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## Self Management of Chronic Pain

Carolynn Hastie

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Self-Management of Chronic Pain

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*Abstract*

*Background and Review of Literature:* Deaths related to the misuse of opioids for chronic pain management has increased over several years. Policies have been made to control and monitor prescription opioids and decrease the amount prescribed for patients. However, there has been little education provided to patients regarding self-management strategies to help manage their pain independently or with combination of their medications.

*Purpose:* The purpose of this project was to address this gap in self-management strategies through an evidence-based educational intervention.

*Methods:* An evidence based educational intervention was provided to selected primary care patients at an urban community health center. Pre- and post-evaluation of pain self-management ability was measured using the Pain Self-Efficiency Questionnaire (PSEQ).

*Results:* After completing the implementation of this project and the data analysis, it was determined that even though there was a small percentage of drop out rate, the overall mean score for PSEQ scores increased from 21.5 pre implementation to 24.5 after implementation. These results demonstrated the positive effect self-management strategies have on pain management and daily living.

*Conclusion:* Pain self-management programs and non-pharmaceutical strategies have been shown to improve chronic pain management. By providing patients with the latest evidence-based education and resources regarding effective self-management strategies to manage pain have been demonstrated to improve chronic pain management.

*Keywords:* misuse of opioids, alternative pain methods, self-management for pain control, non-opioid pain control methods, and self-assessment questionnaire

## Self- Management of Chronic Pain

### **Introduction**

Opioid prescriptions have become the main choice in pain management over the years, leading to an overabundance of prescription opioids and addiction (Rudd, Seth, David, & Scholl, 2016). Policies, guidelines, and educational seminars for providers have been developed to assist in decreasing and monitoring the number of opioids prescribed (Chiarotto, Falla, Polli & Monticone, 2018; Moore et al., 2013; Russell, 2017). Research has shown that there have been positive outcomes and an increase in knowledge for providers prescribing opioids from these educational and training seminars. However, patients who are affected by chronic pain and the changes that are being implemented in practice by health care associations and clinicians are lacking the education, resources, assessment, and follow up they need for adequate pain management. Poorly managed pain has been recorded to affect an individual's ability to perform daily activities with confidence (Chiarotto et al., 2018; Moore et al., 2013). There is a lack of education provided to patients on alternative self-management strategies and self-management programs which is reported to have a positive impact on pain management (Chiarotto et al., 2018; Moore et al., 2013; Niesen et al., 2018).

### **Background**

The United States has been in an opioid epidemic since the 1990s (Rudd et al., 2016; Wick, Gran & Wu, 2017). The epidemic continues and the death rate related to opioid overdoses has tripled during 1999-2014 (Rudd et al., 2016). In 2014, out of 47,055 deaths, more than 50% (over 28,600) involved an opioid. After review of the National Vitals Statistics System and

Classification of Disease death files, Rudd et al. (2016) and Wick et al. (2017) reported during 2010-2015 the rate of drug overdose deaths increased and remained stable in 19 states and then increased in 2014-2015; therefore becoming the second leading cause of accidental death. This issue is a result of the increased amount of opioid prescriptions due to healthcare workers being more “diligent” to completely rid a patient of pain along with the pharmaceutical companies that became aggressive with advertisement of opioids for noncancer related pain in the 1990’s (Wick et al., 2017). There was a belief at the start of the epidemic that opioids were safe for these patients and that there was no pain threshold in real pain suffering (Rudd et al., 2016; Wick et al., 2017). Even though there have been patients that have benefitted from prescription opioids, this choice is not always the intervention needed for chronic pain. This has led to an astronomical increase in misuse, abuse, and mortality with these medications (Rudd et al., 2016; Wick et al., 2017).

The guidelines created to address this problem were developed by the department of Health and Human Services (HHS), The American Public Health Association (APHA), the Centers for Disease Control and Prevention (CDC), and the Comprehensive Addiction Act (CARA) (Garcia et al., 2016; Russell, 2017). These national committees focused on education and training programs for providers on prescribing opioids, mental health, substance abuse, overdose prevention, risks and benefits of opioid therapy, non- pharmacological alternatives, and referral and treatment for suspected drug abuse (Garcia et al., 2016; Russell, 2017; Stempniak, 2016). Even though these programs have been developed to control and properly monitor the number of opioids prescribed by proper physician education, they lack patient education regarding the topic.

## **Problem Statement**

Inadequate pain management of adults 18 years of age and older, is indicated by insufficient patient education regarding pain methods and self-management strategies, as well as adequate assessment by healthcare professionals of their pain.

## **Organizational “Gap” Analysis**

At the chosen location site for this project, patients are seen daily for follow up, routine exams, pain management, and problem focused exams. Patients have been observed to have inadequate pain control and switch from medication to medication and or increasing doses without implementing any goals or proper education regarding alternative methods and self-management strategies. There has also been an observed lack of education for patients regarding the importance of self-management and community resources. These patients lack the proper evaluation and assessment of how pain affects daily living and are only assessed using a number scale of pain severity. They are not provided with take home education from providers regarding the above-mentioned topics.

## **Review of Literature**

### **Search Process**

The articles that were obtained for this review were peer reviewed, and full text articles. The search was done primarily in Cumulative Index of Nursing and Allied Health (CINAHL) and Google Scholar. The following keywords were used to help find studies that fit the inclusion criteria: *misuse of opioids, alternative pain methods, self-management for pain control, non-opioid pain control methods, and self-assessment questionnaires*. These keywords produced many articles leading to additional inclusion criteria to narrow down the result. The



additional inclusion criteria were studies in the English language, based in the United States and from the years 2010-2018. This inclusion criteria however did not significantly lower the results. Due to the large number of articles, this reviewer scanned the titles and abstracts when choosing articles to review for this project. This review was open to include and consider qualitative and quantitative research articles, randomized control trials, non-randomized controlled trials, quasi-experimental study, review of literature and mixed meta-analysis studies. Articles were excluded if they were not full text articles, when they related to pregnancy pain or cancer pain, alternative opioid related methods for pain management, and when they were duplicated results from other key word searches. After doing this search 14 articles were chosen for further review.

