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Developing an Educational Program to Educate Nurses About Sickle Cell Disease and Vaso-Occlusive Episodic Pain

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has been found to be complete and satisfactory in all respects,
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Walden University
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Executive Summary: Staff Education Project

Developing an Educational Program to Educate Nurses About Sickle Cell Disease and Vaso-Occlusive Episodic Pain

by

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Summary

This quality improvement staff education was developed and implemented to address the quality issue related to the increase in patients with sickle cell disease (SCD) readmission within 30 days with severe pain. SCD is a chronic condition with acute episodes of vaso-occlusion, which results in recurrent pain episodes that require frequent hospitalizations for some individuals with the disease. Nurses in the project facility are not knowledgeable about SCD and pain management. The project was implemented to educate the nurses about current evidence-based information for SCD pain management. Eighteen primary care nurses completed the pretest prior to participating in the education program and the posttest after completing the program. I analyzed the pretest and posttest data for descriptive and *t* test using the Microsoft Excel Statistical Analysis program. The *t* test for paired samples ($N = 18$) indicated that the posttest ($M = 90$) was higher than the pretest ($M = 80$), $p < .001$. The results revealed that the education program was effective in increasing the nurses' knowledge about pain management for individuals with SCD. Therefore, I recommend providing this education program to all new nurses during orientation to the hospital. I also recommend using the module to teach nurses, especially novice nurses, with little or no knowledge of managing pain in patients experiencing a vaso-occlusive episode. The results have the potential for positive social change, diversity, equity, and inclusion. Increasing nurses' competence in managing patients with SCD pain episodes will improve quality care for a population that is usually marginalized. In addition, providing pain relief will increase the patients' satisfaction with the care provided in the hospital and have the potential to decrease readmission for uncontrollable pain.

Background

The increase in patients with sickle cell disease (SCD) readmission within 30 days with severe pain in the project facility is a call for concern. SCD patients continue to be admitted for pain resulting from vaso-occlusion. SCD is a chronic condition with acute episodes of vaso-occlusion, which results in periodic complaints of pain. Vaso-occlusive pain episodes are considered the cause of 95% of hospitalizations for SCD patients (Zakaria et al., 2021). Many healthcare providers do not believe the patients' complaints of pain. It is often believed that the patients' complaints are drug-seeking behaviors. However, this issue needs to be addressed because patients with SCD continue to be readmitted with complaints of severe pain, and the nurses have little education or knowledge of SCD and pain management. The nurses do not believe that these patients are really in pain; however, for nurses or healthcare providers, sickle cell pain felt by patients cannot be resolved entirely but can be managed and controlled periodically through prescription and follow-up appointments. This information will help nurses be more competent in treating patients with SCD and managing their disease pain. The project question is, "Will the educational program to educate nurses about sickle cell disease and vaso-occlusive pain management increase their knowledge of how to best manage sickle cell patients with vaso-occlusive pain?" The purpose is to develop and implement an educational program to provide nurses with evidence-based knowledge about SCD and treating vaso-occlusive pain. Therefore, implementing a quality educational program for nurses that will educate them on how to manage sickle cell vaso-occlusive pain better will be evidenced by acquiring knowledge and skills needed for patient pain control and satisfaction as needed by these patients.

I reviewed the literature for peer-reviewed articles using Walden University Library. I searched databases, including CINAHL, PubMed, Medline, Google Scholar, and Embase. I used keywords such as *sickle cell disease, sickle cell pain, sickle cell crisis, Vaso-occlusive pain episode, sickle cell anemia,* and *sickle cell trait*. Other evidence includes standards (regulatory, professional, community) and clinical updates. I retrieved 10 articles, including two randomized controlled trials, four descriptive, three quality improvement, and one clinical trial. According to the Johns Hopkins Research Evidence Appraisal tool, the level of evidence of the studies were graded as Level I (1), Level II (1), Level III (4), Level IV (2) and Level V (2). The quality rating for research evidence ranged from *high* (A) to *good* (B).

Educational programs related to managing patients with SCD increased nurses' knowledge and practices for managing SCD to provide more effective care for these patients (Yacoub et al., 2019). The study highlights the need for continuing education programs for nurses in hospital settings who care for individuals with SCD. Dyal et al. (2020) found statistically significant differences ($p = .046$) in analgesic adherence rate in adults with SCD who participated in the educational program that focused on barriers to pain management, pain, and analgesic adherence compared to a control group who were allowed to choose games as a coping strategy. There were no differences in the barriers to pain management or pain experience between the groups. The study provided insights for improving intervention care delivery and reinforcing patient behaviors.

