

COGNITIVE FACTORS IN CHRONIC PAIN

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Among the different factors relevant to the psychological assessment and treatment of chronic pain, cognitive variables appear to be some of the most prominent, given the perceptual nature of pain. Several cognitive variables that may mediate in the experience of pain have been selected for discussion, and these include the most frequent and important ones considered in chronic pain research, to judge from the number of studies they inspire, the importance of the results of these studies and the controversial nature of these results: causal attributions and beliefs about pain, the perception of control over pain, the role of expectations, cognitive errors, memory and suggestibility with regard to the perception of pain and, finally, the coping strategies patients use to manage their pain problems.

Dentro de los diversos factores relevantes a la evaluación y tratamiento psicológico del dolor crónico, los de carácter cognitivo tienen una singular importancia y prominencia debido, principalmente, a la naturaleza perceptiva del propio dolor. De las diferentes variables cognitivas que pueden mediar en la experiencia de dolor, se han seleccionado para su revisión aquellas que parecen tener una mayor relevancia en los problemas de dolor crónico, a juzgar por la cantidad de trabajos empíricos generados, por la importancia de sus resultados o las polémicas que su estudio suscita: las atribuciones causales y creencias acerca del dolor; la percepción de control sobre el dolor; el papel de las expectativas, los errores cognitivos, la memoria y la sugestibilidad sobre la percepción de dolor y, finalmente las estrategias que los pacientes ponen en juego para afrontar su problema de dolor.

INTRODUCTION

Chronic pain constitutes a clinical problem of great importance, and with considerable repercussions for the social, family and work environments. Both chronic pain syndromes of a neoplastic nature, sometimes associated with terminal processes, and the so-called benign syndromes: migraine, neuralgia, low back pain, etc., lead to suffering that is arbitrary and undignified, and which has notable psychosocial and assistance-related consequences.

The clinical approach to chronic pain, in terms of research and treatment, has been characterized by its multidisciplinary nature, which results from the complexity of the problem. Thus, the consideration of psychosocial factors has made a notable contribution to the understanding and treatment of these syndromes.

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Among the different factors relevant to the psychological assessment and treatment of chronic pain, those of a cognitive nature play a prominent role, due in large part to the fact that pain is a perceptual phenomenon. Indeed, cognitive factors are largely responsible for the final (cortical) part of the perception process, so that, without subtracting importance from the more sensorial and even emotional aspects of pain, the final integrating point is cognitive in character.

Since Melzack and Gasey's (1968) initial proposal to include central control processes as one of the determinants of pain, numerous authors have pointed out the influence of cognitive variables in the perception of pain and in the patient's efforts to cope with pain, also stressing the decisive importance of these variables in the problem of chronic pain (Turk and cols., 1983; Turk and Rudy, 1986; Keefe and Williams, 1989; Jensen and cols., 1991b; Keefe and cols., 1992a; Turk and Rudy, 1992)

Of the different cognitive variables that can mediate in the experience of pain, we have selected for review those that appear to have greatest relevance in the pro-

blems of chronic pain, judging from the quantity of empirical work they generate and the importance and controversial nature of their results.

CAUSAL ATTRIBUTIONS AND BELIEFS ABOUT PAIN

These two concepts, attributions and beliefs, both coming from social psychology, and clearly interrelated, have been the object of study due to their influence on the way subjects confront pain, on adherence to treatment programmes and on the patient's response to intervention (Schwartz and cols, 1985; Riley and cols, 1988 and Williams and Thorn, 1989).

Some studies refer to a tendency in chronic pain patients to attribute their pain to organic causes (Demjen and Bakal, 1981). In this sense, Edwards and cols. (1992) found significant differences between the causes of pain reported by chronic pain patients and normal subjects. Whilst the chronic pain patients adduced mainly organic causes, the control subjects considered psychological factors to be those most responsible for pain problems. Furthermore, in chronic pain patients a significant correlation is observed between organic attributions and beliefs that their pain is controlled by external factors (luck, or the power of others).

