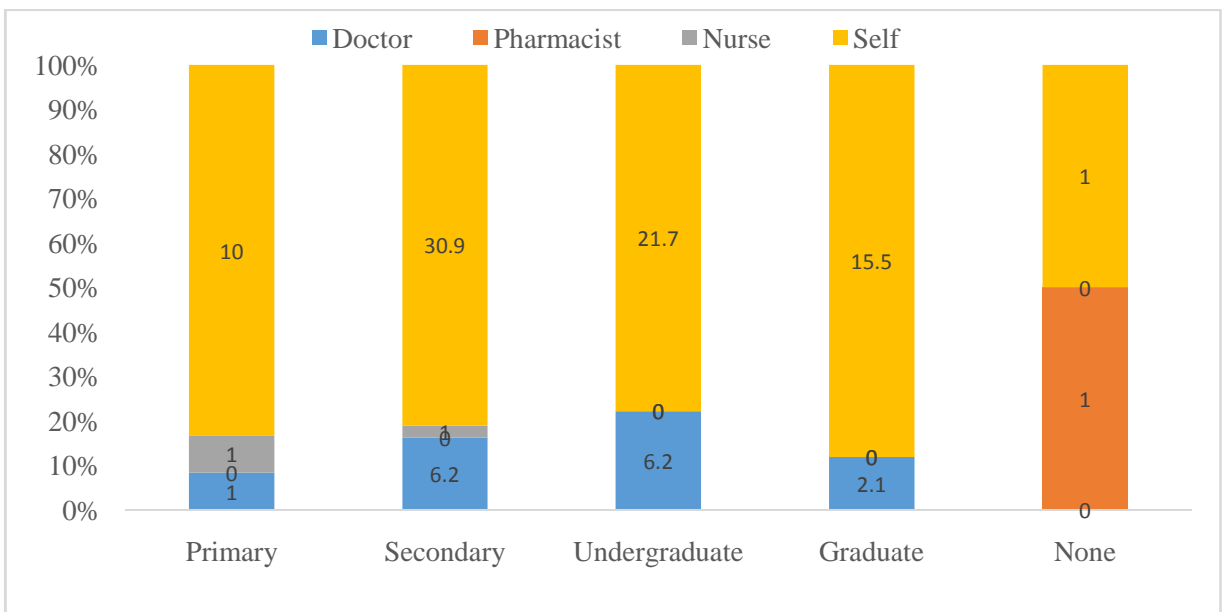


Figure 4: Relationship between patient educational level and prescribers

Builders and Bassi: Analgesic usage among patients

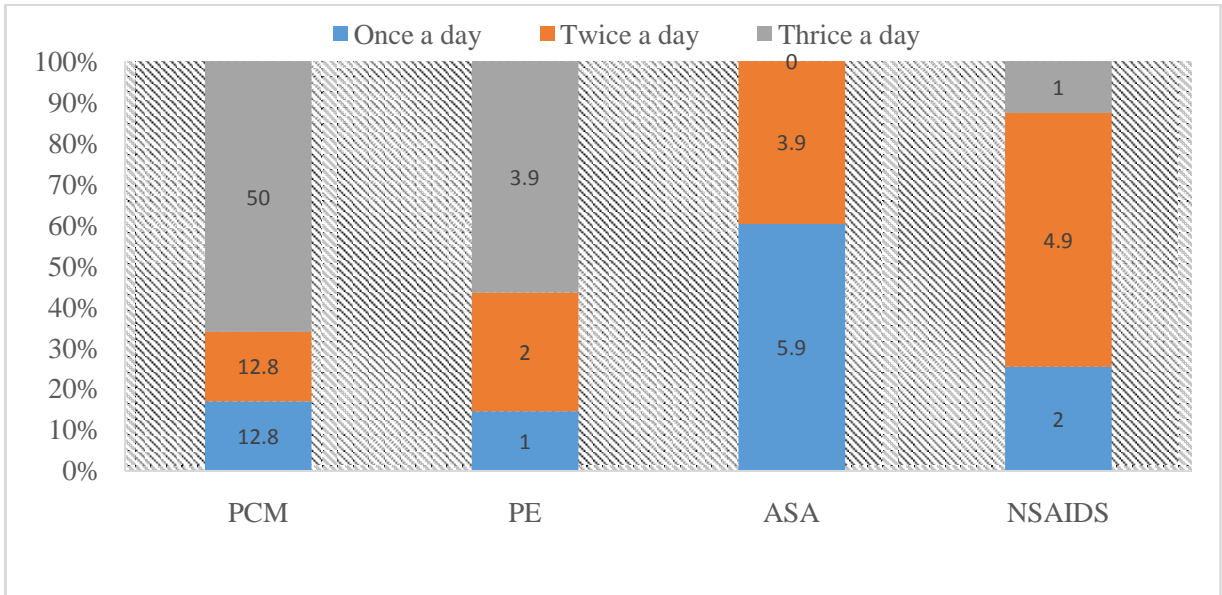


Figure 5: Relationship between analgesics and frequency of administration
 ** Correlation is significant at the 0.01 level (2-tailed)

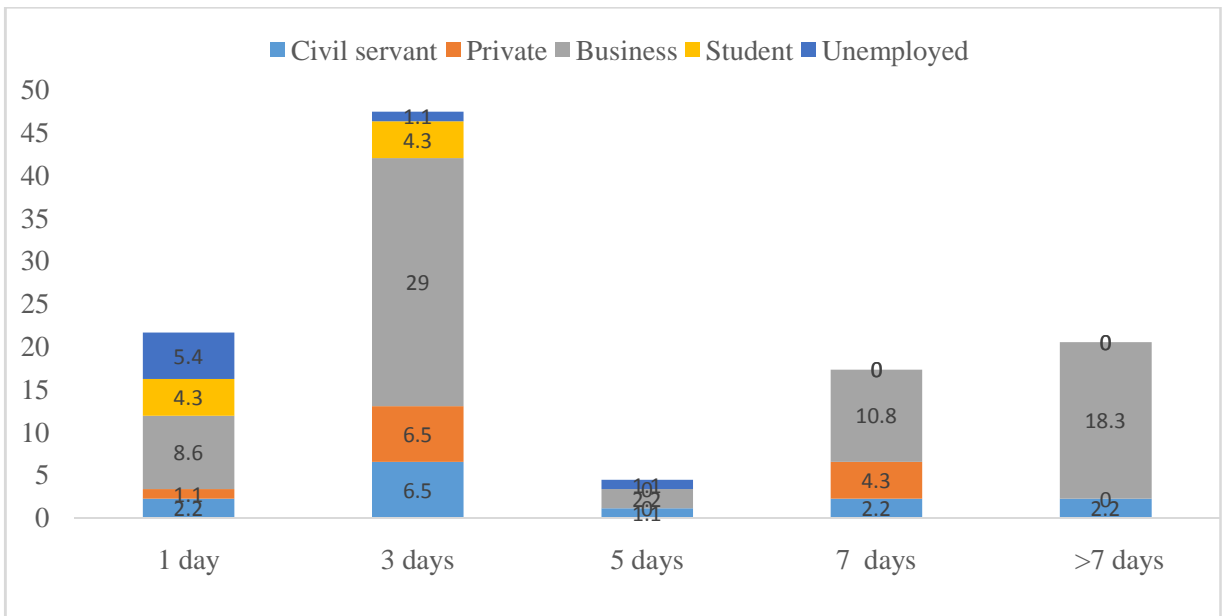


Figure 6: Relationship between patients' occupation and duration of therapy
 ** Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

The present study shows that female patients visit clinic pain more than male counterpart, the result of this finding is in agreement with research conducted by Murtaza *et al.*^[14] and Golar,^[4] where the majority of the respondents were females. Many theories such as sex-roles, social support, stress, biological difference related to women's reproductive life and menstrual pain were responsible for high analgesic usage among women according to Hargreaves *et al.*^[12]

Analgesic consumption was more common in patient of both middle age group and elderly group. Study has shown that elderly patients majorly suffer from the pains of joints, back and legs especially between the age of 41 and 60 years.^[14] The high significant association between the age and sex of the patient can be explained by inclusion of females and males, younger, middle and elderly age groups in this survey.

