INTRODUCTION

Pain is defined as ‘An unpleasant sensory and emotional experience associated with actual or potential tissue damage’. Poorly controlled pain has debilitating effect and significantly interferes on both physical and psychological well-being of the patient that may potentially change the patient’s quality of life. Several studies such as study conducted in Ontario, Canada, Ghana had found that nursing students did not had adequate knowledge and positive attitudes related to pain and its management. Another study conducted in Palestine also found that nurses had inadequate knowledge regarding pharmacological and non-pharmacological management and as well as inadequate knowledge in treating patient pain. Similarly another study of Jordan showed that nursing student have inadequate knowledge regarding pain and its management.

The nurses are the first who comes in the contact with patient’s and thus, have a vital role in decision-making process regarding pain management. The present nursing students are the future register nurse, responsible to take care of patient. Thus the purpose of the study was to find out knowledge regarding pain management among nursing students.

METHODS

Institutional based cross-sectional study was conducted among nursing students in all nursing colleges located at Butwal Sub-metropolitan City of Rupandehi district, Province-5, Nepal. There are altogether 199 third year nursing students of Proficiency Certificate Level (PCL) in Butwal Sub-metropolitan City.

All of them were recruited in the study by using total enumerative sampling method. Data were collected from March 17 to March 29, 2019 using semi-structured self-administered questionnaire. Questionnaire was prepared based on reviewing previous...
The questionnaires were pretested among 10% of the total sample of Advanced Study of Health Sciences, Tilotama-2, Shankanagar, Rupandehi district, Province-5. Data was collected by trained BSC Nursing 4th year student in respective nursing college.

Ethical approval was obtained from Institutional Review Committee of Universal College of Medical Sciences (UCMS/IRC/012/19). Prior to data collection approval was obtained from concerned authority of nursing colleges of Butwal Sub-metropolitan City. Written informed consent was obtained from each respondent by explaining the objectives of the study. The inclusion criteria were those student nurses studying PCL third year in nursing colleges of Butwal Sub-metropolitan City and who are available during the data collection period. The exclusion criteria were those who were not willing to participate. The collected data were entered and analysis was done by using descriptive (frequency, percentage, mean and standard deviation) and inferential statistics (chi square) with Statistical Package for Social Sciences (SPSS) version 20.0.

RESULTS

Regarding socio-demographic variables 71.4% of respondents were of 17-19 years, 50.3% of respondents were Brahmin/Chhetri, 85.4% of respondents were Hindu and 13.6% of respondents have family member suffering from chronic pain (Table 1).

Table 1: Respondents’ socio-demographic characteristics (n=199)

| Variables                  | Frequency (%) |
|----------------------------|---------------|
| Age in years               |               |
| 17-19                      | 142 (71.4)    |
| 20-22                      | 57 (28.6)     |
| Mean age±SD= 18.95±1.109   |               |
| Caste                      |               |
| Brahmin/Chhetri            | 100 (50.3)    |
| Others (Janajati, Thakuri, Dalit and Madhesi) | 99 (49.7) |
| Religion                   |               |
| Hindu                      | 170 (85.4)    |
| Others (Buddhist and Christain) | 29 (14.6) |
| Family members suffering from chronic illness | |
| Yes                        | 27 (13.6)     |
| No                         | 172 (86.4)    |

More than three-fourth (77.9%) of respondents answered unpleasant sensory and emotional experience is the meaning of pain. Regarding the general concept of pain nearly about three-fourth (74.9%) of the respondents answered intramuscular analgesics should be avoided especially for older adult similarly more than two-third (68.8%) of the respondents answered analgesics should be administered as scheduled to relieve chronic pain effectively. Regarding assessment of pain 74.4% of respondents answered history taking as subjective assessment and 58.8% answered behavioral effect as objective assessment for pain assessment (Table 2).

Table 2: Respondents’ knowledge regarding meaning, general concept and pain assessment (n=199)

| Variables                              | Frequency (%) |
|----------------------------------------|---------------|
| Meaning of pain                        |               |
| Unpleasant sensory and emotional experience | 155 (77.9) |
| General concepts                       |               |
| Pain is fifth vital sign               | 155 (77.9)    |
| Route of medication act quicker to relieve pain in Intravenous | 102 (51.3) |
| Intramuscular analgesics avoided especially for older adult | 149 (74.9) |
| Vital sign are not reliable indicator for intensity of pain | 102 (51.3) |
| Analgesics should be administered as schedule to relieve chronic pain | 137 (68.8) |
| Subjective pain assessment             |               |
| History taking                         | 148 (74.4)    |
| Numerical rating scale                 | 78 (39.2)     |
| Verbal rating scale                    | 126 (63.3)    |
| Visual analogue scale                  | 54 (27.1)     |
| Objective pain assessment              |               |
| Behavioral effects                     | 117 (58.8)    |
| Wong-Baker FACES pain rating scale     | 113 (56.8)    |