Williams and Thorn (1989) developed a questionnaire to measure chronic pain patients' beliefs about their pain (Pain Beliefs and Perception Inventory), identifying three dimensions: a first (temporal) dimension that includes beliefs that pain is and will continue to be a constant feature of the patient's life; a second dimension involving beliefs that pain is a mysterious and poorly-understood phenomenon; and a third (self-blame) dimension that includes beliefs that the pain is caused and maintained by the patient him/herself. According to these authors, the first of these three dimensions is negatively related to patients' adherence to treatment. Patients that believe their pain is durable show less interest in fulfilling the demands of treatment. Meanwhile, patients who believe their pain to be a mysterious phenomenon, apart from presenting poor adherence to treatment, also present low self-esteem and high levels of somatisation.

Later studies with this same questionnaire have identified four dimensions (Strong and cols, 1992; Morley and Wilkinson, 1995). While those of self-blame and mystery are maintained, the temporal dimension is divided in two, the first representing beliefs in the constancy of the pain experience (items reflecting the constant presence of pain), and the second beliefs in the permanent

nature of the pain (items reflecting beliefs that the pain will not change in the future).

Disadaptive beliefs about the cause of pain can be modified with cognitive-behavioural treatment: in fact, this is one of the objectives of the process of *reconceptualization*, a common feature of cognitive-behavioural interventions (Turk and cols., 1983). In this same line, Lipchik and cols. (1993) report that the multidisciplinary treatment of chronic pain patients produced, among other results, a significant reduction in beliefs about pain as a mysterious and incomprehensible phenomenon.

One of the most relevant aspects in the study of attributions and beliefs about pain is their influence on the use of pain coping strategies. Although in some studies no relationship has been found between causal attributions and coping strategies (Kraaimaat and Van Schevikhoven, 1988), in other works there does appear to be a link between beliefs about pain and the quantity and type of coping strategies used (Witenberg and cols., 1983). Williams and Keefe (1991) found that patients who believe their pain to be permanent and mysterious use fewer cognitive coping strategies, such as distraction, but catastrophize more. These patients report, moreover, that their strategies are not very effective for controlling pain. In contrast, patients who believe their pain to be fleeting and comprehensible rate their ability to control pain significantly higher than other patients, and respond better to cognitive-behavioural treatment.

We can see, therefore, the appropriateness of assessing attributions and beliefs about the causes of pain, since having some idea of the patient's initial knowledge of his/her problem would appear to be helpful in terms of planning the presentation of treatment so that it is compatible with these beliefs. According to Williams and Keefe (1991), for patients that believe their pain is a mysterious phenomenon, it seems suitable to begin with objective information about the nature of their pain and the benefits of the treatment obtained by other patients. In the case of patients who believe their pain is permanent, however, it would seem more useful to show them some coping strategies that help them to temporarily reduce their pain, and which they can use at times of maximum intensity.

PERCEPTION OF CONTROL OVER PAIN

Two aspects have been studied in relation to the control of pain, the first with a more general scope, and known as locus of control, and the second referring specifically to the control the subject perceives him/herself to have over pain.

The concept of locus of control was developed by Rotter (1966), within the framework of Social Learning Theory, to refer to the generalised expectations of control the subject perceives to have over reinforcements. This concept, with its two basic dimensions of internality and externality, was later adapted to the field of health (Wallston and cols., 1976). Thus, two general types of belief are compared: internality, or beliefs in one's own control over health and pain, and externality, or the belief that factors external to the subject can control health and pain. For this second dimension, externality, two subdimensions have subsequently been found: the power of others and luck (Wallston cols., 1978). Later, Marsall (1991) pointed out the existence of, at least, four factors in internality referring to health: prevention of illness, management of illness, self-blame and self-dominion, this last factor being very similar to the concept of self-efficacy (Wallston, 1992), which will be discussed here later.

In general, it is hypothesised that patients with internal locus of control will report lower levels of pain depression, use more active coping strategies and respond better to cognitive-behavioural type treatments than those with external locus of control.

These predictions have been confirmed by various studies. For example, some authors have found that patients with high internality report their pain to be less intense and frequent than low internality patients (Sternbach, 1986 and Toomey and cols., 1991), and have lower levels of depression (Brown and Nicassio, 1987).

Also in support of these predictions, some authors report that patients with internal locus of control present active coping strategies with regard to their pain (Brown and Nicassio, 1987; Crisson and Keefe, 1988), while patients with strong beliefs in the role of luck present higher levels of psychological unease, feel more helplessness and tend to use passive strategies, such as praying, to deal with pain (Crisson and Keefe, 1988).

