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Chronic or Recurrent Pain in the Emergency Department: National Telephone Survey of Patient Experience

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Objective: Persons with chronic or recurrent pain frequently visit the emergency department (ED), yet little research examines this experience. We conducted this national survey to assess patients' ED experiences.

Methods: We developed and conducted a ten-minute telephone survey using random digit dial methodology. We included adults with chronic or recurrent pain reporting an ED visit within two years.

Results: We interviewed 500 adults. Sixty percent were female, their median age was 54, two-thirds were under a physician's care, and 14% were uninsured. They reported an average of 4.2 ED visits within the past two years. Almost one-half reported "complete" or "a great deal" of pain relief during the ED visit, while 78% endorsed as "somewhat or definitely true" that "the ED staff understood how to treat my pain." Although over three-fourths of patients felt that receiving additional information on pain management or referrals to specialists was "extremely" or "very" important, only one-half reported receiving such referrals or information. A significant minority (11%) reported that the "ED staff made me feel like I was just seeking drugs." The majority (76%) were "somewhat" to "completely satisfied" with their treatment while 24% were "neutral" to "completely dissatisfied". In multivariate models, age, recurrent pain, waiting time, imaging, receiving analgesics and pain relief predicted patient satisfaction.

Conclusion: Although those with chronic or recurrent pain report relatively high satisfaction with the ED, our findings suggests that specific areas, such as unmet needs for information and specialty referral, might be targeted to improve care. [West J Emerg Med. 2010; 11(5):408-415.]

INTRODUCTION

Chronic pain is common, with a prevalence of approximately 20% in the general population and is associated with frequent physician visits.¹⁻³ The reported prevalence of any pain among those visiting the emergency department (ED) is as high as 78%, and in a recent multicenter study, underlying chronic pain conditions were reported by 40% of all ED patients who presented with pain.⁴⁻⁷ For one-half of these, an exacerbation of chronic pain was the proximal cause for the ED visit and those with chronic pain reported lower satisfaction with ED pain management than those presenting with acute pain.⁷

In 2006, to better understand the ED experiences of persons with chronic pain, the American Chronic Pain Association (ACPA) conducted a preliminary on-line survey among visitors to their website with chronic pain who had been treated in an ED within the past year. Of 250 respondents, 44% reported three or more ED visits within the past year, most commonly for pain that was out of control. Forty-four percent of respondents felt they were treated with dignity and respect by ED staff and only 22% were satisfied with their treatment. In terms of pain management, 47% rated their ED visit as "poor," "terrible," or "the worst experience of my life."⁸ While this survey had a number of limitations and

did not attempt to recruit a representative sample of those with chronic pain, it suggested a mismatch between patient expectations and the ED treatment of chronic pain.

To more completely explore the problem of chronic pain and the ED, in March 2007 the ACPA employed Public Opinion Strategies, a national polling firm, to conduct a random digit dial telephone survey of Americans with chronic or recurrent pain treated in an ED within the past two years. The goal of this study was to characterize the ED experiences of a statistically valid, representative sample of the United States (U.S.) population suffering from chronic or recurrent pain.

METHODS

Survey Development

The survey instrument was developed with input from a panel of experts in pain medicine and emergency medicine, as well as representatives from chronic pain consumer groups. Survey items were adapted from the 2006 ACPA online survey, as well as previously conducted national pain surveys.⁸⁻⁹ Items were chosen to assess features of the underlying pain condition, healthcare use, perceptions of the ED experience and respondent demographics. Panel members reviewed six successive revisions of the survey instrument, and after piloting in an initial thirty respondents, it was shortened to a length of ten minutes. Survey questions are shown in Figure 1.

Survey Methods and Sampling Design

We employed a national polling firm to conduct the survey using random digit dial methodology. In this process, a sample of telephone households in the continental U.S. is selected via random digit dialing (RDD) procedures, in which all telephone numbers, listed and unlisted, have an equal probability of selection. RDD samples are produced from a sampling frame that included all active telephone area codes and exchanges. Active blocks (contiguous groups of 100 phone numbers for which more than one residential number is listed) are added to the database, and listed business numbers are removed. The listed database is updated on a four- to six-week rolling basis, 25% of listings at a time, and the file of business numbers is updated quarterly.