Table 3: Respondents’ knowledge regarding pharmacological and non-pharmacological measures (n=199)

| Variables                                              | Frequency (%) |
|--------------------------------------------------------|---------------|
| Pharmacological measures as Group of Drugs According to World Health Organization 3-step Ladder |               |
| Non-opioids ± adjuvant for mild pain                   | 42 (21.1)     |
| Mild opioids ± non-opioids for moderate pain           | 69 (34.7)     |
| Strong opioids ± adjuvant for severe pain              | 141 (70.9)    |
| Overall knowledge on 3-step Ladder                     | 82 (42.23)    |
| Drugs used as pharmacological measurer                 |               |
| Diclofenac                                             | 61 (30.7)     |
| Paracetamol                                            | 54 (27.1)     |
| Flexon                                                 | 43 (21.6)     |
| Morphine                                               | 38 (19.1)     |
| Buscopan                                               | 34 (17.1)     |
| Tramadol                                               | 33 (16.6)     |
| Ibrufen                                                 | 32 (16.1)     |
| Pethidine + Phenargan                                  | 20 (10.1)     |
| Ketrolac                                               | 16 (8)        |
| Non pharmacological measures                           |               |
| Distraction                                            | 132 (66.3)    |
| Relaxation                                             | 60 (30.2)     |
| Heat and cold application                              | 34 (17.1)     |
| Imaginary meditation                                   | 28 (14.1)     |
| Transcutaneous Electrical Nerve Stimulation (TENS)      | 9 (4.5)       |
Regarding group of drugs according to World Health Organization 3-step ladder 21.1% of the respondents answered Non-opioids ± adjuvant as group of drug used for mild pain, 34.7% of the respondents answered mild opioids ± non opioids as group of drug used for moderate pain and 70.9% of the respondents answered strong opioids ± adjuvant as group of drug used for severe pain. Likewise, regarding drugs 30.7% of the respondents answered diclofenac whereas, 8% of the respondents answered ketorolac are drugs used for pain management. Similarly regarding non pharmacological measures 66.3% of the respondents answered distraction and 4.5% of the respondents answered TENS as non-pharmacological measures for pain management (Table 3).

Out of total score 23, mean score is 13.21. On the basis of mean score, 52.3% had high knowledge and 47.7% had poor knowledge regarding pain management (Table 4).

**Table 4: Respondents’ overall knowledge regarding pain management (n=199)**

| Level of knowledge | Frequency (%) |
|--------------------|---------------|
| High               | 104 (52.3)    |
| Low                | 95 (47.7)     |

**Table 5: Association between respondents’ socio-demographic variables and knowledge level regarding pain management (n=199)**

| Variables                      | Level of knowledge | \(\chi^2\) | p-value |
|--------------------------------|--------------------|------------|---------|
|                                | Low f (%)          | High f (%) |         |
| Age in years                   |                    |            |         |
| 17-19                          | 68(47.9)           | 74(52.1)   | 0.004   | 0.947   |
| 20-22                          | 27(47.4)           | 30(52.6)   |         |         |
| Brahmin/Chhetri                | 46(46.0)           | 54(54.0)   | 0.244   | 0.622   |
| Others (Janaati, Thakuri, Dalit and Madhesi) | 49(49.5) | 50(50.5)   |         |         |
| Religion                       |                    |            |         |
| Hindu                          | 79(46.5)           | 91(53.5)   | 0.752   | 0.386   |
| Others (Buddhist and Christain)| 16(55.2)          | 13(44.8)   |         |         |
| Family members suffering from chronic illness | Yes | 17(63.0) | 10(37.0) | 2.902 | 0.088 |
|                                | No                 | 78(45.3)   | 94(54.7) |         |

*Significant level at \(p <0.05\)

**DISCUSSION**

The present study attempted to assess the knowledge regarding pain management among nursing students. The finding of this study revealed that slightly more than half of the respondents had high level of knowledge regarding pain management, however in contrast to this study another study conducted among undergraduate nursing students in Upper Egypt found that less than half of the respondents had satisfactory level of knowledge and attitudes regarding pain management. This differences might be due to previous study found level of attitude along with the level of knowledge. 

