**Research Article**

**Pain Management from a Provider Perspective and Its Impact on the Opioid Epidemic**

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**Abstract**

In the wake of the current opioid epidemic in the US, it is essential to examine various factors that may contribute to the problem. The measurement of pain is subjective, but is a vital component in prescribing opioids. The purpose of this research was to evaluate pain management in terms of how medical residents were taught to diagnose pain. This study surveyed medical residents regarding their training on how to measure pain. The findings of the study provide an important contribution to pain management in understanding the methods used by medical providers to classify pain.

**Keywords:** Diagnosis; Management; Opioids; Pain; Providers

**Introduction**

In the United States, we are currently in a time that opioid addiction as well as opioid overdose deaths are all too frequent. It was reported by the federal government that more than 130 people die per day due to opioid- related overdoses [1]. The problem did not happen overnight, and has been growing over the past two decades. In the late 1990’s, medical providers began to prescribe opioids at greater rates after being assured by pharmaceutical companies that patients would not become addicted to opioid pain relievers [1]. It became clear that opioids were highly addictive after the increased prescription of opioids led to widespread misuse and abuse of opioids [1]. In October of 2017, President Trump declared the opioid crisis in the US as a public health emergency due to the nationwide devastation caused by opioids [2]. In April of 2017, the Department of Health and Human Services announced a 5-point strategy to combat the opioid crisis [2]. The 5 priorities are to improve access to treatment and recovery services, promote use of overdose-reversing drugs, strengthen our understanding of the epidemic through better public health surveillance, provide support for cutting edge research on pain and addiction, and advance better practices for pain management [3]. This study seeks to understand how we can advance better practices for pain management.

From 1999 to 2018, the number of drug overdose deaths have increased by more than four times in less than a decade [4]. In 2017, it was reported that more than 70,000 people died from a drug overdose, with 68% of those deaths being contributed to opioids [4]. Since 2006, the rise in deaths from opioids has become a major public health concern. In recent years the surge of deaths can be related to the introduction of fentanyl which is 50-100 times stronger than morphine [4]. Even before fentanyl was introduced to the market, there was a staggering increase in people who were addicted to prescription opioids. In the 1960s, 80% of those who had an opioid overdose first initiated their abuse with heroin. Fast forward to the 2000s, and 75% of those who have an opioid addiction reported that their first opioid was a prescription opioid [5]. This is of great importance because prescription opioids are now a staple for physicians to prescribe to patients who have a painful medical condition or who went through a painful surgical procedure [5].

Although it has been previously studied, the role of physician variability in pain management is largely unknown [6]. In 2001, pain was classified by the Joint Commission as the fifth major vital sign to help improve patient care for people experiencing pain. This classification could be interpreted as meaning that pain should be eradicated for the patient by any means [7]. Chronic pain is a leading cause of impairment in daily function in the general population which leads to outpatient medical visits [8]. Opioid pain relievers are the standard of care for the treatment of moderate to severe pain [9]. Despite the prevalence of pain and increased prescribing of opioids over the past two decades, the practice of pain management is a relatively new field [10]. This research study aims to understand the practice of pain management by answering the following questions: 1) How are doctors classifying pain from patient to patient; 2) Is there a better way to classify pain using more objective measures; and 3) How are medical students being trained to classify pain.

**Background**

In 1990, Dr. Mitchel Max, the President of the American Pain Society, wrote a piece about the lack of and need for improvement in pain assessment and treatment in regard to the last 20 years. In this piece, pain was described as being invisible and put the responsibility on the providers. It also highlighted providers being very reluctant to prescribe opioids. Dr. Max had various recommendations to improve the treatment of pain along with saying that, “therapeutic use of opiate analgesics rarely results in addiction”. In 1991, the American Pain Society then released quality assurance standards for relief of cancer pain and acute pain, and they were as follows:

* Chart and display pain and relief.
* A simple, valid measure of pain intensity should be selected by each department.
* Each clinical department should identify values for pain intensity rating and pain relief rating that will elicit a review of the current pain therapy.