The evidence considered in this study was evaluated using John Hopkins Evidence Based Practice Tool Kit (Dearholt et al., 2012). Articles that were screened into consideration following the initial inclusion criteria were tested for quality of evidence. To be considered for final analysis articles from the 14 selected had to fall within levels I to IV. After using the quality measurement tool, the following 11 articles were selected to be included in the final analysis and for further review. The 11 selected studies focused on patient education, alternative pain management strategies, Pain Self Efficiency Questionnaire (PSEQ) and the reliability and consistency of the PSEQ. The chosen articles included two review of literature, one prospective cohort study, one retrospective analysis, one prospective observational study, one meta-analysis study of randomized clinical trials, one randomized control trial, one quality improvement design, one qualitative design focus group, one factor analysis, and one quasi-experimental articles.

## **Synthesis of Literature**

Throughout this literature review many articles focused on the reasons for the opioid epidemic and the background of why healthcare wandered away from self-manageable alternative strategies to using prescription opioids for all pain management. This literature review focused on the importance and self-management strategies and resources that are beneficial for pain management, misuse of opioids, an adequate evidence-based tool to assess the impact of chronic pain, and the reliability of the chosen tool.

### ***Unnecessary Pain Management.***

Opioid related overdoses were found in those who were non-medical users, and for those who were being unnecessarily prescribed for acute and chronic pain (Beaudoin, Straube, Lopez, Mello & Baird., 2014; Cheatlr, 2015; Srivastava, Kahan & Jiwa, 2012). In 2012, 4.9 million individuals aged 12 and older were current non-medical users of pain relievers; 488,004 Emergency Department (ED) visits were related to nonmedical use of opioids in 2017; 186,986 admissions entered in to treatment facilities for opioid use disorder; and 16,651 opioid related deaths out of 38,329 were pharmaceutical related deaths (Cheatlr, 2015).The prescriptions were more likely to occur in emergency departments than other healthcare settings (Beaudoin et al., 2014; Cheatlr, 2015; Srivastava et al., 2012 ). One literature review and a level III prospective observational study, both had similar findings that suggested that the large statistical values mentioned were related to the abuse of opioids, poorly managed pain of the individuals, and unnecessary prescriptions (Beaudoin et al., 2014; Cheatlr, 2015). To demonstrate these results, surveys were given to patients regarding their opinions of their pain control and use the opioid

prescriptions they received. Patients reported that they were not taking the medications as prescribed because of, needing higher doses/ or too high of doses, sharing of pills with others, and having leftovers that they can use later or share (Beaudoin et al., 2014; Cheatlr, 2015). These studies demonstrated that many of the prescription opioids prescribed for pain management are unnecessary and that there is a lack of proper education regarding these prescriptions and adequate pain management. The limitation of one study was related to the small sample size which limited the generalizability of the findings (Beaudoin et al., 2014).

### ***Patient Education.***

Patient education regarding pain management and the negative effects of opioid use is limited throughout healthcare. When prescriptions are given to patients, they are not properly educated on how their pain will be relieved, the negative impacts that opioids can have, and what other non-opioid related methods can be used to help with management (Clarke, Skoufalos, & Scranton, 2016; Srivastava et al., 2012). Clark et al. (2016) and Srivastava et al. (2012) both demonstrate the importance of patient education and the lack thereof when it comes to pain management. In a review of the literature on post-surgical management and a level 1 meta-analysis of randomized clinical trials, Clarke et al. (2016) and Wick et al. (2017) demonstrate that opioids are over prescribed in large unnecessary quantities, have negative post-surgical outcomes, and how there is lack of education that is provided to patients upon discharge regarding opioids and pain management. Alternative non opioid related medications that have been researched and assessed with positive post-surgical outcomes and adequate pain management that should be used over prescription opioids are discussed in both articles.

To further assess the effects of education, Srivastava et al. (2012) used a physician education program to educate physicians regarding prescribing opioids and the negative effects that are occurring due to these prescriptions. In this level II prospective cohort study, using a qualitative survey, the physicians were able to demonstrate what they learned in the program. In the reassessment survey it was concluded that there was an improvement in the knowledge and skills, and more confidence was developed with an improved skill set in prescribing (Srivastava et al., 2012). This study demonstrated the positive impact that education has on learning and helping those see the importance of alternative strategies. The limitation to this study was the small sample size due to attendance (Srivastava et al., 2012)

### ***Self-Management.***

Self-management and assessment are demonstrated to have positive benefits for ones' pain management. A variety of strategies have been identified and previously used prior to the intense initiation of prescription opioids for pain management. These strategies can be accomplished independently or with support from healthcare professionals or peers. They are noted to be cost effective and have been identified to have a positive impact on pain management (Revord, 2012; Turner & Ogbeide, 2018). These strategies include, cognitive behavior therapy, stress management, support from community/peers/family/physicians, diet/exercise modifications, setting goals, and proper education (Revord, 2012; Turner & Ogbeide, 2018).

Various authors have concluded that self-management-based groups of individuals with similar illnesses, such as chronic pain, are beneficial for pain management. These groups focus on setting plans and goals, positive feedback regarding support, education regarding alternative strategies and recommendations (Chiarotto, et al., 2018; Machindo et al., 2018; Moore et al.,

2013; Niesen et al., 2018; Revord 2012; Turner & Ogbeide, 2018). This type of management was measured by using the Pain Self Efficiency Questionnaire (PSEQ), or similar tool, and assessed the impact by the patient's perspective on how pain affects them prior to and post attending and implementing the suggestions of the self-management program (Chiarotto et al., 2018; Machindo et al., 2018; Moore et al., 2013; Niesen et al., 2018; Revord 2012; Turner & Ogbeide 2018)..

