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MEDICAL HELP-SEEKING BY DIFFERENT TYPES OF CHRONIC PAIN PATIENTS

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This paper reports on a study of the use of health services by different types of patients with chronic benign pain. The purpose of the study was to identify differences in medical consumption between different types of pain patients. In the course of one year 586 patients were selected by 45 general practitioners: they included patients who had had almost daily chronic pain symptoms for at least six months, without a medical diagnosis (such as cancer or arthritis) to explain the pain. Patients were categorized according to the Multidimensional Pain Inventory which distinguishes four categories: the *dysfunctional*, who perceive severe pain and gain social support; *the interpersonally distressed*, who combine pain with affective and relational distress; *adaptive copers*, who cope with their pain in a number of ways; the *average* type, with characteristics of all three other types. It was hypothesised that adaptive copers would make less use of health services and would be more involved in self-help activities than dysfunctional or interpersonally distressed patients. Frequent use of psychological services by the interpersonally distressed group was expected. It was predicted that difference in health services use would continue during the subsequent year.

No differences were found between the four groups in location, temporal characteristics, or possible medical causes of the pain symptoms. Dysfunctional patients used more services than the others. Adaptive copers used the least. The four groups did not differ in self-care activities. Group-membership as well as pain severity are related to the use of health services. None of the groups showed a significant decline in the use of health services during the year. It is concluded that chronic pain is invalidating, but that not all patients are equally excessive in their use of medical services.

KEY WORDS: Chronic pain, coping with pain, medical consumption, health services research.

INTRODUCTION

Chronic pain is defined by the International Association for the Study of Pain as "pain that persists beyond the normal time of healing" (Mersky, 1986, p. 5). Acute pain is functional and can be considered as a "biologically meaningful, useful, and time-limited experience" (Vasudevan 1992, p. 101). Acute pain may become chronic and may not be completely attributable to nociception. This is known as *chronic benign pain disorder* (CBPD).

The recognition of the multidimensional character of pain with its interplay of physical, cognitive and behavioural factors led Turk and Rudy (1988, 1992) to the construction of the Multi Axial Assessment of Pain (MAP). Information has to be obtained on three axes: physical/medical; psychosocial; behavioural. The syndrome classification of the IASP serves to gather relevant data on the first axis. This classification is undertaken by a clinician. The second and third axes are assessed by the Multidimensional Pain Inventory (MPI),

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a self-report questionnaire which measures patients' appraisals of pain and the impact of pain on different domains of their lives, perceptions of the responses of significant others to their distress, and the performance of common activities. The MPI is constructed so that the outcome of an assessment is one of four patient profiles. **Dysfunctional**: patients who perceive the severity of their pain to be high, report pain as interfering with their daily lives, experience much affective distress, and have a low activity level. **Interpersonally Distressed**: patients with moderate pain and affective distress who have a common perception that significant others are not very understanding. **Adaptive Copers**: patients who experience considerable social support and relatively low levels of pain, affective distress, high levels of activity, and perceived control. Patients of the **Average type** have some of the characteristics of each of the three other types (cf. Bergström, Jensen, Bodin, Linton, Nygren, and Carlsson, 1998; Kerns, Turk and Rudy, 1985; Lousberg, 1994).

This multi-axial approach illustrates the complexity of the phenomenon of chronic benign pain. Chronic pain persists under the influence of physical, cognitive, emotional, behavioural, and social factors. However, by its very character, it is often defined (at least by the patient) as an exclusively medical problem for which medical solutions should be sought. This circumstance makes chronic pain and the resulting use of health services an important research topic for health psychology and health services research.

It is of interest to note there have been very few studies within the domain of pain research devoting attention to pain patients' use of health services. Most research has concerned the characterization of chronic pain patients on a variety of psychological and psychiatric dimensions. Further, most research has been on clinical populations. Studies of pain and the use of health services have in general been limited to the cross-sectional measurement of pain characteristics and health service usage (Crook, Rideout and Browne, 1984; Engel, VonKorff and Katon, 1996; Jensen, Turner, Romano and Lawler, 1994; Van Tulder, Koes, Metsemakers and Bouter, 1998). The consistent finding in all these studies is that pain persistence and pain intensity relate positively to health care utilization and higher costs. Some epidemiological research aimed at case finding in medical practice (Frolund and Frolund, 1986; Potter and Jones, 1992; Verhaak, Kerssens, Dekker, Sorbi and Bensing, 1998) and some recent research on general practitioners' treatment of pain patients (Van Tulder *et al.*, 1998) supplement the substantial body of research on the treatment of pain patients in a clinical setting.