The role of internality as a predictor of the effectiveness of treatment for chronic pain has also been confirmed by some authors (Hudzinski and Levenson, 1981). In this sense, Härkäpää and cols. (1991) report that patients with strong internal beliefs, after a multidisciplinary treatment programme, improved more, learned their exercises better and practised them more during the follow-up. Also, Nicassio and cols. (1985) found that, after one year of follow-up, changes in internality correlated negatively with changes in helplessness, and that these in turn correlated positively with changes in the

difficulty of carrying out everyday activities. That is, patients who one year after treatment had more beliefs in internal control showed less helplessness and had fewer problems with everyday tasks.

By contrast, other authors have found no relation between internality and frequency or severity of headaches (Jones and Page, 1986), nor that locus of control had any use as a predictor of the effectiveness of treatment for migraine (Díaz and Vallejo, 1987). Also against what has been hypothesised is the finding, in some studies, that the power of others seems to show itself as a factor favourable to the effectiveness of chronic pain treatments. Thus, Gale and Funch (1984) report that patients with temporomandibular pain who believed strongly in the control of others achieved better results with behavioural therapy. In the same line, Nagy and Wolfe (1984) found that chronic patients with strong beliefs in the power of others followed more closely the recommendations for self-help. Likewise, Fitzpatrick and cols. (1987) reported, with regard to patients with back problems, that the overall level of satisfaction with treatment received was higher in those with strong beliefs in the power of others.

In sum, results do not appear to be uniform, and although in general they support relationships between internality, coping strategies and positive adaptation to chronic pain, no studies are known that test the causal direction of these relationships (Jensen and cols., 1991b), so that it cannot be concluded whether internality is the cause of the patient's better adaptation to pain or its consequence. Also worthy of note is the fact observed in the last-mentioned works, that belief in the control of others, rather than hindering the treatment of patients with chronic pain, can be beneficial for intervention. These results suggest the relevance of carrying out further research aimed at finding out for what types of patient and in what specific circumstances it is more suitable to use treatments oriented to fomenting the patient's internal control, and when it is more appropriate to employ those in which the weight of control falls on health professionals.

The second aspect mentioned in relation to the control of pain, perceived control, refers to the specific rating of the degree of control over pain made by the subject at a given moment. A series of studies have indicated the importance of the perception of control, with regard to both acute pain and chronic pain (Miller, 1980; Thompson, 1981; Chapman and Bonica, 1985; Chapman and Turner, 1986; Arntz and Schmidt, 1989; Jensen and cols., 1991b)

The concepts of locus of control and perceived control are closely related. Normally, if a person with general beliefs of internal control over his/her health has a specific pain problem, he/she is more likely to make some sort of appreciation of personal control and use active strategies to try and solve the problem. However, with a problem as difficult to control as that of chronic pain, discrepancies are often found between general beliefs of control and the control the patient perceives to have over the pain.

The basic question of whether the perception of control actually reduces the negative effects of pain has been tested in numerous laboratory studies. Arntz and Schmidt (1989), after reviewing seventeen of these studies, give an affirmative answer to this question: perceived control can reduce the negative effects of pain induced in the laboratory, though it does not always have this effect. These experiments have advantages, such as the easy manipulation of painful stimulation and of different coping strategies. However, their utility with regard to the problem of chronic pain appears limited, among other reasons, because of the very characteristics of pain. Although in some research with pain induction it is attempted to give it characteristics similar to those of chronic pain—the case of ischemic pain, for example—in many laboratory studies the type of pain induced is sharp and of short duration, characteristics that contrast markedly with the persistent or recurrent nature of chronic pain syndromes.

In chronic pain patients, more than one's own perception of control, what seems to be important is the repeated perception of uncontrollability, due to the state of helplessness it produces and the depression usually associated with it (Seligman, 1975; Abramson and cols., 1978). Several studies have contributed data on these relationships—for example, Keefe and Williams (1990) report a negative link between perceived control over pain and depression in chronic pain patients, while Flower and Turk (1988) found that chronic pain patients with high helplessness levels reported greater severity and intensity of pain, greater interference with their daily activities and more consultations with doctors.