In one level II randomized control trial, one quality improvement design, one level III qualitative design focus group, one level II factor analysis, and one level II quasi-experimental article, the Pain Self Efficiency Questionnaire (PSEQ) was used to assess the impact of patient pain (Chiarotto et al., 2018; Machindo et al., 2018; Moore et al., 2013; Niesen et al., 2018; Turner & Ogbeide 2018). Researchers agreed that the PSEQ was able to accurately demonstrate the assessment of individuals and the impact their pain has on them (Chiarotto et al., 2018; Machindo et al., 2018; Moore et al., 2013; Niesen et al., 2018; Turner & Ogbeide 2018). This tool was used throughout the studies when the patients with chronic pain were assessed prior to and post intervention for pain management. The tool demonstrates the improvement and accurate measurement of pain management and assessment of individuals' pain in a quick and efficient manner (Chiarotto et al., 2018; Machindo et al., 2018; Moore et al., 2013; Niesen et al., 2018; Revord 2012; Turner & Ogbeide 2018). Two articles from this review reported that this tool had reliable coefficients and could provide consistent and accurate results of satisfaction (Chiarotto et al., 2018; Machindo et al., 2018).

### ***Conclusion of Review***

This review of literature presented research that focused on many different areas of pain management. Numerous researches demonstrate and report the positive benefits of self-

management with non-pharmaceutical and non-opioid related methods for pain management, and the benefits of self-management groups. This can be demonstrated using a reliable self-assessment tool, the PSEQ, which is discussed in multiple articles.

### **Evidence Based Practice: Verification of Chosen Option**

This capstone project utilized a self-assessed questionnaire in combination with an evidence based educational intervention that focused on self-management strategies, community resources, and alternative pain control methods. Based on the review of literature, the PSEQ is an adequate reliable tool used for self-assessments by patients with chronic pain. This tool allows the providers to accurately assess how the patient is affected by the severity of pain. This tool has been proven to be a reliable, concise, and provide accurate assessment of patients (Chiarotto et al., 2018; Machindo et al., 2018). Patient education regarding self-management is limited and has been supported to be satisfactory and an important aspect in pain management. In combination with self-management programs in the communities, self-management strategies have had a large positive impact on adequate pain control when the patient is able to plan, discuss and set goals for themselves with peers (Chiarotto et al., 2018; Machindo et al., 2018; Moore et al., 2013; Niesen et al., 2018; Revord 2012; Turner & Ogbeide 2018). Due to this literature review and the evidence that supports adequate outcomes an educational intervention approach was chosen and the PSEQ was chosen for this project.

### **Conceptual Framework**

This project is based upon a conceptual framework, The Chronic Care Model. This model identifies needed elements of the health care system that encourage quality care of chronic diseases (Appendix A). When it comes to the care that is provided for those with chronic illness

there is a lack of appropriate care and deficiencies are found within the management (The MacColl Center, 2018). The Chronic Illness Model identifies these deficiencies as

- rushed practitioners not following established practice guidelines
- lack of care coordination and planned care
- lack of active follow-up to ensure the best outcomes
- patients inadequately trained to manage their illnesses

(The MacColl Center, 2018)

The Chronic Care Model was created and is based on the basic aspects for improving care for these individuals by helping to improve the above-mentioned deficiencies. The main aspects of this model are health systems, decision support, clinical information systems, patient self-management support, community resources, and delivery system design (The MacColl Center, 2018).

The elements from this model that are focused on for this project are self-management support, health system and community elements (The MacColl Center, 2018). The self-management support area in this project is related to patient understanding and education on the importance of self-support and being knowledgeable and aware of their disease. This leads to patients addressing their goals and planning out the resources they have or need. The health system area reflects the healthcare providers being able to consult, plan, support, and provide additional information to these patients in self-managing. The community resources that may impact and support the patients are self-management programs. These programs include individuals with similar experiences, and no cost community facilities that provide activities.

### **Methods**

Recruitment for this project occurred over a three-month period. Throughout this period patients were educated regarding this project and were given the educational booklet after the initial PSEQ was completed. Recruitment took place during the pain contract monthly meeting through an educational station in the clinic lobby that focused on chronic pain self-management strategies and patient referrals through providers in the clinic. During this time patients were educated regarding the project and importance of self-management and alternative strategies. The initial PSEQ was provided along with the educational booklet, and a basic consent regarding the project was provided to those who were willing to participate. Patients had a total of six-weeks before the final follow up assessment was performed.

Within the time period between the initial assessment and the final assessment, a follow up call was made by the DNP student to participating patients within three-weeks of the education to assess which strategies and resources were being implemented. This provided the patients with enough time to make changes to their pain management. It was hopeful that participants implemented strategies and started to make changes to their quality of living. At the end of the implementation period, six-weeks post initial evaluation and education, the DNP student contacted patients via telephone for a follow up assessment using the PSEQ. At this point the strategies that were implemented were discussed. Pre and post scores were compared to determine improvement or change. These results have been placed in an excel spreadsheet for analysis.



Patient identifiers and scores were placed in a secure area in a locked filing cabinet in the Advanced Practitioners office. These forms have only been accessible by the DNP student conducting the project and the students clinical site mentor.

### **Measurement Instruments**

In order to measure the pain outcomes of this project a quantitative survey, the PSEQ, was used (Appendix B). This questionnaire was developed by Michael Nicholas (2007) and with permission from this developer, this tool was chosen. This instrument gives the participant an opportunity to rate their confidence in their ability to perform daily living activities due to their pain on a number scale. This is a ten-question questionnaire that only takes a few minutes to be completed and is based on a 0-6 score. Appendix C provides a sample of the request and permission to use this tool.

This questionnaire was chosen because it provides the provider with an insight of how the participants are affected physically, emotionally, and functionally by their pain. This helps the patient and provider to set goals that may help improve certain areas that are severely affected, or of most concern for the patient in daily living that pain may impact. Furthermore, this is an important area to assess because psychological stature is a large area that impacts how a patient may manage and set goals for pain management. Chiarotto et al. (2018), reported that a PSEQ is used to assess the confidence level of these patients regarding daily living and their pain. This tool has been proven to be reliable and consistent, as previously noted in the above literature review, in assessment of the impact of patient's pain on daily living. PSEQ was used as an initial assessment tool at the beginning of the project, and post implementation of education intervention in six weeks to assess any change or improvement.

