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THE EFFICACY OF A BRIEF BEHAVIORAL HEALTH INTERVENTION FOR MANAGING HIGH UTILIZATION OF ED SERVICES BY CHRONIC PAIN PATIENTS

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Introduction: Patients with chronic pain continue to seek medical care from emergency departments nationwide despite the fact that an emergency department is a less-than-optimal environment for meeting their specific and specialized needs. As the scientific community has gained a more sophisticated understanding of the mechanisms that contribute to the development and maintenance of chronic pain, the central role of psychological factors have emerged. Therefore, an ED-based, behavioral health intervention for chronic pain patients is needed to better serve this population and to help hospitals provide cost effective treatment at the appropriate level of care.

Methods: The setting was a 40-bed, acute-care hospital with a 15-bed emergency department seeing 16,500 patients annually. All participants were chronic pain patients utilizing the emergency department for pain management. This study was a

program evaluation utilizing a quasi-experimental, retrospective, pre-test/post-test, split-plot design.

Results: A repeated measures analysis of variance (ANOVA) was used to compare high-utilizers (>4 emergency department visits in 6 months) to low utilizers in total ED visits 6 months before and after the intervention. The low utilizers mean ED visits remained stable before and after the intervention while the high utilizers showed a decrease in ED utilization. This differential response between groups was statistically significant ($P < .05$).

Discussion: This study suggests that an ED-based behavioral health consultation may be useful for reducing high utilization of ED services by some chronic pain patients, particularly those who consume the most services.

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Patients with chronic pain continue to seek medical care from emergency departments nationwide despite the fact that an emergency department is a less-than-optimal environment for meeting their specific and specialized needs. Numerous systemic barriers, such as time limitations and limited priority for treating chronic pain in the emergency department, and physician barriers, such as fear of addiction and discounting pain reports in the absence of physical findings, contribute to oligoanalgesia—patients with chronic pain receiving suboptimal treatment from emergency physicians.^{1,2} These barriers, coupled with both chronic pain patients' expectations for fast pain relief and significant variability in emergency physician decision making about prescribing opioid analgesics, have translated into increased patient dissatisfaction and, subsequently, increased malpractice risk.^{3,4} In addition to the numerous barriers preventing emergency departments from being able to adequately care for patients with chronic pain, research has also shown that a minority of patients seeking nonurgent care (ie, chronic pain) in emergency departments consume a dispro-

portionate amount of hospital resources.⁵⁻⁸ In one study 65% of subsequent ED visits were accounted for by 16.6% of habitual ED users.⁹ In another study 3% of patients with chronic pain who habitually sought treatment in an emergency department accounted for 12.4% of the total cost, at \$1,799 per visit.¹⁰ With the frequency of ED use to treat nonurgent needs on the rise, emergency departments nationwide have become “dangerously overcrowded.”¹¹ Research indicates that one of the causative factors of high utilization by some chronic pain patients is a lack of coping strategies for dealing with their pain. For example, in one study high utilizers always sought medical attention to deal with common symptoms, whereas other chronic pain patients used a broader repertoire of coping strategies such as exercise, weight control, improved nutritional intake, elimination of unhealthy foods, and refraining from smoking.¹²

As the scientific community has gained a more sophisticated understanding of the mechanisms that contribute to the development and maintenance of chronic pain, the central role of psychological factors has emerged. This study was designed to explore the efficacy of a brief emergency department–based behavioral health intervention, as well as the appropriateness of this intervention as an adjunct treatment for high-utilizing chronic pain patients, and to determine whether the intervention reduced the frequency of their ED visits. It was hypothesized that a behavioral health consultation would reduce the utilization of ED services by some patients with chronic pain by (1) providing appropriate psychoeducation on the mechanisms of pain perception and efficacious treatment options for pain management in addition to opioids, (2) utilizing a disincentive gradient to increase motivation to change, and (3) providing a referral to an evidence-based chronic pain group that met at the hospital.¹³

Methods

STUDY DESIGN

This study was a program evaluation using a quasi-experimental, retrospective, pretest-posttest, split-plot design with nonequivalent groups so that the subjects served as their own controls. Total ED utilization was tracked 6 months before and after the behavioral health intervention via electronic medical record review. The University Institutional Review Board and Human Subjects Review Committee approved this study. Informed consent was waived because of the archival nature of the data. The data set containing protected health information was deidentified and password protected to ensure patient confidentiality.