Loss of control and the consequent learned helplessness, characteristic of many chronic pain patients, appear to have important implications for treatment. As pointed out elsewhere, patients with high helplessness levels respond more poorly to both psychological and medical treatment (Thomas and Lyttle, 1980; Chapman and Heath, 1982). Perhaps one of the main sources of hel-

pleness, and with considerable implications for treatment, is the desire of most chronic pain patients to obtain total control over their pain. Guided by the belief that their pain corresponds to a physical problem, they begin by seeing the doctor in the hope that he or she will solve the organic cause of the pain and it will completely disappear. However, in the majority of chronic pain cases, this type of attitude is doomed to failure, given the impossibility of gaining absolute control over the pain. In these cases, it seems appropriate to help patients to accept that their basic problem is the pain, restrain their attempts to control what cannot be controlled, and direct their attention towards suitable coping strategies (Arntz and Schmidt, 1989).

Perceiving pain as uncontrollable may also increase beliefs in one's own inability to cope with work or everyday activities, and lead to the avoidance of these activities (Arntz and cols., 1989). Similarly, the perception of control over pain seems to be related to a reduction in its interference in everyday functioning, as Strong and cols. (1990) found with patients suffering from chronic back pain. However, these results do not appear to be found in all cases, since, as Jensen and Karoly (1991a) report, ratings of pain control were positively associated with level of activity only in patients that reported low intensity of pain.

In sum, studies on perceived control indicate, on the one hand, the importance of perceived control over the reduction of or tolerance to pain, though the fact that this data comes basically from laboratory experiments makes it difficult to extrapolate it to the clinical context, especially with regard to chronic pain patients. On the other hand, we should note the apparent importance of the perception of uncontrollability and the consequent helplessness in chronic pain, and the suitability of orienting treatment so that the subject perceives control over pain and other problems related to it, such as physical activity. However, it is difficult to find exactly the right point of control to give to the patient (Weisenberg, 1987), and in some cases the most appropriate intervention seems to be to restrain and re-orient attempts to control pain.

EXPECTATIONS AND PAIN

The two types of expectation that have received most attention in relation to chronic pain are expectations of results and expectations of self-efficacy. Both concepts were developed by Bandura (1977) within the framework of Social Learning Theory. The first of them, expectations of results, refers to beliefs that a certain

behaviour will produce certain consequences. Expectations of self-efficacy correspond to beliefs in one's own capacity to carry out the behaviour necessary to obtain the desired results. Bandura (1986) also identifies the credibility of the treatment as a conceptually different phenomenon from expectations of results, but with a possible influence on these expectations.

In consequence, the fact that a person undertakes or not a given behaviour to prevent, reduce or cope with pain will depend, on the one hand, on his/her knowing and trusting the effectiveness of that behaviour (expectations of results), and on the other, on his/her considering him/herself capable of carrying it out successfully (expectations of self-efficacy). The two types of expectation may influence behaviour independently or through their interaction, in which case the person will only undertake the behaviour if he/she considers him/herself capable of carrying it out and also believes its consequences to be desirable (Jensen and cols., 1991a).

In support of the predictions of Social Learning Theory, some authors report a positive relationship between the level of self-efficacy expectations and the use of coping strategies for pain. Thus, Jensen and cols. (1991a) found that the beliefs of chronic pain patients in their own capacity to use the pain coping strategies measured (e.g., active exercise, rest, ignoring the pain and taking medication) were always related to the efforts at coping reported.

Also in support of these predictions, some works reported a positive relationship between assessments of one's own capacity to carry out an activity and the real level of activity shown by chronic pain patients (Dolce and cols., 1986b; Council and cols., 1988). Recently, Lackner and cols. (1996) tested the predictive capacity of these assessments (which they call expectations of functional self-efficacy). These authors reported that expectations of functional self-efficacy, together with intensity of pain and gender, were the best predictors of physical exercise in a sample of lumbago patients. Thus, the best physical functioning was predicted for males with a high level of expectations and low pain intensity. Similarly, other studies show a negative relationship between self-efficacy expectations and levels of incapacity, pain and depression reported by arthritis patients (O'Leary and cols., 1988; Regan and cols., 1988; Lorig and cols., 1989).