### **Goals, Objectives and Expected Outcomes**

The goal of this project was for the patients to have an improved score on their self-assessment questionnaire (PSEQ) after six weeks of implementation of self-management strategies. The PSEQ score indicates improvement in the patients' pain management and was reported during a follow up telephone call by the DNP student conducting this project at the end of the previous stated timeframe. This goal was evaluated by measuring and comparing the PSEQ scores pre and post implementation in the months of January and February 2020.

Objectives at the initial implementation visit were for patients to identify alternative pain management strategies, awareness, and understanding of alternative self-manageable pain management in the months of October and November 2019. The expected outcome of this initial visit was that 100% of the patients would verbalize the above stated topics after receiving the education booklet.

Three weeks after the initial appointment and education, the patients were followed up with regarding their progress in the months of November and December 2019. The objectives at this time were for the patients to identify self-management strategies and report that implementation had been started. The expected outcomes for this timeframe were that at least 80% of the patients would identify at least one alternative pain management strategy and implement it. This was measured by the patient verbalizing the information to the DNP student conducting the project at the follow up phone call.

At the final follow up call, that occurred after six weeks, the final self-assessment scores- and the strategies used- were assessed and measured. At this final follow up, it was expected that

the goal would be achieved with at least 80 % of the patients. This was measured by the patients verbalizing their awareness and understanding of alternative self-manageable pain strategies at the time of the follow up phone call, as well as an improved score on their final PSEQ.

### **Project Design**

Self-management is needed in healthcare when it comes to chronic disease and can be achieved with the help of primary care providers such as, Nurse Practitioners, Physician Assistants, medical doctors (MD), and their teams. This requires patients to become self-educated regarding their illnesses and to decide and discuss goals, a plan to help them achieve success, and changes in their pain management.

This DNP project was a quality improvement project. In this project, the DNP student conducting the project provided an educational booklet to patients who live with chronic pain and expressed a decrease in their quality of living due to inadequate pain control. This booklet contained education regarding self- management and alternative strategies for chronic pain and resources in the community such as, support groups for self -management of chronic pain and self-management programs.

The design for this project was based on an educational intervention using self-management strategies and resources for chronic pain as the foundation. Self-management groups allowed patients to discuss their current illness, their feelings regarding the illness, current care and management, their goals, and their knowledge regarding adequate pain control. Moore et al., (2013) reported that when groups of similar individuals can discuss and use each other as resources to help set goals, stress management and discuss self-manageable pain strategies there is positive feedback. This is easily assessed by using self- based interventions

and assessments. Education has been proven to be beneficial and have positive outcomes when trying to make a change and make participants aware of information.

The education provided included alternative pain methods, self-management strategies, and resources for self-management groups in their geographical area. The alternative methods that were identified to be managed and implemented by patients included, cognitive behavior therapy, stress management, support from community/peers/family/physicians, diet/exercise modifications, setting goals, and proper education regarding disease and management (Revord, 2012; Turner & Ogbeide, 2018). The participants in self-management programs were community-based adults who experience similar chronic issues. At these gatherings a health care provider or a knowledgeable health care worker, was present to help assist with questions, education, and provide resources. Alternative methods were discussed in these groups but were also able to be discussed with their primary physician and be implemented with change individually without groups. Within these meetings (in group or with physician) participants stated their goals, frustrations, describe their daily life and the effect the illness has.

A quantitative method, the PSEQ, was used pre and post implementation of the educational tool by the DNP student implementing this project. This questionnaire gave the participant an opportunity to rate their ability to perform certain activities due to their pain on a number scale. This ten-question questionnaire took only takes a few minutes to be completed, therefore making it convenient for a timeframe that is limited and gave a direct picture of the individual's quality of living (Chiarotto et al., 2018; Machindo et al., 2018).

The participants included in this project were patients who have a history of chronic pain. These patients were recruited through the clinic's pain contract meeting that meets once a month, Accountable Care Organizations (ACO) drop in time for education for self-management

techniques in the clinics, and patient referrals. The participants were greater than or equal to 18 years of age, any race or ethnicity, either gender, or have pain that has been present for twelve or more weeks. Upon discussion with faculty at the project site, it was determined that at this clinic location there are about 10,000 patients that are seen for chronic pain management. To be able to develop quality data, it was decided a total number of 25 patients will be recruited.

### **Project Site and Population**

The setting for this project was implemented at a full-service clinic in Springfield Massachusetts. This clinic is in an urban area where much of the population is in a lower economic class, and of different races and cultures. The clinic provides primary care services and problem focused services. They provide a variety of services such as pap smears, pain contracts, yearly immunizations, physical exams, and problem focused appointments. The staff consists of Nurse Practitioners, Physician Assistants, MDs, Medical assistants, and Registered Nurses.

This clinical site has many chronic pain patients. Some of these patients are on pain contracts; others are seen and managed through routine appointments. For this project the participants recruited were patients with a diagnosis of chronic pain and being treated for the diagnosis. These participants were recruited through the pain contract meetings that occur once a month, through an educational table with the ACO that focused on chronic pain self-management, and through phone calls of patients that were referred by providers throughout the clinic who had participants that were eligible for this project. At these times, patients were educated by the DNP student about the project and importance of self-management and alternative self-management pain strategies.

Patients who were recruited to participate were at least 18 years of age or older and had chronic or poorly managed pain. The participants were of both genders and any race, gender, and any form of chronic pain. This was randomized based on willingness to participate, pain that was persistent for at least twelve weeks, and a PSEQ score of at least 4 on each individual question on the PSEQ. The participants were chosen randomly throughout a monthly time frame via the DNP student attending the pain contract monthly meeting, recruitments through the educational stations, and provider referrals.

