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# The relationship between narcotic administration and emergency department recidivism

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## Abstract

The present study investigated the impact of narcotic administration on quantity and frequency of recidivism by patients presenting to the Emergency Department (ED) with a primary complaint of chronic pain. This study explored the relationship between narcotic administration, gender, prescribing physician and subsequent ED visits. We analyzed the data from the twelve months of medical records for 80 patients (278 visits) who presented at the ED of a general medical center in a rural area. Results indicated that the number of visits by those who received narcotics was significantly higher than for those who did not receive narcotics. There was also a significant difference in prescribing patterns, with females being more likely than males to receive a narcotic. Observable differences were found between the frequency of days between visits for those who received narcotics vs. those who did not, and the differential pattern of narcotic administration between providers. These findings raise the question that the receipt of a narcotic may reinforce visits to the ED. This study concluded that an established protocol for treating patients with chronic pain who present in the ED may be useful.

**Keywords:** Pain management, narcotics, substance abuse, chronic, behavioral intervention, United States.

## Introduction

Pain is the most common problem presented by patients admitted to the Emergency Department (ED) of general medical hospitals (1,2). In an effort to treat the emergent pain, physicians performed medical procedures for 48% of patients presenting with a primary complaint of pain and provided, prescribed, or continued medications for 78% of such patients. Despite increased attention in the general medical field, little research has been dedicated to examining the specific challenges of the treatment of pain in emergency medical care. This lack of research, coupled with the high prevalence of complaints of

pain in EDs, is both a cause for concern as well as an opportunity for improvement (3,4).

### *Treatment of pain*

Pain is extremely difficult to treat because it involves an interactive and reciprocal relationship between physiological, emotional, behavioral, and cognitive components (5,6). Although effective management can occasionally occur from one specialist (7), the collaborative efforts of a team which includes physicians, nurses, physical therapists, occupational therapists, vocational counselors, and psychologists yields more robust treatment effects (8). The multidisciplinary team approach to the treatment of pain achieves the greatest impact in return to functioning; however, pharmacotherapy remains the first treatment of choice for both patients and health care practitioners (8-10).

### *Pharmacotherapy*

Pharmacotherapy is the most popular treatment for pain because it provides immediate relief. Although narcotic medications provide temporary relief, they are unable to completely eliminate the pain (8). In emergency medical care settings, careful consideration should be given to the side effects, potential addiction, and problematic consequences that may arise from the narcotics administered and/or prescribed. In spite of its ability to provide immediate relief, there are many difficulties inherent in pharmacotherapy for chronic pain patients. Medications commonly used to treat chronic pain, such as opioids, stimulants, and anxiolytics are narcotic analgesics create a variety of challenges for the ED (2,9). The most common challenges of pharmacotherapy include tolerance, dependence, withdrawal, addiction and excessive use of the ED for continued access to the narcotic. Thus, the repeated use of narcotics to manage chronic pain in the ED may unintentionally reinforce both access and addiction.

### *Access*

For many patients treatment for pain from a primary care physician (PCP) is not accessible. Many *physicians* are uncomfortable managing pain patients because of concerns about drug abuse, addiction, tolerance and other adverse effects, all of which make pain patients difficult to treat. O'Rourke et al (11) surveyed over 500 PCPs about their attitudes toward patients with chronic, nonmalignant *pain* and about their education in chronic *pain* management. Only 34% of the *physicians* felt comfortable in managing patients with chronic *pain* leading the authors to conclude that many PCPs are not comfortable treating patients with chronic nonmalignant *pain*.

Access to physicians and other treatment resources is often limited by lack of mobility, financial resource, and embarrassment regarding the request for narcotics. Thus, the ED which provides 24-hr access, a commitment to treat all patients regardless of ability to pay, and a relatively anonymous group of providers, emerges as a viable and accessible alternative to the PCP.

### *Addiction*

Another challenge in dealing with chronic pain is differentiating between true addiction and the patient whose pain is not being adequately treated (12). Opioid analgesics are among the most potent and effective analgesics for pain, but the risk for drug abuse is high because of ongoing narcotic prescriptions. In fact, many chronic pain patients may be dependent upon narcotic medications (12,13). Furthermore, because chronic pain is often associated with anxiety and depression, the capability of narcotics to induce euphoria and other mood alterations becomes especially problematic (14,15). Opioids can be abused for many different reasons, but their sedative and anxiolytic effects make them prime targets for misuse (12). Whereas narcotic usage may be desirable for patients with some medical conditions, such as cancer, the use of narcotics in chronic pain patients may lead to the drug-seeking behavior characteristic of drug abusers and may exacerbate already existing psychosocial problems (16,17).