The possible relationship between pain coping characteristics (including behavioural and psychological factors) and health service usage has not previously been investigated in detail. There is a long tradition of health services research on help seeking behaviour, but this has not been focused exclusively on pain patients, and certainly not on the maladaptive character of help seeking behaviour in the light of the psychological models referred to earlier. The present study aims to enhance the understanding of the relationship between cognitive and behavioural patient characteristics resulting in the MPI profiles mentioned above and medical help seeking in the population at large. It is a longitudinal study providing an opportunity to study the consequences of several MPI profiles on medical consumption in the long term.

The construction of MPI profiles (see Method section for details) leads to the identification of dysfunctional patients with a perception of severe pain, interpersonally distressed patients with a perception of average pain, and adaptive copers with a relatively low perceived pain level. Dysfunctional and interpersonally distressed patients would be expected to use more maladaptive coping strategies, such as pain avoidance and to search for medical solutions; whereas adaptive copers would seek solutions in more active coping strategies.

There is an underlying assumption that a dysfunctional patient's pain is maintained by reinforcement (receiving attention, being looked after), while the interpersonally distressed patient's pain is maintained by affective distress and interpersonal conflict. For adaptive copers, no maintenance mechanism is assumed.

These assumptions lead one to expect dysfunctional patients to be high consumers of health services in all respects, even after controlling for their perceived health status. Interpersonally distressed patients could be expected to make particularly heavy use of psychological services, because of their experience of interpersonal conflict. Adaptive copers ought to be light consumers of health services in all respects. Lastly, given the maladaptive coping styles employed by dysfunctional and interpersonally distressed patients (cf. Jensen, Turner, Romano and Karoly, 1991), and the pain maintaining context in which they live, this high consumption could be expected to remain high in the follow-up stage, in contrast with that of adaptive copers who are expected to remain at their relatively lower level. This rationale led to the formulation of the following hypotheses.

H1 Adaptive copers make less use of medical and paramedical services than the interpersonally distressed, who make less use of medical and paramedical services than dysfunctional patients.
H2 Interpersonally distressed patients make more use of psychological services than adaptive copers.
H3 Adaptive copers engage in more self-help activities (especially the more active) than dysfunctional or interpersonally distressed patients.
H4 Differences between the three groups in medical consumption continue during the annual follow-up.

METHOD

The study is a longitudinal prospective cohort study. A cohort of chronic pain patients was assessed on a number of psychological and behavioural factors; the patients' usage of health services was followed up 3, 6, 9, and 12 months after inclusion.

Inclusion

Patients were included by their general practitioners. In the course of one year they selected those patients who presented symptoms of pain, or were known to have such symptoms, and who fulfilled the following criteria:

- the pain had existed for more than six months
- pain was the most prominent aspect in the presentation and serious enough to justify clinical attention
- the pain could not be explained by a physical diagnosis (for example, cancer or arthritis)
- the patient's age was between 18 and 65 years.

General practitioners were requested to select all patients meeting the inclusion criteria and ask them for their informed consent.

Data Collection

Forty-five general practitioners (35 practices) were involved in the selection process. They were participants in a countrywide network of sentinel stations forming a continuous monitoring system for health services research. The network is a representative sample of Netherlands practices, covering all degrees of urbanization and all regions of the Netherlands.

The number of chronic pain patients included by each doctor varied from one to 40 patients on a yearly basis (cf. Kerssens *et al.*, submitted). The general practitioners selected 586 patients; of these, 385 patients (66%) were prepared to participate and complete the MPI and other questionnaires. A few of the non-participants were patients who refused to take part when invited to do so. Most non-participants were excluded by their doctors, because they were concerned about the negative consequences of attention which might be paid to the chronic pain.

The general practitioners completed a registration form for each patient, providing information on the medical aspects of the pain reported. This form was completed for both the participants and the non-participants. Following inclusion, patients completed several questionnaires, including one reporting their medical consumption during the previous three months and the MPI. All the questionnaires used are discussed below. The medical consumption questionnaire was mailed to all participating patients every three months. Non-responders were reminded once by mail and if necessary again by telephone. In this paper the first four measurement points are considered.

Measurements

1) MPI. The Dutch Language version of the MPI has been used (Lousberg, 1994).

The MPI profiles are based on a number of constructions and assumptions. The MPI is a multidimensional pain questionnaire which yields scores on 11 sub scales divided over three main parts:

- pain relevant psychosocial aspects
  - pain intensity
  - interference
  - life control
  - affective distress
  - social support
- behavioural aspects
  - punishing responses
  - solicitous responses
- distracting responses
  - daily activities
  - household chores
  - outdoor work
  - social activities/activities away from home

In the original American version of the MPI 12 sub scales were distinguished. During the development of the Dutch language version, only three factors in part III of the questionnaire, concerning daily activities could be extracted (Lousberg, 1994). Accordingly, social

activities and activities away from home have been amalgamated. The same adaptation was made in the Swedish language version of the MPI (Bergström *et al.*, 1998).

