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MEDICATION MISUSE, ABUSE AND DEPENDENCE IN CHRONIC PAIN PATIENTS

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Abstract—We report the prevalence of drug use, misuse, abuse, and dependence in 125 chronic pain patients attending specialist pain clinics in South London. A total of 110 patients (88%) were taking medications for their pain problem. Opioid analgesics (69.6%), nonopioids (48%), antidepressants (25%), and benzodiazepines (17.6%) were the drugs most frequently used. Psychoactive substance abuse or dependence (DSM-III-R) was diagnosed in 12%. A total of 9.6% of the patients met the DSM-III-R criteria for substance abuse or dependence in remission. Data are also presented on the misuse and abuse of nonpsychoactive drugs, qualitative information on how patients use drugs, and the information they have received about medication. © 1997 Elsevier Science Inc.

Keywords: Chronic pain; Drug misuse; Abuse; Dependence.

INTRODUCTION

Chronic pain is a common problem. Chronic pain sufferers receive a variety of pharmaceutical treatments usually providing limited relief and often associated with side effects [1–3]. Previous reports have shown that a significant percentage of chronic pain patients suffer from drug abuse/dependence [4, 5], which in turn may contribute to physical and psychological dysfunction. However, few studies have used acceptable diagnostic criteria and/or definitions for the different categories of abuse and/or dependence [6]. Other studies have concluded that drug abuse behavior in chronic pain patients is uncommon [7, 8]. The purpose of this study was to assess drug use, abuse, and dependence in a random sample of chronic pain patients using the DSM-III-R criteria for psychoactive substance abuse and dependence. We also planned to assess any links between drug misuse, abuse, and dependence and measures of anxiety, depression, disability and perceived pain control.

METHOD

Subjects

Patients were recruited from the Pain Clinics of St. Thomas' Hospital (STH) and King's College Hospital (KCH). Both are large teaching hospitals in South London. Full details of the sample recruitment,

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demographics, and clinics are provided in the first report of this study [9]. In brief, the sample was characteristic of those attending specialist UK pain clinics.

Inclusion criteria were: (1) pain duration longer than 6 months; (2) age between 18 and 65 years; and (3) new referrals to the pain clinics. Excluded were those with a diagnosis of cancer.

A total of 193 patients were approached to take part in the study; 125 (64%) gave informed consent and completed the study. Those taking part had the following characteristics: mean age (SD) was 41 (11) (range: 18–65); 46 patients were male (37%); 89% were of Caucasian origin; 63% lived with their spouse and children, 10.5% lived with their children, 14.5% lived alone, 10.5% lived with relatives, and 5.5% lived with flat mates. Sixty percent of the subjects were unemployed, 16% were full-time employed, 10.5% were part-time employed, 11% were retired, and 2.5% were housewives/homemakers.

Patients who did not agree to participate or did not complete the study did not differ from completers in terms of gender and duration of pain.

Instruments

Instrument I. St. Thomas' Pain Management Center, Pain History Questionnaire, which is a self-report measure covering how the pain started, and its location and duration. It also summarizes the different kinds of treatment patients have had for pain and the current medication regime.

Instrument II. All subjects received a structured interview to assess prescription medication abuse or dependence. Each patient was interviewed using the Psychoactive Substance Use Disorders section of the National Institute of Mental Health Diagnostic Interview Schedule, Version III—Revised (DIS-R) [10]. The DIS-R was used to assign current and lifetime DSM-III-R diagnoses.

Diagnosis of medication *abuse/dependence* for psychoactive substances (opioid analgesics, antidepressants, benzodiazepines) was based on the DSM-III-R criteria (DIS-R interview performed by the investigator) in the light of information obtained from the medical records, and the results of the clinical evaluation performed by the consultant anesthetist on the day of the interview.

The DSM-III-R criteria can only be applied for psychoactive substances. Patients who did not fulfill the DSM-III-R criteria for *psychoactive analgesic abuse* but often used their psychoactive analgesics above the recommended dose were considered as cases of *psychoactive drug misuse.*

Diagnosis of *simple analgesic abuse* was made when patients systematically used their medication above the maximum recommended dose for more than 1 month.

