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Cognitive behavioural components in physiotherapy management of chronic whiplash associated disorders (WAD)—a randomised group study

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Different types of integrated management programmes have lately been introduced in the treatment of Whiplash Associated Disorders (WAD). In this study regular primary care physiotherapy and physiotherapy management with integrated components of cognitive-behavioural origin was compared in an experimental group study. The predictive value of self-efficacy was also addressed. Thirty-three patients with chronic WAD were included in the trial.

Results revealed no significant differences between groups in self-ratings of disability or pain intensity. However, among the self-reported benefits of treatment, patients in the experimental group reported significantly less pain than did the comparison group. At three months follow-up the experimental group also reported better performance of daily activities.

Between group differences in the coping repertoire were found at pre-, post-, and three-month follow-up. Generally, patients with high self-efficacy reported less use of "maladaptive" and passive coping style than patients with low self-efficacy, at all times.

In conclusion cognitive behavioural components can be useful in physiotherapy treatment for patients with chronic WAD, but their contributions are not yet fully understood. Self-efficacy is related to patients' use of different coping styles. Positive long-term outcomes in WAD-patients could therefore be improved by enhancing patients' self-efficacy and by teaching them to use active, adaptive coping strategies.

INTRODUCTION

A number of attempts have been made to evaluate different treatments of chronic Whiplash Associated Disorders (WAD) (Cassidy, Lopes, and Yong-Hing, 1992; Provinciali et al, 1996; Su and Su, 1988; Swezey, Swezey, and Warner, 1999; Söderlund A and Lindberg, 2001; Vendrig, Akkerveeken, and McWhorter, 2000; Woodward et al, 1996). Most interventions have dealt with low activity and single component approaches attempting to decrease neck pain or increase neck mobility (Cassidy et al, 1992; Su and Su, 1988; Swezey et al, 1999; Woodward et al, 1996). Only a few studies have included two or more different components in the treatment, that is, multimodal treatments (Provinciali et al, 1996; Söderlund and

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Lindberg, 2001; Vendrig et al, 2000). One type of multimodal treatment (i.e., relaxation, exercises, manual treatment and psychological support) was compared with a treatment based on the application of physical agents (i.e., electrical and sonic modalities) for patients with WAD who had had neck pain less than two months after an injury (Provinciali et al, 1996). The authors concluded that patients with the multimodal treatment had a larger improvement in most outcomes. However, a learning theory framework was not applied in that study.

Self-Efficacy

A general principle in self-efficacy theory is that cognitive processes can mediate behavioural change and that cognitive events are induced and altered by an experience of mastery stemming from effective performance (Bandura 1977, 1982). Self-efficacy has a strong relationship with proneness for behaviour change as well as maintenance of that change (Taylor, 1995). Self-efficacy expectancy (Bandura, 1982) is regarded as a personal belief of how successfully one can cope with difficult situations. This belief is also a major basis for action. In daily life, individuals analyse the situations that confront them, consider alternative courses of action, judge their abilities to carry them out successfully, and estimate the results the actions are likely to produce in advance (Bandura, 1997). Thus, individuals with high self-efficacy expectancies should be more persistent in difficult situations than those with low expectances (Bandura, 1977; Bandura, 1982). Self-efficacy expectancy is an important issue in pain management (Bandura, 1997). In accordance with this standpoint, pain patients with high self-efficacy should show better compliance with treatment recommendations.

In an extensive review, Jensen and colleagues (Jensen et al, 1991) found that chronic pain patients' disability levels were more strongly related to maladaptive cognitions, self-efficacy beliefs, coping style, and perceived control, than to either pain intensity, chronicity, or degree of pathology. Anderson and associates (Anderson et al, 1995) concluded that chronic pain patients with higher levels of self-efficacy reported less intense pain, less daily interference due to pain, greater perceived life control, and higher activity levels. Further, several studies (Dolce et al, 1986; Estlander et al, 1994; Kores et al, 1990) emphasise the importance of self-efficacy in chronic as well as in acute pain patients. Altmaier and colleagues (Altmaier et al, 1993) found that after receiving counselling aimed to increase self-efficacy in coping skills, patients reported reduced back pain at a six-month follow-up. These authors also found that changes in self-efficacy during treatment predicted individual's level of functioning. Söderlund and Associates (Söderlund, Olerud, and Lindberg, 2000) concluded that self-efficacy had a high predictive value for outcome in patients with whiplash associated disorders. Thus, it could be clinically and economically useful to boost patient's self-efficacy shortly after their injury.