## *Emergency Department*

For better or worse, the ED has become the nexus at which the challenges of access and addiction most often intersect. Conditions associated with pain are the most common reasons for patients visiting the ED (6,18). The accessibility of emergency medical care enables patients to use and potentially abuse the system. Given the existing belief that many patients with chronic pain perceive that chemical intervention is the best method for treating pain of all types (9), the ED represents an accessible and effective option to obtain narcotic prescriptions. Thus, the ED may become the default provider for some patients with chronic pain.

However, the risk of addiction to the narcotic medication may be unintentionally exacerbated by ED treatment for chronic pain. Research indicates that patients expect rapid delivery of pain medication after arriving in the ED (19).

This rapid response of immediate delivery of narcotics reinforces both the use of narcotic medication as the sole pain reliever and the use of the ED as the preferred choice of treatment providers. Although hospitals have become increasingly aware of their potential role in reinforcing both narcotic use and a less than optimal level of care for the patient with chronic pain, their ability to re-direct patients to a more appropriate level of care is limited.

In spite of the perceived benefits, the ED environment complicates overall effective pain management. The range of treatment options are restricted because decisions must be made relatively quickly and many times are based on a less than optimal amount of patient information (6). In addition, the importance of medication is often over-emphasized by chronic pain patients when analgesics are viewed as the only strategy to combat pain (20). As noted by McIntosh and Leffler (2) pain medications are an important part of pain management, but they are not the sole determinant of its control.

In addition to the restrictions on treatment options for chronic pain in the ED, pharmacotherapy is not cost-effective. The annual cost of chronic pain, including medical expenses, lost income, and lost productivity is an estimated \$100 billion (21,22). The use of narcotics alone does not appear to help the

person with a chronic pain condition avoid the financial and opportunity costs related to disability.

Ultimately, pain management in the ED does not provide patients with the appropriate level and continuity of care necessary to adequately treat their conditions. For example, ED physicians do not have the opportunity to follow-up with a patient after they are discharged. Typically, when patients are discharged from the ED they are given either a prescription for pain medication or a “starter pack” of medication. With this limited contact, physicians assume that each patient will follow their medical advice including but not limited to: (a) filling the medication prescription, (b) taking the medication as it was prescribed, (c) using the medication safely, and (d) returning to the ED or their PCP if the pain persists. ED physicians must also assume that following these recommendations will be efficacious even as the patient lacks continuity of care or the multidimensional treatment that is recommended for chronic pain.

Pain management is an important aspect of patient care for ED physicians both while patients are under their direct care and after discharge (2), however, the ED physician is confined by the scope of practice of emergency care.

The prevalence and impact of the treatment of patients with chronic pain in an emergency medical care setting warrants serious attention. Physicians in the ED are in a position to redirect the role of pharmacotherapy in the treatment of chronic pain. There is a growing awareness that the ED is not the optimal treatment choice for patients with chronic pain. This awareness is fueled by concerns related to access and addiction, and the potentially reinforcing role of ED care in perpetuating the problem.

As EDs continue to experience overwhelming crowding (23), efficient and effective pain management is an increasingly important component of emergency medical care (12). This research study was designed to investigate the impact of narcotic administration on ED recidivism. Additional investigative questions explored the pattern of narcotic prescription by gender or ethnicity and by different physicians in one general medical hospital.

## Methods

Participants included patients presenting to the Emergency Department (ED) in a general medical center with a primary complaint of pain between June 1, 2006 and June 1, 2007. Inclusion criteria were, a presenting problem of pain, and a referral to the pain consultation program (facilitated by a graduate student) by the ED physician. The total number of ED patients in the original database was 91 but 11 patients were excluded because of limited information, unwillingness to be referred to the pain program or frequency data beyond three standard deviations from the mean number of patient visits. The records of 80 patients (53 females, 27 males) and 278 total visits were reviewed for the final database.

### *Materials*

Computerized medical records were used to obtain archival data describing patients' use of the ED services. Permission to conduct the study was obtained through the University Human Subjects Research Committee for use of these de-identified data, and ethical guidelines established by the American Psychological Association were followed.

### *Procedure*

De-identified, archival data were obtained from the pain program database which tracked all ED patients with the presenting problem of pain. Each record was reviewed and the following data were collected: gender, age, ethnicity, total visits, days elapsed between visits, primary presenting problem, whether the patient received a narcotic during the time of the ED visit and the name of the attending physician at the time of the visit.