Scores on these scales were used to classify respondents according to the four categories described: dysfunctional, interpersonally distressed, adaptive copers, average respondents. The program delivered with the questionnaires makes automatic categorizations (cf. Lousberg, 1994). The categories are constructed so that the dysfunctional type is high in pain intensity, interference and affective distress, also high in support, solicitous responses and distracting responses, but low in life control and general activity. The interpersonally distressed type is average in pain intensity, interference and affective distress as well as in life control and general activity, but low in support, solicitous responses and distracting responses. The adaptive coper has the best of both worlds, combining low subjective pain relevant aspects with relatively high support. The average type has intermediate scores on all aspects. It was not possible to obtain a typology for every respondent: a number of them gave contradictory responses, so that they could not be classified. This group is called the "anomalous" group.

2) General Practitioner Judgments. At the moment of inclusion, following contact with the patient, the general practitioners rated each patient on each of the following characteristics:

- Location of the pain
- Temporal characteristics of pain
  - continuous, non fluctuating
  - continuous, fluctuating
  - intermittent, irregular
  - intermittent, regular
  - attacks
  - contiguous with attacks
  - other
- Medical explanation/evidence (11 point scale: not explicable – completely explicable)

3) MOS SF36. The short form of the measurement instrument, developed during the Medical Outcome Studies of the Rand Corporation to measure health status and functional status of respondents (MOS SF36) has been administered to all patients at the moment of inclusion. The following scales (sometimes shortened form) were included:

- general health status (one item)
- social functioning (one item)
- physical functioning (10 items)
- physical role performance (four items)
- mental health (five items)
- vitality (four times)

Because different scaling was used for the various (groups of) items, all sum scores were transformed to scores on a 100-point scale ranging from 0 (worse situation) to 100 (optimal situation)

4) Medical consumption questionnaire. The medical consumption questionnaire has been developed specifically for this study. It is an inventory with a three month retrospective view of number of visits (and number of visits due to pain complaints) to the:

- general practitioner
- medical specialist
- paramedical professions: physiotherapists and exercise therapists
- mental health care professionals
- alternative healers

Furthermore, the respondent is required to indicate the self-care activities undertaken to reduce or prevent pain

- taking medicine
- rest
- swimming
- yoga
- gymnastics
- other

Analysis

Differences between groups in terms of the general practitioners' judgements and self-care activities were on an interval scale and normally distributed; they were tested by χ^2, *t*-test or analysis of variance. In the latter case, post hoc contrast analysis was performed, testing differences between all four groups and (dysfunctional + interpersonally distressed) versus (adaptive coper + average). Pairwise differences between groups were assessed in a multiple range test using the Tukey HSD procedure. Differences significant at a probability level < 0.05 will be reported.

Differences between groups relating to medical consumption (mostly with a skewed distribution) were tested by means of loglinear Poisson regression. In Poisson regression, the counts (for example, the number of visits to the doctor) are described as a function of the three-month period. Test statistics were derived from *D*, the scaled deviance (McCullagh and Nelder, 1989). For the analysis of longitudinal differences, Poisson regression was used in a multilevel design where measurements were repeated within patients (Bryk and Raudenbusch 1992; Goldstein 1995).

Non-response

The general practitioners selected 586 of their patients. Due to non-response and dropout, the ultimate sample might have been biased. The first selection appeared at the point that patients meeting criteria for CBPD did not participate. Since forms about these patients were also completed by the general practitioners, we can compare their judgements on participants with their judgments on non-participants (Table 1).

None of the differences between participants and non-participants were statistically significant. From table 1 we conclude that non-participants did not differ from participants as regards location of pain, its temporal characteristics, or the degree of medical explicability

Table 1 Non-response analyses: Participants (returning MPI at T1) vs Non-participants

	Participants 385	*Non-participants 178*
Location of pain:		
Head, face and mouth	20%	19%
Cervical region	15%	15%
Upper shoulder and upper limbs	15%	15%
Thoracic region	3%	4%
Abdominal region	4%	4%
Lower back, lumbar spine sacrum and coccyx	21%	21%
Lower limbs	7%	9%
Pelvic region	1%	2%
Anal, perianal and genital region	2%	3%
More than 3 sites	12%	10%
Temporal characteristics		
Continuous (non-fluct.)	16%	18%
Continuous (fluct.)	43%	38%
Intermittent, irregular	21%	22%
Intermittent, regular	15%	13%
Attacks	6%	8%
Medically explicable (10-point scale: 0: not explicable; 10: completely explicable), mean scores (s.d)	5.8 (2.9)	5.9 (2.8)

of the pain symptoms. There were 385 patients fulfilling the criteria who agreed to participate and completed the first questionnaire (including the first MPI).