Each telephone exchange is assigned to the county where it is most prevalent. In the first stage of selection, the database is sorted by state and county, and the number of telephone numbers to be sampled within each county is determined using systematic sampling procedures from a random start, such that each county is assigned a sample size proportional to its share of possible numbers. In the second stage of selection, telephone numbers are sorted within county by area code, exchange and active block, and using systematic sampling procedures from a random start, individual phone numbers within each county are selected. The sampled phone numbers

are pre-dialed via a non-ringing auto-dialer to reduce dialing of non-working numbers.

Interviewers asked if the respondent was 18 years or older and if not then the respondent asked to speak to someone in the household 18 years or older. Respondents were then screened for type of pain (acute, recurrent or chronic) and their history of ED visits. Those with a history of chronic or recurrent pain who reported an ED visit within the past two years were included. All respondents were guaranteed anonymity. The survey was conducted over five days in March 2007.

Weighting

Final data were weighted using demographic information from the U.S. Census to adjust for sampling and non-sampling deviations from population values. Respondents were classified by age, race, sex and education. Weights were assigned to each combination of factors based on the corresponding population proportions according to the Census Bureau's most recent Current Population Survey.

Statistical Analysis

We carried out all analyses using the survey procedures in SAS 9.1 (SAS Institute, Cary, NC). These allow for appropriate weighting of responses obtained under complex survey designs. The survey has an overall margin of error of $\pm 4.38\%$. We analyzed descriptive data using PROC Surveyfreq and PROC Surveymeans. Frequencies and percentages are reported in terms of weighted results rounded off to the nearest integer. We performed between-group comparison of categorical outcomes (e.g., taking prescription opioids) using a weighted chi square statistic, while comparison of wait times in the ED was carried out using a weighted Mann-Whitney test. We used PROC Surveylogistic to calculate univariate odds ratios (OR) for predictors of satisfaction along with 95 % confidence limits (95 % CI) and significance levels. Satisfaction was defined as being "somewhat", "very", or "completely" satisfied with treatment received in ED. We created a multivariate logistic model with fixed entry of predictors to determine whether each factor remained significant after controlling for all other factors. A univariate p-value of 0.10 was necessary for inclusion in the multivariate model. We also included gender (female) and being white because they constituted potential confounding factors.

RESULTS

The telephone survey was conducted in on March 2007, and involved 148,451 attempted phone calls. Nearly one-third (31%) of the calls resulted in no answers and these numbers were redialed up to six times. In addition, another 31% of the calls were picked up by answering machines and these numbers were also dialed again up to six times. Ten percent of those reached by phone refused to participate in the survey.