Nurses have negative attitudes towards patients with SCD (Abdeldafie & Alaajmi, 2022; Hazzazi et al., 2020). According to Hazzazi et al. (2020), the high concerns about drug-seeking behaviors among sickle cell patients took precedence over their adherence

to the guidelines in the management of SCD. Abdeldafie and Alaajmi (2022) found that nurses had poor knowledge about SCD, which affected their attitudes when taking care of patients with SCD. The authors suggested increasing educational interventions, which could aid in improving nurses' knowledge and attitudes toward SCD. Similarly, Ross et al. (2021) recommended increasing educational interventions to improve nurses' knowledge and attitudes toward SCD.

According to Masese et al. (2019), almost 50% of nurses did not use individualized dosing protocols to treat sickle cell pain. In addition, only 32.4% of the providers knew of the National Heart, Lung, and Blood Institute (NHLBI) SCD recommendations to assess sickle cell patients with acute pain. They also identified barriers that influenced the treatment of patients with SCD. These include patients' behavior (67.57%), the opioid epidemic (67.57%), overcrowding (64.86%), and concern about addiction (49.55%). The results illuminate the need for increased use of the NHLBI SCD recommendations, individualized pain protocols, electronic medical records, and other care interventions that are explicitly geared toward improving providers' knowledge and mitigating provider bias.

Evelyn et al. (2020) found that the nurses selected an appropriate pain intervention option based on the patient-reported pain score after participating in an education program. In a similar study, Thordardottir et al. (2022) reported that many nurses requested education on pain management and nursing care. In addition, 80% acknowledged systemic racism in the care of patients with SCD after participating in the education module. According to Groesbeck et al. (2022), implementing an educational intervention to increase IC staff knowledge about SCD creates an opportunity to optimize

IC staff competence and comfort in treating patients with SCD. This education is critical for the compassionate care of this vulnerable population and for transcending racial bias and disparities. Rushton et al. (2019) created interagency cooperation, permitting the development of a streamlined process. Creating a single point for referral was a vital component to allow for population-level monitoring and ease of making referrals. Funding from the National Institute of Nursing Research (1K23NR010940) and the Agency for Healthcare Research and Quality (R18 HS 19646) provided foundational support for the development of the screening tool. The evidence supported the need to develop a staff education program to educate nurses on improving their knowledge, attitudes, and behaviors toward patients experiencing a vaso-occlusive episode (VOE) for the best pain management.

Staff Education Project Development

Eighteen registered nurses participated in the quality improvement project. Among the participants, 80% were female nurses and 20% were male nurses. I developed learning objectives and teaching content using a PowerPoint presentation (see Appendix A) and 11 multiple-choice questions (see Appendix B). After obtaining Walden University Ethics Pledge approval, I presented the teaching documents to three expert reviews, which included a site leader, nurse practitioner, and assistant manager for the medical surgical unit at the facility. They all agreed that the objectives, teaching content, and test questions were congruent and appropriate for the staff. I performed a face-to-face pretest and posttest questionnaire; after collecting the pretest answers, I presented the educational module using a Microsoft PowerPoint presentation. Next, I distributed the educational material to the nurses, so they had it as a resource. Then, I presented a

posttest question with the same content as the pretest questions. The pretest potentiated the evaluation process, and posttest questionnaires were used to evaluate the project's evidence. Data collected from the participants were de-identified to maintain the participants' privacy. I placed the data from the pretest and posttest into an Excel spreadsheet (see Appendix C). I analyzed the data from both tests using the Microsoft Excel Data Analysis program for the mean and *t* test.

Results

The results revealed that a quality improvement education program significantly increased the nurses' knowledge to effectively manage the pain experience of patients with SCD. The pretest mean was 80.5, the posttest mean was 90.5, and the *p* value was .00001 (see Table 1 and see Appendix D for details on *t*-test results). Improving the nurses' competence to provide quality care to patients with SCD will increase the patient's satisfaction with the care provided in the hospital and potentially decrease readmission for VOE.

Table 1

Participants' Pretest and Posttest Mean and p Value

No. of participants	Pretest mean	Posttest mean	*p* value
18	80.5	90.5	.00001

I identified the following limitations. Due to the work schedule, it was necessary to present the education in two sessions to accommodate the staff. I presented the same information to both groups. There was no indication that presenting in two different sessions affected the test results. Another limitation is that not all facility nurses

participated in the education session. The education presented in the PowerPoint presentation was limited to one hospital facility in Maryland.