On October 31, 2000, Congress established the “Decade of Pain Control and Research”. Once this happened, a waterfall of events followed for the classification of pain and pain management. Responsibility shifted from solely on the providers to the healthcare organizations. In 2000, the Likert scale of pain classification became the main practice for physicians asking patients to rate their pain level on a scale from one being no pain to ten being unbearable pain. At this time, pain was classified as the fifth vital sign by the American Pain Society, the Institute of Medicine, and the U.S. Veteran’s Health Administration. Physicians and providers started prescribing opioids at much greater rates to treat patient pain [1]. As these opioids were getting prescribed at higher and higher rates, an increase in addiction and misuse of these opioids were happening before it became obvious just how addictive these substances were [1]. The epidemic that is happening now was not something that happened in a few short years, rather it has been developing over a long period of time. The opioid crisis started as early as the 1990’s when pain management was at the forefront of people’s minds. It also gained traction when prescription opioids were introduced to the market and physicians and providers were told that it was highly unlikely patients would become addicted [11]. The next rise that led to the public health emergency we are in now was the extremely fast rise in overdose deaths due to heroin [11]. The third rise that was seen happened in 2013 with an even bigger increase in overdose deaths that were contributed to synthetic opioids. At this time, fentanyl was introduced and was found in heroin, counterfeit pills, and cocaine [11].

One of the many issues surrounding pain in general is the subjectivity of pain. A method commonly used to assess pain is to ask patients to rate their pain on a scale from 1 to 10. Pain is different from one person to the next and for that reason it cannot be classified or diagnosed the same way for everyone [12]. The environment that we are living in now is that people expect to be given something to cure their pain no matter what. People become unsatisfied if they leave their doctor’s appointment and they are still in pain and were given no remedies. As one can see, this is a major problem that is continuing to enhance the opioid epidemic [13].

Historical reviews of students’ knowledge of pain management found that students did not know what type of problem to refer to a pain clinic, did not know who ran the clinics, and did not know the types of treatment commonly employed [14]. Another potential issue is that a review of pain medicine education internationally revealed that comprehensive pain medicine content is not mandatory in the curriculum for medical students [15]. A 2001 survey by the Association of Medical Colleges found that only 3% of medical schools require a course on pain management [16]. Since that time, professional associations such as the American Adademy of Pain Medicine and the International Association for the Study of Pain have developed curriculum in order to fill this gap [16,17].

A study of 104 students in their final-year of medical school found important deficiencies regarding their ability to assess and treat pain [18]. There is currently no gold standard or standardized instrument used to assess pain, which contributes significantly to this issue. A study of 81 medical students found that students themselves describe their chronic pain training as poor and in need of improvement in several areas, such as working in multidisciplinary teams, seeing chronic pain patients, pharmacological training, and more focus on the biopsychosocial model [19].

A review of 41 studies regarding methods for assessing pain medicine competencies in medical students found that more robust assessment tools are needed that effectively measure the abilities of medical students to integrate pain-related competencies into clinical practice [20]. Prior studies have found that the most common pain medicine education topics assessed were pain pharmacology, specifically opioid prescription, and the management of cancer and low-back pain [20]. Studies also previously found that a critical piece missing from pain management education is effective communication and relationship skills [21]. Several methods have been proposed for helping students to foster more positive perceptions of patients with pain: 1) show enthusiasm and interest in pain management; 2) model compassion, empathy, and respect for every patient; 3) create a comfortable learning environment for students; and 4) emphasize to students that pain relief is widely recognized as a basic human right [22].

Some people have a genetically low predisposition to pain while others have a genetically high predisposition to pain [12]. This predisposition is something we are born with and can never really be sure what qualifies as having a high predisposition for pain as well as a low predisposition. The subjectivity of pain begins here. How can a physician know if a patient has a low or high tolerance for pain? Prescribing pain medicine the same from patient to patient can no longer be the accepted practice. It cannot be only based on the “Feeling” of pain. People have become accustomed to have a quick fix for their chronic pain, post-surgical pain, injury pain, and any other general pain. When they go to the doctor, they are expecting to receive some kind of pain-relieving medicine, which usually happens to be in the form of an opioid. The population has become to expect that there is an answer and solution to everything. Pain subjectivity is a concern that is at the center of the opioid epidemic. This study seeks to find answers that may assist in finding new ways to classify pain in the practice of pain management.

**Methods**

A survey was constructed to evaluate the assessment and diagnosis of pain by medical residents who were completing a medical residency program in Georgia. The survey was emailed to the fifty-five residents who were currently enrolled in a medical residency program in Georgia. The survey included eighteen questions consisting of multiple-choice questions, interval scale questions, and open-ended questions. The survey was created in the Qualtrics platform and distributed to participants via email. The survey was open for two weeks in March of 2020. Approval was received from the University of Georgia Institutional Review Board.

