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Sukhjot Dhillon

California State University, Northern California Consortium Doctor of Nursing Practice

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**Improving the Process of Pain Management by Implementing Best Practices in a
Nursing Home**

Suki Dhillon

Department of Nursing, San Jose State University

Abstract

Pain is often untreated or undertreated among older adults living in nursing homes. The lack of standardized pain management protocols makes it difficult to address pain in this population. Deficiencies in pain management and documentation were identified in a nursing home and a performance improvement project was implemented with the aim to improve pain management, pain documentation, and staff knowledge of pain management. A pre-and post-intervention study design was used, and data analysis included descriptive statistics and a paired samples t-test. Participants (n=12) included seven registered nurses and five licensed vocational nurses who provide direct care to the residents in a nursing home. Chart audits included all residents (n=47) who stayed at the facility during the entire study. Data (pain documentation by nurses and daily average pain scores of residents) were collected two weeks before intervention and two weeks after intervention. Intervention consisted of education on pain management protocol using a standardized pain management algorithm, pain documentation, and integration of pharmacological and non-pharmacological interventions for pain control. Staff knowledge of pain management was assessed using pre-and post-tests during the intervention. Significant improvement was seen in the initial daily average pain scores ($p = 0.09$) and the reassessment daily average pain scores ($p = 0.031$) post-intervention. Additionally, documentation of pain assessment (every 8 hours) increased from 93% to 100%, pain intervention increased from 89% to 100%, and post-intervention pain assessment (30-60 minutes) increased from 70% to 97%. Staff knowledge of pain management improved significantly after education intervention ($p < 0.001$). Further studies are needed to examine the use of non-pharmacologic pain interventions in nursing homes.

Keywords: pain management, nonpharmacologic, elderly, algorithm, nursing homes, education

Improving the Process of Pain Management by Implementing Best Practices

Pain is a personal experience that is difficult to explain. Pain is defined as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage” (International Association for the Study of Pain, 2021, para. 3). Pain can be devastating for the patients and a burden on the healthcare system. According to the Centers for Disease Control and Prevention (2020), the prevalence of chronic pain in 2019 was 20.4% in adults. The estimated annual cost for pain management is \$560 to 635 billion dollars, which exceed the cost of cancer and diabetes (Gaskin & Richard, 2012; Zah et al., 2019).

Chronic pain is very common among older adults in nursing homes. Chronic pain is defined as pain that lasts for more than 3 to 6 months (Reyes et al., 2019; Treede et al., 2015). It is often associated with musculoskeletal disorders such as arthritis and degenerative spine disorders (Ali et al., 2018). It is estimated that among the 1.4 million adults living in nursing homes in the United States (Hunnicut et al., 2017), 57% experience pain (Hoedl & Bauer, 2020). Chronic illnesses are prevalent among nursing home residents, with the prevalence of dementia (47.8%), depression (46.3%), diabetes (32.0%), heart disease (38.1%), hypertension (71.5%), and arthritis (26.2%) (Harris-Kojetin et al., 2019). Some of these diseases such as depression, diabetic neuropathy, advanced heart disease, and arthritis are associated with chronic pain (Reid et al., 2015). Pain is considered an old age morbidity and is often not assessed, untreated, or undertreated in older adults. It is estimated that 6.4% of the resident’s pain is untreated and 32% of the residents have undertreated pain in nursing homes (Hunnicut et al., 2017).

Pain is very common among nursing home residents, yet it is undertreated despite the availability of pain medications. Untreated pain can lead to negative outcomes including depression and anxiety (Michaelides & Zis, 2019). Furthermore, uncontrolled pain can interfere

with mobility, sleep, mood, social functions, activity of daily living, and the quality of life (Lemos et al., 2019).

Pain is an ongoing healthcare challenge in nursing homes. Older adults have multiple comorbidities that complicate pain assessment and pain management. Residents often have cognitive impairments, with difficulty to report the pain and the healthcare providers also have a hard time to assess pain in this population (Schofield & Abdula, 2018). Aside from the challenges of pain assessment, the staff's insufficient knowledge about pain management (Kwon et al., 2020) and the lack of standardized pain management protocol create barriers to effective pain management in nursing homes. Pain management approaches need to be tailored to the elderly population. A combination of pharmacologic and non-pharmacologic approaches is found to be more effective in the elderly population (Ellis et al., 2019). In an effort to improve pain management, staff education and training are needed to recognize the pain, assess pain using appropriate tools, and intervene accordingly (Schofield & Abdula, 2018).

Problem Statement

In a skilled nursing facility in Northern California, it was identified that the residents' pain was not being assessed and or treated effectively. Despite providing the staff with various pain assessment tools, management in the facility stated the pain was still not being managed effectively. The leadership team was interested in evidence-based quality improvement efforts to improve pain assessment and management in the nursing facility.

Specific Aims and Objectives

The aim of this quality improvement project was to implement an evidence-based pain assessment and management protocol to improve pain management. The PICO question was: In residents of this one nursing home (P), would the use of a pain assessment algorithm and the

offering of pain management education (I), compared to current practice (C), be effective in lowering the average pain score (O) and improve staff documentation compliance over the course of two weeks? The goals were to reduce daily average pain scores, improve compliance in pain documentation to 90%, and increase staff knowledge of pain management.