Using the MPI classification, 284 (74%) of the 385 patients who completed the MPI at inclusion were classified into one of the four categories, as: 27% dysfunctional, 13% interpersonally distressed, 10% adaptive coper, 24% average. The scores of the other 26% on the different MPI scales did not fit the MPI classification. They have been referred to as *anomalous* and have been left out of any analyses using MPI typology. To have anomalous cases making up a quarter of the total is very high when compared with the studies in which the MPI was validated (Lousberg, 1994). This is addressed in the discussion section. Patients omitted from our analyses because of the "anomalous" classification have been compared with patients included in the analyses in table 2. Patients who did not fit into the classification scheme were on average five years older ($t = -2.87$; $p = 0.005$) and in poorer general health ($t = 2.80$; $p = 2.80$). The groups did not differ in pain location, degree of medical explicability, pain duration, gender, or the five other health parameters: social functioning, physical functioning, physical role performance, mental health and vitality.

The last selection, resulting from non-response, is derived from the longitudinal character of the study. The study was a longitudinal cohort study, so the patients included were asked to complete and return a mailed questionnaire at T1 and every three months thereafter. Each new measurement was accompanied by a considerable loss of respondents. Table 3 shows the impact of non-response on T1 to T4 by presenting the distribution of age, gender, health parameters and a number of pain characteristics as measured on T1 for the group of respondents participating at T1, T2, T3 and T4. The loss of respondents resulted in a growing proportion of female patients, although the age composition of the groups did not change substantially. The average pain duration increased, while pain location and medical explicability remained the same. No selective dropout of patients with relatively good or poor health could be observed. The distribution of MPI-typology remained the same as well.

Table 2 Patients classified by MPI vs unclassifiable (anomalous) patients

	Classified *284*	*Anomalous* *101*
Location of pain:		
Head, face and mouth	19%	20%
Cervical region	16%	11%
Upper shoulder and upper limbs	14%	17%
Thoracic region	5%	2%
Abdominal region	3%	6%
Lower back, lumbar spine sacrum and coccyx	21%	21%
Lower limbs	10%	5%
Pelvic region	1%	2%
Anal, perianal and genital region	3%	4%
More than 3 sites	9%	11%
Temporal characteristics		
Continuous (non-fluct.)	17%	22%
Continuous (fluct.)	40%	31%
Intermittent, irregular	20%	25%
Intermittent, regular	14%	12%
Attacks	8%	9%
Medically explicable (*10-point scale*)	5.9 (2.8)	5.8 (2.7)
% female	72%	73%
mean age	46.8 (13.1)	52.4 (17.8)
pain duration (years)	10.2	10.3
Health parameters		
General health	32.9	25.4
Social functioning	52.4	46.5
Physical functioning	54.1	53.7
Physical role performance	25.1	28.5
Mental Health	55.4	51.6
Vitality	52.4	46.8

Table 3 Patient and temporal characteristics at four measurement-points

	T1	*T2*	*T3*	*T4*
Location of pain:				
Head, face and mouth	17%	17%	15%	16%
Cervical region	7%	7%	8%	6%
Upper shoulder and upper limbs	11%	12%	10%	11%
Thoracic region	4%	5%	5%	7%
Abdominal region	6%	5%	6%	5%
Lower back, lumbar spine sacrum and coccyx	14%	12%	12%	13%
Lower limbs	8%	8%	10%	9%
Pelvic region	1%	1%	1%	–
Anal, perianal and genital region	1%	1%	1%	1%
More than 3 sites	31%	31%	33%	31%
Temporal characteristics				
Continuous (non-fluct.)	18%	19%	17%	17%
Continuous (fluct.)	39%	37%	37%	36%
Intermittent, irregular	21%	20%	22%	22%
Intermittent, regular	13%	15%	16%	17%
Attacks	9%	9%	9%	9%