### **Implementation**

The quality improvement project “Self-Management of Chronic Pain” was implemented after University of Massachusetts (UMass) IRB committee approval in October 2019 at a full-service health clinic in an urban area. The approved proposal was submitted to this DNP student’s advisor, and then submitted to the UMass IRB by the advisor of the project in August 2019. IRB approval for the facility was needed prior to University IRB approval. In September 2019 it was determined that this project was a quality improvement project not a human research project by the facility’s IRB committee and therefore able to be implemented at the chosen site. After facility approval, UMass IRB committee approved implementation in September 2019. Within this time frame the project implementation tool was evaluated and was improved with further supported evidenced based strategies. Interpersonal collaboration was performed with members of ACO team, pain management team, other providers such as APRNs, and the mentor for the project at the chosen site with the DNP student.

The implementation of this project began with recruitment of patients in October 2019. Patients who were able to be considered for this project needed to have a diagnosis of chronic pain, at least 18 years of age, and of any race or gender. An educational brochure was used to

educate the chosen patients, and the PSEQ used to assess the patient's confidence in daily functioning despite their pain. The goal for this project was to recruit an average of twenty-five patients. Recruitment for this project was conducted by this DNP student. The recruitment was performed through three scenarios. The first recruitment was during a designated time period where the ACO group, educated about a diffuse number of self-management resources. At this time, this DNP student provided education to the patients regarding the project. Patients who were willing to participate were provided with the initial PSEQ and their scores were assessed. The scores for each question range from zero to six (zero being not confident, and six being completely confident). On the questionnaire the average score to each question needed to range from zero to four deeming that there was a negative impact on daily living, to be eligible to participate. The patients who met this requirement were provided with a consent regarding the benefits and potential negative results regarding the project, time period, process of the project, as well as the ability to withdraw at any given time. This scenario for recruitment was not extremely successful as only four patients were recruited. Specific patient identifiers were given to each participant and contact information was collected for follow up.

Another recruitment scenario for this project occurred during the pain management clinic. At this clinic, patients present to discuss their functional status as well as their pain management. Providers in the clinic assessed and provided an assessment with recommendations to the patient's PCP regarding if the patient should continue with the current medication regimen or if other resources were necessary. Patients were approached by the DNP student during these scheduled appointments to assess if they were willing to participate in the project. The same process then took place as it did during the previous stated recruitment period. After the process of consent, PSEQ score, and education regarding strategies, the participants and the DNP student

chose a strategy that worked best for their lifestyle. This recruitment period and environment was more successful than the previous stated recruiting eight participants.

The third scenario for recruitment occurred with collaboration from providers at the clinic. Patients were chosen by their providers who felt they would be willing to participate and who would meet the requirements for the project. This occurred during the same time period that the other recruitments were taking place. The stages were similar to the above scenarios but differed with the initial interaction. The initial interaction took place after the provider informed them regarding the project that they would be contacted by the DNP student conducting the project. At this time, and if they were willing to participate, this DNP student was given the contact information and the patient was contacted via telephone. Then the previous stated steps were taken with the difference of a score being given verbally by the patient, as well as verbal education, resources and consents. A total of eight patients were recruited through this scenario.

The recruitment phase for implementation of this project took a period of two months, October 2019 and November 2019. During this period, the recruited patients were followed up by the DNP student within three weeks after the initial recruitment to assess any implementation of self-management strategies. This varied by recruitment time. At the end of the project period, six weeks, patients were reassessed by a final phone call by the DNP student to collect the final questionnaire. At this point it was determined if there was an improvement in functional living by an improvement in their final PSEQ score.

Patient identifiers and scores were placed in a secure area in a locked filing cabinet in the Advanced Practitioners office. These forms have only been accessible by the DNP student conducting the project and the students clinical site mentor.



**Stakeholders**

Stakeholders in the implementation of this project included, practice mentor, the Attending who coordinates the pain management clinic, Residents, other providers such as Nurse Practitioners and Physician Assistants, and this DNP student. The mentor of this DNP student helped coordinate other providers to help recommend patients to be considered for this project, as well as provided support when the project was brought to her attention. This mentor also helped with connection and communication between this DNP student and the Attending and chosen residents that day of the pain management clinic, who runs and supervises the pain management clinic where patients were considered and recruited for this project.

**Data Collection Procedures**

This quality improvement project implementation began in October 2019. The goal was to recruit twenty-five participants; a total of 20 patients participated. During implementation patients were provided with an initial PSEQ to assess how their pain affects their daily function. The scores were evaluated prior to them implementing the self-management strategy that works for them. This was collected during the initial interaction with the participant at the clinic and over the telephone for those who were recruited by referral by their PCP. This collection was done by this DNP student conducting the project. Based on the recruitment time patients were reassessed to determine if they implemented the chosen strategy that fits their lifestyle by a follow up call within three-weeks of the initial education and assessment by this DNP student. This information was placed in spreadsheet on Microsoft excel to organize the strategies chosen and the initial PSEQ scores to determine the average. After a total of six weeks of implementation the patients were reassessed for the final PSEQ score to determine if there was an improvement in their score. This was done by a telephone call by this DNP student.

## **Data Analysis**

The questionnaire that was administered is a ten- question survey that uses a scale of 0-6 where six means that the individual is “completely confident” and zero means “not at all confident”. Therefore, the lower the score the less confident the individual is to perform an activity because of their pain control. The initial scores were analyzed and compared with the post intervention scores, with an expectation that the score would improve closer to six on each question, therefore increasing each total score. If there is no change then the intervention was not successful. If there is an increase in score, then the intervention had a positive impact. The participants were also assessed for what interventions were used. Basic descriptive statistics was used to analyze the data obtained. The Average score pre and post implementation was placed in a table. This is demonstrated in Appendix D Table 1. The average individual question score of the initial and post implementation PSEQ score were placed in a graph. This is demonstrated in Appendix E Figure 1. The type of strategies used were assessed and the percentage of which strategies were used in total by the participants. These percentages are demonstrated in a Pie chart in Appendix F Figure 2. The total number of participants at the beginning of the project were compared to the total number still participating at the end of the project. This data analysis is being completed by this DNP student and has been placed in a spreadsheet in Microsoft Excel.