This project has the potential to significantly impact the broader healthcare community. It can serve as a valuable educational resource for nursing schools and other acute healthcare organizations, increasing healthcare practitioners' knowledge about evidence-based information to provide quality care to patients with SCD and manage VOE. Strategies to manage patients experiencing VOE can inspire nurses to adopt similar approaches in their practice, thereby improving patient care across the board.

Conclusion

The result of this educational program is that it increased the nurses' knowledge about current evidence-based strategies to care for patients with SCD who are experiencing VOE in the hospital. Effective management of patients with SCD pain episodes has the potential to decrease their readmission for VOE. I recommend providing the education program to all new nurse employees and a refresher course annually as one of the continuing education programs offered at the facility. Because all the nurses in the hospital were not available to attend the education session, I recommend that the nurse administrator share the PowerPoint presentation slides with all those who could not participate.

The education program provided in-depth, evidence-based information to increase the nurse's understanding of SCD. It provided them with strategies to manage patients experiencing VOE. In addition, it provided content to increase their sensitivity and cultural and behavioral approach when caring for patients with SCD. The staff education project improved the quality of knowledge related to SCD and VOE pain management

for the project site nurses, revealing the power of focused educational programs. Educating the providers about evidence-based strategies to manage VOE has the potential to increase the quality of competent pain management care provided to patients with SCD and limit their readmission. This educational module may be applied to teaching nurses, especially novice nurses with little or no knowledge of managing patients. Even though all the participants had some degree of knowledge about sickle disease and VOE, they verbalized their appreciation for the program and reported that it did provide additional information that would help them provide more personalized care to their patients with SCD.

Practice and Social Change Implications

As a DNP student with excellent career prospects and self-expectation, I believe in positive and social change. An agent of excellent practice and leadership skills that can address organizational changes to improve healthcare delivery quality improvement outcomes. I am passionate about the competent and quality management of patients with SCD and VOE. The developed educational module reminds nursing providers of the quality of care in managing pain in patients with VOE. Offering educational modules to nurses to address knowledge gaps and implement social changes to improve comfort in caring for SCD patients provides a reproducible pathway for other institutions (Thordardottir et al., 2022). This project aims to promote the quality health of a population that is usually marginalized. In addition, it has the potential to reduce within 30 days readmission and extended stays for patients with SCD.

References

Abdeldafie, S. Y., & Alaajmi, S. O. (2022). Knowledge and attitudes of nurses toward sickle cell disease patients in Jazan. *Journal of Family Medicine and Primary Care*, *11*(11), 6935–6943. https://doi.org/10.4103/jfmpc.jfmpc_1089_22

Brandow, A.M. & Liem, R.I. (2022). Advances in the diagnosis and treatment of sickle cell disease. *Journal of Hematology and Oncology*, *15*, Article 20. https://doi.org/10.1186/s13045-022-01237-z

Dyal, B. W., Ezenwa, M. O., Yao, Y., Molokie, R. E., Wang, Z. J., Ballas, S. K., Suarez, M. L., & Wilkie, D. J. (2020). Randomized clinical trial of computerized pain relief for patients with sickle cell disease: PAINReportIt® and PAIN Cope®. *Patient Education and Counseling*, *103*(1), 136–144. https://doi.org/10.1016/j.pec.2019.08.021

Groesbeck, J., Sacknoff, S., & Gopal, S. (2022). A nurse-led education intervention to improve infusion center management of sickle cell pain. *Blood*, *140*(1), Article 13045. https://doi.org/10.1182/blood-2022-170765

Hazzazi, A. A., Ageeli, M. H., Sharahili, K. A., Hamaly, H. M., Aqeeli, M. H., Altherwi, T. I., Bakkar, M., & Malhan, H. (2020). Physicians' and nurses' perceptions and attitudes toward sickle cell disease patients in Jazan, Saudi Arabia. *Saudi Medical Journal*, *41*(8), 841–848. https://doi.org/10.15537/smj.2020.8.25183https://doi.org/10.1097/NNR.0000000000000375

Mangla, A., Ehsan, M., Agarwal, N., & Maruvada, S. (2023). Sickle cell anemia. [Updated 2023 Sep 4]. In: *StatPearls [Internet]*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK482164/

Ogu, U. O., Badamosi, N. U., Camacho, P. E., Freire, A. X., & Adams-Graves, P. (2021). Management of sickle cell disease complications beyond acute chest syndrome. *Journal of Blood Medicine*, *12*, 101–114. https://doi.org/10.2147/JBM.S291394

