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A Survey of Chronic Pain Management Satisfaction from a Patient Perspective in the Underserved at a Student-Run Clinic

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Background: Pain burden in the underserved is greater than in the general population. There is a lack of data assessing and treating pain in the underserved at student-run clinics. The purpose of this study was to evaluate the quality of chronic pain management and patient satisfaction with pain management in a student-run free clinic in Omaha, Nebraska.
Methods: A survey was created in order to assess patient perception of chronic pain management by the student-run free clinic. The survey contained 20 questions with a mixture of multiple choice and open-ended questions.
Results: Twenty patients completed the survey over a three-month period. Seventy percent of patients reported they were either satisfied or very satisfied with how the clinic was managing their chronic pain. Lack of knowledge about pain medications was identified during the survey.
Conclusion: The majority of patients surveyed reported satisfaction with pain management. The survey results helped to identify quality improvement opportunities for the student-run clinic.

Chronic pain affects more than 100 million Americans and costs over $600 billion dollars annually in healthcare costs and lost productivity.[1] Pain burden in the uninsured and underserved population is greater in than the general population.[2] In turn, quality of life and economic well-being are significantly affected by chronic pain,[3] which may be particularly concerning in the underserved population. There are many medications and non-pharmacologic methods that have been studied to improve chronic pain.[4] These therapies can be difficult to manage, which is why some medical professionals feel less comfortable treating chronic pain. Additionally, there may not be adequate access to complementary or non-pharmacologic therapies in the underserved population.

The current opioid crisis has presented challenges and requires extra precautions when treating chronic pain with pharmacologic therapy. The Centers for Disease Control and Prevention (CDC) recommends opioid therapy only if there is clinical improvement in pain and function, and this benefit is perceived to outweigh the risks associated with opioid therapy.[5] Additional interventions and medications are often necessary as chronic pain progresses. Careful, consistent assessment of pain is needed to achieve the best possible outcomes in terms of safety and efficacy.[6]

There is a lack of data in both assessing and treating pain in the underserved populations who seek treatment at student-run clinics. Student providers need to learn how to accurately assess a patient's perception of pain to apply their therapeutic knowledge in the future.

The purpose of this study was to evaluate the quality of chronic non-cancer pain care and patient satisfaction with current pain management processes in a student-run free clinic. There may be a lack of understanding of treatments aimed at pain management in the underserved population. This study tried to identify if this was a factor in our patient population in Omaha, Nebraska. The hope was that this information would help guide discussions towards improving assessment strategies and treatment of chronic non-cancer

pain in student-run clinics for the underserved and help influence how healthcare professionals are trained in student-run clinics to manage pain. This study was considered exempt and received local IRB approval.

Methods

The SHARING Clinic is a student-run free clinic that helps serve the uninsured patients of Omaha, Nebraska for primary care services. This interdisciplinary clinic that includes students from medical, pharmacy, nursing, physical therapy, psychiatry, and medical lab sciences had over 300 patient visits in 2017. The clinic is open once weekly in the evening throughout the year. Preceptors from each discipline help to shape the learning experience for students. All medications prescribed from the clinic are sent electronically to a local community pharmacy that has developed a partnership with the clinic. While a formulary is utilized to help reduce costs, the patients are responsible for a small copay, and the clinic covers the remaining cost of the medication.

Patients were eligible to complete the survey if they were between 21-70 years of age, had an ICD-10 code indicating a chronic non-cancer pain diagnosis in their electronic health record, and attended clinic at least once in the previous six months and at least twice in the previous 12 months. Patients with cancer-related pain were excluded as this is not managed by the student-run free clinic.

Patients were screened over a three-month time period at the start of each clinic to determine if they met inclusion criteria. The investigators were responsible for determining which ICD-10 codes distinguished patients as having chronic non-cancer pain. If a patient met inclusion criteria, an investigator met with the patient and described the purpose of the study. If the patient agreed, informed consent was required before participating. The survey and consent form were available in both English and Spanish.

The survey was created to assess the patient's perception of their chronic pain management by the student-run free clinic. The survey contained 20 questions and used both multiple choice and open-ended formats to encourage participants to elaborate in their responses if they desired. The survey questions are presented in **Figure 1**. The list of medications that a patient was prescribed and should be taking was obtained from the patient's electronic health record.

The study was exploratory in nature and was designed to capture patient's perceptions of their chronic pain management by the student-run free clinic with the intent of finding potential areas for quality improvement initiatives, including educational efforts for future healthcare professionals on assessing and treating chronic non-cancer pain.