## **Barriers and Facilitators**

Barriers that were faced during implementation of this project were participants’ willingness to use alternative methods and resources, and lack of follow through by patients. Some patients were not open to implementing other non-pharmaceutical interventions into their lifestyle to help with the pain, as well as reporting that “nothing besides medications”

has helped in the past. These concerns led to lack of interest and participation in this project. Upon the three weeks follow up, there was a lack of follow up with the participants This was seen when the DNP student attempted to contact the participants and was unable to get through via telephone. Facilitators for this project include the education and self-management strategies that were cost effective for the specific population, face to face education, and convenient location for recruitment, follow up, and familiar faces for the patients to feel comfortable.

### **Ethical Considerations/Protection of Human Subject**

The University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating the DNP Project. Participants in this proposal were protected by the Health insurance Portability and Accountability Act (HIPAA). This act provides the participants with privacy and only allows information of their healthcare to those in direct care of the patient. The patients' identity and information were protected by not using any patients' identifiers when presenting the information and results of this project. The DNP student who conducted this project followed the Standards of Care for the primary care practice that this project took place in. Patients faced no penalty and were able to drop out of the project at any given time upon their own discretion.

The risks of patients participating in this project were not any riskier than those that have already attempted prior to the project, or by their current care providers. Benefits of participating in this project was obtaining new knowledge and resources to help improve their health and healthcare. Patient confidentiality in the project was maintained at all times. The participant's identifying letters were kept in a secure area and only accessible by the DNP student conducting the project.

## Results

This project was implemented at a full-service clinic in Springfield Massachusetts. This clinic is in an urban area where much of the population is in a lower economic class, and of different races and cultures. Patients who were recruited to participate ranged from age 20 up to age 50. The participants were of both genders, different races and ethnicity, and different forms of chronic pain, majority being back and neck pain. This was randomized based on willingness to participate, pain that was persistent for at least twelve weeks, and a PSEQ score of at least 4 on each individual question on the PSEQ. Therefore, total scores less than 50 indicated there was a confidence score under 5 on the majority of questions in the questionnaire. The participants were chosen randomly throughout a three-month timeframe via the DNP student attending the pain contract monthly meeting, recruitments through the educational stations, and provider referrals.

The total number of participants that were recruited for this project included twenty adults with various forms of chronic pain. Due to the timeframe for this project and the barriers faced when recruiting participants, the goal number of 25 participants was unable to be obtained. Many participants were recruited through the pain contract clinics and providers referrals. Through the contract clinic 8 (40%) participants were recruited, 8 (40%) participants were recruited through referrals, and 4 (20%) participants through ACO days. Among the participants for this project 75% were male (25% female). Of the men, 75% were Hispanic. Of the women, half were Hispanic with the remaining being White. At the end of this project, 75% (n=15) followed through to the end. During follow ups within the three-week period after implementation of the project, only 10 of the participants were able to be contacted with an additional 5 at the end of the project due to the DNP student continuing to reach out to the

original participants. However, eight of them reported that they started to implement the self-management strategy of their choice. Therefore, the initial goal for 100% of the participants were able to verbalize the education provided at the beginning of implementation and education. But at completion of the project only 75% (n= 15) of the participants completed the project.

Therefore, the goal of 80% of participants to complete the project was not met

After collection and data analysis perform the average scores were determined. The average score of the participants PSEQ in pre-implementation was 21.5 (SD= 4.80) compared to post implementation average score of 24.5 (SD=3.20). This is demonstrated in Table 1 Appendix D. The average score per question was 2.3. pre-implementation compared to 2.6 post-implementation. This is demonstrated in Figure 1 Appendix E. These scores suggest that even with a smaller post implementation group, there was an overall increase in both individual question scores and total PSEQ scores indicating the positive influence of the self-management strategies performed on pain management and daily living.

Upon the completion of the project the pain management strategies that were used by the participants were collected. These strategies ranged from strength training, stretching, low impact exercise such as swimming, and adaptive techniques such as distractions and music. The most used and recorded strategies were stretching and low impact exercise as documented in Figure 2 Appendix F. As demonstrated, 11 out of the 15 (75%) participants reported that they implanted a combination of low impact exercise and stretching interventions. Whereas 4 (26%) of the participants reported that they implemented some cognitive behavioral therapy that include distractions techniques. After completion of this data collection and analysis, it was concluded that the overall goal of improvement in pain management was achieved by the improvement in the scores throughout the questions and in total score of the PSEQ provided. Participants

reported that this project should have been over a longer period of time due to needing more time to implement strategies to test and determine what would work well for them individually, leaving more time to determine if it is helping.

### **Discussion**

This project demonstrated the importance and effect of self-management of chronic pain. The participants in this project were recruited based on the effect chronic pain had on daily living and their willingness to implement strategies they can control and maneuver. Throughout the literature it has been demonstrated that there has been a drastic increase in the amount of opioid prescriptions for pain management. This has related to poor pain management, increase in depression, illicit drug use, and has contributed to the large opioid epidemic and deaths we are experiencing today.

Various alternative strategies have demonstrated to have an improvement on healing, chronic pain management, and decrease in narcotic use and overuse. Self-management has been researched to empower patients to understand their diagnosis and give them the ability to cope and manage it alongside their provider as well as with themselves. This project is based on the Chronic care model (The MacColl Center, 2018) due to the research indicating support systems needed in chronic pain management. This model is based on the idea that there are deficiencies in the management of chronically ill individuals, and it concentrates on certain elements to improve and close the gap in the management and care. The elements from this model that were focused on for this project are self-management support, health system and community elements (The MacColl Center, 2018).