Similarly, patients who often (but not systematically) used their *simple analgesics* above the recommended dose were also considered as cases of *simple analgesic misuse.*

For the purposes of this study a substance use disorder was considered to be *in remission* if no pathological use or resulting impairment had occurred within the past year. This definition has been also used by others [11].

Medication was grouped into four categories: (1) *nonopioid analgesics* (paracetamol preparations, NSAIDs); (2a) *opioid analgesics* and (2b) *compound analgesic preparations* (paracetamol or aspirin with a low dose of an opioid); (3) *antidepressants;* and (4) *benzodiazepines.*

Instrument III. Data about medicine prescription and use were acquired via a semistructed checklist developed for the present study. Patients were asked to provide information about:

1. Type and dose of medicines taken for their pain problem.
2. Alcohol or illegal drugs taken as analgesics.
3. Medicines taken for another pain problem, from friends or relatives, or as a preventive measure.
4. Patients were asked whether medication was helpful, whether they could do without medication, whether they were worried about long-term side effects, whether medication influenced their quality of life or social life, and whether they were aware of possible withdrawal symptoms from opioids or benzodiazepines.

To assess any links between drug misuse, abuse, and dependence and measures of anxiety, depression, disability, and control of pain, subjects were given a questionnaire booklet at home. It included:

1. The Hospital Anxiety and Depression Scale (HAD) [12]. This scale has been found to be a reliable instrument for measuring depression and anxiety in the medical setting.
2. The Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36) [13]. This survey measures eight health concepts: physical functioning; social functioning; role limitations due to physical problems; role limitations due to emotional problems; mental health; energy and vitality; and pain and general perception of health.
3. Coping Strategies Questionnaire (CSQ) [14]. This questionnaire assesses the extent to which subjects reported using six different cognitive coping strategies and one behavioral coping strategy in response to pain (diverting attention, reinterpreting pain sensations, coping self-statements, ignoring pain sensations, praying or hoping, catastrophizing, increasing activity level). At the end of the questionnaire, patients are asked to make two ratings of the overall effectiveness of whichever coping strategies they used.

Table I.—Medicine use

Type of medicine	Patients	
	Number (n = 125)	Percent
Analgesics	108	86.4
Nonopioid analgesics	60	48.0
Opioids	87	69.6
Benzodiazepines	22	17.6
Antidepressants	31	24.8
Psychoactive drugs[a]	95	76.0

[a] Psychoative drugs: opioid analgesics and/or benzodiazepines and/or antidepressants.

RESULTS

One hundred ten patients (88%) were taking medication for their pain problem at the time of the interview, and 97 patients were taking medication for the pain regularly every day and 13 occasionally (once or twice a week or every day during periods of recurrence). Table I shows medication use in detail. Eleven patients (9%) described regular analgesic medication consumption before the current pain problem started. Table II shows frequency of medicine misuse, abuse, or dependence. Table III shows medicine misuse, abuse, or dependence by category of analgesic medication. Of 125 patients, 12 patients (9.6%) met DSM-III-R criteria for medication

Table II.—Medicine misuse, abuse, or dependence

	Patients	
	Number (n = 125)	Percent
Medicine[a] misuse	21	16.8
Psychoactive drugs[b] misuse, abuse, dependence		
Misuse	17	13.6
Abuse (DSM-III-R criteria)	7	5.6
Dependence (DSM-III-R criteria)	8	6.4
Abuse or dependence	15	12.0
Analgesic[c] misuse, abuse, dependence		
Misuse	16	12.8
Abuse (nonopioid analgesics)	5	4.0
Abuse (opioid analgesics, DSM-III-R criteria)	4	3.2
Dependence (opioid analgesics, DSM-III-R criteria)	6	4.8
Benzodiazepine misuse, abuse, dependence		
Misuse	6	4.8
Abuse (DSM-III-R criteria)	5	4.0
Dependence (DSM-III-R criteria)	4	3.2
Antidepressants misuse, abuse, dependence		
Misuse	2	1.6
Abuse (DSM-III-R criteria)	0	0.0
Dependence (DSM-III-R criteria)	0	0.0

[a] Any kind of analgesic, sedative, antidepressant.
[b] Opioid analgesics, benzodiazepines, antidepressants.
[c] Nonopioids, opioid analgesics.