The record review and collection of data were conducted by a doctoral student in clinical psychology who also had affiliate privileges at the medical center. The supervising psychologist randomly selected ten percent of the records to confirm adequate reliability in data collection.

## Results

The final data set included 80 participants, who had been admitted to the ED between one and six times ( $x = 3.58$ ,  $SD = 1.52$ ) during the year, with 278 total visits for all participants. The majority (66%) of participants were females. The ethnicity of the participants included 68 Caucasian (85%), nine Hispanic (11%) and three African-American (4%) with an average age of 38.56,  $SD = 11.43$ . The types of presenting pain complaints were coded into 4 categories; chronic pain, headache, trauma, and other. Chronic pain including back, shoulder, pelvic and leg pain represented 44 of the 80 cases (55%), headache pain was the presenting problem for 24 patients (30%), pain from trauma including accidents for 4 patients (5%) with the remaining 8 patients (10%) reporting a variety of other referring condition.

### *Data analysis*

Regardless of the type of pain complaint, the majority of participant visits for pain resulted in the administration of a narcotic (182 of 278 visits, 65.46%).

In addition to the gender difference in percent of females vs. males seeking treatment, there was also a gender difference in the administration of narcotics, with females more likely to receive a narcotic during visits one through four than males (see Table 1). There was not a significant difference in the rates of narcotic administration between members of different ethnic groups.

A paired sample t-test was used to determine if there was a significant difference in the total number of visits between the group of patients who received narcotics versus the group of patients who did not receive narcotics during their ED visit. The results indicated that there was a significant difference in the total number of ED visits for pain between those patients who received narcotics versus those patients who did not receive narcotics in their total number of ED visits ( $t(79) = 6.80$ ,  $p < .001$ ). The mean number of total visits per participant was 3.58 ( $SD = 1.52$ ). Dividing the data into the two groups showed that the mean number of ED visits during which narcotics were administered was 2.32 ( $SD = .09$ ) and the mean

number of ED visits during which narcotics were not administered was 1.25 (SD = 1.01). These results indicate that the number of visits for those who

received narcotics was significantly higher than for those that did not receive narcotics.

**Table 1. Differences in narcotic prescription by gender, by number of visits to ED**

Narcotic	Received Narcotic** 1 <sup>st</sup> Visit	No Narcotic 1 <sup>st</sup> Visit	Received Narcotic* 2 <sup>nd</sup> Visit	No Narcotic 2 <sup>nd</sup> Visit	Received Narcotic* 3 <sup>rd</sup> Visit	No Narcotic 3 <sup>rd</sup> Visit	Received Narcotic* 4 <sup>th</sup> Visit	No Narcotic 4 <sup>th</sup> Visit
Female	37	16	38	15	33	15	30	14
Male	15	12	19	7	14	9	11	12
Total	52	28	57	22	47	24	41	26

p< .05, \*\*p<.01.

Analysis of time elapsed between visits. A repeated-measures ANOVA was used to compare the two groups (received narcotic vs. did not receive narcotic) to determine if there was significant difference in the amount of time between visits to the ED. The purpose of this analysis was to explore if receiving a narcotic during the hospital visit may have acted as reinforcer, decreasing the length of time a patient would wait before returning to the ED. Although the means appeared to show a positive relationship between the patients' receipt of a narcotic and the number of days between ED visits (time elapsed between visits for patients receiving a narcotic: first to second = 31.02, second to third = 39.31, third to fourth = 33.15, fourth to fifth = 27.59) vs. the group not receiving narcotics; (Time elapsed between visits: first to second = 44.57, second to third = 47.77, third to fourth = 42.3, fourth to fifth = 34.36) the results did not achieve statistical significance (see Figure 1).

A final investigative question addressed in this study was whether or not there was a statistically significant difference between the ED physicians in the frequency of narcotic administration. An ANOVA comparing the differences between physicians in the prescription of narcotics for pain did not show a statistically significant difference between physicians. In the aggregated physician data, the overall percentage of visits during which narcotics were administered was 48.5 (SD = 25.7). The size of the SD reduced the likelihood of significance; furthermore, a power analysis showing a .70 effect size indicated that a larger sample of patient visits may be necessary to achieve significant results. The mean scores by physician (Figure 2) suggest that the differences in the frequency of narcotic administration by provider may need to be explored in future research.