Ross, D., Sinha, C., Bakshi, N., & Krishnamurti, L. (2021). Educational needs of patients and caregivers living with sickle cell disease results in the development of web-based patient decision aid. *Journal of Advanced Nursing*, *77(3),* 1432–1441. https://doi.org/10.1111/jan.14704

Rushton, S., Murray, D., Talley, C., Boyd, S., Eason, K., Earls, M., & Tanabe, P. (2019). Implementation of an emergency department screening and care management referral process for patients with sickle cell disease. *Professional Case Management*, *24*(5), 240–248. https://doi.org/10.1097/NCM.0000000000000356

Thordardottir, T., Nazeef, M., Curran, W., & Allen, E. (2022). Nursing staff involvement and education in sickle cell disease-a single institution quality improvement initiative. *Blood Journal*, *140*(1), 5016–5017. https://doi.org/10.1182/blood-2022-170727

Yacoub, M. I., Zaiton, H. I., Abdelghani, F. A., & Elshatarat, R. A. (2019). Effectiveness of an educational program on nurses' knowledge and practice in the management of acute painful crises in sickle cell disease. *Journal of Continuing Education in Nursing*, *50*(2), 87–95. https://doi.org/10.3928/00220124-20190115-08

Zakaria, O., Buhalim, R. A., Almulhim, F., Al Jabr, F. A., Alrashid, A., & Almutairi, M. (2021). Clinical and laboratory predictors of painful vaso-occlusive crisis among sickle cell disease patients: A single-center study in Saudi Arabia. *Cureus*, *13*(5), Article e14980. https://doi.org/10.7759/cureus.14980

Appendix A: PowerPoint Teaching Presentation

DEVELOPING AN EDUCATIONAL PROGRAM TO EDUCATE NURSES ABOUT SICKLE CELL DISEASE AND VASO -OCCLUSIVE EPISODIC PAIN MANAGEMENT.

BY
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DNP PROGRAM

OBJECTIVES

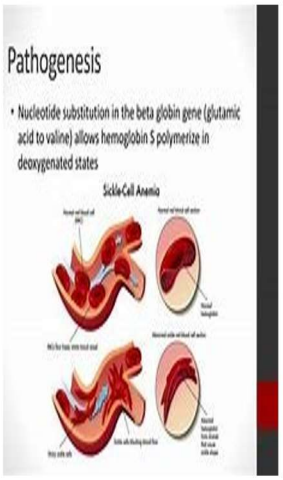
At the end of this educational program, you will be able to:

1. Discuss the pathophysiology of sickle cell disease and how it relates to Vaso-occlusive pain episodes (VOE).
2. Recognize the signs and symptoms of Vaso-occlusive pain in patients with sickle cell disease and implement appropriate pain assessment and management.
3. Discuss the importance of interdisciplinary communication to enhance the comprehensive care provided to patients with sickle cell disease to maintain pain control and prevent frequent readmissions.
4. Discuss how the nurses' attitude and behavior can influence the care provided to patients with SCD
5. Identify strategies to educate patients to be literate about the disease process, know their triggers, and adhere to their healthcare management.

EDUCATIONAL TOPICS

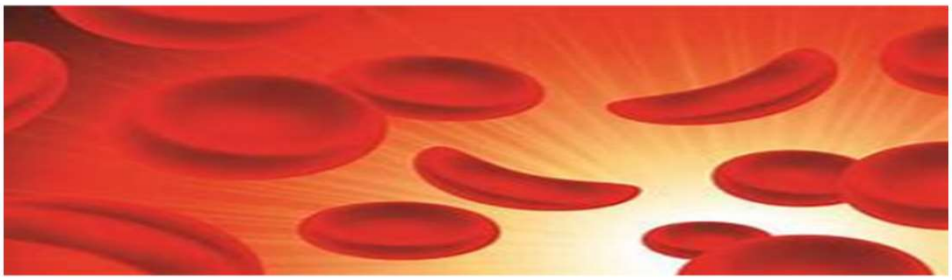
Pathophysiology of SCD and How it Relates to Vaso-occlusive Episode:

- In sickle cell disease (SCD), a single amino acid substitution in the β-globin chain leads to polymerization of mutant hemoglobin S, impairing erythrocyte rheology and survival (Sundd et al., 2019).
- Pain is the first cardinal sign of a patient with SCD, which occurs periodically and is triggered by red blood cell obstruction, impeding blood flow to organs and tissue lead to Vaso-occlusion.
- The occlusion results in ischemia to the tissues served by the occluded vessels and is realized as pain (Vaso-occlusive pain episode). Clinically, erythrocyte abnormalities in SCD manifest in hemolytic anemia and cycles of microvascular Vaso-occlusion leading to end-organ ischemia-reperfusion injury and infarction (Sundd et al., 2019).