Coping

Coping strategies have been classified according to whether they are attentional or avoidant. Attentional strategies focus directly on the source of pain and attempt to manage it, while avoidant strategies include denial of pain sensation, distraction, and attention-diversion (Suls and Fletcher, 1985). The question as to whether a coping strategy is adaptive or maladaptive depends on the internal factors of an individual, the nature of the pain problem, and the specific situational factors. It must further be viewed in relation to interactions between the person and situation (Zeidner and Saklofske, 1996). Holmes and Stevenson (Holmes and Stevenson, 1990) concluded that patients with recent-onset pain adapted well if they employed avoidant coping, while in chronic pain patients the most adaptive style was attentional coping.

In a study (Söderlund and Lindberg, 1999) of patients with chronic WAD, strong associations between various coping strategies and outcomes were found. These results supported the idea of coping strategies as mediating factors between individual characteristics, like the initial grade of injury and self-efficacy, and

physical as well as psychosocial well-being. Thus, it is important to study the factors that influence coping efforts.

Cognitive behavioural components in treatment

Recently Vendrig and Associates (Vendrig et al, 2000), successfully used a cognitive behavioural approach for 26 patients with chronic neck pain after a whiplash injury. The researchersclaimed that behavioural mechanisms were involved in symptom maintenance, and consequently, the symptoms should be reduced by using a treatment with a cognitive behavioural approach. In a meta-analysis of randomised controlled trials of cognitive behaviour therapy (CBT) for chronic pain in adults Morley and colleagues (Morley, Eccleston, and Williams, 1999) concluded that CBT produced significant changes in most of the outcome measures, compared to untreated controls. In comparison to any other intervention where the patient had an active role, the differences were not that pronounced. Changes were further limited to the assessments of coping, social role functioning, and pain experience.

In a controlled single-case study (Söderlund and Lindberg, 2001) physiotherapy management including cognitive-behavioural components for patients with chronic WAD was effective in decreasing pain related to the performance of daily activities.

The aim of the present work was to study the effects of a physiotherapy management complemented with cognitive-behavioural components in a group study. A further aim was to study if patients with high self-efficacy differed from those with low self-efficacy in reported use of coping strategies, disability, and pain intensity.

METHOD

Settings and subjects

The study was conducted in an orthopaedicclinic where patients who came to their three-month follow-up appointment after a whiplash injury and who still had significant symptoms like neck and shoulder pain (Barnsley, Lord, and Bogduk, 1994; Spitzer et al, 1995) were contacted. Inclusion criteria were continuous symptoms three months after a whiplash injury with reports of an acceleration-deceleration movement of the head (i.e., mechanism of injury), but without direct head trauma. Further inclusion criteria were age between 18 and 60 years and good ability to understand written Swedish. Patients reporting a history of neck injury before the actual whiplash injury were not excluded. Typically, patients had been involved in car crashes (91%), mostly rear-end impacts (63%) and were rated as grade 1–3 according to The Quebec Task Force classification of WAD (Spitzer et al, 1995).

Ninety-one WAD-patients visited the orthopaedic clinic during the inclusion period. Three were pain free and 29 had already started other physiotherapy treatments. There were 59 patients who fullfilled the inclusion criteria and among these, 26 declined participation. After informed consent 33 patients were assigned in two different intervention groups, that is, an experimental and a comparison group, by a balanced randomised block procedure. One patient from the comparison group did not comply with the treatment and was therefore excluded in group comparisons. The characteristics of the sample are shown in Table 1.