Surveys were distributed and collected over a three-month time period from August 30, 2016 to December 13, 2016. Survey responses were coded and stored into a Microsoft Excel document. This allowed for descriptive statistics to be ran, including mean and standard deviations, and to analyze responses against multiple criteria using pivot tables to look for any relation or effect among different variables.

Results

A total of 20 patients completed the survey with 45% of these being female. Demographics of participants are detailed in **Table 1**. Many patients had more than one diagnosis of chronic pain resulting in 47 total diagnoses among the 20 patients who participated in this study. A detailed list of the chronic pain-associated diagnoses is included in **Table 1**. Eleven patients self-identified their chronic pain to match at least one of the ICD-10 codes that met inclusion criteria; eight patients either left this survey question blank or weren't specific enough to identify an actual diagnosis (e.g. "I have pain every day on my hand and right leg"). One patient described pain as arthritis but the only ICD-10 code in their health record was carpal tunnel.

Figure 1. Patient Pain Control at the SHARING Clinics Survey

1. What is your age?
2. What is your gender? ○ Male ○ Female ○ Prefer not to answer
3. How would you describe your chronic pain? (i.e. knee, lower back, arthritis, nerve, etc.)
4. Overall, how important to you is the management of your pain by our clinic? ○ Not important ○ Mildly important ○ Moderately important ○ Very important
5. How often is your pain addressed when you attend our clinic? ○ Never ○ Rarely ○ Most of the time ○ Every time
6. How satisfied are you with how the clinic is helping you manage your pain? ○ Very dissatisfied ○ Dissatisfied ○ Satisfied ○ Very satisfied
7. Please explain what you feel the clinic does well when it comes to managing your chronic pain.
8. Please explain what you feel the clinic does not do well when it comes to managing your chronic pain.
9. Do you take pain medications? ○ Yes ○ No **If yes, how often did you take your pain medication over the past 24 hours?**
10. Do you feel that you need a stronger pain medication to manage your pain? ○ Yes, I need a stronger pain medication for better pain control. ○ No, my pain is controlled. ○ No, I could use a lower strength of pain medication.
11. Do you feel that you need more information about your pain medication? ○ Yes ○ No
12. Do you feel that you are experiencing any side effects or unwanted effects due to your pain medications? ○ Yes ○ No
13. What medications are you currently taking for your chronic pain?
14. What, if any, non-drug therapies do you currently use to help relieve your pain (select all that apply)? ○ Massage ○ Relaxation techniques ○ Physical therapy exercises ○ Gel or ice packs ○ Heat packs ○ Acupuncture ○ None ○ Other, please specify
15. Do you feel that your pain is best managed by drug or non-drug therapy? ○ Drug therapy helps the most ○ Non-drug therapy helps most ○ Both help equally ○ Neither help ○ Not applicable (i.e. only one type of therapy is used)
16. Using a 0 to 10 scale, where 0 means no pain at all and 10 means the worst pain imaginable, how severe would you say your pain has been on average since your last clinic visit? 0 1 2 3 4 5 6 7 8 9 10
17. What is your personal goal for pain control? Please rate on a scale of 0 to 10, where 0 is no pain ever and 10 means constant severe pain. 0 1 2 3 4 5 6 7 8 9 10
18. Since your last clinic visit, how much relief have pain medication or treatments provided? (Note: Please circle the one percentage that represents the amount of relief that you have experienced.) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
19. Since your last clinic visit do you feel that your pain medications and or non-drug therapy has improved your quality of life? ○ Yes ○ No ○ No change **If not, what areas of your life do you feel are the most affected by your chronic pain?**
20. What other comments do you have about how your chronic pain is managed at our clinic?

Table 1. Demographics

	N
Total number of participants, (% female)	20 (45%)
Age (mean, years)	50
Language	
• *English*	15 (75%)
• *Spanish*	5 (25%)
Number of chronic pain medications prescribed (mean)	2.4
Number of chronic pain medications reported by patient (mean)	2.65
Chronic pain ICD-10 codes*	
• *Back pain*	12 (25.5%)
• *Chronic pain, unspecified*	7 (14.9%)
• *Carpal Tunnel*	5 (10.6%)
• *Neuropathy*	5 (10.6%)
• *Osteoarthritis*	5 (10.6%)
• *Rheumatoid arthritis*	2 (4.3%)
• *Myalgia*	2 (4.3%)
• *Joint pain, unspecified*	2 (4.3%)
• *Frozen shoulder*	2 (4.3%)
• *Spinal stenosis*	2 (4.3%)
• *Hip replacement*	1 (2.1%)
• *Gout*	1 (2.1%)
• *Migraine/headaches*	1 (2.1%)

*Patients may have more than one ICD-10 code resulting in a greater number than the overall number of surveyed participants.