Medically explicable (10-point scale: 0: not explicable; 10: completely explicable)	5.8 (2.7)	5.7 (2.6)	5.9 (2.5)	6.1 (2.5)
% female	71%	73%	76%	79%
mean age	49.4 (14.1)	48.3 (13.1)	48.1 (12.4)	48.4 (12.0)
pain duration (years)	9.9	11.6	14.7	19
Health parameters				
General health	31.1	31.8	31.7	33.3
Social functioning	50.9	50.7	51.9	52.3
Physical functioning	54.0	54.6	54.5	55.2
Physical role performance	25.8	26.2	26.9	28.9
Mental Health	54.5	54.5	54.8	55.5
Vitality	51.1	51.4	51.8	52.8
MPI-typology				
Dysfunctional	36%	35%	34%	32%
Interpersonally distressed	19%	20%	18%	19%
Adaptive coper	12%	11%	12%	16%
Average	33%	32%	35%	33%

Table 4 Personal Characteristics of patients from 4 MPI categories

	Dysfunctional	*Interpersonally Distressed*	*Adaptive*	*Average Coper*
N:	103	51	37	93
% female	74%	69%	62%	74%
mean age	45.3	47.9	50.1	46.0
pain duration (years)	8.5	13	12.5	9.4
Health parameters				
General health	30.6[3]	28.1[3]	43.8[1,2,4]	33.5[3]
Social functioning	48.7[3]	45.0[3,4]	63.0[1,2]	56.3[2]
Physical functioning	47.5[2,4]	60.8[1]	57.9	57.2[1]
Physical role performance	18.1[3]	21.6	38.5[1]	29.4
Mental Health	52.7[3]	47.5[3,4]	64.7[1,2]	58.4[2]
Vitality	49.6[3]	44.8[3,4]	66.0[1,2,4]	54.9[2,3]

[1]Score differs significantly from score of group 1 (dysfunctional)
[2]Score differs significantly from score of group 2 (interpersonally distressed)
[3]Score differs significantly from score of group 3 (adaptive coper)
[4]Score differs significantly from score of group 4 (average)

RESULTS

In table 4 some personal characteristics of patients in the distinguished MPI categories are given. More than two thirds of all the patients included were women. The MPI groups did not differ from each other in the background characteristics of age or gender. Neither did they differ with respect to the duration of pain complaints: all four groups had suffered for a long time and were chronic patients. The pain patients included had as a whole poor self-perceived health in all respects. The MPI groups differed from one another on most of the scales. In general terms, the adaptive copers felt more healthy than the dysfunctional and interpersonally distressed types. They evaluated their general health, social functioning, mental health and vitality more positively. Respondents in the average category fell more or less in between. The scores of the interpersonally distressed patients were particularly

Table 5 IASP-Characteristics of patients from 4 MPI categories

	Dysfunctional	*Interpersonal Distressed*	*Adaptive Coper*	*Average*
N:	103	51	37	93
Location of pain:				
Head, face and mouth	20%	14%	21%	20%
Cervical region	17%	12%	7%	21%
Upper shoulder and upper limbs	15%	12%	7%	13%
Thoracic region	5%	7%	7%	3%
Abdominal region	1%	5%	–	5%
Lower back, lumbar spine sacrum and coecyx	19%	23%	10%	25%
Lower limbs	9%	12%	21%	7%
Pelvic region	1%	–	3%	1%
Anal, perianal and genital region	1%	5%	3%	3%
More than 3 sites	12%	12%	14%	3%
Temporal characteristics				
Continuous (non-fluct.)	20%	17%	26%	11%
Continuous (fluct.)	50%	37%	29%	36%
Intermittent, irregular	11%	20%	29%	36%
Intermittent, regular	11%	15%	6%	19%
Attacks	8%	12%	9%	6%
Medically explicable (10-point scale: 0: not explicable; 10: completely explicable)	4.9	4.6	4.5	5.5

low on Mental Health and Vitality. Only in physical functioning did the interpersonally distressed person score highest – significantly higher than the dysfunctional category.

Table 5 reveals the IASP characteristics of patients in the four MPI categories. The most common complaints were lower back pain, headache, pain in the cervical region, and pain in the upper shoulder. According to the general practitioners, most patients suffered from pain continuously, with about one third of them reporting intermittently occurring pain. The distribution of pain on an 11-point scale from completely medically explicable to completely inexplicable was skewed towards the inexplicable pole.