The ED administration and clinical psychologists from a local university conjointly developed the program being evaluated. The program was a behavioral health interven-

TABLE 1
Mean ED utilization and SDs: High versus low utilization before consultation versus after consultation

	Before consultation		After consultation	
	Mean	SD	Mean	SD
High-utilization group (n = 13)	6.77	2.24	4.0	3.34
Low-utilization group (n = 12)	1.83	0.72	1.42	1.62

SD, standard deviation.

tion provided as an adjunct service in addition to the standard of care. A behavioral health team of clinical psychology doctoral students worked on an on-call basis and were available 24 hours a day, 7 days a week, at the attending physician’s request to provide a bedside pain consultation. The primary goals of this brief behavioral health consultation were to increase the subject’s repertoire of adaptive coping strategies and to enhance their motivation for change. The consultation consisted of 5 parts: psychoeducation, a discussion about the importance of having a primary care physician (PCP) manage their medication, a PCP referral as needed, referral to a pain management group, and follow-up. The intervention took approximately 15 to 30 minutes of face-to-face time with the patient in the emergency department. Psychoeducation consisted of introducing the patient to the idea of alternative strategies, in addition to medications, for managing pain. The patient was given verbal and written information on a free 10-week pain management group that met in the emergency department. The behavioral health intern discussed with the patient the need for his or her medications to be managed by his or her PCP because of the chronic nature of his or her condition. The patient was given a series of letters (the disincentive gradient) summarizing the hospital’s concern regarding the appropriate use of opioids. The disincentive gradient consisted of 3 patient letters structured hierarchically such that the tone of each letter was sterner than the one before. These letters strongly encouraged the patient to have his or her chronic pain condition monitored by his or her PCP, and they warned that the emergency department reserved the right to refuse narcotics during subsequent visits. A PCP referral was offered for those patients who did not already have one. Lastly, one of the behavioral health interns made a follow-up call within 1 week of the ED visit to encourage the patient to attend the chronic pain management group meetings.

TABLE 2
ANOVA for ED utilization before consultation versus after consultation

Sources of Variance	df	F	η_p^2	P value
Between subjects				
Group (high utilization vs low utilization)	1	25.96	.78	.001
Within subjects				
Time (before consultation vs after consultation)	1	10.03	.30	.004
Group \times time	1	5.50	.19	.03

df, degrees of freedom.

SAMPLE AND SETTING

The setting was a 40-bed acute care hospital with a 15-bed emergency department seeing 16,500 patients annually. All subjects were seen for a bedside consultation by a behavioral health intern at the request of an emergency physician. The mean age of the subjects was 39.38 ± 10.76 years. The majority of subjects were white (97%) female (78%) patients.

MEASURES

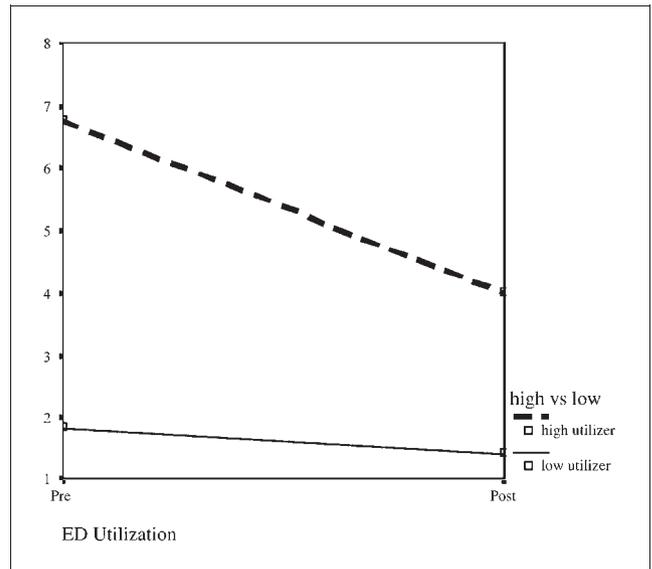
ED utilization was tracked through a medical record review. Every time a patient used hospital services, it was automatically tracked in his or her computerized medical record. Each participant's ED utilization was tallied 6 months before and 6 months after the behavioral health consultation.

DATA ANALYSIS PROCEDURES

An analysis of variance (ANOVA) was used to compare subjects with high ED utilization with subjects with low ED utilization in total ED visits 6 months before and after the intervention. High utilization was defined as 4 or more ED visits within 6 months, and low ED utilization was defined as less than 4 ED visits within 6 months.

Results

Thirty-six ED patients were tracked during the 12-month study period. Changes in ED use by high versus low utilizers, 6 months before versus 6 months after intervention, were compared. A total of 11 subjects were dropped from the study. Four subjects were not included in the final analysis because of failure to meet the pre-consultation baseline inclusion criteria. Two outliers were not included in the final analysis; one subject's pre-consultation ED



FIGURE

Interaction effect between high versus low utilizers. The ED utilization of the high-utilizer group decreased after the consultation (*Post*), whereas the ED utilization of the low-utilizer group remained the same. *Pre*, Before consultation.

visits (21) and the other subject's post-consultation ED visits (19) were more than 2 standard deviations (SD) beyond the mean and thus were not representative of the sample. An additional 5 subjects were not included in the final analysis because of their voluntary refusal to participate in the pain consultation. Few patients took advantage of the hospital-based chronic pain group, rendering it inconsequential to our results. In the final data set ($n = 25$), an $\alpha = .05$ was used, and statistical analysis were completed by use of SPSS software (version 11.0 for Mac OS X; SPSS, Chicago, IL).