1. There are three main classifications of pain. Chronic pain is ongoing and last three months or more. Recurrent pain comes and goes over time. And, acute pain is short term pain, usually from a specific injury. Would you define your usual experience with pain as chronic, that is long term, recurrent, that is off and on, or acute, that is short-term and usually injury related? (Only those with chronic or recurrent pain were asked to continue the interview.)
2. In the last two years, how many times, if any, have you been to a hospital emergency room because of your pain? (Only those reporting one or more visits were asked to complete the interview.)
3. At the time of your last emergency room visit, were you under the care of a doctor for management of your pain?
4. At the time of your last emergency room visit, where specifically in your body were you experiencing this pain we are discussing?
5. How would you rate your pain symptoms that caused you to go to the emergency room using a ten point scale, where one means that you feel that your pain was pretty much under control and ten means that you feel your symptoms were severe and not under control at all?
6. For how many years have you suffered from this pain?
7. What was the length of time in minutes you had to wait in the emergency room waiting area?
8. How satisfied were you with the medical treatment you received during your last visit to the emergency room.
9. What made your last visit to the emergency room a more satisfactory experience for you? What went well? What would you say did not go well?
10. What made your last visit to the emergency room a less satisfactory experience for you? What did not go well? Was there something with your last experience that you can say did go well?
11. How much pain relief did you receive as a result of visiting the emergency room?
12. Now I am going to read you a series of phrases. Please tell me how well each phrase describes the treatment you received during your last visit to the emergency room. Would you say the phrase is definitely true, somewhat true, somewhat untrue, or definitely untrue or do you not have a strong opinion one way or the other regarding the treatment you received during your last visit to the emergency room?
 - A. I was treated with dignity and respect.
 - B. The emergency room staff understood how to treat my pain.
 - C. The emergency room staff made me feel like I was just seeking drugs.
 - D. I felt like I was taken seriously.
13. Please tell me whether you received each of the following as part of your care during your last emergency room visit for your pain.
 - A. Receive information about different treatment options.
 - B. Receive a referral to a specialist or clinic that could better help you.
 - C. Receive information on ways to better manage your pain.
 - D. Receive hope and encouragement from the doctors or nurses on staff.
14. Please tell me how important each of the following is to you personally as part of your care in the emergency room. (extremely important, very important, somewhat important, not very important, or not at all important)
 - A. Receive information about different treatment options.
 - B. Receive a referral to a specialist or clinic that could better help you.
 - C. Receive information on ways to better manage your pain.
 - D. Receive hope and encouragement from the doctors or nurses on staff.
15. Did you receive the tests, such as x-rays or scans that you expected to receive in the emergency room during your last visit?
16. Did the staff provide an explanation as to why certain tests that you expected were not provided?
18. Did you receive the medications for your pain that you expected to receive in the emergency room?
19. Did the staff provide an explanation as to why certain medications that you expected were not provided?
20. At the time of your last emergency room visit, did your regular treatment for pain include prescription narcotic medication such as Vicodin, codeine, or Percocet?
21. Do you believe that you have ever become addicted to prescription narcotic medications?
22. Do you currently have health insurance benefits that help cover the costs of care for your pain?

Figure 1. Survey questions.

Table 1. Characteristics of respondents

Characteristics of Respondents		Frequency (percent), unless otherwise noted	
Female gender		300 (60)	
Mean age, median, (IQR)		54.1, 54 (43, 65)	
Ethnicity	Non-Hispanic White	368 (74)	
	African American	62 (12)	
	Hispanic	26 (5)	
	Native American	26 (5)	
	Asian American	3 (0.6)	
	Other	6 (1)	
	Refused	9 (2)	
	Education	Some grade school	14 (3)
Some high school		60 (12)	
High school graduate		202 (40)	
Technical/vocational school		9 (2)	
Some college		98 (20)	
College graduate		64 (13)	
Graduate/professional degree		49 (10)	
Refused		4 (1)	
Household income		Under \$20,000	135 (27)
		\$20,000 - \$40,000	121 (24)
	\$40,000 - \$60,000	59 (12)	
	\$60,000 - \$80,000	51 (10)	
	\$80,000 - \$100,000	42 (9)	
	Over \$100,000	47 (9)	
Insured		430 (86)	
	Refused	45 (9)	
Pain classification	Chronic	284 (57)	
	Recurrent	216 (43)	
Mean ED visits in past 2 years (median, IQR)		4.2, 2 (1, 4)	

IQR, interquartile range

The remaining respondents were asked to characterize their histories of pain as acute, recurrent or chronic and to report the number of ED visits they had made within the past two years. Those characterizing their pain as either chronic (“ongoing and lasting three months or more”) or recurrent (“comes and goes over time”), who reported at least one ED visit within the past two years, were invited to complete the ten-minute survey.

The 500 respondents who met both pain and ED visit criteria constituted 15.34% of those who were reached by phone and agreed to the interview. Respondents’ ages ranged from 19 to 95 years with mean and median ages of 54 years. Sixty percent were female, 74% were non-Hispanic whites, and 45% received education beyond the high school graduate level. Fourteen percent were uninsured, mirroring the rate for the underlying U.S. population. Chronic pain was reported by 284