**Results**

Out of 55 residents who received the survey, 8 survey responses were received, which is a response rate of 14.5%. All surveys were completed by males ranging in age from twenty-five to forty-five of African American, Caucasian, and Hispanic/Latino backgrounds. All were a part of the medical residency program in post-graduate years 2 and 3. Among the respondents, medical school training was completed in Ghana, the United States, and Colombia. When asked how many times per day they prescribed an opioid, all answered one time per day. Other remedies that are used before prescribing an opioid include Advil, Tylenol, and other nonprescriptive pain relievers. Hydrocodone and Tramadol were two opioids that were prescribed the most to patients. Opioids were prescribed to treat cancer, recover from surgery, treat chronic pain, treat sickle-cell anemia, in addition to maintaining continuity of previously prescribed opioids. Residents indicated that they personally classify pain as mild, moderate, severe and on a scale from one to ten. When asked if the measure of pain was too subjective, all eight respondents answered yes. (Table 1) provides the results of the Likert-scale questions on the survey.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Question: | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
| I feel the diagnosis of pain is subjective. | 100% (n = 8) |   |   |   |   |
| I have felt pressured by a patient(s) to prescribe them an opioid. | 50%(n = 4) | 50%(n = 4) |   |   |   |
| I feel that in the United States, in particular, they are experiencing this epidemic more than other countries. | 100%(n = 8) |   |   |   |   |
| I was taught a solid background to diagnose and treat pain from my medical school studies.  |   | 50%(n = 4) |   | 50%(n = 4) |   |
| I feel that there needs to be more of a focus for medical students on how to classify pain throughout medical school.  | 50%(n =4) | 50%(n = 4) |   |   |   |
| I feel I entered my residency program with a strong understanding of how to treat pain.  |   |   |   | 100%(n = 8) |   |
| I have a good understanding of how to diagnose pain. |   | 50%(n = 4) | 50%(n = 4) |   |   |
| I have a good understanding of what to prescribe, in terms of opioids, when the situation arises.  |   | 50%(n = 4) | 50%(n = 4) |   |   |
| I know of other remedies to treat a patient in pain instead of opioids.  | 100%(n = 8) |   |   |   |   |
| I know there is an opioid that is less addictive than others.  |   | 50%(n = 4) |   | 50%(n =4) |   |

**Table 1:** Likert scale survey results.

In terms of the qualitative response questions, in response to the question “Do you feel all physicians classify pain the same?” all respondents answered no. When asked, “do you think there should be a new system that is known and used by all physicians to classify pain”, all respondents stated “Yes”. When asked, “Do you feel the measurement of pain is too subjective”, all respondents stated “Yes”. Respondents were asked “in your opinion, what has caused the recent opioid epidemic we are currently experiencing?” Responses provided include using pain as a 5th vital sign, patient entitlement, pharmaceutical companies pushing new and stronger drugs, and a lack of consistency among providers.

**Discussion**

The results indicate that residents may not feel equipped in diagnosing pain in their medical residency programs. This suggests the problem does not start in the hospitals, but rather before that in the way future physicians are first being taught medical knowledge. Recent studies have found that medical residents benefited from simulated pain management practices [23]. This simulated training may be beneficial as a standard practice in medical school training of pain management. Other studies also found that additional skills training improved residents’ confidence in treating pain [24]. It is commonly thought that physicians are prescribing opioids to anyone who is in pain, but this study found that is not true. In the pool of residents that completed this survey, residents indicated that they are hesitant to prescribe opioids and try other methods first. The findings are consistent with other studies that have found that medical residents are concerned about using opioids as the first line of treatment for chronic pain [25].

Another finding from this study indicates that providers do not all classify pain the same way. Many providers use a scale either from 1 to 10 or the classifications of mild, moderate, and severe. Residents indicated a desire for a more standardized system for classifying pain. Recent research has examined the effectiveness of additional assessment tools for assessing pain [26]. Residents also noted that pain being classified as a 5th vital sign effects their assessment and practice. Other studies have suggested that many providers are abandoning this practice since it was a contributing factor to the opioid epidemic that exists today [27]. This study adds to the volume of research currently being done on pain management practices using opioids in hopes to point towards solutions to the problem.

**Limitations**

A limitation of this study was the timing of the survey. This survey was open for two weeks in March of 2020, which limited the availability of residents to complete the survey due to the COVID-19 pandemic. Targeting health care professionals, medical residents specifically, during a pandemic was difficult. While the response rate was not significant, the results of the study offer a promising beginning to understanding factors that affect the practice of pain management.

**Conclusion**

This study offered insights into the practice of pain management from a medical resident perspective. The findings suggest that medical residents find the classification of pain to be subjective and indicated that medical residents would benefit from additional training in how to classify pain and a standardized system used by all physicians that provides a more objective measurement. Additional research is needed with a larger sample to gain additional insights that might provide insight on the type of training needed and that might lead to the development of new methods for classifying pain. Medical providers are on the frontlines diagnosing and treating patients experiencing pain, thus examining provider perspectives is essential in possibly developing solutions to the problem that has led to the opioid epidemic in the US.

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