The relationship between self-efficacy expectations and response to treatment has been the object of various studies. Some of these report that self-efficacy expectations predict migraine patients' response to treatment

with biofeedback (Holroyd and cols., 1984; Gauthier and cols., 1985), while other authors find no relationship between effectiveness of treatment and perceived self-efficacy with either training in real biofeedback or placebo biofeedback (Díaz and Vallejo, 1987). Another work (Villamarín and Bayés, 1990), found a relationship only between self-efficacy expectations and improvement after training in biofeedback, in migraine patients whose EMG did not decrease during the treatment.

In other chronic pain syndromes in which treatment is usually oriented to promoting increased activity in patients, relationships between self-efficacy expectations and activity level have also been studied. In this line, Dolce and cols. (1986a) report that beliefs in one's own capacity to carry out activities predict improvement in activity level and return to work, after a physical reactivation programme. Similarly, Kores and cols. (1990) found that patients with greater self-efficacy expectations after multidisciplinary treatment improved more during the follow-up and presented better general functioning and greater reductions in illness behaviours.

Expectations of results, in contrast, appear to be only weakly related to attempts to cope with pain, when their effect is analyzed independently of self-efficacy expectations (Council and cols., 1988; Jensen and cols., 1991a). The moderate influence expectations of results may exercise on the subject's behaviour may depend on whether those results are expected in the short or the long term. Jensen and cols. (1991a) report significant differences between the expected effects of various strategies in the short and long term. Thus, while subjects believe that strategies such as rest or medication will produce a decrease in pain in the short, but not in the long term, they expect that different types of physical exercise will lead to a worsening of the pain in the short term, but will have little effect on it in the long term.

On the other hand, and as hypothesised (Bandura, 1986), expectations of results appear to maintain a relationship with credibility of the treatment, as demonstrated by the significant correlation found between the two variables in migraine patients (Villamarín and Bayés, 1990). In turn, credibility of the treatment has been found to be associated with the effectiveness demonstrated by such treatment in reducing the frequency of headaches (Díaz and Vallejo, 1987).

In sum, although expectations of self-efficacy and of results may influence behaviour, it would appear that the former bear a closer relationship to real attempts to cope with pain. Relationships between expectations and res-

ponse to treatment, however, do not seem so clear, while expectations of results appear to be closely related to credibility of the treatment and to the term (long or short) of the expected effects.

COGNITIVE ERRORS AND PAIN

The term cognitive errors usually refers to the biases or distortions people make when processing information from their environment (Beck, 1963). Some authors (Jensen and cols., 1991b) also include in this definition negatively distorted beliefs about oneself or about some situation (Ellis, 1962). In both cases it is hypothesised that depressive patients commit many and various cognitive errors, such as personalisation, selective abstraction, overgeneralisation or catastrophizing. Given the relationship between chronic pain and depression, it is also supposed that these types of distortion can influence mood, perception of pain and behaviour of chronic pain patients.

A high frequency of cognitive errors and depression symptoms has been widely found in chronic pain patients. Lefebvre (1981) found that patients with back pain, in general, reported a high frequency of cognitive distortions. Also, patients that produced most distorted thoughts scored more highly in depression than those that reported fewer cognitive biases. Other studies have confirmed these relationships in patients with chronic back pain (Smith and cols., 1986a and 1986b), rheumatoid arthritis patients (Smith and cols., 1988 and 1990) or chronic pain patients in general (Dufton, 1989; Ingram and cols., 1990; Keefe and Williams, 1990; Sullivan and D'Eon, 1990).

Frequency of cognitive errors also appears to be related to the severity of pain reported by chronic pain patients (Flower and Turk, 1988; Keefe and Williams, 1990). In this sense, Gil and cols. (1990) found that the frequency of negative automatic thoughts was positively related to severity of pain and psychological unease, while perceived control over these thoughts was negatively associated with psychological anxiety.

In the same way, there appears to exist a certain relationship between some cognitive biases and disability observed in chronic pain patients, since various works report a positive correlation between cognitive distortions related to pain and the degree of disability found in these patients (Flower and Turk, 1988; Smith and cols., 1986b and 1988).