During the implementation of this project patients used self-management as an element from this model by understanding their illness, educating themselves and implementing strategies that they can implement themselves on their own time and environment. These participants made goals for themselves by implementing strategies a certain amount weekly or daily. The health system area reflects the healthcare providers, mentally and physically, being able to consult, plan, support, and provide additional information and referrals to these patients in self-managing. This was done so by using providers to provide referrals for physical therapy and / or any other additional information to help them (such as counselors or psychiatrist for behavioral management, and additional restrictions or information regarding their illness). The community resources that may have impacted and supported the patients are self-management programs. Even though self-management programs were not used for these participants, patients were able to use resources from the community such as YMCA, and fitness centers, and parks for walking etc.

Based on the results of this project it was demonstrated over a six-week period of implementing self-management strategies such as exercise, stretching, and behavioral techniques had a positive impact of how one controls and manages their pain. This was demonstrated in both the overall PSEQ score increase and average individual question score increase. During the project there were barriers that were challenging. These barriers may be improved in the future by setting a follow up appointment in person to ensure that follow up is completed, or other contact information such as email addresses if available. The strengths of the project were the personable interactions that were performed with the participants due to the accommodation of the facility as well as the cost-effective strategies that were provided to the participants of the

project. Realistic and dependable results were able to be collected during the implementation and data collection phase due to the small group size and personable experiences provided.

### **Conclusion**

Opioid prescriptions have become catastrophic in our society when they became the main method for pain management, decreasing the use of cognitive, behavioral therapy, and lifestyle changes for chronic pain management strategies. National committees have developed guidelines to educate physicians and decrease and monitor prescription opioids. However, there is limited education provided to patients. Through many studies and research, it has been found that non-opioid methods, self-management, and self-management programs have positive impacts for pain management and have fewer negative impacts compared to opioids.

This project provided participants with the education and resources to be able to implement self-management strategies and resources for self-management programs/groups. After following up and assessments of their ability to perform activities in their daily living, after appropriate implementation strategies learned and proper management, it was determined from this project that these strategies had a positive impact on daily living and pain management. For future recommendations it should be first line therapy for pain management, and proper education should be provided to these patients that able to complete daily tasks and activities throughout their day is the goal of proper management of chronic pain. Adequate time to implement strategies, as well as time to be able to change to others if one is not successful should be provided. This will help provide patients and encourage them to make their own goals and educate themselves and be involved in their care and have time to make appropriate changes.



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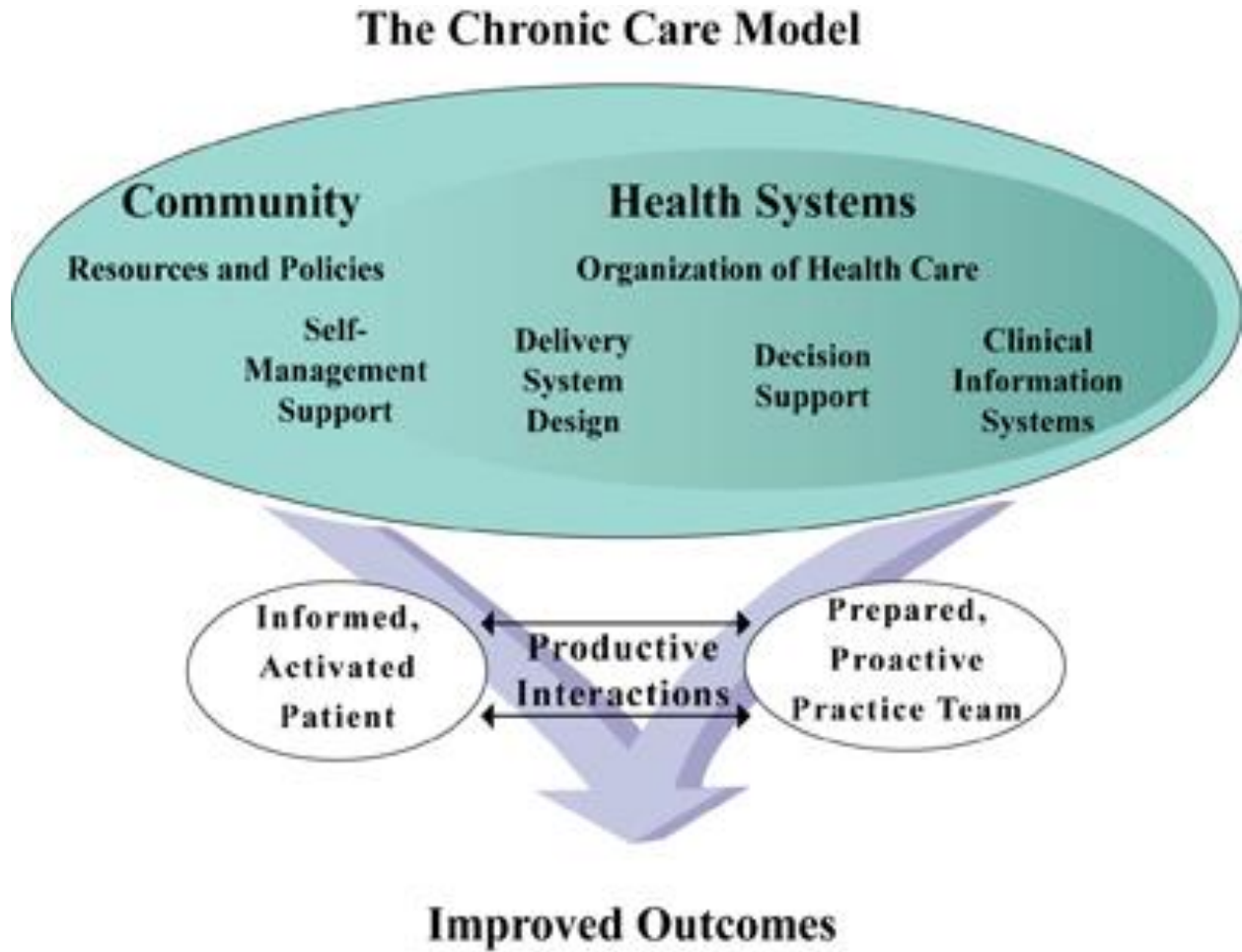
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Appendix A: Chronic Care Model



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Appendix B: PSEQ

**PAIN SELF EFFICACY QUESTIONNAIRE (PSEQ)**  
M.K. Nicholas (1989)

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Please rate how confident you are that you can do the following things at present, despite the pain. To indicate your answer circle one of the numbers on the scale under each item, where 0 = not at all confident and 6 = completely confident.

