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Personality Characteristics as Differential Variables of the Pain Experience

Carmen Ramírez-Maestre,[1,2] Alicia Eva López Martínez,[1] and Rosa Esteve Zarazaga[1]

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This study analyzes the relationships between neuroticism, extroversion, age, and sex and the intensity of perceived pain and the coping strategies used. We worked with a sample of 96 patients with chronic pain. The assessment tools were the following: the Vanderbilt Pain Management Inventory, a Spanish version of the McGill Pain Questionnaire, and the Eysenck Personality Inventory. The hypothetical model establishes positive relationships between neuroticism, the use of passive coping strategies, and the intensity of pain. On the other hand, extraversion is expected to be positively related to the use of active coping strategies and negatively related to the perceived intensity of pain. The results support the hypotheses formulated regarding the effects of the variables neuroticism and extraversion. Age is negatively related to active coping strategies and pain intensity. Men use more active strategies than women, while the latter have a greater perception of pain.

KEY WORDS: chronic pain; personality; coping strategies; sex; age.

INTRODUCTION

In recent years, following transactional models of stress (Lazarus and Folkman, 1986), chronic pain has been analyzed from the perspective of being a stressful condition.

[1]Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Faculty of Psychology, Malaga University, Málaga, Spain.
[2]To whom correspondence should be addressed at Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Faculty of Psychology, Campus de Teatinos, Malaga University, 29071, Málaga, Spain; e-mail: cramirez@uma.es.

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In general terms, this view argues that the experience of pain is determined by: (i) the capacity of the individual to deal with an intrinsically stressful situation (i.e., the concept of coping); (ii) the inner and external resources that individuals have; and (iii) their personal characteristics (sex, age, and personality variables) which, in interaction with the previous factors, act as differential variables to determine how pain is experienced (Sánchez Cánovas and Sánchez López, 1994).

In this work we deal with the modulating effect of certain personal characteristics of patients with chronic pain on the use of coping strategies and the perceived intensity of pain. Specifically, we analyze the differential role of some personality dimensions (i.e., neuroticism and extroversion), age, and sex.

Differences Associated With Personality Dimensions

Several authors claim that analyzing the relationship between coping strategies and certain personality variables sheds light on why certain personality traits are linked to the degree of adaptation people show when faced with stressful situations (David and Suls, 1999; DeJong *et al.*, 1999; Hewitt and Flett, 1996; Lazarus and Folkman, 1986; Martin *et al.*, 1996). Lazarus and Folkman (1984) consider neuroticism and extraversion to be of little value as predictors, whereas McCrae and Costa (1986) assert that the preferred mode of coping is a consequence of these personality dimensions. On the basis of this latter view, a model was proposed to establish the relationship between these variables (Hewitt and Flett, 1996). This model assumes that personality conditions the coping strategies chosen by a person undergoing stress. At the same time, these strategies determine the level of adaptation reached in stressful situations (Hewitt and Flett, 1996). The studies following this model assessed the relationships between personality variables and the use of certain coping strategies (Endler and Parker, 1990). In this sense, most research has focussed on the classic personality dimensions, i.e., neuroticism and extraversion (McCrae and Costa, 1986; Sánchez Cánovas and Sánchez López, 1994). Eysenck's factor theory of personality assumes that both dimensions are bipolar and continuous. Thus, emotional stability is the opposite pole of neuroticism, and introversion is the opposite of extraversion. People with a high level of neuroticism are emotionally unstable and sensitive to bodily states and have a range of health complaints. People with a high level of extroversion are impulsive, uninhibited, and sociable (Eysenck and Eysenck, 1990).