There appeared to be no differences between the four categories in location of pain or possible medical explanation. There was a trend however, (X^2=12.2; df=5; p=.058)

Table 6 Use of health services during the past 3 months by persons from 4-MPI categories at the moment of inclusion

	Dysfunctional	*Interpersonally Distressed*	*Adaptive Coper*	*Average*
N:	103	51	37	93
Number of visits				
All services	16.5[2,3,4]	10.3[1,3,4]	7.8[1,2,4]	11.6[1,2,3]
GP	3.0[4]	3.0[4]	3.5[4]	2.3[1,2,3]
Medical specialis	1.2[3]	1.0[3]	0.5[1,2,4]	1.4[3]
Paramedical	9.8[2,3,4]	4.0[1,4]	3.3[1,4]	6.2[1,2,3]
Psychological	1.0[2,3,4]	1.8[1,3,4]	0.1[1,2,4]	0.7[1,2,3]
Alternative healer	1.5[2,3,4]	0.5[1,4]	0.3[1,4]	1.1[2,3]

[1]Score differs significantly from score of group 1 (dysfunctional)
[2]Score differs significantly from score of group 2 (interpersonally distressed)
[3]Score differs significantly from score of group 3 (adaptive coper)
[4]Score differs significantly from score of group 4 (average)

Table 7 Self care activities, performed by persons from 4-MPI categories at the moment of inclusion (% of patients in group, that carries out activity)

	Dysfunctional	*Interpersonally Distressed*	*Adaptive Coper*	*Average*
N:	103	51	37	93
1) Taking medication	23%	40%	32%	22%
2) Taking rest	76%	67%	50%	68%
3) Swimming	23%	37%	14%	24%
4) Yoga	6%	9%	0%	8%
5) Gymnastics	10%	9%	11%	14%
6) Other	38%	26%	43%	41%
Any of the above	89%	98%	89%	91%
Passive (1 or 2)	79%	81%	61%	76%
Active (3 or 4 or 5)	34%	47%	25%	38%

with respect to temporal characteristics, for dysfunctional patients to report more continuous pain, while others reported relatively more intermittent pain.

The use of health services at the time of inclusion for the four categories is presented in table 6.

Several significant differences were found between the four categories in their use of health services in the past three months. In general, more use of the health services as a whole was made by the dysfunctional patients. They also consulted all practitioners more frequently than the other groups (mostly adaptive copers and average patients). Only mental health services were used more often by another group: the interpersonally distressed patients.

About 85% of the patients who visited their GP, 90% of the patients who visited a medical specialist, 100% of the patients who visited an alternative healer and 75% of the patients who visited a paramedical therapist did this because of their pain. There was no difference in this respect between the four MPI-categories.

Self-care with regard to pain is shown in table 7 for each type of pain patient.

Most of the patients reported at least one kind of activity which they carried out themselves to relieve their pain. We found no differences between the various MPI categories, regardless of whether we grouped self-care activities into active and passive activities, or whether we clustered all categories. It became clear that adaptive copers did not stand out as particularly active performers of self-care activities; neither did dysfunctional or interpersonally distressed patients put more trust in medication or rest than the other groups.

The question remains as to whether dysfunctional patients have the highest level of medical consumption because of their typology, or because of their state of health as such (dysfunctional patients are lower on health parameters than adaptive copers and in some respects average patients). To address this question we analysed the effect of general health (as measured by the SF-36) and typology on the total number of visits. The effects were tested separately and in combination with each other.

Table 8 shows the respective regression equations. Both general health and typology had a significant effect on the number of medical visits, and both effects remained after controlling for each other. It can be seen from the equations that, in comparison with the reference group, dysfunctional patients show a higher level of medical consumption than did average patients, while adaptive copers and average patients have a significantly lower level of medical consumption. The estimates of typology category increased slightly after the introduction of general health in the equation; they all remained significantly different. These

Table 8 Loglinear poisson regression on total number of visits in first quarter

	estimate	sig.
Equation 1 (general health as only determinant)		
General health	.1629	$p < .001$
Equation 2 (Pain typology as only determinant)		
Dysfunctional	.4591	$p < .001$
Interpersonally distressed	−.015	n.s
Average	.1101	$p < .05$
Adaptive coper	−.295	$p < .01$
Equation 3 (Pain severity and pain typology both as determinants)		
General health	.139	$p < .01$
Dysfunctional	.465	$p < .001$
Interpersonally distressed	.004	n.s
Average	.146	$p < .05$
Adaptive coper	−.332	$p < .01$

results lead to the conclusion that membership of the dysfunctional patient category has a positive effect on medical consumption, apart from the effect of general health, which for dysfunctional patients is already low.

Graph 1 shows the development of the use of health services over a period of one year.

