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Pattern and predictors of analgesic use among elderly: A cross sectional survey

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Abstract
Background: Pain is one of the most common complaints which affects 20% of the population and accounts for 20% of the physician visits worldwide. A variety of drugs are available for the treatment of pain. Due to its acute onset and severity, analgesics are often taken by patients not under medical advice to get pain relief. The current study is planned to access the prevalence and predictors of the same.
Objectives
1) To access the pattern of analgesic use among elderly.
2) To evaluate the factors affecting use of analgesics among elderly.
Methods: The study was a cross-sectional study conducted at a randomly selected pharmacy situated in the vicinity of an urban slum area. After obtaining permission from institutional ethical committee and pharmacy owners the study was started. One thousand customers fitting into inclusion criteria (age more than 60 years & buying any class of analgesics) who came to buy drugs from the pharmacy were enrolled for the present study by convenient sampling. The study was conducted over 1 month that is from January 2022 to February 2022. The subjects who consented to participate were interviewed using pretested questionnaire after obtaining informed consent. Statistical analysis of the data was done using PSPP open-source software.
Results: Chronic pain was the most commonly (61.9%) reported type of pain and majority (30.9%) of the study subjects reported that they experience pain almost daily without analgesics.29% had a confirmed diagnosis of the cause of pain. Knee pain (36%) followed by back pain (23%), Headache (21%) were the predominant reasons for taking analgesics. Only 31% patients who came for buying painkillers had a valid prescription in possession and 79% had never visited a medical practitioner for pain. The results show that for every unit decrease in age and per capita income the odds for buying medicine without prescription is 2.896 times and 3.578 times respectively.
Conclusion: The survey points out to the issue and scale of over the counter analgesic use among the population of metropolitan city.

Keywords: Analgesics, elderly, misuse

Introduction
The International Association for the Study of Pain (IASP) in 1986 defined pain as "an unpleasant sensory and emotional experience which is primarily associated with tissue damage or described in terms of such damage, or both" [1] Pain is one of the most common complaints which affects 20% of the population and accounts for 20% of the physician visits worldwide. Pain can be of 2 types acute and chronic. Chronic pain is defined as pain which is persistent or recurrent lasting for longer than 3 months [2]. The prevalence of chronic pain varies, from 37% in developed countries to 41% in developing countries [3]. Chronic pain is also is one of the most common cause of self-medication considering its recurrent and diffuse nature.
The mechanism by which individuals can obtain medicines without a prescription from a registered medical practitioner is termed as over the counter (OTC) medicines. The range of medicines available as OTC is often more restrictive compared to prescribed medicines, and there are often limitations to indications and doses, although there has been a trend towards increasing deregulation of medicines from prescription to OTC supply and most recently availability from Internet pharmacies [4]. OTC availability, while encouraging self-care, has contributed to a public perception of safety and a lack of awareness relating to their potential for misuse, dependence, and harm.

A variety of drugs are available for the treatment of pain, which include NSAIDs, opioids, tricyclic antidepressants, serotonin noradrenaline reuptake inhibitors, corticosteroids, antiepileptics, antiarrhythmics, muscle relaxants, sedatives and anxiolytics. Due to its multifactorial nature and nonspecific etiology analgesics are often misused or abused by patients as they feel just increasing the dose or changing the medication would help in relief. Analgesics when taken in increased dose or formulations may results in serious adverse effects. For example NSAIDs are associated with adverse effects like rash, dyspepsia, esophagitis, gastro-duodenal ulcers, etc , Opioids are associated with adverse effects like sedation, nausea, vomiting, constipation, urticaria, urinary retention, etc. often these adverse effects are ignored to get pain relief or a vicious cycle starts in which the patients start medications to control those adverse effects. Thus the current study is planned to elucidate the patterns of analgesic in elderly and to access the factors associated with it.

Objectives

1) To access the pattern of analgesic use among elderly.
2) To evaluate the factors affecting use of analgesics among elderly.

Methodology

The study was a cross-sectional study conducted at a randomly selected pharmacy situated in the vicinity of an urban slum area. Permission was obtained from the owner of the pharmacy and ethical clearance was obtained for conduction of the study. Sample size of 281 was calculated using prevalence of analgesic use as 22.7% [5]. Owing to availability of ample sample size, one thousand customers fitting into inclusion criteria (age more than 60 years & buying any class of analgesics) who came to buy drugs from the pharmacy were enrolled for the present study by convenient sampling. The study was conducted over 1 month that is from January 2022 to February 2022. The purpose of the study was explained using informed consent document and such consent was obtained from each of the study subjects in Hindi. The subjects who consented to participate were interviewed using pretested questionnaire. Information regarding sociodemographic profile, clinical details and pattern of procurement of analgesics. Statistical analysis of the data was done using PSPP open-source software.

Quantitative data was enumerated using descriptive statistics and Chi-Square test was used to find out association between discrete variables.

Results

Among 1000 participants included in the study 53.1% were males while rest were females. People belonging to the age group of 70-80 years most commonly (48.7%) brought analgesics.