The results of research on coping and personality show a significant relationship between high levels of neuroticism and the use of coping strategies

that might lead to poor adaptation to stress (Bolger, 1990; Costa and McCrae, 1990; Endler and Parker, 1990; Epstein and Meier, 1989; Gunthert *et al.*, 1999; McCrae and Costa, 1986; Medvedova, 1998; Morasso *et al.*, 1996). On the other hand, high levels of extraversion are related to the use of strategies which might lead to a better adaptation to stressful situations (Gómez *et al.*, 1999; McCrae and Costa, 1986; Medvedova, 1999; Morasso *et al.*, 1996; Rim, 1987; Sánchez Cánovas and Sánchez López, 1994). Thus, some empirical evidence supports the view that subjects with high scores in neuroticism use ineffective coping strategies—such as catastrophizing—to deal with stress (Affleck *et al.*, 1992). In fact, it seems that the use of these types of coping strategies modulate the relationship between neuroticism and psychological distress (Bolger, 1990). On the other hand, extraversion is related to active, social, and optimistic ways of coping with stress (Costa *et al.*, 1996).

According to Affleck *et al.* (1992), and within the perspective of chronic pain as a stressful situation, catastrophism used as a coping strategy mediates the relationship between neuroticism and the perceived intensity of pain. However, the work of Wade *et al.* (1992b) suggests that the levels of neuroticism do not affect the perceived intensity of pain although patients with chronic pain and high levels of neuroticism manifest greater subjective distress related to pain. Most current studies dealing with the relationship between personality traits and the adaptation level of patients to chronic pain tend to focus mainly on analyzing the interaction between neuroticism and coping strategies (Asghari and Nicholas, 1999). In this line, several studies report significant relationships between neuroticism and certain variables relevant to chronic pain. For example, Wade *et al.* (1992a) point out that patients with chronic pain and greater levels of emotional repression (tendency to inhibit emotions) also present a higher level of neuroticism, depression, anxiety, hostility, and vulnerability.

However, few recent studies have analyzed the influence of extraversion on the chronic pain patients' choice of coping strategies and their consequent adaptation. Nevertheless, Eysenck already argued in the 1960s (Lynn and Eysenck, 1961) that extroverted people have higher pain thresholds than introverted people and that they tolerated pain better. He also postulated that extroverted people exposed to situations of prolonged pain adapted better to them than introverted people. More recently, Ziesat and Gentry (1978) carried out a study on a sample of patients suffering from benign chronic pain. They concluded that subjects with greater introversion levels manifested higher levels of perceived pain. On the other hand, Wade *et al.* (1992b) reported that extraversion had a negative influence on the levels of subjective distress related to pain although it was not related to the perceived intensity of pain. Later, Phillips and Gatchel (2000) suggested that the traits

of extroverted individuals (i.e., individuals able to express their feelings, socially active, and receivers of social support) lead them to adopt strategies that help the patient to achieve a lower degree of perceived pain. In spite of the limited number of works analyzing the relationship between extraversion levels and the coping strategies adopted by chronic pain sufferers, studies focussing on the role of extraversion in stressful situations underline the need for further research in this sense. It seems reasonable to expect similar results in the chronic pain domain.

Differences Associated With Age

There is some empirical research on the qualitative and quantitative differences in the perception of pain reported by subjects of different ages. However, the conclusions are contradictory in many cases. For example, although most studies report that older people have a higher threshold than younger people (Gagliese and Melzack, 1997), and that older people express a lower level of pain (Dobratz, 1995; Glover *et al.*, 1995; Goldie, 1990; Rodriguez *et al.*, 2000; Williamson and Shultz, 1995; Wu, 1991), other authors report the opposite (Collin and Stone, 1966). In any case, it seems to be clear that the relationships between age and perception of pain are not simple. On the contrary, it is necessary to take into account other variables, which affect how pain is perceived and reported (Zimbardo *et al.*, 1966). One of these variables is the intensity of the actual painful stimuli used in the experiment. For example, Harkins and Chapman (1976, 1977) found that, with a low-intensity pain stimulus, older adults reported less pain than young people whereas, with a more intense stimulus, older adults manifested more pain than young people.