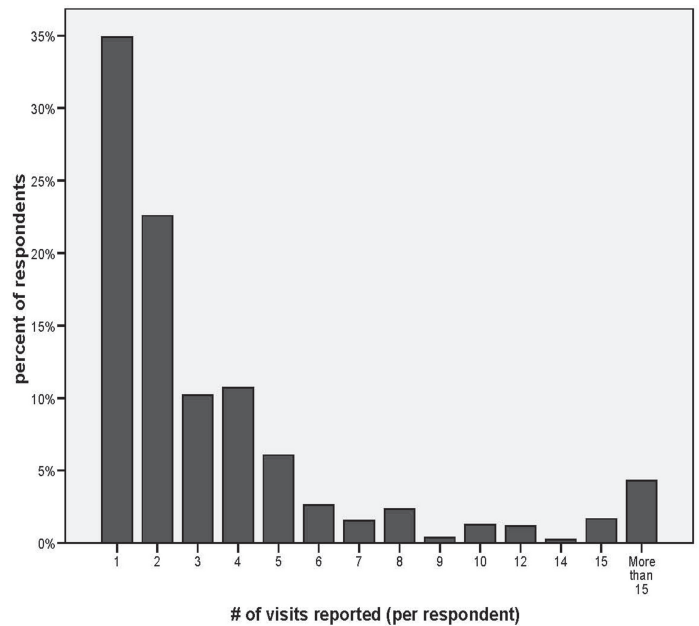


Figure 2. Number of emergency department visits reported over the past two years.

(57%) and recurrent pain by 216 (43%), with a median symptom duration of four years (mean 7.9 years, range 1-40 years). The group reported a median of two ED visits within the past two years (mean 4.2). [Table 1 and Figure 2]. Recurrent and chronic pain patients did not differ from each other significantly with regard to any background characteristic with the exception of number of ED visits with chronic patients reporting a mean, median (IQR [interquartile range]) of 5.3, 2 (1, 5) visits compared to 2.6, 2 (1, 3) for recurrent pain patients ($p < 0.001$).

At the time of their most recent ED visit, 67% of respondents were under the care of a physician and 40% were regularly taking prescription opioids. Although the term “addiction” was not explicitly defined during the interview, 5% of respondents reported that they “believed that they had become addicted to prescription narcotic medications” at some time in the past. (Table 2)

Respondents reported high levels of pain intensity on arrival to the ED, with a median presenting pain score of 9 on an 11-point Numerical Rating Scale (NRS), with 77% reporting severe pain (NRS 8-10). In comparison to national data, their perceived waiting times were surprisingly short (41% < 30 minutes). Given the chronic nature of their pain syndromes, relatively large proportions of respondents reported pain relief during the ED visit, with 42% of respondents reporting either “complete” (18%) or “a great deal” (24%) of pain relief. Seventy-eight percent of respondents endorsed as “somewhat or definitely true” that “the ED staff understood how to treat my pain.”

Although over three-fourths of patients felt receiving that additional information on pain management (83%) or referrals

Table 2. Characteristics of emergency department visit.

ED visit	Recurrent N (%)	Chronic N (%)	p-value
Under physician's care at time	121/216 (56)	215/284 (76)	<0.001
Presenting pain \geq 8	150/212 (71)	229/281 (81)	0.005
Mean ED wait time in minutes (median, IQR)	75 (30; 10, 60)	85 (30; 10, 120)	0.50
Satisfied with ED care	179/215 (83)	202/284 (71)	.002
"Complete" or "A great deal" of pain relief	104/213 (49)	105/282 (37)	0.01
"Treated with dignity and respect"	199/214 (93)	245/283 (87)	0.03
"ED understood how to treat my pain"	177/211 (83)	212/280 (76)	0.04
"ED made me feel I was just seeking drugs"	16/212 (7)	37/280 (13)	0.04
"Felt I was taken seriously"	192/213 (90)	236/284 (83)	0.03
"Received information on treatment options"	57/109 (54)	73/134 (55)	0.91
"Received referral to specialists"	66/110 (60)	67/136 (49)	0.10
"Received information on pain management"	45/110 (41)	61/133 (46)	0.46
"Received hope and encouragement"	24/112 (22)	45 (134 (33)	0.04
"Received imaging studies I expected"	154/210 (73)	194/277 (70)	0.45
"Received medication I expected"	167/209 (80)	203/271 (75)	0.19
Taking prescription opioids	72/205 (35)	127/271 (47)	0.01
"Felt had addiction problem at some point"	5/201 (3)	17/265 (7)	0.05

to specialists (75%) was "extremely" or "very" important, only one-half reported receiving such referrals (44%) or information (54%). A minority of respondents (11%) reported that the "ED staff made me feel like I was just seeking drugs."