It can be observed that the difference noted at T1 between dysfunctional patients and the remaining categories remained much the same throughout the following measurement points. During the year, adaptive copers and respondents categorized as "average" had fewer help seeking contacts than people from the dysfunctional category. Multilevel analysis confirmed that neither of the groups showed a statistically significant decline in medical consumption from the moment of inclusion because of their chronic pain. (Table 9)

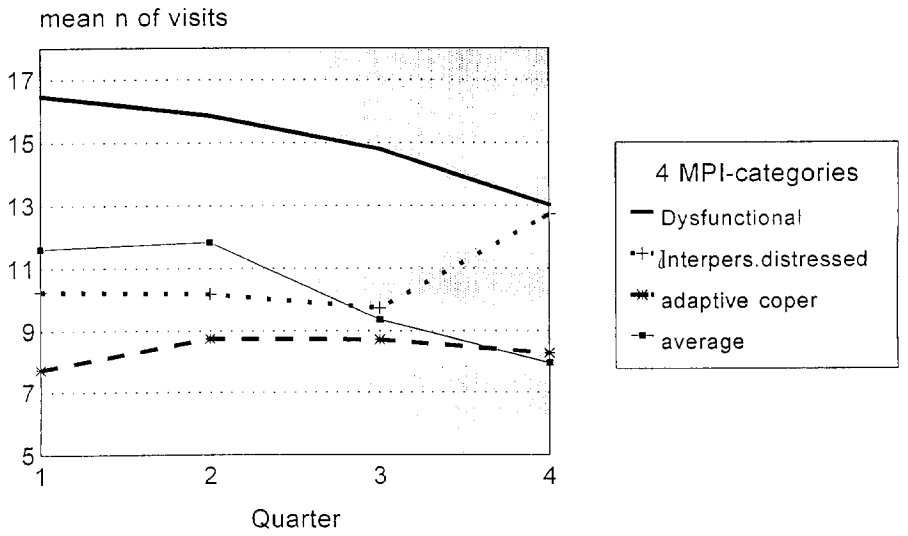

Figure 1 Medical consumption by respondents from 4 different categories, Mean number of contacts (GP, specialist, paramedics, psychological, alternative).

Table 9 Total number of visits: regression coefficients and corresponding standard error of multilevel linear regression model with repeated measurements (T1, T2, T3, T4) within patients

	Coefficient	*Standard error*	*P*
Constant	15.32	1.09	
Interpersonally distressed	−4.31	1.38	<.01
Adaptive coping	−6.65	1.60	<.001
Average	−4.52	1.17	<.001
T2	−0.41	1.40	n.s
T3	−1.70	1.25	n.s
T4	−1.98	1.40	n.s

In table 9, the use of health services by the dysfunctional patient at T1 is represented by the constant. Interpersonally distressed patients, adaptive copers and average patients recorded a use of health services at T1 that was 4.31 respectively 6.65 and 4.52 less than dysfunctional patients. All these differences are statistically significant. At T2, these figures should be decreased with .41, etc. Differences between the four points in time are not significant.

DISCUSSION

Patients suffering for at least six months from chronic pain without a demonstrable physical cause were included in the study and followed for a period of one year. The purpose of the study was to identify differences in medical consumption between different types of pain patients. Four hypotheses were formulated specifying our expectations about the characteristics of four different types of pain patients with respect to their medical consumption and coping behaviour.

The first hypothesis was confirmed as far as the high use of health services by dysfunctional patients was concerned. We found less difference than had been expected in medical consumption between interpersonally distressed and adaptive copers, in case of paramedical services and alternative healers. Differences in total counts, use of medical specialists and use of psychological help could be demonstrated. Hypothesis two, concerning more use of psychological help by interpersonally distressed patients, was thereby confirmed.

Hypothesis 3 is rejected. Adaptive copers are in no respect more active in their self-care activities than dysfunctional, or interpersonally distressed persons. The opposite tends to be the case; in most respects the adaptive copers had the lowest scores.

Hypothesis 4, on the stability in time of medical consumption, is confirmed. Dysfunctional patients remained at the top of the rank order and adaptive copers at the bottom. We conclude that better adaptation to pain is no guarantee of a decrease in medical consumption.

Differences in medical consumption between the four categories are mainly in the same direction as differences in health status: adaptive copers have better self-perceived health than dysfunctional patients. Their social functioning, mental health and vitality is also better than that of the interpersonally distressed. This finding is in accordance with earlier reports, indicating a high rate of psycho pathology among dysfunctional and interpersonally distressed patients (Etscheidt, Steger and Braverman, 1995).

The total group of included pain patients had considerably lower scores on all health parameters than patients in other surveys using the SF 36 scales (Aaronson, Muller, Cohen,

Essink-Bot, Fekkes, Sanderman, Sprangers, te Velde and Verrips, 1998; v d Zee, Sanderman and Heyink, 1993). In our study, all scales have lower means than the Netherlands national sample, but also lower than sub samples with migraine and cancer patients. Even cancer patients in a metastatic stage reported better physical functioning, physical role performance, vitality and mental health than our total sample. The adaptive copers (our "best" subgroup) have figures comparable with those of average cancer patients.