Nevertheless, as Beecher (1965) points out, we should bear in mind the remarkable qualitative differences between experimental and clinical pain. In the context of chronic pain, as Gagliese and Melzack suggest (1997), age should have an effect on the experience of pain. Therefore, given that very few studies have analyzed the relationship between age and perceived intensity of pain, and that the results obtained are contradictory, further research should be designed to shed light on this issue.

The number of studies dealing with the differences between age and the choice of coping strategies is greater and has been investigated from two different theoretical perspectives.

The *developmental perspective* (Guttman, 1964, 1974, 1987) suggests that people tend to move from active coping strategies to more passive ones as they grow older. Pfeiffer (1977) takes a similar position by asserting that as people become older, they use increasingly regressive and primitive

coping mechanisms. Thus, although some people continue using a great variety of adaptive coping mechanisms during middle age and even later, most return to more primitive strategies such as negation, somatization, or projection.

On the other hand, the *situational perspective* (Vaillant, 1976, 1977) focuses on the socioenvironmental context of the process of coping with stress. In this way, age is associated with a greater use of coping mechanisms, such as suppression, anticipation, and moodiness, and less use of immature strategies, such as negation or repression. The longitudinal studies carried out by Vaillant (1976, 1977) lead to the conclusion that from the age of 20 until middle age, there is an increase in adaptive coping strategies, which mean the coping mechanisms improve with age. However, from the same perspective, the works of Costa and McCrae (Costa and McCrae 1993; Costa *et al.*, 1991; McCrae and Costa, 1990) lead to a totally different conclusion, i.e., individuals hardly change their coping strategies during their adult life. Thus, those people who at an early age deal with daily life events in a competent manner will carry on doing so later in life. Similarly, individuals exhibiting deficiencies in coping mechanisms at earlier ages will probably do so later in life, unless there has been intervention.

We can appreciate that, as mentioned and independently of the theoretical stance, the results obtained in the study of coping strategies in patients chronic pain with are truly contradictory. On the one hand, some authors find differences in the coping strategies used by older adults and younger people. Nevertheless, while some authors argue that older adults use passive or emotional strategies more often (Felton and Revenson, 1987; Klinger and Spaulding, 1998), others conclude that they use more active or problem-centered strategies than younger people (Prohasha *et al.*, 1985). Finally, a third group of studies reports no differences in the strategies used as a function of the age of patients (Keefe and Williams, 1990; McCrae, 1982; Soriano and Monsalve, 1999).

Differences Associated With Sex

Most research dealing with the role of sex on the perception of pain suggests that men and women report acute and chronic pain differently.

Concerning the differences observed in men and women suffering from chronic pain, the results are contradictory. While some authors conclude that women perceive pain more intensely (Affleck *et al*., 1999; Ramírez *et al.*, 1999), others do not find differences in this regard (Turk and Okifuji, 1999). Therefore, we cannot draw clear conclusions regarding in which direction

the variable sex affects patients with chronic pain, although it seems clear that there are differences.

Sex has also been analyzed in relation to its possible modulating influence on coping with stress. In the context of chronic pain, some studies report that women use more passive strategies (Ramírez *et al*., 1999) such as catastrophism (Jensen *et al.*, 1994; Reid *et al.*, 1994) and search for social support (Buckelem *et al.*, 1990) and as emotion-centered strategies (Affleck *et al*., 1999; Astor-Dubin and Hammen, 1984; Brems and Johnson, 1989). Although Keefe and Williams (1990) did not find differences between men and women in the use of coping strategies, other researchers report complex relationships between sex and coping with chronic pain because these can be affected by other variables (Jensen *et al*., 1994). This might explain why in some studies no differences were found (Unruh, 1996).

Present Study

The main objective of this research was to analyze the possible relationships between the levels of neuroticism and extraversion as well as age and sex (as antecedent variables), and the coping strategies used by patients with chronic pain and their perceived intensity of pain.