As it can be seen from the above-mentioned studies, the relationship between cognitive biases, pain and asso-

ciated problems is well documented. Some researchers have also attempted to analyse the causal direction of that relationship. For example, Keefe and cols. (1989) studied, by means of a longitudinal design, the role of catastrophizing in relation to several aspects of the problem of pain. Initial scores in catastrophizing were positively associated with intensity of pain, physical disability and the depression presented by patients six months later.

MEMORY AND PAIN

Two quite distinct aspects have been considered in the study of the memory-pain relationship. On the one hand, the role of memory in the accuracy with which patients with pain remember and report their pain, and on the other, the influence of pain on access to memorised material.

In general, the accuracy with which patients remember and report their pain appears to be low. That is, when after treatment patients are asked about the magnitude of their pain during the baseline phase, most studies report overestimation (Linton and Gotestam, 1983; Roche and Gigsbers, 1986; Jamison and cols., 1989; Salovey and cols., 1992), though in some cases underestimation has been found (Hunter and cols., 1979).

This distortion in the memory of past pain experiences appears to be influenced by the level of pain the subject is experiencing at the time of giving his/her retrospective report (Eich and cols., 1985; Kent, 1981, Smith and Safer, 1993; Tasmuth and cols., 1996). Thus, when current pain is at a low level, estimation of past pain is lower than that logged in the daily pain self-records, whilst the opposite occurs when current pain is at a high level.

A depressed state of mind also appears to influence this distortion. Thus, Bryant (1993) reports that chronic pain patients who worsened in terms of pain or depression after concluding the treatment programme overestimated the values they had reported for these two variables during the baseline phase.

In general, these studies indicate the possible difficulties of working with retrospective pain reports, and the appropriateness of using, as far as possible, immediate measures for recording the occurrence and rating of pain and its levels.

The second of the aspects mentioned with regard to the memory-pain relationship, that is, the influence of pain on the recovery of memorised material, also requires taking into account the subject's state of mind or mood.

Indeed, Eich and cols. (1990) demonstrated that pain impeded access to recall of pleasant personal experiences, while it aided recall of unpleasant events, though only in those cases in which patients reported jointly pain and negative affective state. The authors concluded that these distortions in autobiographic memory might be responsible, to some extent, for the frequent association observed between pain and depression.

SUGGESTIBILITY AND PAIN

The association between suggestibility, hypnosis, placebo and pain is a well-known feature within the literature. In general, it can be stated that there exists a close relationship between them, without being able to speak, for the moment, of a single phenomenon. Thus, both the placebo effect and hypnosis produce analgesia, without this necessarily involving different phenomena, with different means of achieving this analgesia (Evans, 1989). In any case, it appears to be accepted that there is a certain independence between the placebo effect and primary suggestibility, but not the secondary type, which could indeed have a closer relationship to the placebo effect, without necessarily being related to hypnosis. Thus, these two types of suggestion referred to by Eysenck and Furneaux (1945) would modify the influence of these phenomena.

Nevertheless, in spite of these explanations, current research results make it difficult to establish a clear separation between suggestibility and placebo in relation to pain, especially where chronic pain is concerned. In general, the results of clinical studies differ considerably from those of experimental studies with non-clinical subjects (Gault, 1988; Spinhoven, 1988). More recently, Spanos and cols. (1993) have demonstrated in the treatment of migraine patients that placebo treatment and hypnosis are equally effective, with respect to non-treatment, in the control of migraine. These results, consistent with those obtained by Wagstaff (1987), lead the authors to propose a similarity between the two phenomena, a similarity that is not inferred strictly on the basis of research. In any case, as mentioned above, the question of the relationship between suggestibility and placebo remains open.

PAIN COPING STRATEGIES

On reviewing the literature on psychological aspects involved in chronic pain, it is usual to find pain coping strategies dealt with in the cognitive variables section, and yet the described content corresponds as much to

physiological or behavioural strategies as cognitive ones. In reality, although in the measurement instruments used cognitive strategies predominate, most of them include both types of pain coping strategies, in an attempt to embrace the whole variety of strategies used by patients.