There were no differences between groups in the demographic data. To cover motivational

Table 1
The characteristics of the sample

	Experimental Group ($n = 16$)	Comparison Group ($n = 17$)
Female	9	10
Male	7	7
Mean age (years)	37.7	43.5
Previous neck pain	4	5
Working at inclusion	9	14
Medication at inclusion	10	11

aspects five questions were used in a self-report form. There were no differences in these treatment expectations. Among the 33 patients all but two expected to recover partly or totally. Thirty patients considered it to be very important or important to become pain free, while only two patients expected no change at all regarding ability to manage daily activities. All patients were prepared to engage in treatment, that is, to follow advice and change their habits. They also were prepared to conduct prescribed exercises on a regular basis.

Treatments

Before the start of the study, primary care physiotherapists in the area were contacted to explore what type of treatments they introduced to patients with WAD. A uniform approach of treatment for the comparison group was then decided upon together with these physiotherapists. It included exercises designed to enhance muscular stabilisation of neck, neck, and shoulder mobility with stretching and coordination of head movements, as well as exercises to maintain the body posture and arm muscle strength. Patients were given oral or written information (or both) and were expected to practice exercises at home or at the physiotherapy departments' gym (or at both places). The treatment could also include pain-relieving methods like relaxation, transcutaneous electric nerve stimulation (TENS), acupuncture and heat, which were given in the physiotherapy department.

The general treatment approach in the experimental group comprised four phases that included learning of basic physical and psychological skills, application and generalisation of these basic skills in everyday activities, and a phase for maintenance of these skills. A functional behaviour analysis approach was used to highlight the problem behaviours and to establish treatment goals, which also served as the basis for each treatment phase (Söderlund and Lindberg, 2001). The general treatment goals were to change the problem behaviours and recognise the factors that perpetuate muscular dysfunction. All skills training would be done at home. The treatment of the experimental group was completed by the experimenter.

During the basic skills phase the aims of the treatment, patient's ways of coping with increased pain and self-efficacy were discussed with the patients. The basic skills phase also included relaxation training and reeducation of a balanced cervicothoracic posture based on cervicothoracic muscular stabilisation techniques suggested by Sweeney (Sweeney, 1992). Further, exercises aimed to increase neck range of motion, coordination and endurance of neck muscles as well as reeducation of normal humeroscapular rhythm was included.

The next two phases included application and generalisation of basic skills. During these phases, the basic skills were integrated with the everyday activities derived from the functional behavioural analysis (Söderlund and Lindberg, 2001).

The final part was directed at maintenance of skills trained earlier. Repetition of key components at the last session and a written summary of the program (Nicholas, 1992) were used to increase the probability that the gains from treatment would last.

Both comparison and experimental group treatments were individualised for each patient and maximised to 12 individual appointments with a physiotherapist. There was no significant difference in the number of treatment sessions between the groups, (Median (Md) [comparison group]=6 and Md [experimental group] = 11).

Measures and procedure

The self-report measures below were mailed to all subjects and collected by the experimenter. The physical measures were collected by an experienced physiotherapist who was blind to group affiliation and who did not serve as a physiotherapist for any group. Physical measures, measures of disability, pain intensity, coping, and individual characteristics (i.e., self-efficacy) were collected pre- and posttreatment and at the three-month follow-up.

Measures used for comparing treatment groups

The Pain Disability Index (PDI) (Pollard, 1984; Tait et al, 1987) was used to describe interference due to pain in daily activities. The maximum score is 70 which corresponds to a high degree of disability. PDI is considered to be a reliable and valid measure of disability related to chronic pain.

A numerical rating scale (NRS) format (Jensen Karoly, and Braver, 1986) was used to measure pain intensity in a 7-day diary, completed four times a day before and after the treatment as well as during the follow-up period.

Patients' cervicothoracic posture was assessed with a universal goniometer (Hyppönen, 1992; Söderlund and Lindberg, 2001). The cervical rotation range of motion (ROM) was measured using a Lic Rehab Care Svetsary goniometer. Cervicocephalic kinaesthetic sensibility was measured with a method described by Revel (Revel, Andre-Deshays, and Minguet, 1991). A more detailed description of these measures has been presented elsewhere (Söderlund et al, 2000).

Three different sources for measuring treatment integrity were used. An exercise diary was used to report all exercises the patients did at home. Each patient's treatment, duration, number of visits, and type of treatment were reported by the treating physiotherapists. Patients were asked what kind of treatment they had had and if they understood the purpose and principles of the treatment.