Pain Management

Standardization of the Pain Management Process

Standardizing the pain management process is a critical step in promoting consistency and awareness among healthcare providers. Sedighie et al. (2020) examined the implementation of an algorithm and comprehensive pain management training given to nurses and found that the mean score of nurses' awareness of pain management was significantly higher after the training ($p < 0.05$). The authors concluded that teaching and implementing a comprehensive pain management program could be effective in promoting the nurse's awareness of pain management. Once the staff develops the awareness and expertise, patient outcomes can improve. Similarly, when an evidence-based cancer pain management algorithm with an educational program was implemented, optimal pain management in patients was attained (Ahmedzi et al., 2019). In addition, Brunkert et al. (2019) evaluated the effectiveness of multilevel pain management interventions (pain management guidelines and staff training) in nursing homes. There were significant reductions in average pain from baseline ($p = .006$) and the worst pain from baseline ($p = .003$) with pain management interventions. As evidenced by these studies, pain management algorithms and guidelines are needed for healthcare providers to provide pain management effectively.

Staff Education

When implementing new guidelines or pain management algorithms, nurses must be trained to use them. Samarkandi (2018) conducted a cross-sectional survey exploring Saudi nurses' knowledge and attitudes toward pain management. Knowledge and attitude surveys were distributed to participants (n=247) with an 82% response rate. About half of the nurses from the returned surveys reported no pain education in the last five years ($p > 0.05$). The author recommended continued pain management education in the nursing curricula. In addition, education helps in raising awareness about proper pain management. Veal et al. (2018) examined barriers to optimal pain management in older adults. Eighteen nurses and five facility managers were interviewed and the following barriers were identified: difficulty in assessing pain, residents' inability to self-report pain, and communication barriers between the staff. The authors suggested using a consistent approach to documenting new or escalating pain and offering staff education to improve pain management in residents. In fact, staff training with detailed guidelines for appropriate pain assessment and treatments would benefit the residents in attaining comfort and quality of life (Pringle et al., 2021). The aforementioned studies showed that staff education and training are needed to overcome the barriers to pain management and improve patient outcomes.

Nonpharmacologic Pain Management Interventions

Pharmacologic pain intervention is one of the many options for pain relief. Studies reported older adults with moderate to severe pain are more likely to use analgesic pain medications (49%) with acetaminophen (28%) being commonly used (Nawai et al., 2017) as an effective agent for lower back pain (Chou & Huffman, 2007). A nationwide population-based study by Huang et al. (2020) revealed that the most commonly used pain medication by elderly were non-steroidal anti-inflammatory drugs, followed by acetaminophen, and opioids. Pharmacologic pain

interventions are effective in pain management but may have various side effects (Tang et al., 2019). The other option includes the use of nonpharmacologic pain interventions. The nonpharmacologic interventions reduce pain by decreasing fear, distress, anxiety, and providing the resident with a sense of control (Geziry et al., 2018). Commonly used nonpharmacologic pain interventions include repositioning, music therapy, aromatherapy, distraction, relaxation, and ice or hot compress. A systematic review by Liao et al. (2021) on nonpharmacologic interventions for pain management showed that music therapy, painting, singing, play activity, and a person-centered environment program all had a positive impact on pain reduction. Surya et al. (2020) identified aromatherapy to be effective in relieving the pain intensity of postoperative patients. The use of nonpharmacologic pain reduction such as music therapy, massage, reflexology, cold therapy, and topical heat therapy were found to be effective in pain control in critically ill patients (Leutualy et al., 2022). As for the nursing home residents, the use of ice and heat packs was prevalent (Takai et al., 2010). Among the non-pharmacological therapies, hydrotherapy using warm water helped to relieve arthritis pain, as compared to using other therapies (Ghungrud et al., 2021). Evidently, heat application causes peripheral vasodilation, which helps with blood flow (Ghungrud et al., 2021). Ho et al. (2021) conducted a randomized control study to examine the effects of heat packs and thermal guns in patients with osteoarthritis of the knee. Improvement was seen in knee flexion and pain intensity in the heat pack group. On the contrary, cold causes constriction which helps to push the blood away from the body's surface into tissues and reduces oxygen consumption (Ghungrud et al., 2021). Cold compresses can be used for 15 to 30 minutes up to 2 to 3 times a day (Geziry et al., 2018). Cold therapy has been effective in reducing pain during the first 72 hours after cardiac surgery (Keawnantawat et al., 2017). Apart from using cold therapy after surgery, ice pack therapy had

been used on soft tissue injuries (Kuo et al., 2013). Applying ice pack therapy for 10 minutes can reduce soft tissue pain effectively. As shown from the above studies, many nonpharmacologic interventions are effective in pain control. We decided to introduce the use of heat and cold therapy as a non-pharmacologic pain intervention, in addition to educating the nursing home staff on the pain management algorithm and protocol

Theoretical Framework

Knowles' Adult Learning Theory was used as a guidance to educate the staff on pain management. Knowles believed that adult learning "is distinct" and therefore, we should "identify the learning styles which suit them best" (O'Neill, 2020). There are four principles in this adult learning theory. The first principle is to involve the adult learner in planning and implementation of the curriculum (Thrush, 2019). Adults want to be involved in the planning and execution of their training. The second principle enforces the use of the learner's past experiences and mistakes for problem-solving. Adult learners like to draw the information from past experience into the learning process and apply it to new skills and knowledge in a real-world situation because the experience provides a basis for learning new skills (O'Neill, 2020). The third principle focuses on the impact of the learning subject on the learners' job or personal life. Adults are interested in learning subjects that will have an impact on their real life. The fourth principle emphasizes the importance of problem-centered rather than content-oriented learning.

Knowles' Adult Learning Theory provided a structured process for adult learners when we conducted the pain management education for all nursing staff. Staff input regarding their educational needs and how they preferred to learn were considered. According to the second principle of Knowles' learning theory, learners want to know mistakes from the past. The current pain management rate and the deficiencies in pain documentation were shared with the nursing

staff, in the hope of providing an understanding on the importance of patient pain management and the need for documentation. For the third and fourth principles of Knowles' learning theory, we shared information about the complications of pain on our patients. The need for change was reiterated and staff were encouraged to make the changes. The effectiveness of learning was measured with pre and post knowledge test.