PATHOPHYSIOLOGY CONTINUES….

- SCD is a blood disease. Unlike red blood cells (RBC) with a half-life of 120 days, the sickle RBC may survive just up to 20 days because of increased hemolysis.
- RBCs that contain HbS, when exposed to a deoxygenated environment, undergo polymerization, become rigid, and are liable to hemolysis; due to increased density, it may affect blood flow and endothelial vessel wall integrity, the dense rigid RBCs lead to Vaso-occlusion (Inusa et al., 2019).



RECOGNIZE THE SIGNS AND SYMPTOMS OF VASO-OCCLUSIVE PAIN IN SICKLE CELL PATIENTS AND IMPLEMENT APPROPRIATE PAIN ASSESSMENT TOOLS AND TECHNIQUES SPECIFIC TO SCD PATIENTS.

- Recognizing signs and symptoms is vital in nursing diagnosis and treatment plans. Every patient with SCD presents VOE in different ways.
- Patients with VOE present with moderate to severe pain.
- The common signs and symptoms usually presented include chest pain, back pain, pain and swelling on both hands and feet (dactylitis), and fever. VOE can accompany some patients, while others complain of generalized joint pain.
- Note that this pain can start from anywhere in the body.
- The pain assessment tool you will use, especially for verbal patients with VOE, is of utmost importance. It includes the numerical pain scale tool (0 to 10). 0 means no pain, 5 means moderate pain, and 10 means severe pain. For a nonverbal patient who is conscious and whose level of consciousness is 4, use the facial pain scale tool, which ranges from 0 to 10 depending on the facial expressions on the facial pain grid.
- This assessment determines the severity of pain and the proper pain intervention.

IDENTIFY PAIN LEVELS BY ASSESSING AND REASSESSING PATIENTS WITH VOE UPON PRESENTATION FROM THE EMERGENCY ROOM FROM ADMISSION TO DISCHARGE.

- Effectively reassess Vaso-occlusive pain in patients with VOE, including pain intensity levels and pain location.
- You should know that the level of pain indicated by each patient and the location will determine the kind and strength of medication to order for administration.
- A numerical pain from 1 to 3 will be considered as mild pain
- A numerical pain of 4 to 7 will be considered as moderate pain
- A numerical pain of 8 to 10 will be considered severe.
- Constantly assessing and reassessing before and after every pain medication administered is crucial to proper pain management and maintaining a state of patient pain control from admission to discharge.
- Nurses must follow the doctor's order in adhering to correct pain management and ask questions when the need arises.
- Nurses must communicate with the doctor if a patient's pain intensity changes status for prompt and quality intervention.

ABLE TO RECOGNIZE THE TYPE OF PAIN MANAGEMENT PRESCRIBED FOR ACUTE AND CHRONIC STATES OF PATIENTS SUFFERING FROM SICKLE CELL PAIN.

- You should know that pain medication varies in class and strength, including pharmacological and non-pharmacological pain management, and some are more potent than others.
- Pharmacological pain management includes:
- Opioids: Common opioid pain medications mostly ordered for patients suffering from VOE include Codeine, Morphine, hydrocodone (Vicodin), hydromorphone (Dilaudid), oxycodone (Percocet and OxyContin), fentanyl, methadone, and Tramadol with varying strength and some are more potent than others.
- Nonsteroidal anti-inflammatory drugs (NSAIDs). Commonly prescribed include Ibuprofen, Naproxen, Aspirin, and Meloxicam.
- Medication should be administered as ordered at all times.
- It is always essential to notify the prescriber when a patient's pain intensity changes and their pain experiences minimum or no pain relief after receiving multiple doses.
- Teach patients about mindfulness-based pain management while modulating response to pain triggers.

DEVELOPING PROFICIENCY IN ASSESSING VASO-OCCLUSIVE PAIN IN PATIENTS WITH SCD, INCLUDING PAIN INTENSITY LEVELS AND THE CORRECT PAIN PRESCRIPTION

- Verify pain medication as ordered in time for prompt administration.
- Administer the correct prescription and appropriate dose as ordered for acute pain.
- Advised patient on discharge medication order and inquired if the patient lacks access to medication for timely intervention.
- Advise the patient to take medication as ordered and comply with the dosage.

