DISCUSSIONS
Chapter 8

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This study is an effort to reveal the socio-demographic characteristics, prevalence of analgesic misuse and Quality of Life among the urban young adult population of East Sikkim, North East India.

It has been observed that mostly individuals of younger age group are involved in drug misuse because it is the most vulnerable age. In the present study, the mean age of subjects was 28.6 ± 7.0 years, which confirms the prior said statement. A community study of drug abusers in Kashmir carried out by Margoob and Dutta reported that most of the abusers were < 42 years of age (Margoob et al., 1993). Similarly Nigam et al. in their study on Indian population reported the mean age of substance abuse as 28.7 ± 7.2 years in their subjects (Nigam et al., 1993) and in a study conducted by Kalra and Bansal, mean age for starting of drug use was found to be 25.5 ± 7.6 years (Kalra and Bansal, 2012). All these results are similar to our results.

This study shows female subjects reported in our study was less (46.9%) than the males (53.1%) and females (11.0%) misusing analgesics was reported to be less than males (14.8%). Similarly, one study has also shown that there is a considerable gender difference in the prevalence of analgesic use among adult population (Antonov K, et al., 1996). In contrary, a study by Rahul Shroti et al. on over the counter drug use characteristics in retail pharmacies in Indore city, found that more number of females were seeking for the drugs than male counterparts from pharmacies (Rahul et al., 2011).

When our study was compared with the study of Goel et al., 2010, and study of home department, Government of Sikkim, the respondents (98.0%) were having lower literacy, marital status
(57.3%), more number of respondents were males (86.0%) and majority of alcohol and/or drug abusers were Nepali (66.8%) by ethnicity and the present study showed lower literacy rate, where illiterates (15.3%) and school dropouts (30.1%) were reported, marital status (64.3%) and majority of the population was Nepali (58.6%). In our study, use of alcohol (46.0%) and smoking (47.0%) were also seen in those participants who consumed analgesics more. A study by Dart in 2001 reported that the harmful effects of analgesic use were higher in those who consume alcohol (Dart et al., 2001). Another survey of drug/psychoactive substance use among adolescent students in a south-west province of China reported that “the life-time use of at least 15 times during in any one month of tobacco 6.3%, non-steroid anti-inflammatory drugs (NSAID) 2.9%, alcohol 2.9%” showed that drug misuse has appeared among adolescent students with lifetime consumption of alcohol and smoking (Liu, Zhou et al. 2001). In the present study, male subjects had a significantly higher number causing analgesic misuse than female subjects. Few studies conducted in the United States and Sweden has shown an association between use of analgesics and age (Curhan GC, et al., 2002, Eggen AE, et al., 1996). Corroborating this finding, our study found a higher prevalence of analgesic use in older age group. However, one study has indicated that there is no significant association between analgesic use and age (Antonov K, et al., 1996). Moreover, studies have found that type of residence is associated with analgesic use, a finding consistent with ours where 64.8% of the subjects live in rented accommodation (Eggen AE, et al., 1996). Some studies have shown an association between analgesic use, level of education and source of income, but it was not significant (Eggen AE, et al., 1993, Paulose-Ram R et al., 2005). However, results of few studies reported a little different. Ziaddini et al. in their study on Iranian population reported that 67.9% of their subjects were employed, 52% were unmarried (Ziaddini et al., 2010) and Nigam et al. reported that 91.7% of the subjects were employed, 86.1% had education below 10 years (Nigam et al., 1993).
In the present study, however, the prevalence of analgesic use was higher in the employed (31.4%) and it was statistically significant. Most of the subjects misusing analgesics were seen to be having an average monthly income of more than INR 10,000/month (32.0%), having a higher Body Mass Index (46.1%) with past 30 days incidence of smoking (38.3%) and pain (23.5%) which were statistically significant. Pattern of alcohol use and smoking between misusers and non-misusers of analgesics were reported. Significant statistical differences were observed in lifetime alcohol use in years, smoking in the past month and lifetime smoking.

A study conducted at a medical center in the Pacific Northwest showed that the rates of alcohol use in the last month were significantly lower among youth with chronic pain (7.4%) as compared with youth without chronic pain (22%). However use of tobacco was similar between groups (Law et al., 2015). The results of this study showed that alcohol use in the past month (less than 3drinks daily showed 63.7% in subjects with pain and 36.3% in those without pain whereas more than or equal to 3drinks daily showed 71% in subjects with pain and 29% in those without pain) that reported a higher use of alcohol in subjects with pain. Also tobacco use between groups (less than 10 times showed 65.7% in subjects with pain and 34.3% in those without pain whereas more than 110 times showed 70.4% in subjects with pain and 29.6% in subjects without pain) was seen to be almost similar to that of alcohol use in the past one month. The characteristics of analgesics misused among urban young adults were reported in this study.