Methods

It was determined by the nursing facility that this is a quality improvement project and exempted from the Institutional Review Board (IRB) at their facility. This quality improvement project did not require the University IRB approval.

Design

A pre-and post-intervention comparison study design was used in this project. Baseline data on pain documentation and pain scores were collected two weeks before the education intervention and the same data were collected two weeks after the education intervention. For staff knowledge of pain management, a pre-test was given at the beginning of the education inservice and a post-test was given at the end of the education inservice.

Setting

The quality improvement project was conducted at the 59-bed skilled nursing home. The nursing facility in Northern California is a church-sponsored non-profit organization dedicated to serving seniors who can no longer care for themselves. The residents at the facility are 65 years of age and older who are not able to provide care for themselves.

Participants

Participants for the educational intervention included registered nurses, licensed vocational nurses, and certified nursing assistants who provide direct care to the residents at the nursing

facility. Qualified nursing staff working on all three shifts were included in the training. Education training flyers were posted on the unit and attendance of the inservice was mandatory. The certified nursing assistants were offered education training and asked to notify the nurse if they suspect the resident is in pain. They were not educated on assessment scales or documentation since those areas were not in the scope of their practice. Therefore, certified nurse assistants were excluded from subject recruitment.

Participants for the chart audits included all residents of the nursing facility who stayed at the facility during the entire study. Any admissions after the pre-data collection day were excluded in data collection.

Data Collection

Demographic Data: The demographic data were completed at baseline. It included the participant's length of time worked at the nursing facility, age range, work shift, nursing degree, and where the degree was obtained.

Staff Knowledge of Pain Management: An identical pain management knowledge test (Appendix A) was given to registered nurses and licensed vocational nurses at the beginning and at the end of the education inservice. The percent of correct answers were compared. The pain knowledge test consisted of 10 questions with a mixture of multiple choice and true/false answers. The test was created to evaluate the basic understanding of pain assessment per hospital policy, pain management, and the prevalence of pain among nursing home residents.

Pain Documentation Compliance and Average Pain Scores: Pain documentation data consisted of the frequency of initial pain assessment (every 8 hours), pain intervention, and reassessment at 30 to 60 minutes after pain management interventions. The average daily pain score of the initial pain assessment and the average daily reassessment pain score of each

resident were recorded. The pain scales used for assessment were the Numerical Rating Scale (NRS) and the Pain Assessment in Advanced Dementia (PAINAD) scale. The scores were measured on a scale of 0 to 10 (0 being no pain and 10 being the highest pain). Both of the pain scales (NRS & PAINAD) are reliable, valid, and appropriate for pain assessment. The NRS has excellent reliability with an intraclass correlation coefficient of 0.95 and good to excellent validity (Alghadir et al. 2018). The PAINAD scale has interrater reliability of 0.82 - 0.97 and moderate to high concurrent validity (Horgas, 2021).

The data for pain documentation and the average pain score were collected twice: two weeks before intervention and two weeks after intervention. The data was collected for 24 hours and all three shifts were included. A chart audit tool (Appendix B) was used to track documentation related to pain management and the daily average pain score.

Planning

Upon the review of the hospital pain management policy, it was identified that the policy was last reviewed in 2016 and needed to be updated with the current best practices individualized for the organization (performing pain assessment every 8 hours and reassessment 30 to 60 minutes after pain intervention, using the appropriate pain scale for assessment, and integrating pharmacological and non-pharmacological interventions for pain control). Therefore, the pain management policy was updated by the DNP student and the management team prior to implementing the project. Pain management algorithm was created and education was aligned with the updated policy. The director of nursing, resident intake coordinator, and infection prevention management were invited to attend the educational pain management inservice.

Intervention – Pain Management Algorithm and Education

The nursing staff received an educational inservice on: 1) pain management algorithm to standardize the pain management process, 2) pain assessment tools specific to the organization, 3) updated facility pain management policy and documentation requirements, and 4) use of non-pharmacologic (ice and hot compress) and pharmacologic interventions. The impact that pain has on residents and the organization was discussed to reiterate the need for change.

Education was provided in a one-hour lecture PowerPoint presentation followed by questions and answers. Two different dates were selected for the presentation and flyers were posted on the units to maximize staff attendance. The presentation highlighted the importance of pain control, pain management algorithm, pain assessment tools, nonpharmacologic interventions, policy updates, and pain documentation requirements. Articles related to evidence-based practice were made available for the staff. The DNP student asked for staff feedback to clarify the process and to reduce anxiety/frustration.

Data Analysis

Data were analyzed using Intellectus statistics software. Demographic data were reported. Descriptive statistics were used to compare the staff compliance to pain documentation. A paired samples t-test was used to compare pre-intervention and the post-intervention daily average pain score of each resident and the staff knowledge of pain management.

Results

Demographic Data

The sample (n=12) included seven registered nurses and five licensed vocational nurses (Table 1). Majority of the participants were identified as RN with a BSN degree (41.67%), worked day-shift (58.33%), aged 36-45 (33.33%), and obtained a degree outside of the United

States (58.33%). Additionally, 11 certified nursing assistants attended the inservice but were not included in the study sample.