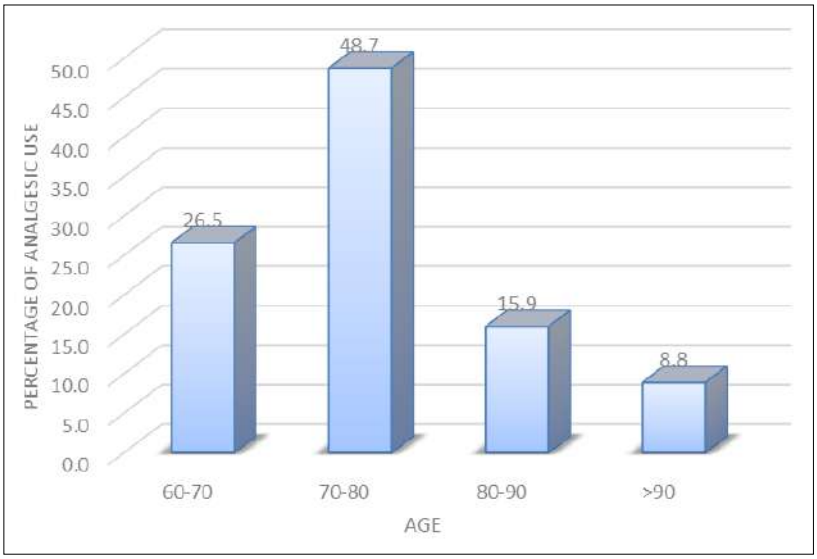

Fig 1: Distribution of analgesic use as per age.

Majority of the study participants were literate (68.1%), retired (55.8%) and were earning 10-15 thousand as enumerated as follows.

Table 1: Distribution of study participants as per sociodemographic factors.

literacy	No. of subjects	Percent
Literate	681	68.14
Illiterate	319	31.86
Marital status		
Married	442	44.25
Unmarried	186	18.58
Widowed	248	24.78
Separated	124	12.39
Occupation		
Business	97	9.73
Employed	150	15.04
Retired	558	55.75
Unemployed	195	19.47

Most (44.2%) of the subjects were married. 21% were diabetic, and 26% were hypertensive. Chronic pain was the most commonly (61.9%) reported type of pain and majority (30.9%) of the study subjects reported that they experience pain almost daily without analgesics. Pain affected sleep and daily activities in 23% of the study participants while only 29% had a confirmed diagnosis of the cause of pain. Knee pain (36%) followed by back pain (23%), Headache (21%) were the predominant reasons for taking analgesics. Using a Painkiller (62%) followed by pain balm (23%) were the commonly used methods of pain relief by the study subjects. Only 31% patients who came for buying painkillers had a valid prescription in possession and 79% had never visited a medical practitioner for pain. Most common reason of not visiting a doctor was financial (52%) and other reasons are enumerated as follows.

Table 2: Reason for not seeking medical help.

Reasons for not taking medical help	No. of subjects	Percent
Financial	520	52
Travel related issues	110	11
Trust issues	130	13
Family members opinion	240	24
Total	1,000	100

The mean duration of intake of analgesics was 45+/-8.2 days. We found 23% of the patients using steroidal drugs for pain relief and among them 56% didn't have a valid prescription. Lower age (p=0.04), female sex (p=0.02), acute pain (p=0.03), low per capita income (p=0.03) and having diabetes (p=0.03) was significantly associated with buying medicines without prescription. A logistic regression analysis shows that there is a significant influence of age and per capita income (χ^2 (5) = 41.46, p< .001). The sensitivity of model was 23.6% and specificity of model was 93%. The results show that for every unit decrease in age and per capita income the odds for buying medicine without prescription is 2.896 times and 3.578 times respectively.

Table 3: Regression analysis table.

Parameter	B	S.E.	Wald	Odds Ratio	CI Lower	CI Upper
Sex	-0.038	0.449	0.007	0.963	0.4	2.319
Type of pain	0.049	0.361	0.019	1.051	0.518	2.131
Age	1.063	0.518	4.213*	2.896	1.049	7.992
Per capita income	1.275	0.602	4.491*	3.578	1.1	11.63
Comorbidity	0.019	0.028	0.459	1.019	0.965	1.077

Omnibus χ^2 (14) = 41.46, p< .001, R2 = .098 (Cox & Snell), .138 (Nagelkerke) *p<.05, 95% C.I. for Exp (B)

Discussion

The current study was a survey conducted in the city of Mumbai to see the patterns of use of analgesics among elderly. Chronic pain was reported by most of the customers in our study which is similar to the study finding of Saxena *et al.* [6] who reported high prevalence of chronic pain among Indian population. Also Kirubakaran reported 47.8% prevalence of chronic pain among Indian population. Chen *et al.* [7] and Boston *et al.* [8] reported in their studies a strong association of chronic pain with sleep disturbance which is in congruence with our study findings. We observed than the most common modality of pain control in our study was analgesic followed by pain balm. Borheski *et al.* [9] reported analgesics as the most common method of pain control in their study. The difference in pain management may be due to preference of the study subjects. Knees and back were the common locations of pain in our study which is same as reported by Panda *et al.* [10] and Saxena *et al.* [6] Kempa *et al.* [11] and agaba *et al.* [12] reported 20% and 76% patients didn't have a prescription for buying medication which is lower than that observed in our study. This may be due to multiple reasons like a less regulated free market in India and less awareness among the participants regarding the adverse effects of drugs. The study participants avoided visiting a medical doctor mainly due to financial reasons which is in line with article by Mr. Norman [13] in which he mentioned not having resources as one of the reason people do not visit a doctor. The mean duration of use of analgesic was found to be more than a month in our study. The probability of buying medicines without prescription was significantly more among females and young elderly. People having lower per capita income and diabetes as comorbidity are more likely to buy over the counter medications.

The survey points out to the issue and scale of over the counter analgesic use among the population of metropolitan city. The issue of over the counter medication is gradually becoming rampant with increased advertising of drugs by pharmaceutical companies. Awareness creation about the ill effects of self-medication through the pharmacist, ANM and ASHA can help reduce the problem. Display of warning in large fonts on the drug wrappers should also be promoted. Pain should be treated aggressively and successfully, especially among chronically ill patients but the modalities of treatment should not cause further morbidity.

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