Regarding Neuroticism

Based on the empirical literature concerning this variable (Affleck *et al*., 1992; Bolger, 1990; Costa and McCrae, 1990; Endler and Parker, 1990; Epstein and Meier, 1989; Gunthert *et al*., 1999; McCrae and Costa, 1986; Medvedova, 1998), the hypothesis was that high levels of neuroticism would predict the use of ineffective passive coping strategies for handling chronic pain. In this way, neuroticism will have a negative effect on the use of effective and active coping strategies. Likewise, persons scoring high regarding this variable would perceive more intensity of pain.

Regarding Extraversion

Although there are few studies on the effect of high levels of extraversion on patients with chronic pain, on the basis of some studies concerning this variable and stress (Gómez and cols., 1999; McCrae and Costa, 1986; Medvedova, 1999; Rim, 1986; Sánchez Cánovas and Sánchez López, 1994) and Eysenck's theory (Lynn and Eysenck, 1961), it was hypothesized that extraversion would have a positive effect on the use of effective and active coping strategies for handling chronic pain and a negative effect on the use

of ineffective and passive coping strategies. Thus, high levels of extraversion would predict less intensity of pain.

Regarding Age

As the developmental perspective suggests, it was hypothesized that passive strategies will be used more and active strategies less the older the subject and that the perceived intensity of pain will be greater the older the individual.

Regarding Coping Strategies

Finally, as indicated by several studies (Affleck *et al.*, 1992; Bishop and Warr, 2003; Bolger, 1990; Brown and Nicassio, 1987), it is hypothesized that the use of passive coping strategies would have a positive effect on perceived intensity of pain. Thus, the use of active coping strategies would predict less intensity of pain. On the other hand, it is assumed that there is an inverse relationship between active and passive strategies.

These hypotheses are graphically depicted in Fig. 1, where the expected relationship between the variables under analysis is shown.

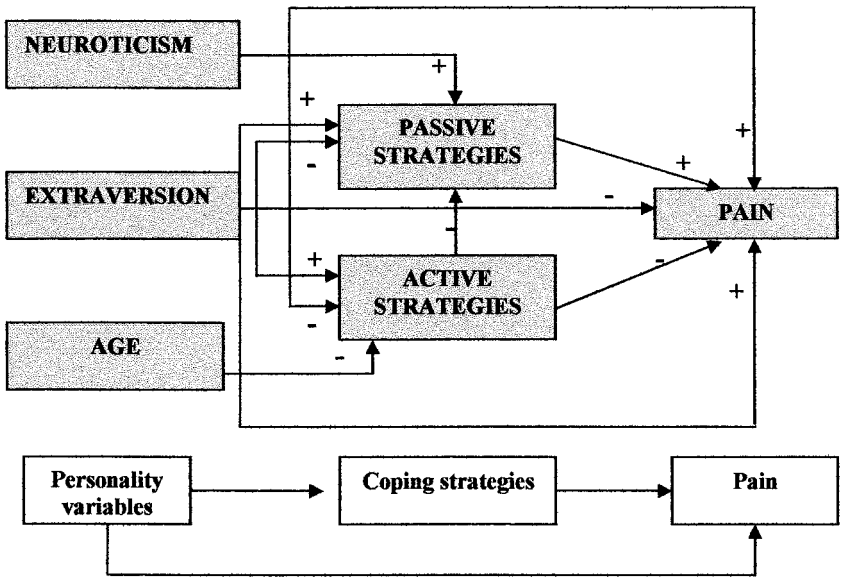

Fig. 1. Hypothetical model.

Regarding Sex

Outside of this model, other hypotheses arise regarding the differences between men and women in the use of coping strategies and perception of pain. Specifically, we formulated the following: women would make more use of passive strategies than men and men would make more use of active strategies than women. In this way, women would have a greater perception of pain than men.