The quantity and type of strategies chronic pain patients usually develop in the course of their suffering varies widely. Some adapt well to pain and its associated problems, while others, with apparently similar problems, become totally incapacitated. This fact has led to the consideration that it is useful to know which coping strategies are being used in each case, attempting to foment those that are more adaptive and modify those that hinder adaptation

Most of the studies in this field, have not assessed the different pain coping strategies in an isolated and objective way; the usual approach has been to use self-report measures (questionnaires, inventories) in which the different strategies measured are classified and grouped under global labels.

One of the most frequently-used classifications is that which differentiates between active and passive strategies for coping with chronic pain (Brown and Nicassio, 1987). Active strategies, such as doing physical exercise or distracting oneself from the pain, are considered adaptive for patients, since they require them to assume responsibility and undertake instrumental actions in the management of their pain. In contrast, passive strategies are considered disadaptive, since they imply abandonment (e.g., going to bed), or because the patient does not take responsibility for the action to be taken, situating control of the pain in external sources (e.g., taking analgesics). Despite its generalised use, some authors (Keefe and cols., 1992b) point out the existence of conceptual problems with this classification, especially the labelling as passive of some strategies, such as taking medication, which requires the patient to comply, in an active way, with the prescribed treatment. They also point out the difficulty of conceiving of a truly passive coping strategy in which no type of effort or decision on the part of the patient is necessary.

In general, studies that classify patients' strategies as active/passive tend to report positive relationships between the use of active coping strategies and better functioning, both psychological and physical (Rosenstiel and Keefe, 1983; Turner and Clancy, 1986; Brown and Nicassio, 1987; Keefe and cols., 1987b; Brown and cols., 1989; Spinhoven and cols., 1989; Snow-Turek and cols., 1996). Passive strategies, on the other hand, seem

to be associated with the combined suffering of pain and depression (Weickgenant and cols., 1993; Snow-Turek and cols., 1996), though in some cases this relationship only appears when patients report high-intensity pain (Brown and cols., 1989). The value of passive strategies for predicting future depression has also been analysed by Brown and cols. (1989) after six months. These authors report that the initial measures of passive coping predicted depression six months later, but only in patients with high pain levels.

A large number of studies have used the coping strategies questionnaire developed by Rosenstiel and Keefe (1983), which assesses seven different strategies, most of them cognitive: distracting attention, reinterpreting feelings of pain, using self-verbalisations for coping, ignoring feelings of pain, praying or maintaining hope, catastrophizing and increasing activity levels. Also assessed is the patient's ability to control and reduce pain. One of the problems encountered in attempting to summarise these types of study is the lack of coincidence between the factors obtained with the coping strategies in the different works.

The strategies of ignoring pain and using self-verbalisations for coping appear to be grouped in one factor, that which Lawson and cols. (1990) call "conscious cognitive coping". Whilst a few authors report significant relationships between the strategies included in this factor and psychological functioning (Spinhoven and cols., 1989; Keefe and cols., 1990b), or severity of pain (Hagglund and cols., 1989; Parker and cols., 1989), a large number of studies have failed to find such relationships (Rosenstiel and Keefe, 1983; Keefe and cols., 1987a and 1987b; Gil and cols., 1989; Keefe and cols., 1990a; Beckham and cols., 1991). Nor have any of these latter works found a relationship between the factor "avoidance of pain" (Lawson and cols., 1990), which groups the strategies of distracting attention and praying or maintaining hope, and intensity of pain or physical or psychological functioning.

The only factor for which consistent relationships are found is that which Lawson and cols. (1990) call "self-efficacy beliefs". This factor embraces the patient's ability to control and reduce pain, and has been negatively related to intensity of pain, psychological disorder and physical incapacity (Rosenstiel and Keefe, 1983; Keefe and cols., 1987a, 1987b; Gil and cols., 1989; Keefe and cols., 1990a; Beckham and cols., 1991). However, Jensen and cols. (1991b) advise against the inclusion of these types of assessment of one's own control of pain

within the study of coping strategies, since they represent beliefs about the pain rather than efforts to cope with it.

One of the limitations of the above studies is, precisely, the use of global measures of coping. As Jensen and cols. (1992a) point out, the use of these compound measures has advantages, such as facilitating the interpretation of the results; nevertheless, their exclusive use can obscure the relationship between specific strategies and the patient's adjustment to his/her pain problem, so that it is recommended to carry out also an individual analysis of each of the strategies measured.