Table 1

Demographic Data of the Nursing Participants

Variable	<i>n</i>	%
Shift		
AM	7	58.33
AM & PM	1	8.33
PM	4	33.33
Missing	0	0.00
Years-working		
1.5 years	2	16.67
1 year	1	8.33
7 years	2	16.67
2 years	2	16.67
4 Months	1	8.33
22 years	1	8.33
20 years	1	8.33
1 month	1	8.33
5 years	1	8.33
Missing	0	0.00
Degree		
ASN	2	16.67
LVN	5	41.67
BSN	5	41.67
Missing	0	0.00
Age		
25-35	3	25.00
36-45	4	33.33
46-55	3	25.00
56-65	1	8.33
66 and older	1	8.33
Missing	0	0.00
Degree Obtained		
Outside of USA	7	58.33
In USA	5	41.67

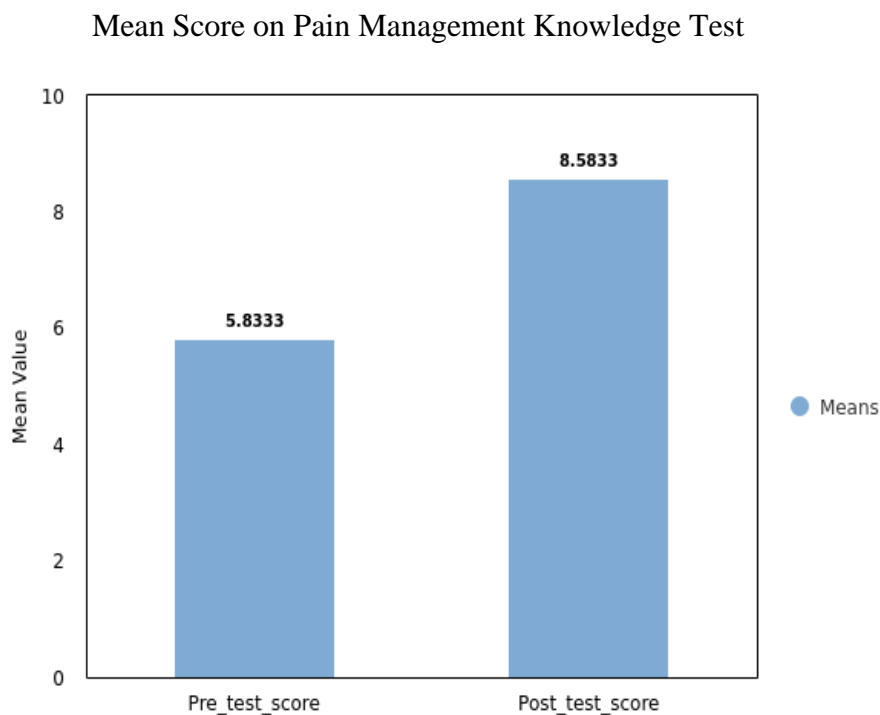
Missing	0	0.00
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Note. Due to rounding errors, percentages may not equal 100%.

Staff Knowledge of Pain Management

The staff knowledge test on pain management was completed by all participants (n=12). The mean score of the pre-test was 5.83 ± 0.94 , which was significantly lower than that of the post-test score of 8.58 ± 0.79 ($p < 0.001$), indicating that the staff's knowledge of pain management improved after the education inservice (Figure 1). In particular, staff knowledge increased in pain assessment and the appropriate interventions to take if the pain is not controlled.

Figure 1



Pain Documentation Compliance and Average Pain Scores

During the pre-intervention chart review, all residents (n=49) at the nursing facility were included but throughout the study, two residents were discharged from the facility and they were

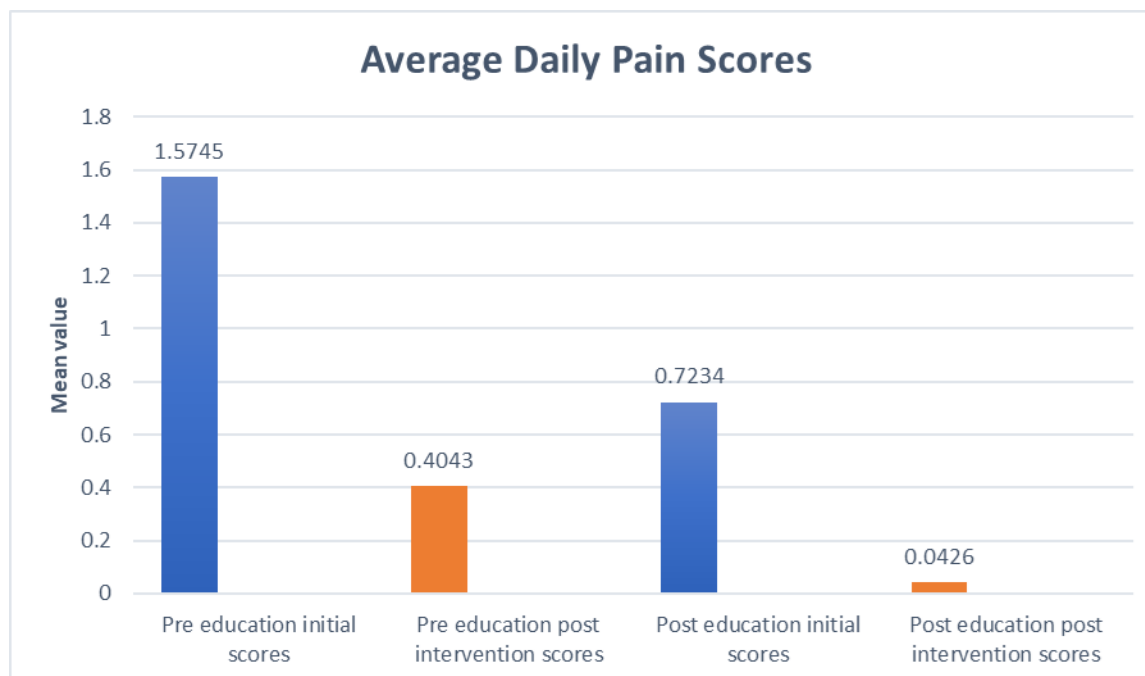
excluded. The remaining residents (n=47) included 34 females (72%) and 13 males (28%), with an age range of 66 years to 108 years old. The residents' medical diagnoses included congestive heart failure, stroke, dementia, fractures, respiratory failure, atrial fibrillation, and heart disease.