Table III.—Analgesic misuse, abuse, or dependence

	Patients	
	Number (n = 125)	Percent
Nonopioid analgesics		
Misuse	7	5.6
Abuse	5	4.0
Opioids		
Misuse	12	9.6
Abuse (DSM-III-R)	4	3.2
Dependence (DSM-III-R)	6	4.8
In a compound preparation		
Misuse	9	7.2
Abuse (DSM-III-R)	3	2.4
Dependence (DSM-III-R)	0	0.0
Opioid preparation		
Misuse	5	4.0
Abuse (DSM-III-R)	1	0.8
Dependence (DSM-III-R)	6	4.8

(opioid analgesics, benzodiazepines, antidepressants) abuse or dependence in remission (see Table IV). Seventeen patients (13.5%) reported that they used alcohol when they found pain intolerable. Five patients (4%) used cannabis for the same reason.

Polypharmacy was common. Thirty-eight of 125 (30.4%) patients were taking one preparation daily, but 39 (31.2%) were taking two, and 20 patients (16%) were taking three to six preparations daily. Thirteen patients (10.4%) were not taking medication everyday, and 15 (12%) patients did not take any medication.

Patients were taking their medication as follows: 19 (17%) on time-scheduled basis; 55 (50%) on a pain-contingent basis ("prn"); and 36 (33%) both (on time-scheduled basis but took an "extra tablet" when pain got worse).

Thirty-two (37%) of 86 patients taking analgesic preparations containing opioids were aware of possible withdrawal symptoms, 16 patients (18.5%) thought the medication they received was not associated with withdrawal symptoms, and 38 patients (44%) did not know or were not sure. Thirteen (59%) of 22 patients receiving ben-

Table IV.—Medicine abuse, dependence (in remission)

	Patients	
	Number (n = 125)	Percent
Opioids		
Abuse	5	4.0
Dependence	2	1.6
Benzodiazepines		
Abuse	5	4.0
Dependence	3	2.4
Antidepressants		
Abuse	0	0.0
Dependence	0	0.0

zodiazepine medication were aware of possible withdrawal symptoms, 5 patients (23%) thought the medication they received was not associated with withdrawal symptoms, and 4 patients (18%) did not know or were not sure. Fifty-four patients (49%) said they were worried about possible long-term effects of the medication they received. Thirty patients (27%) of those using current medication reported they occasionally took their analgesics for a different type of pain (usually headache or period pain). Nineteen patients (17%) reported they occasionally borrowed analgesics from relatives and friends. Thirty-one patients (28%) occasionally used their analgesics as a preventive measure in circumstances such as traveling or shopping. Fourteen patients (13%) believed that they were helped a lot by the medication, 34 (31%) believed that the medication helped them quite a bit, 56 (51%) reported that they were helped only a little, 5 (4.5%) were not helped at all, and 1 patient was not sure. Forty-five patients (41%) thought that their medication improved their quality of life, 50 (45.5%) said it did not change their quality of life, 13 (12%) said it worsened their life, and 2 were not sure. Seventy-four (67%) reported that their social life was not influenced by medication, 29 (26%) felt their social life was negatively influenced, and 7 (6%) did not know. Sixty-three (57%) reported that they could not do without medication, 5 (4.5%) could possibly do without medication, 27 (24.5%) reported that they could do without medication, and 15 (13.5%) were not sure.

Finally, we report links between use of medication and measures of disability, anxiety, depression, and perceived pain control. When patients with the diagnosis of medicine abuse/dependence were compared with the rest, it was found that the former had significantly higher rates of disability, as measured with the physical functioning health concept of the SF-36 questionnaire ($t = 2.41$, $df = 105$, $p = 0.018$).

Similarly, patients with medicine abuse/dependence were found to have higher rates of depression (HAD, depression subscale) compared with those without medicine abuse/dependence. Of the 18 patients with the diagnosis of medicine abuse/dependence, 10 (55.5%) scored in the range of "definite case of depression" as measured by the HAD depression scale and 7 (39%) scored in the range of "probable depression case." Of the 89 patients not rated as abuse/dependence cases, 36 (40%) scored in the range of "definite depression case" as measured by the HAD depression scale and 22 (25%) scored in the range of "probable cases of depression" (Mantel–Haenszel test for linear association, ($p = 0.042$).