METHOD

Sample

Our sample comprised 96 patients with chronic pain of a benign or oncological character who regularly attend the Pain Centre and the Rheumatology Outpatient Unit of Carlos Haya Hospital in Málaga, Spain. Table I shows the diagnosis categories of the patients in our sample. The sample included 48 men and 48 women, aged between 17 and 87 years (average age = 56). Sixty-eight percent had primary school education, and 16% were illiterate. Eighty-nine percent did not work (unemployed, leave of absence, or retirement). We also gathered information about how long the patients had been suffering from pain, by asking them in the initial interview. According to their replies, 75% had been suffering from pain for more than 2 years, and 25% for more than 10 years.

Procedures

The subjects were interviewed the first time they attended either the Pain Centre or the Rheumatology Outpatient Unit of Carlos Haya Hospital in Málaga, Spain. Interviews were conducted in both centers and the

Table I. Type of Pain Suffered by the Patients in the Sample

Diagnosis	Number of subjects
Arthritis	22
Arthrosis	21
Fibromyalgia	14
Cancer pain	13
Lumbago	9
Osteoporosis	8
Cephalgia/neuralgia	4
Discal hernia	3
Polytraumatism	2

patients were sent to us by the doctors after their first visit. The interviews were carried out without the presence of the accompanying person and after the patient had voluntarily agreed to participate in the study.

Instruments

Coping Strategies

The Vanderbilt Pain Management Inventory (Brown and Nicassio, 1987), adapted by our research group (Esteve *et al.*, 1999), was used to assess coping strategies. The scale has 15 items divided into two subscales designed to assess how often chronic pain sufferers use active and passive strategies when the pain reaches moderate or high intensities:

- *Active strategies*. Handling the pain or carry on functioning despite the pain.
- *Passive strategies.* Strategies giving control over pain to another person or allowing pain to adversely affect other areas of the subject's life.

The adaptation showed adequate psychometric properties, with an internal consistency of 0.64 for active strategies and 0.70 for passive strategies.

Pain

One of the Spanish versions of the *McGill Pain Questionnaire* (Melzack, 1975) was used, specifically, the adaptation of Lázaro *et al.* (1994). This instrument consists of a list of 67 adjectives or descriptors classified into 19 subcategories. This scale yields an overall score of perceived pain which is used in this research. The internal consistency for the total score in this Spanish adaptation is 0.74.

Neuroticism and Extraversion

The Eysenck Personality Inventory (Eysenck and Eysenck, 1990). We used the neuroticism and extraversion scales from this inventory, adapted for Spain by the specialist publishing company TEA. These two scales consist of 48 questions (Yes/No) to assess both variables The adaptation had suitable psychometric properties, with an internal consistency of 0.84 for neuroticism and 0.77 for extraversion.

RESULTS

We used a structural equations model to analyze the data obtained. The basic elements of the model are the *exogenous and endogenous variables* and the *parameters*. Following the hypothetical model shown in Fig. 1, the *exogenous variables* in this case are neuroticism, extraversion, and age, whereas both coping strategies—passive and active—and the pain perceived are *endogenous* variables. On the other hand, the *parameters* of this model are the coefficients or "loads" that the values of the variable will be multiplied by. The beta (β) and gamma (γ) coefficients can be interpreted as direct effects on the endogenous variables. *Beta* indicates that a change unit in an endogenous variable causes beta change units in another endogenous variable while the rest of the variables remain constant. *Gamma* indicates that a change unit in an exogenous variable causes gamma change units in one endogenous variable. The hypothetical model was empirically tested using the LISREL. 8.20 software package (Jöreskog and Sörbom, 1993), and using the unweighted least squares method. This method was chosen because the assumption of multivariate normality was not fulfilled. The resulting empirical model is as follows.

Figure 2 shows that the change parameters used are those higher than 0.10. The parameters not meeting such criteria were eliminated and after modifications to achieve a better fit, we obtained our working model. The model shows excellent indexes of overall fit. Specifically, we include the Goodness-of-Fit Index (GFI)—referring to how much of the correlation matrix is observed and explained by the model; the AGFI as the adjusted GFI to the degrees of freedom of the model (the difference between the number of equations and unknown factors); and the Comparative Fit Index (CFI), which compares the fit between the suggested model and other possible models, whether specific or randomly generated by the system/software package. All these indexes fluctuate between 0 and 1, 1 being a perfect fit. In our case, the three indexes are highly satisfactory, and GFI and CFI yield a perfect fit.