The study is also an effort to understand the knowledge, attitude and practice of analgesics misused among the young adult population. Mostly tablets (92.30%) were being consumed, without prescription (75.80%) and only one analgesic was being used (63.70%) for almost a year or more. Majority of the participants didn’t change analgesics ever (89.0%) and never undergone any treatment for pain (83.50%). Significant statistical differences were seen with “treatment of pain ever taken”, “ease of analgesic availability”
and “reason of analgesic use”. A study carried out on the students of Aston University where fifty structured interviews were performed to investigate whether students consume analgesics safely without prescriptions and with a good understanding of their adverse effects. Of the 50 students, only 27 (54%) consumed analgesics. Paracetamol was the most commonly used analgesic (66.7%) and Ibuprofen was also consumed 25.9%. Slight differences in knowledge were evident between users and non-users; students who did not use analgesics gained slightly higher and statistically significant scores on the knowledge-based questions in the interview, than those who did use analgesics. Gender differences were apparent as females demonstrated a significantly higher consumption of analgesics than males, however, males showed a slightly higher analgesic knowledge than females. Students demonstrated some basic knowledge and awareness of analgesics, but they lacked understanding of risks, contraindications and the type of analgesic contained in popular brands (Golar S.K., 2011). Another cross-sectional based study was conducted among 320 medical undergraduates to assess analgesic self medication and its association with sleep quality among the students. Analgesic self medication prevalence was 49.7%, more prevalence seen among males, urban residents and students of working parents. Headache (48.4%) was the most common cause and paracetamol (79.7%) was the most frequent drug used, based on knowledge obtained through textbook and internet (47.1%) (Kumar A., Vandana, Aslami A. N., 2016).

Furthermore, a study was done to determine the prevalence of analgesic drug use among residents with and without dementia or cognitive impairment in residential aged care facilities. Paracetamol was the most prevalent analgesic in people with and without dementia (Tan E.C., et al, 2015). A study reported that self medication for pain was carried out to understand the attitudes about self-medication for pain relief and features of self-medication in first-year students of the University of Applied Health Studies in Zagreb, Croatia (Brlic et al., 2014 and Information and Public Relation Department, Government of Sikkim, 2017).
In this study, majority of the participants were unaware of the effects of analgesic use (94.50%). In a study conducted in Bangalore, chemist shops were found to be the major source of obtaining prescription drugs non-medically and also accounted for an easy availability of the same (Nattala et al., 2015). Another study conducted in Brazil, where 70 pharmacies located in Sao Paulo were randomly selected and visited to investigate the availability of over-the-counter analgesics. Seven researchers posed as ordinary customers presenting with a uniform complaint of symptoms and asked for drugs to relieve their pain and discomfort. After suggestions from the pharmacist, the customer asked for two randomly chosen drugs from a drug list containing approximately 30 trademarked drugs that were commonly prescribed to an arthritis patient. Availability of these drugs should be based only on prescription. However, in only 12.8% of the pharmacies did the pharmacist initially suggested the customer to consult a physician. The drugs mostly prescribed were Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), vitamins, analgesics and corticosteroids in respectively 42.8, 20.0, 14.3 and 5.7% of the visits. From the drug list, the customer could buy 67.7% of the NSAIDs, 65.0% of the corticosteroids and 20.0% of the sedatives without producing a prescription. In our study, participants also mentioned about the easy availability of analgesics (97.8%) (Braund et al., 2011 and Abbott et al., 1998). The prevalence of analgesic misuse among the young adult population was reported. Prevalence of analgesic misuse in our study was reported to be 13%. In a Finnish study among participants 15 - 74 years (n=6,500), after adjusting for age and sex, the overall prevalence of daily analgesic use was 8.5% and prevalence of analgesic use a few times a week was 13.6% (Turunen et al., 2005). In a study from Denmark among participants in the age group 18 - 45 years (n=45,000), 27% women and 18% men reported regular monthly use of at least seven analgesic tablets during the last year (Hargreave et al., 2010). Studies in Switzerland among endurance athletes in mass sports reported the use of medications before an event and showed a prevalence of 5 - 10% of NSAID misuse (Ayanniyi et al., 2011). In a study from China,
the prevalence of past month use of NSAIDs was 9.6% without prescription (Liu, Zhou, et al., 2001). Although systematic data on prescription drug misuse is not available in India one study has demonstrated a high consumption of prescription medications among children with significant consumption of analgesics. “One hundred and seventy two children had consumed in 212 episodes of illness, antimicrobial agents (28.4%), followed by anti-diarrheals (10.9%), nutritional products (9.4%), analgesics (7.5%) and steroids (6.8%)” (Prakash, Mathur et al., 1989). Prevalence of regular analgesic misuse is in the range of 7.2% - 35% as seen from European studies (Turunen et al., 2005 and Hargreave et al., 2010). Therefore, prevalence of analgesic misuse as reported from this study and other European studies across different countries falls in place when compared. In our study, almost around 13% of the participants were seen to misuse analgesics. For such users, the risk of getting addicted is the highest, especially when medicines are not taken under a physician’s supervision. Our study also reported the analgesic use in the past 30 days and the commonly misused analgesics. In a research conducted among 295 customers of French pharmacies, it has been stated that the problem of misusing OTC pain medications may concern 6.8 - 17% of users. The risk of abuse was higher in those who consume paracetamol (Major C, et al., 2010). In another study conducted among adults of Wroclaw, Poland, the “heavy users” more regularly bought medicines with ibuprofen - 57% (Wojta-Kempa et al., 2016). This is similar to the results reported in our study where paracetamol misused by almost 53.8% of the participants, which shows the highest and the next in line was ibuprofen (30.8%). Findings from the Finnish study among participants in the age group of 15-74 years showed frequent analgesic use was related especially to daily or continuous pain and high pain intensity. Low mood, depression and not being employed also increased the probability for daily analgesic use (Turunen et al., 2005).
However, the Wroclaw, Poland study reported that the higher-educated, professionally dynamic individuals expect quick and favourable results and had no chance to visit their doctors promptly in case of pain. For those individuals, use of analgesics without prescription was the best possible way to relieve pain (Wojta-Kempa et al., 2016). In this study, pain in the past 30 days (23.5%) and self-employed individuals (20.5%) predicted analgesic misuse. From a study conducted in Denmark, measures of QoL, e.g., poor self-rated health and fitness, increasing age and smoking predicted analgesic use. Other predictors of analgesic use were nulliparity, low level of education, overweight / obesity & binge drinking. Also underweight and marital / cohabiting status were some of the factors seen with analgesic misuse (Hargreave et al., 2010). Smoking in the past 30 days with more than or equal to 10 times (22.6%) also predicted analgesic misuse in this study. Individuals with higher BMI (46.1%) caused an increased misuse of analgesics. Thus, we reject the Null Hypothesis as defined in our study and accept the Alternative Hypothesis, i.e, misuse of analgesics was associated with the increase or decrease in the baseline predictors as defined in our study.