Respondents with chronic pain differed in many ways from those with recurrent pain. Respondents with chronic pain were more likely to be under a physician's care (76% versus 57%, $p < 0.001$), present with severe (NRS 8-10) pain (81% versus 71%, $p = 0.005$), take regular prescription opioids (47% versus 35%, $p = 0.01$), report feeling they had experienced an addiction problem at some point (7% versus 3%, $p = 0.05$), that the ED provided hope and encouragement (33% versus 22%, $p = 0.04$), and that the ED staff suspected they were drug seeking (13% versus 7%, $p = 0.04$). Those with chronic pain were less likely to report complete or a great deal of pain relief (37% versus 49%, $p = 0.01$), being treated with dignity and respect (87% versus 93%, $p = 0.03$), being taken seriously (83% versus 90%, $p = 0.03$), and feeling that the ED understood how to treat their pain (76% versus 83%, $p = 0.04$).

The majority of respondents (76%) was either "somewhat", "very" or "completely" satisfied with their medical treatment, while 24% were "neutral" to "completely" dissatisfied. In univariate analyses with satisfaction as the dichotomous outcome, the following factors were associated with satisfaction: older age (OR = 1.03, $p < 0.001$), higher education (OR = 1.13, $p = 0.10$), recurrent pain (OR = 2.00, $p = 0.002$), shorter waiting times (OR = 0.99, $p < 0.001$), increasing pain relief (OR = 5.15, $p < 0.001$), undergoing imaging tests (OR = 3.38, $p < 0.001$), receiving ED analgesics

(OR = 3.44, $p < 0.001$), and having insurance (OR = 1.85, $p = 0.03$). Gender (female) and being white were not significantly associated with satisfaction based on univariate analyses: OR = 0.96, $p = 0.87$; OR = 1.13, $p = 0.61$, respectively.

Using fixed entry, we included all of the covariates listed above along with gender and being white, as covariates in a multivariate logistic regression model with satisfaction again as the dichotomous outcome variable. The following factors showed a statistically significant contribution to the model ($p \leq 0.10$): age (OR = 1.02, $p = 0.02$), recurrent pain (OR = 1.79, $p = 0.03$), waiting time in minutes (OR = 0.99, $p < 0.001$), undergoing imaging studies (OR = 1.91, $p = 0.02$), receiving analgesics (OR = 1.78, $p = 0.0503$), and pain relief (OR = 3.06, $p < 0.001$). The minimum p-value for all other predictors was 0.41.

DISCUSSION

Although most agree that ED use for those with chronic pain, like any chronic disease, is relatively high, this survey allows us to more precisely estimate the prevalence of ED use associated with chronic and recurrent pain. Given the U.S. adult population of approximately 225 million, our finding that 15% of those reached by phone met our inclusion criteria suggests that 34 million adults with chronic or recurrent pain make at least one visit to the ED every two years. Within this population, approximately 43%, or 15 million, experience recurrent pain, while 57%, or 19 million, have underlying chronic pain syndromes.

These estimates are roughly similar to calculations of ED use based on extrapolations from single site and multicenter

Table 3. Results of multiple logistic regression model predicting satisfaction.