Improvement in pain documentation compliance was seen after the education intervention. Documentation of pain assessment every 8 hours increased from 93% to 100%, documentation on pain intervention increased from 89% to 100%, and documentation on post-intervention pain assessment (30-60 minutes) increased from 70% to 97%. During the chart audit, it was noted that pharmacologic pain interventions were used in all occurrences and nonpharmacologic pain interventions were not incorporated.

The mean initial pain score two weeks before the educational intervention was 1.57 ± 2.49 , with a reduction of the mean initial pain score to 0.72 ± 1.74 two weeks post intervention ($p = 0.09$). For post pain intervention, the mean pain score before the education session was 0.4 ± 1.21 , and the mean pain score post education session was 0.04 ± 0.29 ($p = 0.031$) (Figure 2).

Figure 2

Average Daily Pain Scores



Discussion

Pain management lies within the scope of nursing practice but it may not be carried out as a routine care. The purpose of this project was to improve pain management, pain documentation, and to increase staff knowledge of pain management.

Staff knowledge of pain management

Our results revealed improvement in staff knowledge of pain management post-education intervention. Education intervention included an in-person, one-hour lecture PowerPoint presentation and it was repeated twice (two different days) to maximize staff attendance. The presentation was followed by questions and answers. El-Aquol and colleagues (2020) also found that providing in-person education eight hours a day for two consecutive days improved nurses' knowledge and attitude toward pain. Despite the much shorter education time, our education intervention was effective in improving staff knowledge of pain management. Our pain management education was provided in a face-to-face environment but an online education was

also found to be equally effective to increase nurses' knowledge (Schroeder et al., 2016) and confidence on pain management (Leung et al., 2019). When deciding on the format of education, it is important to consider the learners' preference and the convenience of completing the training (Jasper, 2022). Dalhem & Saleh (2014) found face-to-face group training by an educator to be the favorable method (54.3%) of learning knowledge and practice by the nursing staff.

Pain Documentation Compliance and Average Pain Scores

After the education intervention, there was an improvement in pain documentation compliance (initial pain assessment, pain intervention, and pain reassessment). Similar improvement in nursing documentation was also apparent when bedside pain scale reminders and pain reassessment reminders were placed in Electronic Medical Records (McNamara et al., 2019). In fact, improvement in pain documentation continued for 12 months during the data collection period in the same study. Likewise, pain documentation improvement over six months was noted in another quality improvement study when using educational meetings, daily huddles, and reminders (Stocki et al., 2018). Our study only monitored documentation compliance at the second week and it is not known how long will documentation improvement continue. Data collection over a longer time frame can track the patterns of changes which may not be observed over a short time frame (Gaille, 2017).

In our study, there was an improvement in the documentation of initial pain scores and pain score reassessment after implementing the pain algorithm and pain management education. In other studies, pain intensity scores were also reduced after providing education to nurses (Germossa et al., 2019) and with the use of pain management algorithms and pain education (Minor et al., 2018). Evidently, pain can be managed effectively by implementing pain management education and algorithm. Furthermore, more educational programs on pain

management should be offered to the healthcare team to ensure up-to-date knowledge and skills in delivering patient care (Tse & Ho, 2014).

Non-pharmacological pain Management

Pain can usually be managed effectively with the use of pharmacological agents (Tauben & Stacy, 2022) and with a multimodal approach (Schug & Goddard, 2014). Even though the use of non-pharmacological agents was effective in managing pain (Sepahvand et al., 2019; Skelly et al., 2018) and are inexpensive and safe (Geziry et al., 2018), we were not able to have our nursing staff use non-pharmacologic pain interventions. Since our project was conducted during the COVID-19 pandemic, barriers may include insufficient staffing which leads to multiple responsibilities for the nurses (Zelege et al., 2021). Nurses may be too busy to use the heat and cold non-pharmacological interventions. Also, if the resident's perception that medications are more effective than non-pharmacological agents (Becker et al., 2017), the resident may prefer to receive a pain medication. Therefore, patient education along with staff education regarding the effectiveness of non-pharmacological pain interventions may overcome the barriers to using non-pharmacological agents (Becker et al., 2017).

Limitations

There were a few limitations to this project. The project was conducted during the COVID-19 pandemic and the hospital was short staffed, which required some of the staff to attend the education inservice during their work hour. Thus, the staff who attended during their work hour were not able to stay for the entire inservice. The scores for the knowledge of pain management may have been affected if the staff only attended a partial inservice.

Implications for Future Studies

For future studies, post-intervention data can be collected over a longer period of time to determine the long-term effectiveness of the education intervention, such as assessing the integration of nonpharmacologic pain intervention and the sustainability of the project. The education time can be extended to cover the topics in more detail and explain the effectiveness of nonpharmacologic pain interventions. Data collection could include interviewing residents on pain management. Interviews will provide qualitative data for the intervention outcomes, including their satisfaction with pain management.

Conclusion

Our study showed that the implementation of a pain management algorithm, along with education intervention was effective in improving staff knowledge on pain management, pain documentation, and effectively managing pain in nursing home residents. The management team may need to provide staff education regularly to train new staff and update pain management information. Further studies are needed to integrate the use of non-pharmacologic pain interventions in nursing homes.