The present investigation explored predictors of low QoL in the young adult population of East Sikkim. Although the participants were mostly young, almost 25.6% of the population reported some pain. This observation is in keeping with the emerging evidence of presence of chronic pain in a relatively younger population (Major et al., 2010 and Ayanniyi et al., 2011). None of the participants used opioid analgesics. This observation may be related to the availability of a few number of opioid analgesics for pain relief in India.

As observed from the quality of life (problems faced due to physical & emotional problems) among urban young adults, for most of the parameters, maximum percentage was observed for “none of the time” at more than 60% and minimum for “most of the time” at less than 15% and a medium range for “some of the time” at 14-25%.
This study measured QoL in three main domains; general, physical and emotional. General health was found to be statistically significant in analgesic misusers. General health, health condition compared to 1 year ago and moderate activities carried out in the past 4 weeks were also found to be statistically significant in subjects having pain. Special emphasis was given to the emotional domain as low QoL in this domain predicted by chronic pain may increase the risk of future onset of substance use disorder and other psychiatric disorders in later life. The study identified two important predictors of low physical QoL; ethnicity and higher Body Mass Index, whereas three important predictors; ethnicity, current pain and analgesic misuse predicted low emotional QoL.

Thus, in this study higher BMI has been identified as a predictor of low QoL, which is also in keeping with other settings (Oliva-Moreno J. and Gil-Lacruz A., 2013). A key observation in this study is emergence of analgesic misuse and current pain as the predictors of low QoL in emotional domain. Hence, there could be an interaction between chronic pain and analgesic misuse, resulting in low QoL. Therefore, this study could identify a subset of participants with ethnic variations, analgesic misuse and possible overweight with chronic pain predicting low QoL. Our study was limited by the fact that it could not identify the exact nature and duration of pain. However, the present investigation provides evidence that analgesic misuse and chronic pain predicts poorer Quality of Life (Ahongshangbam S. and Chakrabarti A., 2013). The study focussed on a few important measures of low emotional QoL with statistical significance in subjects having pain, depression in the past 4 weeks, happiness in the past 4 weeks, full of life in the past 4 weeks and worn out in the past 4 weeks. In misusers of analgesics, important measures of low emotional QoL with statistical significance were depression in the past 4 weeks, full of life in the past 4 weeks, felt dumped in the past 4 weeks, less of energy in the past 4 weeks and worn out in the past 4 weeks. In a study by Grant and Pickering, there are higher levels of ill-health and physical harm and injury among substance misusers than in the general population showing a low QoL (Grant and Pickering, 1996). Another study, where patients from a managed care organization who used greater than or equal to one NSAID over a period of 6 months were reported
to have an easy access to OTC medications, which led them to misuse more than one NSAID to combat their pain. From this study, it was reported the use of NSAIDs were associated with lower scores of QoL, indicating a poorer Health-related Quality Of Life (Kovac et al., 2008).