No statistically significant difference was observed when patients fulfilling criteria for medicine abuse/dependence were compared with the rest of the sample on anxiety (HAD, anxiety subscale) and perceived pain control (CSQ questionnaire).

DISCUSSION

Terminology can be confusing in this area [6]. We have been careful to be specific about our choice of definitions. We followed the DSM-III-R definitions for active drug abuse and dependence. Psychoactive drugs were defined as the opioid analgesics, benzodiazepines, and antidepressants. We also used the term "drug abuse" for the nonopioid analgesic category in cases where analgesics were systematically used above the highest recommended daily dose. As these drugs are not psychoactive

substances, and therefore do not comply to the DSM-III-R definition for drug abuse, we separately reported nonopioid analgesic drug abuse. In addition, we used the term "drug misuse" when patients often, but not systematically, used medicines above the highest recommended daily dose. This definition is not included in the DSM-III-R definitions and is reported separately.

The application of DSM-III-R criteria for the diagnosis of psychoactive substance abuse and/or dependence has certain limitations. These include the requirement to rate whether a social, occupational, psychological, or physical problem is caused or exacerbated by use of the psychoactive substance. Chronic pain could also interfere with these functions and therefore the assessor must judge whether it is the pain or the drug itself that is responsible for the observed impairment. To reduce this problem we placed particular emphasis on the development of symptoms of tolerance and potential dose escalation for the diagnosis of dependence.

Despite these precautions, like all similar studies we are limited by our reliance on patient recall. It has been shown previously that chronic pain patients tend to underestimate their medication use especially of narcotic analgesics [5].

The main finding of this study was that 12% of the chronic pain population studied met the DSM-III-R criteria for active drug abuse or dependence. We also observed that a substantial percentage (17%) occasionally used medicines in doses well above the highest recommended dose (drug misuse), and that 9.6% met DSM-III-R criteria for drug abuse or dependence in remission. Furthermore, a number of patients were using medication in an inappropriate time schedule and were not aware or had inaccurate information about the possible side effects of such use.

Various definitions have been used in the past for the diagnosis of drug abuse and/or dependence in chronic pain patients and so direct comparison of our results with other studies is difficult. Nevertheless, a study using the NIMH diagnostic interview schedule reported 18.9% opioid dependence and 5.4% opiate abuse [15], and another study, using DSM-III diagnoses, reported current drug dependence of 10.6% [16]. These findings are comparable with our results. In a recent review of the literature on drug use in chronic pain patients the prevalence percentages for the diagnosis for drug abuse, drug dependence, and drug addiction were in the range of 3.2% to 18.9% [6]. A study of benzodiazepine use by chronic pain patients found a prevalence of 38% [2]. We report that 18% of the current sample used benzodiazepines. This difference might in part reflect differences in prescribing practice both between the US and UK, as well as changes in the prescription of benzodiazepines over time. We noted relatively low rates of benzodiazepine misuse (4.8%), abuse (4%), and dependence (3.2%) in our population.

The large majority of the current sample (88%) were taking medication for their pain problem at the time of the interview, most of which were psychoactive drugs (opioid analgesics, benzodiazepines, antidepressants) (76%).

We found that most patients were taking medication in potentially inappropriate ways—only 17% took them on a regular "scheduled basis." It has been proposed that "prn" medication schedules contribute to drug-seeking behavior [17]. In its widely publicized clinical guidelines, the Clinical Standards Advisory Group Report on Back Pain advised firmly against "prn" medication [18].

We have previously considered the role of iatrogenesis in this sample [9]. Prescribing was one of the five major categories of iatrogenic factors. We provided evi-

dence of prescription of analgesics on a pain-contingent basis, prescribing without specific instructions, prescription of tranquilizers on a long-term basis, and prescription of two or more analgesics of the same class. Polypharmacy is also one aspect of iatrogenesis. We report that 16% of the sample reported taking three or more preparations daily for their pain, although this is lower than the figure of 38% reported by a previous study [19]. Polypharmacy should be seen as a further example of the contribution made by iatrogenic factors to chronic pain problems.