The resulting model led to the conclusion that our hypotheses are only partially confirmed.

Regarding Neuroticism

As stated in the hypothetical model, neuroticism shows an influence on the use of coping strategies. In more specific terms, the higher the level of neuroticism, the greater the use of passive coping strategies ($\gamma = 0.34$). However, neuroticism also affects the use of active strategies, although

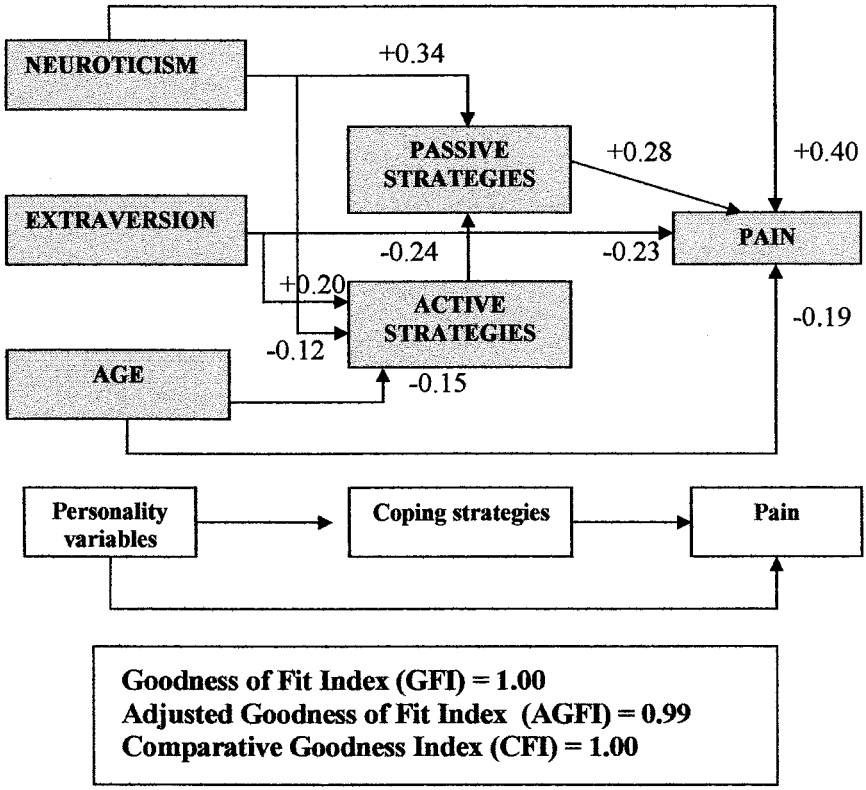

Fig. 2. Model obtained.

the change parameters are much lower than those in the previous case ($\gamma = -0.12$). We draw attention to the negative sign of the relationship between both variables. Finally, as expected, there is a positive effect between the level of neuroticism and the perceived intensity of pain, such that the subjects with high scores in this personality dimension perceive more pain ($\gamma = 0.40$).

Regarding Extraversion

With respect to the effects of extraversion on coping strategies and the level of perceived pain, the hypotheses are only partially confirmed. Thus, the positive effect of extraversion on active coping strategies is confirmed ($\gamma = 0.20$). However, and contrary to expectations, extraversion

did not seem to have any effect on passive strategies. The hypothesis regarding the effect of extraversion on the perceived intensity of pain is confirmed, with the sign being negative ($\gamma = -0.23$). Thus, high extraversion levels in subjects would lead to a lower intensity of perceived pain.