The study showed that more than three-fourth of the respondents had knowledge that unpleasant sensory and emotional experience as meaning of pain which is inconsistent with the study conducted in Nigeria which showed higher proportion of the respondents had knowledge that unpleasant sensory and emotional experience as meaning of pain. The present study revealed that 57.8% of the respondents had knowledge that pain is a fifth vital sign. The findings is inconsistent with the study conducted in Nigeria which showed higher proportion of the students had knowledge that pain is a fifth vital sign. This might be due to the study setting and respondents of previous study was final year university nursing students. The present study showed more than half of the respondents had knowledge that vital sign are not always reliable indicators of the intensity of a patient’s pain however in contrast to this study another study done in Turkey found lower proportion of the respondents had knowledge that vital sign are not always reliable indicators of the intensity of a patient’s pain. This might be due to different study setting. The present study found that around half of the respondents had knowledge that intravenous as route of medication act quicker to relieve pain which is in line with the study conducted in Saudi Arabia. The present study showed nearly three-fourth of the respondents had knowledge as intramuscular analgesics should be avoided for older adult which is inconsistent with the study in Turkey showed less than two-third of the respondents had knowledge that intramuscular analgesics should be avoided for older adult. This might be due to different study setting. This study showed that more than two-third of the respondents had knowledge that analgesic should be administered as scheduled to relieve chronic pain effectively which is in line with another study conducted in Turkey. However this finding is inconsistent with study in Saudi Arabia which shows that less than two-fifth of the respondents had knowledge that analgesic should be administered as scheduled to relieve chronic pain. This might be due to the advancement in time and modern technology. The present study showed that more than one-third of the respondents had knowledge that numerical rating scale is used as subjective assessment for pain management which is supported by the study in Bhutan.

The findings of the present study revealed that nearly two-third of the respondents had knowledge that verbal rating scale is used as subjective assessment for pain management. The findings is inconsistent with study conducted in Iran which showed that few percentages of the respondents had knowledge that verbal rating scale is used as subjective assessment for pain management. This might be due to the advancement in time and different study setting of two studies. The findings showed that more than one-fourth of the respondents had knowledge that visual analogue scale is used as subjective assessment for pain management, however in contrast to this study another study conducted in Brazil showed lower portion of the respondents had knowledge about it. The study showed that more than half of the respondents had knowledge that behavioral effect and Wong-Baker FACES pain rating scale are used as objective assessment for pain management which is inconsistent with the study conducted...
This difference might be due to different study setting and time advancement.

The present study revealed that less than half of the respondents had overall knowledge on 3-step Ladder which is line with the another study conducted in Western Turkey. This study showed that 27.10%, 19.10%, 16.60%, 16.10% and 8.0% of the respondents had knowledge that paracetamol, morphine, tramadol, ibuprofen and ketorolac respectively are drugs used as pharmacological measures for pain management which is inconsistent with the study conducted in Mexico where respondents had more knowledge on all the above 5 drugs used as pharmacological measures for pain management. This difference might be due to the higher educational level and experience of the respondents in another study, as the respondents of the Mexico study were specialized pediatric nurses and universities’ nursing student. The result of the present study showed that 10.10% of the respondents had knowledge that Pethidine combined with Phenergan is drug used as pharmacological measures for pain management. However in contrast to this study another study conducted in Western Turkey found higher proportion of the respondents had knowledge about the same. This difference might be due to, study participants of previous study were the higher (bachelor) level nursing student.

The findings showed that 66.3%, 30.2%, 17.1%, 14.1% and 4.5% of the respondents had knowledge that distraction, relaxation, heat and cold application, imaginary meditation and TENS are the non-pharmacological measures used for pain management respectively which is inconsistent with study conducted in Zimbabwe where respondents had more knowledge on all non-pharmacological measures used for pain management. This differences might be due to the level of respondents in two different studies. The respondents of the previous study were registered nurses who had better knowledge and experience than the present study.

The findings revealed that majority of respondents had high knowledge regarding pain management. The findings is line with the another study conducted in Mexico which showed majority of the respondents had low knowledge regarding pain management. This might be due to different study setting, methodology adopted and advancement in time. The present study showed that there was no statistically significant association between respondents level of knowledge regarding pain management and age in years which is similar with the study conducted in Saudi Arabia. The findings of this study showed that there was no statistically significant association between respondents knowledge regarding pain management and age in years which is in line with the study conducted in Nigeria.

Study population is confined to student nurses of nursing colleges of Butwal Sub-metropolitan City of Rupandehi district, Province-5, Nepal and the study is limited to 199 respondents. Therefore, the findings may not be generalized to other settings. Self-administered questionnaire was used for the data collection in the study. Thus in depth information from the respondent cannot be obtained.

CONCLUSION

The study concluded that more than half of the students have high level of knowledge regarding pain management. The related factors age, caste, religion and family member suffering from chronic pain does not influence on students’ knowledge regarding pain management.