IMPLEMENT APPROPRIATE PAIN MANAGEMENT STRATEGIES, INCLUDING NON-PHARMACOLOGICAL PAIN MANAGEMENT INTERVENTIONS FOR VASO-OCCLUSIVE PAIN RELIEF.

- Appropriate application of a heat and ice pad to painful areas within intervals helps to reduce pain intensity.
- Initiating Mindfulness-based pain-management training to recognize pain triggers and modulate emotional and physical responses to pain is an excellent exercise for teaching patients.
- Advising patients to know symptoms and triggers and stay away from such triggers by printing the cause.
- Advising patients to practice Relaxation techniques such as breathing exercises and preventing strenuous activities while adequately hydrating reduces the sickling process of VOE.
- Advise patient to engage in daily less strenuous exercise such as swimming, Yoga Meditation and short-distance work to maintain an active body state at all Times.
- Advise patients to eat a balanced diet in moderation to maintain heart-healthy State.

IDENTIFY EVIDENCE-BASED PRACTICE FOR COMPETENCY AND QUALITY INTERVENTION TO ALLEVIATE VASO-OCCLUSIVE PAIN EPISODES WHILE ADVOCATING FOR THE PATIENT TO BE PART OF THEIR CARE PLAN.

- Involving the interdisciplinary care team for effective management of VOE, including nurses, hematologists, and pain management doctors, for appropriate nursing indiscriminately orders intervention through
- By Recognizing the disease process of sickle cell disease with VOE, you will understand that patients perceive pain differently from other patients and must be treated differently.
- Plan of care and pain management intervention should be reflective indiscrete as the patient presents with pain.

ENHANCING INTERDISCIPLINARY COMMUNICATION AND PROVIDING COMPREHENSIVE CARE TO SICKLE CELL PATIENTS TO MAINTAIN PAIN CONTROL AND PREVENTION WITHIN 30 DAYS OF READMISSION.

1. Managing SCD patients with VOE is crucial. Building a supportive and informed team ensures that these patients have access to healthcare information and their medication for prompt pain management compliance, making each team member an integral part of the patient's care.
2. Provide appropriate instructions to patients during discharge and confirm feedback from discharge instructions to ensure they fully understand their pain management plan.
3. Follow up with patients to make sure that they have access to their medication and are taking their medication as prescribed while making sure that they follow up with their doctor's appointment.
4. Participate in continuous and ongoing nursing education and counseling for constructive and competent pain management and critical thinking skills.

CREATE AWARENESS OF NURSES' ALTITUDE AND BEHAVIOR WHEN MANAGING PATIENTS WITH SCD

- Nurses should understand that pain is what the patient says it is.
- Nurses should refrain from stereotyping behavior and should avoid judging the patients while eliminating racism as a factor.
- Nurses should understand the timing and consistency of pain management. Stop being judgmental.
- Timely intervention is not just necessary; it's our responsibility to control pain effectively and ensure patient satisfaction.
- You should never be judged or judgmental, and always be proactive in providing quality and effective pain management with a collaborative effort with the interdisciplinary care team.

EDUCATE PATIENTS TO BE LITERATE ABOUT THE DISEASE PROCESS, KNOW THEIR TRIGGERS, AND ADVISE THEM TO BE COMPLIANT WITH THEIR MEDICATION AND DOCTOR'S APPOINTMENTS.

Notify patients to be aware of their environment and sickling triggers, such as

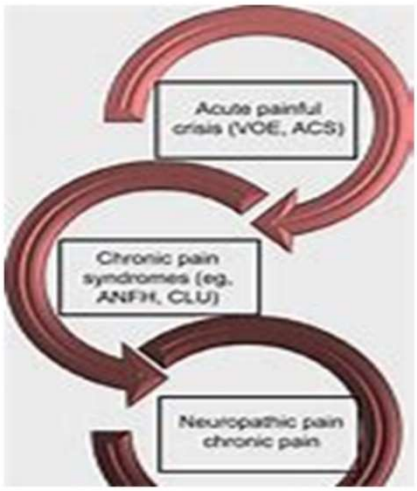
- Dehydration
- Cold temperature
- Stress
- Infection
- Low oxygen level
- Surgery and sickness.
- All these triggers lead to VOE that will promote while promoting frequent emergency room visitation and admissions.
- A complete blood count (CBC), comprehensive metabolic panel (CMP), and urinalysis are needed for assessment for an appropriate treatment plan.