References

- Ahmedzai, S., Bautista, M., Bouzid, K., Gibson, R., Gumara, Y., Hassan, A., Hattori, S., Keefe, D., Kraychete, D., Lee, D., Tasmura, K., & Wang, J. (2019). Optimizing cancer pain management in resource-limited settings. *Support Care Cancer*, 27, 2113–2124. doi.org/10.1007/s00520-018-4471-z
- Alghadir, A., Anwer, S., Iqbal, A., & Iqbal, Z. (2018). Test-retest reliability, validity, and minimum detectable change of visual analog, numerical rating, and verbal rating scales for measurement of osteoarthritic knee pain. *Journal of Pain Research*, 11, 851-856. doi: 10.2147/JPR.S158847. PMID: 29731662; PMCID: PMC5927184.
- Ali A, Arif A, Bhan C, Kumar, D., Malik, M., Sayyed, Z., Akhtar, k., & Ahmad, M. (2018) Managing Chronic Pain in the Elderly: An Overview of the Recent Therapeutic Advancements. *Cureus*,10(9): e3293. doi:10.7759/cureus.3293
- Becker, W., Dorflinger, L., Edmond, S., Islam, L., Heapy, A., & Fraenkel, L. (2017). Barriers and facilitators to use of non-pharmacological treatments in chronic pain. *BMC Family Practice*, 18. doi: 10.1186/s12875-017-0608-2.
- Brunkert, T., Simon, M., Ruppen, W., & Zuniga, F. (2019). Pain management in nursing home residents: Findings from a pilot effectiveness-implementation study. *Journal of The American Geriatrics Society*, 67 (12), 2574-2580. doi.org/10.1111/jgs.16148
- Centers for Disease Control and Prevention (2020). *Chronic pain and high-impact chronic pain among U.S. adults, 2019*. <https://www.cdc.gov/nchs/products/databriefs/db390.htm>
- Chou, R., & Huffman, L. (2007). Medications for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. *Ann Intern Med*, 147(7), 505-514. doi: 10.7326/0003-4819-147-7-

200710020-00008.

- Dalhem, W., & Saleh, N. (2014). The impact of eLearning on nurses' professional knowledge and practice in HMC. *Canadian Journal of Nursing Informatics*, 9.
- El-Aqoul, A., Obaid, A., Jarrah, I., Al-Rawashdeh, K., & Hroub, A. (2020). Effectiveness of education program on nursing knowledge and attitude toward pain management. *Asia-Pacific Journal of Oncology Nursing*, 7 (4), 382-388. doi.org/10.4103/apjon.apjon_17_20
- Ellis, J., Wells, Y., & Ong, J. (2019). Non-pharmacological approaches to pain management in residential aged care: a pre-post test study. *Clinical Gerontologist*, 42(3), 286-296.
- Gaille, L. (2017). *13 advantages of disadvantages of longitudinal studies*. <https://vittana.org/13-advantages-of-disadvantages-of-longitudinal-studies>
- Gaskin, D. & Richar, P. (2012). The economic costs of pain in the United States. *The Journal of Pain*, 13 (8), 715-724.
- Germossa, G., Hellesø, R. & Sjetne, I. (2019). Hospitalized patients' pain experience before and after the introduction of a nurse-based pain management programme: a separate sample pre and post study. *BMC Nursing*, 18 (40). doi.org/10.1186/s12912-019-0362-y
- Geziry, A., Toble, Y., Kadhi, F., Pervaiz, M. & Nobani, M. (2018). Non-pharmacological pain management. *IntechOpen Book Series*. <https://www.intechopen.com/chapters/62969>
- Ghungrud, D., Raut, A., Sharma, R., & Ankar, R. (2021). Effectiveness of mechanical hydrotherapy on pain management among patients with arthritis pain. *Journal of Pharmaceutical Research International*, 33 (43A), 247-255.
- Harris-Kojetin, L., Sengupta, M., Lendon, J.P., Rome, V., Valverde, R., & Caffrey C. (2019). Long-term care providers and services users in the United States, 2015–2016. *Vital and Health Statistics*, 3(43). https://www.cdc.gov/nchs/data/series/sr_03/sr03_43-508.pdf

- Ho, K., Kwok, A., Chau, W., Xia, S., Wang, Y., & Cheng, J. (2021). A randomized controlled trial on the effect of focal thermal therapy at acupressure points treating osteoarthritis of the knee. *Journal of Orthopedic Surgery Research*, 16 (282).
- Hoedl, M. & Bauer, S. (2020). The relationship between care dependency and pain in nursing home residents. *Archives of Gerontology and Geriatrics*, 90.
doi.org/10.1016/j.archger.2020.104166
- Horgas, A. (2021). Assessing pain in older adults with dementia. *Hartford Institute for Geriatric Nursing*. <https://hign.org/consultgeri/try-this-series/assessing-pain-older-adults-dementia>
- Huang, Y., Tsay, W., Her, S., Ho, C., Tsai, K., Hsu, C., Wang, J., & Huan, C. (2020). Chronic pain and use of analgesics in the elderly: a nationwide population-based study. *Arch Med Sci*, 16 (3), 627–634. DOI: <https://doi.org/10.5114/aoms.2020.9289>
- Hunnicut, J, Ulbricht, C., Tjia, J., & Lapane, K. (2017). Pain and pharmacologic pain management in long-stay nursing home residents. *Pain*, 158(6), 1091–1099.
doi.org/10.1097/j.pain.0000000000000887
- International Association for the Study of Pain (2021). *IASP announces revised definition of pain*. <https://www.iasp-pain.org/publications/iasp-news/iasp-announces-revised-definition-of-pain/>
- Jasper, L. (2022). *How to deliver stand-out employee training and development*.
<https://www.insperity.com/blog/how-to-deliver-stand-out-employee-training-and-development/>
- Keawnantawat, P., Thanasilp, S., & Preechawong, S. (2017). Effectiveness of cold therapy in reducing acute pain among persons with cardiac surgery: A randomized control trial. *Songklanakarin J. Sci. Technol*, 40 (6), 1378-1385.