Non-Pharmacologic Treatment Strategies

Ninety percent of participants identified that non-pharmacologic strategies were utilized to help manage their chronic pain with the most common being the application of heat packs (n = 9) followed by relaxation techniques (n = 6). **Table 2** summarizes the different strategies reported by patients.

Table 2. Non-pharmacologic strategies used by clinic patients

	N (%)
Heat packs/pad	9 (45)
Relaxation techniques	6 (30)
Ice or cool packs	5 (25)
Message therapy	5 (25)
Physical therapy exercises	4 (20)
Other (e.g. stretching, praying, hot shower)	5 (25)

Pharmacologic Treatment Strategies

The types of pharmacotherapy utilized among participants in this survey varied. A list of the different classes of medications that survey participants were prescribed can be found in **Table 3**. Overall, the use of non-steroidal anti-inflammatories (NSAIDs), anticonvulsants (e.g. gabapentin and pregabalin) and antidepressants (e.g. selective serotonin reuptake inhibitors, tricyclic antidepressants, bupropion, or trazodone) were the most commonly prescribed medications. On average, patients were prescribed 2.4 medications for their chronic non-cancer pain management.

Table 3. Medication classes used by patients

	N (%)
NSAID	7 (13.2)
Anticonvulsant	7 (13.2)
Antidepressant (excluding SNRI)	7 (13.2)
Acetaminophen	6 (11.3)
No medications	5 (9.4)
SNRI	4 (7.5)
Benzodiazepines	3 (5.7)
Opioids (including tramadol)	4 (7.5)
Muscle relaxant	1 (1.9)
Triptans	1 (1.9)
Steroid injections	1 (1.9)
Anti-gout	1 (1.9)

Only 20% of patients were able to successfully report the names of the medications that they were taking for pain. Many patients omitted antidepressants, including serotonin norepinephrine reuptake inhibitors (SNRIs), from their report. Five patients did not have any medications prescribed per their electronic health record; however, three of these patients reported taking an NSAID.

Perceptions and Satisfaction

Seventy-five percent (n = 15) reported that they take their chronic pain medications as directed.

Over half of these patients (60%) felt that they needed a stronger pain medication to manage their chronic pain better. At the time of the survey, the average pain score on a scale of 1 to 10 (1 with no pain and 10 with the worst pain imaginable), was 5.7 (SD 3.1). Using the same scale, the patient reported mean pain score goal was 1.8 (SD 2.3).

Overall, a majority of patients (75%) responded that they needed more education about their pain medications. However, 70% of patients (n = 14) reported that they were either satisfied or very satisfied with how the clinic was managing their chronic non-cancer pain. Most patients who participated in the survey indicated that the management of their chronic non-cancer pain was either moderately or very important to them, with over half of these indicating that it was very important. Most patients reported that their pain was addressed at every or almost every clinic visit with 50% of participants indicating it was addressed every time. Of the 17 patients who reported that their pain management was moderately or very important to them, 88% indicated that their chronic pain was addressed during most or at every clinic visit.

Discussion

The study revealed that many of the patients feel the clinic is managing their chronic non-cancer pain well, but there were some gaps identified in knowledge for patients and areas for improvement in clinic processes. This study allowed the clinic to get a clearer picture of the types of chronic non-cancer pain that is being managed within this student-run free clinic. This will allow us to design further interventions and improvements that more specifically target our population and the gaps identified in knowledge.

There was variation in the diagnosis codes found documented in the patients' charts. The top diagnoses included back pain, neuropathy, arthritis, and unspecified chronic pain. These are likely applicable to other patient populations in student-run safety net clinics and the general population. This information may help to tailor students' learning by narrowing the focus of education to these most commonly encountered origins of pain seen in primary care. Short modules on these disease states for students to review prior to clinic will be considered for future development. Future studies could examine the specific medications that were prescribed for these diagnoses to assess adherence to evidence-based guidelines.