Regarding Age

In this instance, not all of the hypotheses were fully confirmed. In fact, although we found a small and negative effect of age on active strategies ($\gamma = -0.15$), no effect was detected on passive strategies. This would mean that, as postulated, older subjects use active strategies to a lesser extent, but the effect of age on passive strategies is not confirmed. Finally, and contrary to expectations, the effects of age on the perceived intensity of pain are small and have a negative sign ($\gamma = -0.19$).

Regarding Coping Strategies

This study confirms that the use of passive coping strategies affects pain perception so that patients using them manifest more pain ($\beta = 0.28$). However, active strategies do not seem to have any effect on the level of pain. In agreement with the results reported by Brown and Nicassio (1987), and the hypothesis formulated in this study, active strategies have a negative effect on passive ones ($\beta = -0.24$).

Regarding Sex

To test our hypotheses regarding the influence of the variable sex, and given the number of men and women in our sample, we used the Mann–Whitney *U* test, which allows us to find differences between two independent samples. Table II presents the results.

No significant differences were found between men and women in the use of passive strategies. Thus, the hypothesis formulated was rejected. However, as postulated, it seems that men make greater use of active strategies than women. As for the differences in the perception of pain, our hypothesis was confirmed, i.e., women perceive greater pain than men, and the difference found between the mean rank of men and women was significant.

Table II. Differences by Sex[a]

Variables	Mean ranges		Significance level
	Men	Women	
Passive strategies	45.00	52.00	0.217
Active strategies	54.85	42.15	0.025
Pain level	42.93	54.07	0.050

[a]Mann–Whitney *U* test.

DISCUSSION

This study provides empirical evidence supporting the existence of relationships between the personality dimensions of neuroticism and extraversion, and the coping strategies used by patients with chronic pain. We suggest that high levels of neuroticism work as a predictor of the use of passive coping strategies of little efficacy while high-level extraversion predicts a greater use of active and effective strategies for handling pain.

In the chronic pain context, the perception of a greater intensity of pain could be considered as excellent evidence of the inefficiency of a given coping strategy. One of the results of this study is the significant, positive effect between the use of passive strategies and pain intensity. Although we found that neuroticism had a direct effect on pain perception, we also found that the greater use of passive strategies led to an indirect relationship between this personality dimension and pain intensity.

As for extraversion, although we can report a positive effect on active strategies and a negative effect on the level of pain, no effect on the use of passive strategies was found. However, it could be concluded that high extraversion levels, in contrast to neuroticism, should lead to a better adaptation of the subject with chronic pain to stressful situations.

On the other hand, although active strategies did not seem to have an effect on the level of perceived pain, the negative effect of active strategies on passive ones is noteworthy. This means that as active coping strategies increase, passive ones decrease. If this is so, we could expect that training in the use of active strategies would indirectly eliminate the use of inefficient passive strategies that lead to a stronger intensity of perceived pain.

Summing up, we found that subjects with chronic pain and high scores in neuroticism use passive coping strategies whose inefficiency is reflected in a greater intensity of perceived pain. Therefore, in therapy, subjects with high levels of neuroticism could be trained in the use of active coping strategies. In the case of extroverted people, the use of active strategies can be predicted.

From a wider perspective, these results are coherent with the theory postulating that certain characteristics of personality predispose people to cope with stress in different ways (Carver *et al.*, 1989). The fact is that there are increasingly more studies whose conclusions suggest that personality has a mediating role in the relationship between stress and personal well-being. In this sense, some research has shown that personality dimensions such as neuroticism, anxiety, and extraversion mediate the relationship between stress and health (Sánchez Cánovas and Sánchez López, 1994). According to this view, some personality variables can act as precursors or inhibitors of the effects that stress has on the individual. This has led some authors to consider these variables as the inner resources the individual has to cope with stress (Jerusalem and Schwarzer, 1989).

In the same line, and on the basis of stronger foundations, Houtman (1990) asserts that specific coping strategies, which translate into specific behaviors, are predisposed by personality traits and thus the coping styles are relatively stable. In fact, he asserts that the distinction between these three levels (personality, styles, and coping behaviors) is related to the degree of abstraction used within the discourse.