ADVOCATE FOR PATIENTS TO BE PART OF A PSYCHOLOGICAL SUPPORT GROUP BY EMPOWERING THEMSELVES.

- Communicate effectively through teamwork and psychological support to patients beginning on admission and follow-up after discharge to make sure the patient is well supported during this process of the chronic disease,
- Advised patients to join support groups to share their thoughts and experiences about their illness and to be knowledgeable about their disease process.
- Advocating patients to create a platform for therapeutic communication involves not only delivering a message but also resonating with the experiences, values, and emotions while advocating for their colleagues.
- Educate nurses on the importance of teamwork.
- They explain our frustration and hurt and try to help each other improve their situation" (Elben, 2019).

CONCLUSION

- VOE in sickle cell patients is crucial as it requires appropriate and timely interventions with follow-up measures to prevent frequent readmission
- Advocate and empower sickle cell patients in the role of a psychosocial support system.



THANK YOU

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REFERENCES

Borhade, M. B, Pate, l. P, , & Kondamudi, N. P. (2024). Sickle Cell Crisis. [Updated 2024 Feb 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK526064/

Elben, M. (2019). Support for Patients with Sickle Cell. *Johns Hopkins Medicine: Community Health*. www.hopkinsmedicine.org

Inusa, B. P. D., Hsu, L. L., Kohli, N., Patel, A., Ominu-Evbota, K., Anie, K. A., & Atoyebi, W. (2019). Sickle Cell Disease-Genetics, Pathophysiology, Clinical Presentation and Treatment. *International Journal of Neonatal Screening, 5(2)*, 20. https://doi.org/10.3390/ijns5020020

Sundd, P., Gladwin, M. T., & Novelli, E. M. (2019). Pathophysiology of Sickle Cell Disease. *Annual Review of Pathology, 14*, 263–292. https://doi.org/10.1146/annurev-pathmechdis-012418-012838

Appendix B: Pretest and Posttest Questionnaire and Answers

Title: Management of Patients with Sickle Cell Disease

By Margaret Buo-Frundi

Walden University

Please respond to the following multiple-choice questions by clicking the correct response below.

1. **A sickle cell patient called and complained of severe pain (9/10) two hours after pain medication was administered. Select the best nurse response.**
    a). Your pain medication is not due. Pain meds are to be administered every 4 hours PRN.
    b). Call and notify the doctor of a breakthrough pain order.
    c). The patient is drug-seeking,
    d) The next pain medication will be administered in two hours.

2). **What pain relief medications are prescribed for administering during sickle cell acute pain episodes? Select all that apply.**
    a). NSAIDS and Tylenol.
    b). Ibuprofen and Tylenol.
    c). Benadryl, Avil, Ibuprofen.
    d). Opioids, Acetaminophen, and NSAIDs.

3). **A male patient with sickle cell disease presented at the emergency department with acute Vaso-occlusive pain rated as severe (10/10). The**

patient is visibly distraught, expressing that morphine provides the most relief. Determine the optimal nursing intervention.

a). Administer 2 MG IV Dilaudid every 3 hours as needed and start hydration therapy.

b). Administer 5 mg of Oxycodone and 2 MG IV Dilaudid every 4 hours as needed.

c). Administer 2 mg of morphine and 650 mg of Tylenol.

d). Assess the patient, notify the doctor, administer 2 mg IV morphine as ordered, start hydration therapy, draw labs, and apply oxygen therapy as needed.

4). A sickle cell patient has a discharge order after being admitted to the hospital for a week; upon the nurse giving discharge instructions, the patient raised a concern that she is jobless, lives with her sister, and cannot afford the prescribed medication. Select the best response.

a) Refer the patient to a social worker.

b) continue with the discharge instructions and let the patient tell her sister to purchase her meds.

c) Complete the discharge instructions and ignore the patient.

d) Notify the doctor, advocate for the patient, initiate a case management consult for help, and suggest that the patient's discharge be put on hold while seeking a solution to the patient's concern.

5). A patient called the nurse and said that the pain medication Toradol wasn't working and that he was itching one hour later. On reassessment, the patient noted that his pain was still 10/10; however, he was in his room playing on his iPad. Select the best response.

a) The patient is not in pain and is playing with her iPad; disregard the patient's pain level.

b) The patient is drug-seeking; his pain medication is due in two hours.

c) The patient is a frequent flyer; her pain is always 10/10. Dilaudid 2 MG IV will be due in 2 hours.

d) Reassessed the patient's pain level and notified the doctor about the patient's concern for itching and uncontrollable pain.