Before intervention, subjects in the high-utilization group ($n = 13$; mean, 6.77; SD, 2.24) used the emergency department a mean of 3.7 times more than those in the low-utilization group ($n = 12$; mean, 1.83; SD, 0.72). After intervention, the frequency of ED visits decreased for the high-utilization group (mean, 4.0; SD, 3.34), whereas it remained fairly stable for the low-utilization group (mean, 1.42; SD, 1.62) (Table 1). Repeated-measures ANOVA procedures were used to examine whether these perceived differences between groups were statistically significant.

Because the sphericity assumption was not met, the Greenhouse-Geisser correction was used. The ANOVA showed a main effect for time such that there was a decrease in ED utilization 6 months before intervention versus 6 months after intervention: $F_{1,23} = 10.03$, $P =$

.004 (Table 2). This is considered to have a large effect size (partial η^2 [η_p^2] = .30). There was a main effect for groups, confirming that the hypothesized high versus low utilizers were in fact statistically different from each other: $F_{1,23} = 25.96$, $P < .001$. This is considered to have a large effect size ($\eta_p^2 = .53$). Most interestingly, there was an interaction between the two such that the two groups responded differently to the intervention over time: $F_{1,23} = 5.50$, $P = .03$. This is considered to have a medium effect size ($\eta_p^2 = .14$). This shows that whereas high utilizers responded to the intervention, as measured by a decrease in their ED utilization, the low utilizers did not (Figure).

Discussion

This study shows that an emergency department–based behavioral health consultation may be useful in reducing the high utilization of ED services by some chronic pain patients, particularly those who consume the most services. The findings of this study potentially have important implications for patients with chronic pain, for hospital administrators, and for emergency nurses.

From the patients' perspective, they have much to gain from an efficacious emergency department–based behavioral health intervention. In addition to receiving inadequate care, patients with chronic pain often feel misunderstood, unheard, and distrusted and feel that they are treated as drug addicts by health care providers. Furthermore, opioids come with a host of side effects (ie, nausea, constipation, central nervous system inhibition, and respiratory depression), in addition to addiction risk potential. Likewise, patients with chronic pain are well aware of the psychological consequences of their chronic pain such as depression, anger, and anxiety. Therefore the prospect of a behavioral health intervention based in the emergency department that addresses the psychological and psychosocial factors involved in their pain condition, without the risk of additional side effects or addiction, will likely be a welcome one.

From the hospital administrator's perspective, chronic pain in the emergency department presents a myriad of challenges, as well as potential legal concerns. Hospital administrators are constantly fighting an uphill battle of attempting to provide adequate care with limited resources while managing overcrowded emergency departments. In addition, there are a host of legal concerns and ethical dilemmas that they face when patients with chronic pain present to the emergency department requesting opioids. A research-based behavioral health intervention aimed specifically at addressing the complex needs of patients with chronic pain while simultaneously

detering excessive use of ED resources would likely meet a salient need.¹⁴

Implications for Emergency Nurses

From the emergency nurse's perspective, the first priority in the emergency department is to adequately treat patients with emergent needs. Furthermore, treatments must be empirically validated, clinically efficacious, time efficient, and cost-effective. This study provides support for the potential utility of a behavioral health intervention in the emergency department that is grounded in the scientific literature and supports the multidisciplinary treatment of chronic pain. Emergency nurses and physicians are often overwhelmed by the psychological sequelae associated with chronic pain that they are confronted with by many of their patients. Therefore behavioral health specialists embedded in the emergency department who are also able to competently navigate medical settings can be invaluable to emergency nurses to help manage a myriad of psychophysiological disorders including chronic pain.

Limitations

Although this study suggests several exciting possibilities, it also had several limitations including the following: a non-probability purposive sample was used, the intervention was not randomized, there was no discrete control group, the sample was small, and the study design does not support inferences of cause and effect. As a result, the generalizability of these findings are limited. In addition, there are at least 3 plausible explanations that could account for the differential response between groups: (1) efficacy of the intervention, (2) power of the disincentive gradient, or (3) regression to the mean. Future studies exploring the efficacy of an emergency department–based behavioral health intervention may wish to tease these apart further. We would recommend testing the behavioral health consultation and disincentive gradient separately to further delineate cause and effect.

Conclusion

Despite the fact that an emergency department is a less-than-optimal environment for meeting the specific and specialized needs of patients with chronic pain, these patients continue to seek medical care from emergency departments. This study shows that an emergency department–based behavioral health consultation may be useful in reducing the high utilization of ED services by some chronic pain patients, particularly those who consume the most services.

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