Socio-economic status such as occupation is an important predictor of mortality and morbidity, is linked to both general health and pain according to a research.^[10] Employees in Helsinki with relatively low educational attainment and occupational class were most at risk of chronic/disabling pain,^[11] since stress is associated with the socio-economic status-health relationship,^[10] therefore occupation status of the patient is highly associated with the pain. The association between the education status of the patient and analgesic usage is not significant, research conducted by Wakefield *et al.* and Platts-Mills *et al.*^[1,16] showed that patients of lower education were found to experience more pain than patients of higher education, however the education level of the patient does not depend on the type of the analgesic.^[17] Thus, this justifies insignificant association between the education attainment of the patient and analgesic usage.

Many studies have shown that the most common drug used for self-medication is analgesic,^[15,18] these results agree with our findings. The reasons for the self-medication of this class of drug may be as a result of easy

availability of the drug,^[19,20] low cost and time saving.^[19] Self-medication which is the unnecessary consumption of medicine without physician's prescription is a serious public health problem all over the world especially in the developing countries. Findings from the study revealed that self-medication was more among the literate participants with at least secondary education compared with those with primary education and the illiterate ones. These findings correlates with studies conducted by Sarahroodi *et al.* and Fuentes and Villain which high level of self-medication among the educated patients was reported.^[21, 22] Our study showed no significant association between the prescriber of analgesic and the education level of the patient since all the respondents had access to these drugs due to its availability, this is similar to the result of study of Alexa *et al.* in 2014.^[23]

Acetaminophen which is a known common household analgesic was used to treat all pains of varied origin. Findings of this study correspond with the results of Blamey *et al.*, Builders *et al.*, Golar, and Blamey *et al.*^[4,9,13] The choice of acetaminophen by all the participants could be due to its safety at standard dose, lack of side effects common to other analgesics, acceptability and tolerability.^[24]

The prescription of analgesic is dependent on the type of pain, the intensity of pain, the individual needs and the circumstances of the patient,^[25] therefore there was a high significant association between the choice of analgesic and the frequency of administration of analgesic. This shows that patients have their own beliefs, interpretation of pain, and ways of managing pain.^[26, 27] According to the guidelines of administration of analgesic medication, analgesia should be provided at an appropriate dose and frequency to control pain. The results of this research is in accordance to these guidelines.^[28]

Pain is a very common health problem which interferes with quality of life and work performance,^[29] therefore the association between patient's profession and the duration of therapy is highly significant. This study demonstrated that many of workers who were exposed to vibrations, or long standing positions

such as occupational drivers, tailors, hairdressers, construction workers, secretary, and traders suffered from all different types of pains. In addition some studies have shown that "pain is associated with working postures which include bending heavily with one's trunk, bending and twisting simultaneously with one's trunk, a bent and twisted posture for long periods, and making repetitive movements with the trunk".^[30] Our findings corroborates these previous studies.

These results also confirmed the high association between the patient's occupation and type of pain, this is because it is well established that prolonged stress response activation—especially such as in the case of chronic stress, can promote body tissue breakdown, thus producing chronic pain.^[31]

LIMITATION OF STUDY

This study is limited to small sample size, outpatients, inability to determine the pain intensity and lack of information on the patients' income.

CONCLUSION

In this study, patients' occupation influenced pain treatment reported by patients, analgesic usage was related to administration of analgesics. More research is recommended in order to determine the relationships between pain intensity, patients' income and analgesic prescription. Further investigations will enhance patient knowledge and attitude on the pain management which will help to improve quality of life.