Our results differ in one aspect from the results of other studies using the MPI classification. The proportion of respondents that could not be categorized was considerably larger than that reported during the construction of the Dutch Language Version of the MPI. Although the ratios between dysfunctional, interpersonally distressed, adaptive coper and average (35% – 18% – 13% – 32%) in our study are comparable with those reported by Lousberg (35% – 23% – 12% – 27%), we had to categorize more than a quarter as anomalous, while Lousberg only designated 1.8% as such. An important difference in population might account for this difference. Lousberg recruited his respondents in clinical populations or specialized hospital departments, while we recruited our respondents in general practice. Our population might have been substantially more heterogeneous.

Our population has been selected by general practitioners. Hard selection criteria were duration of pain (more than 6 months) and absence of physical diagnosis, such as cancer of arthritis, that might explain the pain. A more subjective criterion was that pain should be serious enough to justify clinical attention. There has been variation between participating doctors with respect to the number of patients included and with respect to the degree in which the GPs considered the pain symptoms medically inexplicable. Such inter-doctor variation is not uncommon, and in fact unavoidable in case of symptoms or diagnoses that lack a clear physical substratum as a benchmark (cf. Verhaak, 1986).

In order to maximize the reliability of patient's self-report, only clearly defined events (such as visits to a doctor or therapist) within a limited time-frame of three months have been included in our questionnaire. Previous research has demonstrated that retrospective questionnaires are as good as health diaries, when a report on health care activities, such as health service contacts, is considered (Verbrugge, 1980). Furthermore, the patients included were familiar with being asked about their health services use every three months and even had a memo pad to note down their visits for the coming quarter.

The study included no planned interventions. Of course, most of the patients included had sought relief for their pain problems, as is demonstrated by the self-care activities in table 7 and by the vast majority of consultations being due to pain. No differences between MPI-categories could be observed for self-care activities. The four categories differed in most aspects on health services use. However, all categories used these services to an equal degree because of pain. We therefore assume that possible interventions were distributed equally over the four MPI-categories.

Our study has been seriously handicapped by the loss of respondents between the several measurement points. It is possible that this loss has led to a bias in our results. We controlled for this bias by non-response analysis and by the statistical procedures we used. Patients who entered the study were not different from patients who were excluded as regards the kind of pain symptoms or the extent of medical explication of these symptoms. Patients excluded from analysis because they were classified as anomalous tended to be older and have a poorer general health perception. Finally, patients who produced data on all measurement points in time were relatively more often female and with a longer pain history.

We dealt with this problem of bias by carrying out multilevel analysis with repeated measurements. In this way we could compensate for selection bias. Second, repeating the

longitudinal analysis with only those patients who had completed four measurements produced the same results: a high level of medical consumption by dysfunctional patients, a low level by adaptive copers, and no decrease in the course of time for any of the groups.

The results of this study indicate that chronic pain is extremely debilitating, given the very low scores on general health perception, functional status and mental health. Nevertheless, such low health status only manifests itself in excessive medical consumption by part of the population of chronic pain patients, the dysfunctional category which is one third of those who could be classified. In fact, it is remarkable that another category, the interpersonally distressed, has a comparably low health perception, as measured by the MOS-SF36, but a medical consumption pattern that more closely resembled the adaptive copers and the average patients, patients with better health perception.

We may conclude that it is possible to distinguish pain patients with different profiles on the basis of the MPI. The differences become manifest in the use of health services (especially the difference between dysfunctional patients and adaptive copers and the special position of interpersonally distressed patients in the case of mental health), they are not reproduced in the self-care activities reported. Insofar as these different profiles are associated with differences in the use of health care facilities, it is not only general health which is responsible for such differences, but also the surplus value expressed in the MPI profiles. It should be stressed that issues in medical help seeking as such are not already incorporated in the MPI questionnaire. None of the 61 MPI-items relate to medical help seeking. The MPI predicts the degree of medical help seeking in a way, but it is not contaminated by it.

From the point of view of health services research, this differentiation made by the MPI is interesting, because it reveals different patterns in the use of health care services. The differentiation is not only explained by specific need factors, such as pain intensity and general health, but also by more generic characteristics, such as the MPI profiles. Dysfunctional patients have a higher medical consumption than interpersonally distressed patients, although their general health is for both categories very poor in all respects. Moreover, MPI-typology added an extra explanation for the number of health care visits to the variance explained by general health.

From the viewpoint of health psychology this surplus value of the MPI is of particular importance. Future research should be directed to further exploration of the relationships between MPI classification and personality characteristics which might be to explain help-seeking behaviour.

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