Kuo, C., Lin, C., Lee, W., & Huang W. (2013). Comparing the antismelling and analgesic effects of three different ice pack therapy durations: a randomized controlled trial on cases with soft tissue injuries. *J Nurs Res*, 21(3), 186-94. doi: 10.1097/jnr.0b013e3182a0af12.

PMID:

Kwon, S., Kim, H., Park, S., & Jeon, W. (2020). Development of knowledge and attitudes survey on pain management for Korean long-term care professionals. *Asian Nursing Research*, 14 (2), 105-113.

Lemos, B., Cunha, A., Cesarino, C., & Martins, M. (2019). The impact of chronic pain on functionality and quality of life of the elderly. *Brazilian Journal of Pain*, 2 (3), 237-241. doi.org/10.5935/2595-0118.201900

Leung, Y., Wong, J., Kiteley, C., Ellis, J., & Esplen, M. (2019). Addressing educational needs in managing complex pain in cancer populations: Evaluation of APAM: An online educational intervention for nurses. *American Journal of Hospice and Palliative Medicine*, 36(7), 587-597. doi:10.1177/1049909119832819

Leutualy, V., Madiuw, D., Tasijawa, F., Sumah, D., Manuhutu, F., & Maelissa, S. (2022). Non-pharmacology interventions on pain in critically ill patient: A scoping review. *Open Access Macedonian Journal of Medical Sciences*, 10, 182-189.

Liao, Y., Parajuli, J., Jao, Y., Kitko, L., & Berish, D. (2021). Non-pharmacological interventions for pain in people with dementia: A systematic review. *International Journal of Nursing Studies*, 124.

McNamara, C., Serra, T., DeSilva, a., Buchanon, S., Sterk, A., O'Connor, K. (2019). Improving best practice of pain documentation and management: A quality improvement initiative. *HVPAA National Conference*. <https://hvpaa.org/improving-best-practice-of-pain->

- documentation-and-management-a-quality-improvement-initiative/
- Michaelides, A. & Zis, P. (2019). Depression, anxiety and acute pain: links and management challenges. *Postgraduate Medicine*, doi:10.1080/00325481.2019.1663705
- Miner, M., Stephens, K., Swanson-Biearman, B., Leone, V., & Whiteman, K. (2018). Enhancing cancer pain assessment and management in hospice. *Journal of Hospice & Palliative Nursing*, 20 (5), 452-458. doi: 10.1097/NJH.0000000000000467.
- Nawai A, Leveille, S., Shmerling, R., Leeuw, G., Bean, J. (2017). Pain severity and pharmacologic pain management among community-living older adults: the MOBILIZE Boston study. *Aging Clin Exp Res*, 29(6), 1139-1147. doi: 10.1007/s40520-016-0700-9.
- O'Neill, E. (2020). What is adult learning theory? *Learnupon*.
<https://www.learnupon.com/blog/adult-learning-theory/>
- Pringle, J., Mellado, A., Haraldsdottir, E., Kelly, R., & Hockley, J. (2021). Pain assessment and management in care homes: understanding the context through a scoping review. *BMC Geriatrics*, 431 (21). doi.org/10.1186/s12877-021-02333-4.
- Reyes, P., Perea, E., & Marcos, A. (2019). Chronic pain & frailty in community dwelling older adults: A systemic review. *Pain Management Nursing*, 20 (4), 309-315.
- Reid, M., Eccleston, C., Pillemer, K. (2015). Management of chronic pain in older adults. *BMJ*. doi: 10.1136/bmj.h532.
- Samarkandi, O. (2018). Knowledge and attitudes of nurses toward pain management. *Saudi Journal of Anesthesia*, 12 (2), 220-226. doi: 10.4103/sja.SJA_587_17
- Schofield, P. & Abdulla, A. (2018). Pain assessment in the older population: what the literature says. *Age and Ageing*, 47 (3), 324–327.

- Schroeder, D., Hoffman, L., Fioravanti, M., Medley, D., Zullo, T., & Tuite, P. (2016). Enhancing nurses' pain assessment to improve patient satisfaction. *Orthopedic Nursing*, 35 (2), 108-117.
- Schug, S., & Goddard, C. (2014). Recent advances in the pharmacological management of acute and chronic pain. *Annals of Palliative Medicine*, 3 (4). doi: 10.3978/j.issn.2224-5820.2014.10.02
- Sedighie, L., Bolourchifard, F., Rassouli, M., & Zayeri, F. (2020). Effect of comprehensive pain management training program on awareness and attitude of ICU nurses. *Anesthesiology and pain medicine*, 10(2). <https://doi.org/10.5812/aapm.98679>
- Sepahvand, M., Gholami, M., Hosseinabadi, R., & Beiranvand, A. (2019). The use of a nurse-initiated pain protocol in the emergency department for patients with musculoskeletal injury: A pre-post intervention study. *Pain Management Nursing*, 20 (6), 639-648.
- Skelly, A., Chou, R., Dettori, J., Turner, J., Friedly, J., Rundell, S., Fu, R., Brodt, E., Wasson, N., Kantner, S., & Ferguson, A. (2018). Noninvasive nonpharmacological treatment for chronic pain: A systematic review update. *Agency for Healthcare Research and Quality*. <https://pubmed.ncbi.nlm.nih.gov/32338846/>
- Stocki, D., McDonnell, C., Wong, G., Shackell, K., & Campbell, F. (2018). Knowledge translation and process improvement interventions increased pain assessment documentation in a large quaternary pediatric post-anesthesia care unit. *BMJ Open Quality*, 7. doi:10.1136/bmjopen-2018-000319
- Surya, M., Zuriati, Z., & Poddar, S. (2020). Nursing aromatherapy using lavender with rose essence oil for post-surgery pain management. *Enfermeria clinica*, 30, 171-174.
- Takai, Y., Yamamoto-Mitani, N., Okamoto, Y., Koyama, K., & Honda, A. (2010). Literature