REFERENCES

1. Kamaldeen A, Omuya L.M, Buhari A.M, Saka A.O and Saka M.J. Evaluation of analgesics usage in pain management among physicians. *J Appl Pharm Sci* 2012;2:194-198.
2. Builders M.I, Okonta J.M and Aguwa C.N. Prescription patterns of analgesics in a community hospital in Nsukka. *J Pharm Sci Res* 2011;3:1593-1598.
3. Rang HP, Dale MM, Ritter JM, and Moore PK. *Pharmacology*, 7th ed. Churchill Livingstone, London; 2003. pp.588-609.
4. Golar S.K. Use and understanding of analgesics (painkillers) by Aston university students. *Biosci Horizon* 2011;4:71-78.
5. Aguwa M.I. Analgesics, in; *A hand book of pharmacology and allied health professions*. Africana-FEP.Pub Ltd, Nigeria; 1998. pp. 72-74.
6. Carlos S, Gargallo G.J, Arroyo M.T and Lanas A. Adverse effects of non-steroidal anti-inflammatory drugs (NSAIDs, aspirin and coxibs) on upper gastrointestinal tract. *Best Pract Res Clin Gastroenterol* 2010;24:121–132.
7. Merskeys H, Melzack R and Wall P. Pain and analgesics. In: *Clinical Pharmacology*. Eds. Churchill Livingstone, Edinburgh;1997. Pp. 286.
8. Abbott F.Vand Fraser B.A. Use and abuse of over-the-counter analgesic agents. *J Psychiatry Neurosci* 1998;23:13-34.
9. Blamey R, Jolly K and Greenfield S. Patterns of analgesic use, pain and self-efficacy: a cross-sectional study of patients attending a hospital rheumatology clinic. *BMC Musculoskeletal Disorders* 2009;10:1-9.
10. Wakefield JR, Sania F, Madhokb V, Norburyc M and Dugarda P. The pain of low status: the relationship between subjective socio-economic status and analgesic prescriptions in a Scottish community sample. *Psychology, Health and Medicine* 2015: 1-10.
11. Saastamoinen P, Leino-Arjas P, Laaksonen M and Lahelma E. Socio-economic differences in the prevalence of acute, chronic and disabling chronic pain among ageing employees. *Pain* 2005;114:364-371.
12. Hargreave M, Andersen TV, Nielsen A, Munk C, Liaw K.L and Kjaer S.K. Factors associated with a continuous regular analgesic use - a population based study of more than 45 000 Danish women and men 18–45 years of age. *Pharmacoepidemiol Drug Safety* 2010; 19: 65–74.
13. Builders M.I and Aguwa C.N. Patient's attitude towards analgesic usage in Nsukka community. *Der Pharmacia Lettre* 2012;4:641-647.
14. Li1 T, Murtaza G, Azhar S, Nasir B, Raza H, Shah SH, Farzana K, Khan AK, Mir S, Li1 Y, Nisa Z.U and Xu X. Assessment of the determinant of choice of 'over the counter' analgesics among students of a University in Abbottabad. *Pak Trop J Pharm Res* 2014;13:1713-1717.

15. Jafari F, Davati A and Javanmard A. Self-medication and its related factors in health educational organization staff. *Biosci Biotechnol Res* 2013;10:775-780.
16. Platts-Mills T.F, Hunold K.M, Bortsov A.V. More educated emergency department patients are less likely to receive opioids for acute pain. *Pain* 2012;153:967–973.
17. Lanitis S, Mimigianni C, Raptis D, Sourtse G, Sgourakis G and Karaliotas C. The impact of educational status on the postoperative perception of pain. *Korean J Pain* 2015;28:265-274.
18. Jafari F, Khatony A and Rahmani E. Prevalence of self-medication among the elderly in Kermanshah-Iran. *Global J Hlth Sci* 2015;7:360-365.
19. Osemene K.P and Lamikanra A. A study of the prevalence of self-medication practice among University students in Southwestern Nigeria. *Trop J Pharm Res* 2012;11: 683-689.
20. Ibrahim N.K, Alamoudi B.M, Baamer W.O and Al-Raddadi R.M. Self-medication with analgesics among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. *Pak J Med Sci* 2015;31:14-18.
21. Sarahroodi S, Maleki-Jamshid A, Sawalha A.F and Mikaili P and Safaeian L. Pattern of self-medication with analgesics among Iranian University students in central Iran. *J Family Community Med* 2012;19:125-129.
22. Fuentes A.K and Villa Z.L. Analysis and quantification of self-medication patterns of customers in community pharmacies in southern Chile. *Pharm World Sci* 2008;30:863-868.
23. Alexa I.A, Pancu A.G, Moroşanu A.I , Ghiciuci C.M, Lupusorui C, Prada G.I, Cepoi V. The impact of self-medication with NSAIDs/analgesics in a north-eastern region of Romania. *Farmacia* 2014;62:1164-1170.
24. Fehintola F.A and Ganiyu A.A. Prescriptions involving analgesic drugs at a secondary health facility in Ibadan, Nigeria. *Annals of Ibadan Postgraduate Medicine* 2008;6:34-38.
25. Morton N.S. Development of a monitoring protocol for safe use of opioids in children. *Paed Anaesth* 1993;3:179-184.
26. Davidhiza R and Giger J.N. A Review of the literature on care of clients in pain who are culturally diverse. *International Nursing Review* 2004;51:47-55.
27. Narayan M.C. Culture's effects on pain assessment and management. *The American Journal Nursing* 2010;110:38-47.
28. Deyo R.A and Weinstein J.N. Low back pain. *The New Engl J Med* 2001;344:363–370.
29. Coeuret-Pellicer M, Descatha A, Leclerc A and Zin M. A discussion on the results of a multipurpose cohort. *Arthritis Care Res* 2010;62:125-132.
30. Natarajan R.N and Andersson G.B. The influence of lumbar disc height and cross-sectional area on the mechanical response of the disc to physiologic loading. *Spine* 1999;24:1873–1881.
31. Melzack R. Pain and stress: A new perspective, in: psychosocial factors in pain, eds. Guilford Press, New York, NY; 1999. pp. 89-106.