Therefore, we are immersed in a debate that demonstrates the need to carry out more research in order to clarify such controversy. In fact, we should not forget that from the transactional perspective of stress, coping should not be conceptualized as a stable style, and personality dimensions should not become determinants of the different ways of coping (Lazarus and Folkman, 1984; Sánchez Cánovas and Sánchez López, 1994).

In short, it is necessary to continue the task of clarifying the nature of the relationship between personality dimensions and coping strategies. These studies allow us to understand how these dimensions predispose individuals to suffer the adverse consequences of stress to greater or lesser degrees. Concerning chronic pain, empirical results suggest that some coping strategies have a modulating effect on the relationship between certain personality variables—specifically neuroticism and extraversion—and the perceived intensity of pain.

On the other hand, the results regarding the effect of sex and age on coping strategies and perceived pain yield other conclusions. Our hypotheses in this regard are based on the developmental perspective (Guttman, 1964, 1974, 1987) which suggests that people tend to develop from more active coping strategies to more passive ones as they age. Thus, although some people continue using a great variety of adaptive coping mechanisms during middle age and later, most return to strategies that do not yield good adaptation. In this sense, our results suggest that older subjects use active strategies to a lesser degree, but the effect of age on passive strategies is not confirmed. In fact, as we pointed out, we found that active strategies

had no effect on the perception of pain, but they did have an effect on the use of passive strategies—which are directly related to pain. On the other hand, and contrary to expectation, the older the person, the less is the intensity of the perceived pain. This result does not fit with the developmental perspective. In another words, older adults do not often use the strategies considered as adaptive by the developers of the scale (Brown and Nicassio, 1987), i.e., active strategies, but they show a better adaptive level to pain than the younger group, i.e., older people perceive less pain.

Finally, regarding the differences found in the use of coping strategies and the perception of pain by sex, men use more active strategies than women and the latter perceive greater pain. However, no significant differences were found in the use of passive strategies. In this sense, the fact that men use active strategies more often and that they perceive less pain is coherent with the hypotheses and models supporting the idea that active strategies are more efficient (Brown and Nicassio, 1987). However, the fact that women perceive greater pain could be explained in several ways, none of which are directly related to coping strategies. In experimental pain settings, men seem to have greater tolerance than women (Rollman and Harris, 1987). There is also an overall agreement that men and women respond differently in the face of pain stimuli. Some authors report that with high stimuli, women show greater pain thresholds (Ellermeier and Wetphal, 1995; Faucett *et al.*, 1994), assess the painful stimulus as more intense, and discriminate better between the different intensities of the stimulus than do men (Feine *et al.*, 1991). According to Feine *et al.* (1991), these differences in nociceptive discrimination between men and women are indicative of sex variations in the perception of pain. These would be related to sensorial factors rather than to attitudinal or emotional factors.

Summing up, we can appreciate that the coping strategies used by chronic pain sufferers are highly significant to their well-being. Neither should we forget that coping is a variable of extraordinary relevance in many stressful situations, including chronic pain. However, in the light of our results, and as Snow-Turek *et al.* (1996) also point out, we have to bear in mind that although the role of passive strategies is clear regarding their positive effect on pain and the consequent adaptation of the subject, the role of active coping is not clear at all, except for its negative relationship with passive strategies. This relationship is shown by the current study and other research carried out with Spanish samples of subjects with chronic pain (Esteve *et al.*, 1999; López *et al.*, 2000; Ramírez-Maestre *et al.*, 2000; Rodríguez *et al.*, 1998). On the other hand, some antecedent variables such as sex, age, and personality dimensions have an influence on pain and are highly relevant in explaining and understanding the differences found in the effects of coping strategies that patients use. Therefore, it is essential to

continue this line of research to find out which coping strategies are best related to the highest and lowest levels of pain. This will also help us to identify the strategies that would lead to better adaptation levels in individuals, always bearing in mind the modulating effect of the antecedent variables.

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