The majority of the patients reported using both non-pharmacologic and non-opioid pharmacologic strategies to treat their chronic pain, which is in line with the CDC guidelines.[5] However, just twenty percent of the surveyed patients identified physical therapy exercises as a non-pharmacologic strategy to manage pain despite having physical therapy students as part of the multidisciplinary team at this student-run clinic. These student providers do not attend every weekly clinic, so this could be an opportunity to strategically schedule patients with chronic non-cancer pain on nights when physical therapy is present and could potentially benefit patients that require consultation with them. The results from a recent systematic review suggested that exercising, such as stretching and strength building, significantly help to improve patients' pain scores and perceived functioning.[7]

While the clinic does not have a formal policy against prescribing opioids, these are rarely prescribed from this clinic unless the prescribing provider has exhausted all non-opioid options and believes it to be the only reasonable and safe option for the patient's pain management. Opioids, including tramadol, were not the most commonly prescribed medications in this patient population, which is important to note since these are not considered first line for chronic non-cancer pain.[5] When asked to self-report the list of pain medications, patients tended to not mention medications that may have other indications besides pain (e.g. antidepressants or anticonvulsants). This could be for a variety of reasons, including that the patient is taking these medications for another indication outside of chronic pain, a knowledge deficit that the prescription is intended for pain management, or the patient may no longer be taking the medication and the clinic is not aware of this. Regardless, this represents a major opportunity for education on prescribed medications within the student-run clinics.

The lack of knowledge that patients had of their pain medication regimens was not anticipated. This may have led to a decreased satisfaction rating in some patients who were not aware of all methods the clinic was utilizing to treat their pain. The patients may not have understood how to take their regimen, including correct dosing and timing of their medications in relation to their pain level. Education on pain medication regimens and how to properly use the medications could positively impact pain scores and satisfaction ratings. This is an excellent role for pharmacy students in a primary care student-run clinic. A formal medication education program and documentation of education in the medical chart are being considered as an intervention to improve chronic pain management. It is important to note that three patients reported taking non-steroidal anti-inflammatory drugs without these medications being documented in their chart. Although these can be purchased over-the-counter, these medications are not without concern in some patients who may be at higher risk for related side effects, including an increased risk of gastric bleeding or increase in blood pressure. This is a potential opportunity for improvement in medication reconciliation emphasizing over-the-counter medications.

The mean numerical pain scale rating of the patients was 5.7 with a patient desired mean rating of 1.8. This is interesting since 70% of the patients surveyed reported they were satisfied or very satisfied with their pain management. Patients may not be making the connection between the numerical rating and satisfaction. Regardless, it is an opportunity to provide education about setting goals and to develop ways the student healthcare team can work together to achieve the pain management goals. The survey could represent an opportunity to facilitate these discussions on an annual or semi-annual basis.

There are limitations to this study. The sample size (n = 20) was low. This was due to the limited time frame over which the project occurred and the number of patients seen for chronic non-cancer pain at the clinic each week. This limits the power our study has to show differences in perceptions of our patients. However, our patient population and sample size make our data more applicable to other student-run safety net clinics that may experience similar numbers of patients and demographics. This survey or a shortened version will be considered for implementation as a consistent assessment tool of a patient's perception of pain management at the clinic. As different interventions are added to the clinic workflow, survey questions may be more targeted at assessing those interventions that are informed from the initial survey in this study.

This study identified that pain scores are measured consistently at clinic visits. The survey showed that pain was addressed in some way at 88% of patient visits. However, this assessment does not give a clear picture of quality of life and how satisfied patients are with different interventions. It also does not provide information about why interventions may not be working or how long patients have been treated for their chronic non-cancer pain. Through the process of administering and creating this survey, the clinic discovered we needed to have a broader assessment on each patient regularly. The exact interval at which this survey or a modified version of it will be given has not been determined by the clinic. To administer at every visit is not felt to be a feasible undertaking given the limited time and staff. By using open-ended questions in the survey, we were able to learn that there is a difference in opinion among patients on how their pain is being managed. For example, one patient did not feel like the clinic had enough services to offer when managing their chronic non-cancer pain. Another patient did not feel that treating their chronic non-cancer pain was the provider's priority over other comorbidities. This represents opportunities for increasing awareness of students' attention towards treating and assessing chronic pain in a student-run clinic.

Overall, this was a small survey conducted in a student-run free clinic that helped to identify the types of chronic non-cancer pain among our patient population. Although the majority reported satisfaction with their pain management, this survey helped to identify gaps including being more intentional about asking patient's perceptions of their pain control, providing better

medication education, offering non-pharmacologic pain management strategies including physical therapy exercises, and educating student clinicians about the resources available within the clinic to manage chronic non-cancer pain. This research will serve for quality improvement opportunities in the coming year.

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