Using an individual analysis of each one of the coping strategies, Jensen and Karoly (1991a) found that, independently of the severity of the pain, the use of the strategies of ignoring the pain, coping self-verbalisations and increase in activity were related to greater satisfaction with life and lower levels of depression. In turn, the use of the three coping strategies of ignoring the pain, distracting attention and using coping self-verbalisations appeared to predict activity level, but always as a function of severity of pain. Thus, the use of these strategies, as well as level of activity, tended to increase as severity of pain decreased, so that these strategies improved the patients' functioning only when they reported relatively low pain levels.

Jensen and cols. (1992a) compared the information contributed by compound and individual measures of coping strategies from a large sample of chronic pain patients, finding some discrepancies between them. For example, the strategies of reinterpreting feelings of pain and catastrophizing, which on using compound measures appeared confused within the factors, showed themselves to be responsible for the direct relationship found between their use and better adjustment. Moreover, catastrophizing was the only strategy that predicted depression. Meanwhile, and contrary to what was found by Jensen and Karoly (1991a), the use of self-verbalizations for coping was found to be related to physical disorder only in patients with moderate and high levels of pain intensity, and not in those with low pain level.

Recently, Dozois and cols. (1996), have studied the predictive utility of both types of measure, individual and compound. After reporting results that only partially coincide with those contributed by Jensen's group, these authors insist on the importance of taking into account both types of measure in trying to predict psychological adjustment. Thus, for example, whilst the individual score in catastrophizing has strong predictive power in

terms of psychological unease, psychological adaptation appears to be adequately predicted by a compound score (the second factor being "control of pain and rational thought"). When different measures of adjustment are used, such as returning to work, the individual strategies with most predictive power are catastrophizing, reinterpretation and ignoring the pain. Dozois and cols. (1996) conclude that the determination of which of the two types of measure, individual or compound, will better predict the subject's adjustment depends, basically, on the operativisation of the adjustment measure.

In sum, and in spite of the problems involved in the use of global measures, it can be concluded, on the one hand, that the use of active coping strategies seems to be positively related to the adaptation of patients to the problem of chronic pain, whilst, on the other hand, passive coping strategies, in patients with severe pain, appear to be related to depression, both in the short and medium term. The difficulty should also be pointed out of drawing conclusions from the rest of the studies that use compound measures, since the factors identified differ from one study to another, and there does not appear to be any factor that clearly identifies the most adaptive strategies for coping with pain.

Finally, we should underline the importance of studying individually the relationship of each strategy to the functioning of chronic pain patients. Although up to the present very few works have dealt with the individual study of coping strategies, the information obtained appears more beneficial than that contributed by global measures. In this type of research it also seems appropriate to control the level of pain experienced by patients at the time of completing the questionnaire (Turk and Rudy, 1992), since, though up to now results are contradictory, there appear to be differences in the type and utility of the strategies used depending on pain level. Of especial interest are the results of Jensen and Karoly's (1991a) study, in which they found that patients benefited more from cognitive strategies, such as ignoring the pain, distracting attention or self-verbalisations for coping, when the reported pain was of low intensity.

THE IMPORTANCE OF COGNITIVE ASPECTS

Up to now various factors have been analyzed, factors which, being classed as cognitive, are of obvious importance for the study and treatment of pain. The diversity of these factors implies the use of the term "cognitive" in a wide sense, wider than that of the mere description of the perceptual process. Thus, attentional and emotio-

nal aspects and coping strategies, which go beyond the strictly cognitive, or the joint consideration of products and processes within the same generic reference, are included. All of this gives a certain sensation of a somewhat undifferentiated conglomerate of factors, which are nevertheless inter-related, as Turk and Meichenbaum (1994) note: "thoughts (e.g., ratings, expectations, beliefs) may elicit and influence mood, affect physiological processes, have social consequences and also serve to drive behaviour; equally, mood, physiology, environmental factors and behaviour may influence the nature and content of thought processes" (Turk and Meichenbaum, 1994, p. 1338).

Finally it is clear that, independently of the proven interaction between the different aspects related to pain, the consideration of the factors analysed is highly important in the orientation of pain treatment, whatever the final weight of psychological aspects (using specific techniques) in the treatment of a case.

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