6). A 30-year-old admitted sickle cell patient complains of severe joint pain. Her saturation is 88% on room air, her pulse is 112, her respiration is 24, and she has a fever with a temperature of 100.8. Which of the following interventions takes priority?

a) Adjust the room temperature

b) Administer Ibuprofen 800MG tablet stat

c) Give a bolus of IV fluid normal saline 1000 ml/h Stat

d) Administer 2 liters of oxygen therapy stat, stat hydration therapy, administer 2mg of morphine IV stat, and draw CBC and CMP labs.

7). **A 21-year-old male patient with sickle cell disease has been hospitalized with Vaso-occlusive pain for four days. Now, the patient complains of severe chest pain 9/10. On assessment, the patient's temperature was 101 degrees, pulse was 99, respiration was 18, and oxygen saturation was 90% on room air. Select the best intervention.**

a) Notify the doctor and stat EKG
b) Administer pain medication, initiate oxygen therapy, and repeat vital signs every 4 hours.
c) Reassessed patient after 4 hours, stat EKG, and administered 650 MG of Tylenol.
d) Notify the doctor, administer 650mg of Tylenol and Morphine 4 mg IV, continue hydration therapy, start EKG, and repeat vital signs every 2 hours for 8 hours.

8). **A 44-year-old female patient with sickle cell disease presented to the emergency room with severe pain in her back and bilateral hands and feet. The patient was discharged three days ago. Which of the following nurse diagnoses should receive priority in nursing intervention?**

a) Impair social interaction.
b) Alteration in body image and medication non-compliant.
c) Pain: administer pain medication as prescribed.
d) Alteration in tissue perfusion, perform hydration therapy and administer pain medication as prescribed.

9). A sickle cell patient presents to the emergency room with shortness of breath, chest pain, and lower extremity joint pain; what intervention should the nurse apply? Select all that apply.

a) Notify the doctor and Stat hydration therapy.

b) Triage patient, order an x-ray, stat 2 liters of oxygen therapy, and administer pain medication.

c) Monitor vital signs and assess pain.

d) Administer Benadryl and perform a chest x-ray.

10). A nurse is teaching a sickle cell patient who has been admitted for six days, pending discharge orders. When the father asks the nurse about the cause of the symptoms, select the best response.

a) Sickle cells clump in smaller blood vessels, causing red blood cells to assume a sickled shape. This obstructs blood flow and, thereby, causes pain and inappropriate hydration therapy.

b) the patient plays out and drinks cold water.

c) The patient does not take her medication as prescribed but drinks an adequate amount of water daily.

d) The patient is a smoker, which causes alteration in tissue perfusion and decreased oxygenation.

11). An 18-year-old female was admitted with Vaso-occlusive episodes; his pain is controlled after five days of admission. The patient feels satisfied with her pain control, and she is now ready for discharge. Upon discharge, the patient seeks advice from a support group. Select the best response by the nurse.

a) Continue with home-prescribed pain management and print support groups the association of sickle cell phone numbers and their addresses and give them to the patient with discharge instructions.

b) Advised the patient to Perform vital signs and follow up with the doctor in 3 months.

c) Notify the doctor, Stat 2 liters of oxygen therapy, and continue the home pain regimen.

d) Provide discharge instructions and instruct the patient to follow up with a hematologist in 4 weeks.

Appendix C: Participants' Pretest and Posttest Results

Participants: *N* = 18	Pretest	Posttest	Difference
1	100	100	0
2	100	100	0
3	90	100	10
4	90	90	0
5	80	100	20
6	80	90	10
7	80	90	10
8	80	90	10
9	80	90	10
10	80	90	10
11	80	90	10
12	80	90	10
13	80	80	0
14	70	100	30
15	70	90	20
16	70	80	10
17	70	80	10
18	70	80	10

Appendix D: Data Analysis

Data was computed into Excel Spreadsheets using *t*-test analysis.

***t* Test:** Paired Two Sample for Means .

	Pretest	**Posttest**
Mean	80.55555556	90.55555556
Variance	87.90849673	52.61437908
Observations	18	18
Pearson Correlation	0.600649244	
Hypothesized Mean Difference	0	
df	17	
***t* Stat**	-5.531726674	
***P*(*T* <= *t*) one-tail**	1.82996E-05	
***t* Critical one-tail**	1.739606726	
***P*(*T* <= *t*) two-tail**	3.65993E-05	
***t* Critical two-tail**	2.109815578	

***p* = 0.00001**