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REFERENCES:

1. Treede RD. The International Association for the Study of Pain definition of pain: as valid in 2018 as in 1979, but in need of regularly updated footnotes. Pain Reports.2018 Mar;3(2):e643. [DOI]
2. Ung A, Salamonson Y, Hu W, Gallego G. Assessing knowledge, perceptions and attitudes to pain management among medical and nursing students: a review of the literature. British journal of pain. 2016;10(1):8-21. [DOI]
3. Gokhale SG, Gokhale S. Non-Pharmacological Methods for Pain Management. JOJ Nurse Health Care. 2017; 4(4): 555642. [DOI]
4. Pokhrel HP, Sherpa PL. Knowledge and Attitude on Pain Management among Final Year Nursing and Midwifery Students of Khesar Gyalpo University of Medical Sciences of Bhutan. International Journal of Innovative Research in Medical Science. 2018 Dec 3; 3(12):2332-5. [DOI]
5. Fayaz A, Croft P, Langford RM, Donaldson LJ, Jones GT. Prevalence of chronic pain in the UK: a systematic review and meta-analysis of population studies. BMJ open. 2016;6(6):010364. [DOI]
6. Thorn BE, Day MA, Burns J, Kuhajda MC, Gaskins SW, Sweeney K, et al. Randomized trial of group cognitive behavioral therapy compared with a pain education control for low-literacy rural people with chronic pain. Pain. 2011; 152 (12):2710-20. [DOI]
7. Hoch J, VanDenKerkhof EG, Sawhney M, Sears N, Gedcke-Kerr L. Knowledge and attitudes about pain management among Canadian nursing students. Pain Management Nursing. 2019;20(4):382-9. [DOI]
8. Kusi Aompomsah A, Kyei-Dompim J, Kyei EF, Oduro E, Afaya RA, Ahoto CK. Final Year Nursing Students’ Knowledge and Attitudes regarding Children’s Pain. Pain Research and Management. 2020;2020:7283473. [DOI]
9. Salameh B. Nurses’ knowledge regarding pain management in high acu-
1. Al-Khawaldeh OA, Al-Hussami M, Darawad M. Knowledge and attitudes regarding pain management among Jordanian nursing students. Nurse Education Today. 2013; 33 (4):339-45. [DOI]
2. Gadallah M, Hassan AM, Shargawy S. Undergraduate nursing students’ knowledge and attitude regarding pain management of children in Upper Egypt. J Nurs Educ Pract. 2017;7(6):100-7. [DOI]
3. Ogundeji DK, Adeyemo A, Akinyemi FK, Omowumi S, Oluwaleke KA, Ogunleye AC. Final year students’ knowledge of pain management: A survey of nursing schools in Oyo state, Nigeria. International Journal of Medical and Health Research. 2019;5(1):147-52. [LINK]
4. Yava A, Çicek H, Tosun N, Özcan Y, Yildiz D, Dizer B. Knowledge and Attitudes of Nurses about Pain Management in Turkey. International Journal of Caring Sciences. 2013; 6(3):494-505. [LINK]
5. Alsaqri SH. Nursing student’s knowledge and attitudes toward pain management at Hail University, Saudi Arabia. International Journal of Advanced and Applied Sciences. 2018; 5 (3):75-81. [DOI]
6. Rahimi-Madiseh M, Tavakol M, Dennick R. A quantitative study of Iranian nursing students’ knowledge and attitudes towards pain: implication for education. Int J Nurs Prac. 2010; 16(5):478-83. [DOI]
7. Santos AF, Machado RR, Ribeiro CJ, Mendes Neto JM, Ribeiro MD, Menezes MG. Nursing students’ knowledge about pain assessment. Brazilian Journal of Pain. 2018; 1(4):325-30. [DOI]
8. Karaman E, Doğru BV, Yildirim Y. Knowledge and attitudes of nursing students about pain management. Agri. 2019; 31(2):70-8. [DOI]
9. Ortiz MI, Ponce-Monter HA, Rangel-Flores E, Castro-Gomez B, Romero-Quezada LC, O’Brien JP, et al. Nurses’ and nursing students’ knowledge and attitude and attitudes regarding pediatric pain. Nurs Res Pract. 2015; 2015; 210860. [DOI]
10. Mwanza E, Gwisai RD, Munemo C. Knowledge on Nonpharmacological Methods of Pain Management among Nurses at Bindura Hospital, Zimbabwe. Pain Res Treat. 2019 Jan 1;2019:2703579. [DOI]
11. Khalaileh MA, Qadire MA. Pain management in Jordan: nursing students’ knowledge and attitude. British Journal of Nursing. 2013 11;22(21):1234-40. [DOI]