It has also been suggested that excessive medication intake could lead to decreased physical and social functioning and contribute to irritability and depression [20]. We also found that patients with drug abuse or dependence had higher rates of physical disability and depression when compared with patients without this diagnosis. Nevertheless, chronic pain is also related to poor physical and psychological functioning. Therefore, a causal relationship between excessive medicine intake and high rates of disability and depression cannot be established.

The results of the present study emphasize the need for better guidance for patients on how to take analgesic medication and perhaps for doctors on how to prescribe them. This is supported by the observation that some patients taking opioids (18.5% of those taking opioid analgesics) believed that opioids were not associated with withdrawal symptoms and 44% either did not know or were not sure. Similar observations were made for benzodiazepines.

Drug misuse, abuse, or dependence could contribute to the dysfunction found in chronic pain patients [21]. The finding that a substantial number of chronic pain patients seen in pain clinics of two large teaching hospitals in South London fulfilled criteria for drug misuse, abuse, or dependence suggests a need for greater awareness of these diagnoses in similar samples. Possible responses should include more patient education on the effective and safe use of medication, and more guidance for doctors on appropriate prescribing for this population.

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REFERENCES

1. Flor H, Turk DC. Etiological theories and treatments for chronic back pain. I. Somatic models and interventions. Pain 1984;19:105–121.
2. King SA, Strain JJ. Benzodiazepine use in chronic pain patients. Clin J Pain 1990;6:143–147.
3. Turner JA, Calsyn DA, Fordyce WE, Ready LB. Drug utilization patterns in chronic pain patients. Pain 1982;12:357–363.
4. Maruta T, Swanson DW, Finlayson RE. Drug abuse and dependence in patients with chronic pain. Mayo Clin Proc 1979;54:241–244.
5. Ready LB, Sarkis E, Turner JA. Self-reported vs actual use of medication in chronic pain patients. Pain 1982;12:285–294.
6. Fishbain DA, Rosomoff HL, Rosomoff RS. Drug abuse, dependence, and addiction in chronic pain patients. Clin J Pain 1992;8:77–84.
7. Portenoy RK. Chronic opioid therapy in non malignant pain. J Pain Sympt Manag 1990;5(suppl 1):S46–S58.
8. Portenoy RK, Foley KM. Chronic use of opioid analgesics in non malignant pain: report of 38 cases. Pain 1986; 25:171–186.
9. Kouyanou K, Pither CE, Wessely S. Iatrogenic factors and chronic pain. Psychosom Med (in press).
10. Robins L, et al. National Institute of Mental Health Diagnostic Interview Schedule, version III—revised. Bethesda, Maryland: NIH 1991.

11. Hoffmann NG, Olofsson O, Salen B, Wickstrom L. Prevalence of abuse and dependency in chronic pain patients. Inter J Addict 1995;30:919–927.
12. Zigmond A, Snaith R. The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scand 1983;67:361–370.
13. Ware J, Sherbourne CD. The MOS 36-Item Short-Form Health Survey (SF-36) I. Conceptual framework and item selection. Med Care 1992;30:473–481.
14. Rosentiel A, Keefe F. The use of coping strategies in low back pain patients: relationship to patient characteristics and current adjustment. Pain 1983;17:33–44.
15. Katon W, Egan K, Miller D. Chronic pain: lifetime psychiatric diagnoses and family history. Am J Psychiatry 1985;142:1156–1160.
16. Fishbain DA, Goldberg M, Meagher B, Steele R, Rosomoff H. Male and female chronic pain patients categorized by DSM-III psychiatric diagnostic criteria. Pain 1986;26:181–197.
17. Fordyce WE. Behavioral methods for chronic pain and illness. St. Louis, Missouri: Mosby 1976.
18. Clinical Standards Advisory Group. Report of a CSAG committee on back pain. London: HMSO 1994:59–60.
19. Berndt S, Maier C, Schutz HW. Polymedication and medication compliance in patients with chronic non-malignant pain. Pain 1993;52:331–339.
20. Taylor CB, Zlutnick SI, Corley MJ, Flora J. The effects of detoxification, relaxation, and brief supportive therapy on chronic pain. Pain 1980;8:319–329.
21. Halpern LM, Robinson J. Prescribing practices for pain in drug dependence: a lesson in ignorance. Adv. Alcohol Subst Abuse 1985–1986;1–2:135–162.