- review of pain prevalence among older residents of nursing homes. *Pain Management Nursing*, 11(4), 209-223.
- Tang, S., Tse, M., Leung, S., & Fotis, T. (2019). The effectiveness, suitability, and sustainability of non-pharmacological methods of managing pain in community-dwelling older adults: a systematic review. *BMC Public Health* 19. doi.org/10.1186/s12889-019-7831-9
- Tauben, D., & Stacey, B. (2022). *Pharmacologic management of chronic non-cancer pain in adults*. <https://www.uptodate.com/contents/pharmacologic-management-of-chronic-non-cancer-pain-in-adults>
- Thrush, N. (2019). The adult learning theory – andragogy. *Learning by Design*.
<http://learnbydesign.co.za/the-adult-learning-theory-andragogy/>
- Treede, R. D., Rief, W., Barke, A., Aziz, Q., Bennett, M. I., Benoliel, R., Cohen, M., Evers, S., Finnerup, N. B., First, M. B., Giamberardino, M. A., Kaasa, S., Kosek, E., Lavand'homme, P., Nicholas, M., Perrot, S., Scholz, J., Schug, S., Smith, B. H., Svensson, P., Vlaeyen, J., Wang, S. J. (2015). A classification of chronic pain for ICD-11. *Pain*, 156(6), 1003–1007. <https://doi.org/10.1097/j.pain.000000000000160>
- Tse, M., & Ho, S. (2014). Enhancing knowledge and attitudes in pain management: A pain management education program for nursing home staff. *Pain Management Nursing*, 15 (1), 2-11.
- Veal, F., Williams, M., Bereznicki, L., Cummings, E., Thompson, A., Peterson, G., & Winzenberg, T. (2018). Barriers to optimal pain management in aged care facilities: An Australian qualitative study. *Pain Management Nursing*, 19 (2), 177-185.
- Zah, V., Brookfield, R., Imro, M., Tatovic, S., Pelivanovic, J., & Vukicevic, D. (2019). Healthcare costs and resource utilization in chronic pain patients treated with extended-

release formulations of tramadol, oxycodone or morphine stratified by type of pain: A retrospective claims analysis. *Journal of Pain Research*, 12, 3037-3048.

Zelege, S., Kassaw, A., & Eshetie, Y. (2021). Non-pharmacological pain management practice and barriers among nurses working in Debre Tabor Comprehensive Specialized Hospital, Ethiopia. *PLoS One*, 16(6). doi: 10.1371/journal.pone.0253086.

Appendix A

Pre-test

1. How often should pain be assessed?
 - a. When the patient tells you they are in pain
 - b. Every 8 hours
 - c. Any time you see the patient in distress
 - d. All the above
2. Per hospital policy when should pain be reassessed?
 - a. When you have time
 - b. 30-60 minutes after the administration of pain medication
 - c. When the residents tell you they have pain
 - d. Pain does not need to be reassessed
3. What is the best method of pain assessment for a resident with cognitive impairment?
 - a. "Faces" pain rating scale
 - b. Pain Assessment in Advanced Dementia (PAINAD) Scale
 - c. Don't know
4. When using non-pharmacologic interventions, resident may require less pain medications?
 - a. True
 - b. False
5. When should the doctor be contacted regarding the resident's pain?
 - a. When the resident complains about the pain
 - b. There is no order for pain medication
6. What should you do if the residents pain continues despite interventions?
 - a. Give pain medication at the scheduled time
 - b. Notify MD for additional orders
 - c. Assess pain in 8 hours
 - d. Don't know
7. Non-pharmacologic interventions such as heat/cold therapy can be helpful in relieving pain in the elderly population?
 - a. True
 - b. False
8. What percentage of residents in nursing homes experience pain?
 - a. 20%
 - b. 57%
 - c. 50%
 - d. Don't know

9. Chronic pain is more prevalent among nursing home residents and cannot be relieved.
- a. True b. False
10. What percentage of resident's pain is untreated in the nursing homes?
- a. 10% b. 24% c. 32% d. 50%

Post-test

1. How often should pain be assessed?
 - a. When the patient tells you they are in pain
 - b. Every 8 hours
 - c. Any time you see the patient in distress
 - d. All the above

2. Per hospital policy when should pain be reassessed?
 - a. When you have time
 - b. 30-60 minutes after the administration of pain medication
 - c. When the residents tell you they have pain
 - d. Pain does not need to be reassessed

3. What is the best method of pain assessment for a resident with cognitive impairment?
 - a. "Faces" pain rating scale
 - b. Pain Assessment in Advanced Dementia (PAINAD) Scale
 - c. Don't know

4. When using non-pharmacologic interventions, resident may require less pain medications?
 - a. True
 - b. False

5. When should the doctor be contacted regarding the resident's pain?
 - a. When the resident complains about the pain
 - b. There is no order for pain medication

6. What should you do if the residents pain continues despite interventions?
 - a. Give pain medication at the scheduled time
 - b. Notify MD for additional orders
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a. True b. False

10. What percentage of resident's pain is untreated in the nursing homes?

a. 10% b. 24% c. 32% d. 50%

11. Did you find this Inservice helpful?

Appendix B

Audit Tool

Pain Documentation Audit Tool							
	Pain Assessed Y/N (Every 8 hours)	Pain Level (Score) (Initial)	Pain Assessment/ score/time (Outside of routine)	Intervention Utilized (Medication/Heat or cold therapy)	Pain Level Post Intervention (time/pain score)	Average Initial Pain Assessment Score	Average Reassessment pain score
Date:							
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						

Pain Documentation Audit Tool							
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Date:							
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						
Subject# Age: Sex: M/F Diagnosis:	Night:						
	Day:						
	Eve:						