Independent Variables	Univariate		Multivariate	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Age	1.031 (1.020, 1.043)	<0.001	1.022 (1.005, 1.040)	0.01
Female	1.233 (0.855, 1.780)	0.26	1.126 (0.901, 1.292)	0.68
Education	1.140 (1.023, 1.269)	0.02	1.079 (0.901, 1.292)	0.41
Recurrent	2.000 (1.290, 3.113)	0.002	1.786 (1.053, 3.028)	0.03
Waiting Time (minutes)	0.993 (0.990, 0.995)	<0.001	0.995 (0.993, 0.997)	<0.001
Imaging	3.111 (2.046, 4.729)	< 0.001	1.907 (1.118, 3.251)	0.02
Analgesics	2.716 (1.739, 4.241)	< 0.001	1.777 (0.999, 3.161)	0.0503
Insured	1.582 (0.943, 2.654)	0.08	1.035 (0.522, 2.051)	0.92
Pain Relief	4.421 (2.973, 6.573)	<0.001	3.055 (1.636, 5.706)	<0.001
White	1.53 (1.019, 2.296)	0.04	0.803 (0.438, 1.473)	0.48

studies. In 2005, U.S. EDs received 115.3 million total visits annually, with approximately 86.5 million visits by adults.¹² From single site studies it is estimated that pain prompts approximately 70% of ED visits.⁴⁻⁶ A recent multicenter study found that underlying chronic pain conditions existed in 40% of ED patients presenting with pain (or 28% of all ED patients) and for one-half of these (or 14% of all ED patients), the ED visit resulted from an exacerbation of this chronic pain condition.⁷ These data suggest that 24 million ED visits occur annually among adults with chronic pain, while 12 million adult visits are due to exacerbations of chronic pain syndromes.

It is often suggested that ED use results from lack of insurance or poor access to primary care. In fact, most of our respondents had access to primary care, and the proportion of uninsured within our sample was similar to that of the general population. The age, gender and ethnicity distributions within our sample are also consistent with those of the chronic pain population. Our finding that more than three-quarters of respondents reported severe pain on presentation implies that ED visits are prompted by disease severity rather than other factors.

In contrast to the high levels of dissatisfaction found in our 2006 ACPA online survey, our respondents reported relatively high levels of satisfaction, associated with surprisingly high levels of reported pain relief, particularly when considering the chronic nature of our respondents' pain.⁸ These findings highlight the recognized limitations of our previous on-line survey (i.e., only visitors to the ACPA website were invited to participate), and the importance of obtaining less biased sources of information when judging the quality of ED pain care.

Younger patients reported less satisfaction with ED pain care, and were more likely than older respondents to perceive that the ED staff considered them "drug seekers" while older patients were more likely to self-report fears of addiction. This

may reflect both higher levels of social desirability bias in the responses of older patients, as well as a higher prevalence of aberrant drug-related behaviors among younger patients. Social desirability bias means that when patients know that they are being observed, they tend to respond in a way they believe is socially acceptable and desirable. In general we feel that this bias would foster responses that are more favorable toward ED providers, and we suspect it is more likely to be present among older respondents.

Our finding of relatively high satisfaction levels is consistent with several national surveys among those with chronic pain. In a 2003 random-digit-dial survey among 1,004 adults with chronic pain, 58% stated that they were "somewhat satisfied" or "very satisfied" with their pain treatment.¹⁰ In a 2004 national telephone survey conducted by Roper Public Affairs and Media on behalf of the ACPA, 70% of adults experiencing chronic pain indicated that they were "satisfied" (43%) or "very satisfied" with their pain management.¹¹ Finally, in the 2005 ABC News/USA Today survey among 1,204 adults with chronic or recurrent pain, 59% indicated they received a "great deal" or "good amount" of pain relief as a result of seeing a physician.⁹ It is difficult to make direct comparisons between the surveys cited above and our survey as they use different populations and samples; however, respondents tended to report relatively high levels of satisfaction with pain treatment.

The receipt of imaging studies was an independent predictor of satisfaction, although the contribution of such studies to patient well-being is likely to be small, particularly given the frequency of ED visits and the long duration of our respondents' pain syndromes. This suggests that both the ED staff and those with chronic pain may benefit from additional education efforts regarding the appropriate indications for imaging studies in the ED setting.