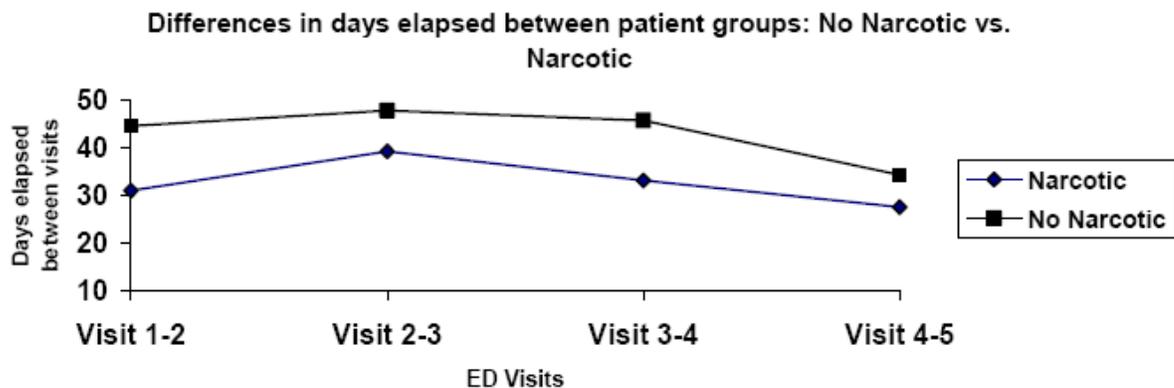


Figure 1.

## Discussion

This study revealed a significant relationship between narcotic administration and the total number of ED visits. Furthermore, this study showed differences in prescribing patterns based on gender. The data showed clinically interesting, but not statistically significant, results in the frequency of ED visits and the prescribing patterns according to physician.

One potential contributor to the significant relationship between the frequency and total visits and narcotic administration is the immediate relief of emergent pain that is provided by pharmacotherapy. Research indicates that patients expect rapid delivery of pain medication after arriving in the ED (19). For ED providers, their first priority is often the adequate and immediate treatment of the patient's emergent needs, which is also inherently linked to patient satisfaction. However, the immediate relief provided by narcotic medications is perceived as being all positive, when in fact, it often plays a key and contributing role in patients neglecting other factors that may be influencing their pain, but are left untreated by the one-dimensional medication regimen (19). Furthermore, the relationship between narcotic administration and ED recidivism supports an observation made by Egan and Katon (24), when they identified that many high utilizing chronic pain patients operate from a limited repertoire of coping strategies. In their study, high utilizers sought medical attention to deal with common symptoms, whereas other chronic pain patients used a broader repertoire of coping strategies, including exercise, weight control and improved nutrition. Instead of reinforcing chronic pain patients' maladaptive behavior solely with medication, providers may have the potential to expand their patients' repertoire of coping skills by encouraging the use of alternative treatments. Moreover, the observed difference between physicians on rate of narcotic administration may provide patients with a variable ratio reinforcement schedule. However, in light of the significant correlation between total visits and narcotic administration and the absence of a protocol to treat chronic pain, patients presenting to the ED with chronic pain quickly discover that they are more likely than not to receive narcotic medication.

As a result, this schedule potentially reinforces chronic pain patients' overutilization of the ED, insufficient coping skills, and may decrease the motivation to seek out alternative therapies. Additionally, this reinforcement schedule produces both the highest rate of responding (ED recidivism) and the greatest resistance to extinction. As such, this reinforcement schedule may enable those patients who are drug-seeking and place others at risk for addiction and inadequate care.

From the providers' perspective the challenges in the treatment of patients presenting with chronic pain in the ED and the ability to establish a standardized protocol are complex. On one side, the providers are expected to quickly respond to the patients' emergent need and provide patient satisfaction in medical care. However, this response must be balanced against the risk of one-dimensional treatment which ignores complex pain etiology and provides a potentially powerful reinforcement schedule for the seeking of narcotics in the ED. Changing the attitudes of patients and emergency medical providers about pain assessment and management will require attention in several areas of research, education, and training (1).

A reasonable place to begin the process of change may be in the development of an established protocol for treating patients with chronic pain who present in the ED. However, the establishment of a protocol for the treatment of chronic pain represents a significant challenge due to the complex factors that influence the patients' experience of pain and the medical providers' response to the patients' pain presentation.

While this study clearly yields clinical utility, it also has several limitations including the inability to make a causal statement of the findings due to the nature of correlational research; and the use of a nonprobability, purposive sample. Future studies exploring the relationship between narcotic administration and ED recidivism should utilize a matched pair or quasi-experimental study to increase the generalizability of the findings. In addition, further investigation of factors that may influence ED recidivism such as, amount of narcotic medication received, mental health diagnoses, and number of co-occurring conditions will clarify the true impact of narcotic administration on ED recidivism.

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