doi: <http://dx.doi.org/10.14194/ijmbr.6.2.5>

How to cite this article: Builders M.I, Bassi P.U. Assessment of analgesic usage among the patients in Bingham University Teaching Hospital. *Int J Med Biomed Res* 2017;6(2):92-100

Conflict of Interest: None declared

Submit your valuable manuscripts to Michael Joanna Publications for:

- User-friendly online submission
- Rigorous, constructive and unbiased peer-review
- No space constraints or colour figure charges
- Immediate publication on acceptance
- Unlimited readership
- Inclusion in AJOL, CAS, DOAJ, and Google Scholar

Submit your manuscript at
www.michaeljoanna.com/journals.php



Submit your next manuscript to any of our journals that is the best fit for your research



International Journal of Medicine and Biomedical Research

Scope: *IJMBR publishes cutting edge studies in medical sciences*

Editor-in-Chief: *Sofola A. Olusoga, MBBS, PhD, FAS*

Deputy Editor: *Lehr J. Eric, MD, PhD, FRCSC*

URL: *www.ijmbr.com*

E-mail: *editor@ijmbr.com*

Pissn: *2277-0941, eISSN: 2315-5019*



International Journal of Ethnomedicine and Pharmacognosy

Scope: *IJEP publishes novel findings on the use of complementary and alternative medicine in the management of diseases*

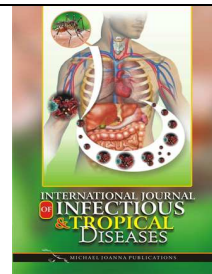
Editor-in-Chief: *Dickson A. Rita, B.Pharm, GCAP, PhD, MPSGh, MCPA*

Deputy Editor: *Kuete V., PhD*

URL: *www.ijepharm.com*

E-mail: *editor@ijepharm.com*

Pissn: *2437-1262, eISSN: 2437-1254*



International Journal of Infectious and Tropical Diseases

Scope: *IJITD publishes interesting findings on infectious and tropical diseases of public health importance*

Editor-in-Chief: *Yang Z., PhD*

Deputy Editor: *Liping L.P., MD, PhD*

URL: *www.ijitd.com*

E-mail: *editor@ijitd.com*

Pissn: *2384-6607, eISSN: 2384-6585*

Reasons to publish your manuscript with Michael Joanna Publications:

• User-friendly online submission • Rigorous, constructive and unbiased peer-review • No space constraints or coloured figure charges • Immediate publication on acceptance • Authors retain copyright • Inclusion in AJOL, CAS, CNKI, DOAJ, EBSCO, Google Scholar, and J-Gate • Unlimited and wide readership • Member of COPE and CrossRef

Editorial Director

Professor Sofola A. Olusoga,
Department of Physiology,
University of Lagos,
Nigeria.

Tel: +234(0) 7093848134

Email: enquiry@michaeljoanna.com

www.michaeljoanna.com