Although unrelated to satisfaction, over three-fourths of our respondents felt they needed additional information

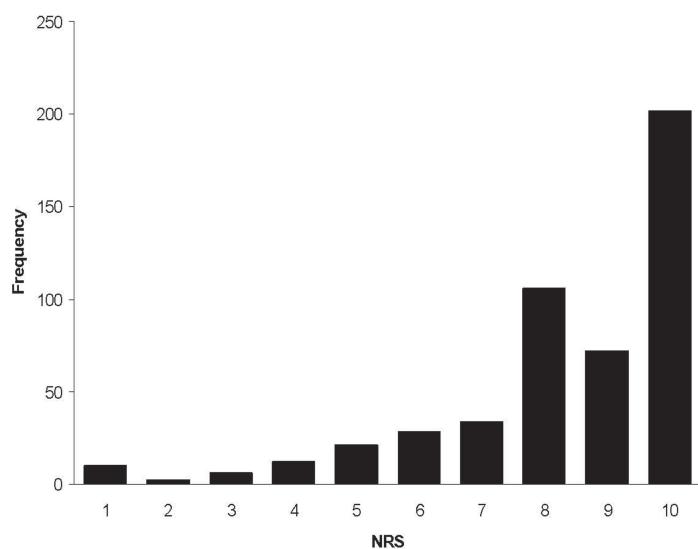


Figure 3. Arrival pain intensity at last emergency department visit based on a numerical rating scale (NRS)

about their pain condition and considered referral to specialty-level pain care very important. Unfortunately, only one-half perceived that they had received sufficient information or referral, and this finding supports the need for increased education among ED staff and those with chronic pain, as well as improvements in access to pain medicine expertise.

LIMITATIONS

Limitations to our study should be mentioned. Retrospective judgments of pain intensity and waiting times are always difficult and our respondents' perceptions may be influenced by a number of factors, including overall satisfaction with care. Also, our survey shares the weaknesses of other telephone surveys, including an increasing level of difficulty in reaching potential respondents, in part due to the rise in use of answering machines and caller-identification information. These challenges are balanced by the cost-effectiveness and efficiencies of telephone surveys methods. In addition, our survey instrument, although modeled on prior surveys tools, has not been formally validated. It was developed by a panel of experts in pain medicine and emergency medicine, as well as representatives from chronic pain consumer groups, thus should have face validity. We have provided the survey questions themselves to allow others to judge their appropriateness.

CONCLUSION

The most positive news from this survey is that people with chronic pain who come to the ED seeking relief from severe pain generally receive rapid and effective care. The more negative findings indicate these patients appear to be frustrated by a lack of information about managing their pain, as well as a lack of access to specialty-level care. Although ED staffs are perceived to provide compassionate care to

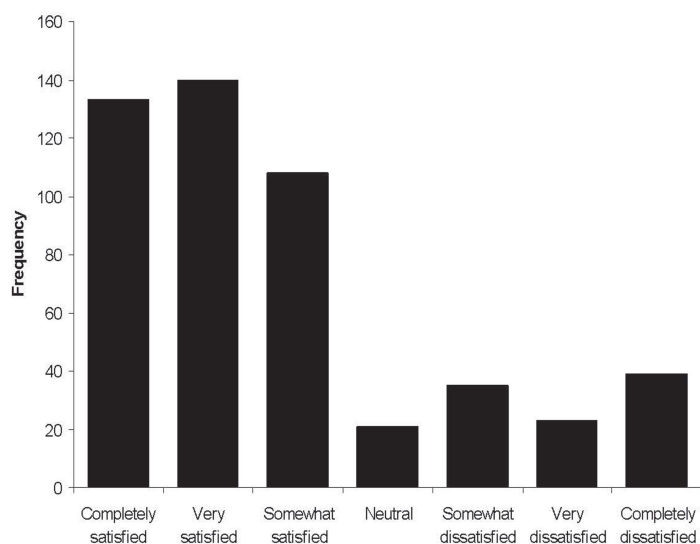


Figure 4. Patient satisfaction.

this rather large population, managing chronic or recurrent pain over a long period requires much more than an ED can offer. In the current healthcare environment EDs are under tremendous pressure to treat growing numbers of patients with fewer and fewer resources. Although the ED is to be commended for efforts to treat those in the midst of a pain crisis, persons with chronic pain need support beyond the hospital's walls.

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