For example:



Remember, this questionnaire is not asking whether or not you have been doing these things, but rather how confident you are that you can do them at present, despite the pain.

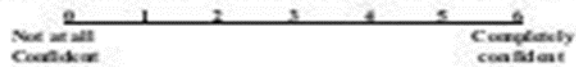
1. I can enjoy things, despite the pain.



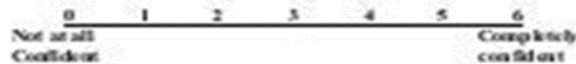
2. I can do most of the household chores (e.g. tidying-up, washing dishes, etc), despite the pain.



3. I can socialise with my friends or family members as often as I used to do, despite the pain.

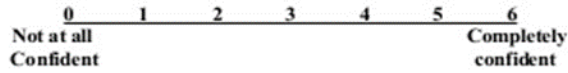


4. I can cope with my pain in most situations.

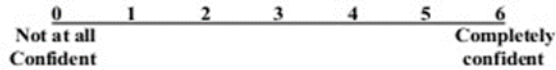


Turn over

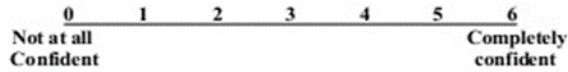
5. I can do some form of work, despite the pain. ("work" includes housework, paid and unpaid work).



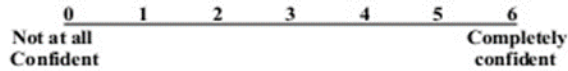
6. I can still do many of the things I enjoy doing, such as hobbies or leisure activity, despite pain.



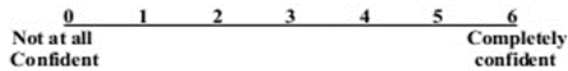
7. I can cope with my pain without medication.



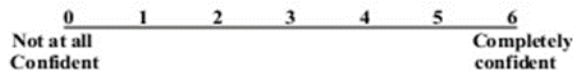
8. I can still accomplish most of my goals in life, despite the pain.



9. I can live a normal lifestyle, despite the pain.



10. I can gradually become more active, despite the pain.



Source: Nicholas M.K. Self-efficacy and chronic pain. Paper presented at the annual conference of the British Psychological Society, St. Andrews, 1989.  
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**Appendix C: Permission Letter**

RE: PSEQ

From Michael NicholasTo Carolynn VincenzoDate **2019-04-09 20:34****Message Body**

Dear Carolynn, yes, I developed the PSEQ and I am also the copyright holder. You are most welcome to use the PSEQ in your work. There is no fee, but all I ask is that you respect the copyright, acknowledge my authorship and do not make any changes to it with my permission in writing.

Kind regards,

Michael Nicholas

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Please think of our environment and only print this email if necessary.

-----Original Message-----

From: Carolynn Vincenzo [mailto:[cvincenzo@umass.edu](mailto:cvincenzo@umass.edu)]

Sent: Tuesday, 9 April 2019 10:21 AM

To: Michael Nicholas <[michael.nicholas@sydney.edu.au](mailto:michael.nicholas@sydney.edu.au)>

Subject: PSEQ

Hello,

My name is Carolynn Hastie, and I am a DNP student at UMASS Amherst. I am contacting you for permission to use the PSEQ in my capstone project.

It is based on assessing patients with chronic pain, and providing them with self management strategies to improve their pain. Then will use the PSEQ to assess and reassess post education. My Professor suggested that I email you and ask for permission, it seems as though you are the developer?

Thank you,

Carolynn Hastie

**Appendix D: Table 1 PSEQ Average Score**

Table 1

*Mean and SD of the Total Score of the Pre and Post Intervention Questionnaires.*

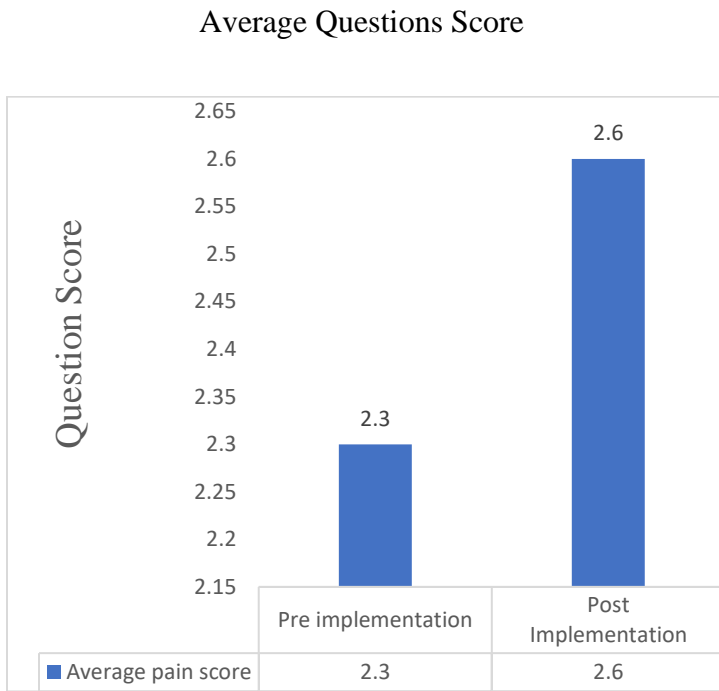
Source	Pre-Intervention			Post Implementation		n
	Mean	SD	N	Mean	SD	
Total PSEQ	21.5	4.8	20	24.5	3.20	15



**Appendix E: Individual Question Average Score**

Figure 1

*Average Individual Question Score on PSEQ*



**Appendix F: Strategies Used**

Figure 2

*Percentage of Pain Management Strategies used*