At posttreatment patients were asked four global questions regarding treatment results (Johansson, 1999), if patients (1) perceived themselves recovered or had more pain; (2) had the ability to perform daily activities; (3) were satisfied with the overall treatment results; and (4) took any medication.

At the three months follow-up patients answered seven questions regarding treatment results (Johansson, 1999), covering (1) ability to perform daily activities; (2) interference due to pain in daily life; (3) if and, (4) how learned skills were used; (5) supplementary treatment; and (6) medication, as well as (7) working status.

Measures used for comparing patients with high and low self-efficacy

The Self-Efficacy Scale (SES) (Altmaier et al, 1993) is a 20-item scale that was originally designed to assess the confidence in performing daily activities among patients with chronic low back pain. It was recently used in a study describing chronic WAD patients (Söderlund and Lindberg, 1999). The maximum score is 200. Higher scores reflect higher confidence.

The Coping Strategies Questionnaire (CSQ) (Jensen and Linton, 1993; Rosenstiel and Keefe, 1983; Swartzman et al, 1994) was used to analyse different strategies the patients used to influence pain. CSQ is a 48-item checklist in which subjects are asked to indicate the extent to which they use a given cognitive or behavioural coping strategy. The scores range from 0–6 for each item and the maximal score in each subscale is 36. Higher scores indicate that a person uses the particular coping strategy more extensively.

The Pain Disability Index and Numerical Rating Scale also were used as outcome measures in this group comparison.

Data analyses

ANCOVA, with the measure for self-efficacy as covariate, was used to analyse between group (experimental and control) differences over time in disability and pain intensity based on theoretical considerations of its predictive value for disability and pain intensity (Söderlund 2001; Söderlund et al, 2000). ANOVA and MANOVA was used to analyse the interaction effects (treatment × time) in the physical measures, i.e. head posture, neck range of motion in flexion/extension, lateral left/right flexion, left/right rotation, and left/right cervicocephalic kinaesthetic sensibility. Chi-square statistics were used to analyse the data for self-experienced benefits of the treatment.

Based on our previous results (Söderlund, 2001) regarding the role of self-efficacy (as a predictor) and coping (as a mediating factor), we decided to assign a posteriori all patients

into two different groups based on patients' initial self-efficacy scores from the SES (Altmaier et al, 1993). Patients with high self-efficacy scored above the group SES mean ($M = 124.8$) while those scoring below were assigned to the low self-efficacy group. The scores of the new groups were then analysed for differences at three points in time: pre- and posttreatment and at three-month follow-up with student's t-test and repeated measures ANOVAs.

RESULTS

Repeated measures ANCOVAs and MANOVAs showed no significant differences between experimental and comparison groups over time in disability, pain intensity, or in any of the physical measures. Table 2 presents the pre- and posttreatment as well as three months follow-up means and standard deviations for these measures in both groups.

Self-experienced benefits of the treatment reported with global questions at posttreatment and follow-up were analysed. The results showed that the experimental group perceived themselves as having significantly (Chi-square = 6.5, $df = 2$, $p < 0.05$) less pain than the comparison group at posttreatment. At the three month follow-up, patients' perceived ability to perform daily activities differed significantly between groups (Chi-squares = 10.27, $df = 3$, $p < 0.05$) in favour of the experimental group. Patients were asked if they applied what they had learned in order to manage or prevent neck pain; the results showed significantly better long-term compliance for the experimental group (Chi-square = 6.4, $df = 2$, $p < 0.05$).

There were significant positive effects for the merged experimental and comparison group over time regarding disability (PDI) ($F = 6.41$, $df = 2, 58$, $p < 0.01$), pain intensity (NRS) ($F = 4.35$, $df = 2, 60$, $p < 0.05$), and two physical measures, that is, head posture ($F = 7.77$, $df = 2, 60$, $p < 0.001$) and neck range of motion in flexion/extension (Wilk's Lambda = 0.61, $df = 4, 26$, $p < 0.01$).

In order to study the associations and differences in coping process over time between patients with high and low self-efficacy, t-tests were performed at pre- and posttreatment and at follow-up. At pretreatment patients with high self-efficacy scored significantly higher in Ignoring Pain Sensations ($t = 2.26$, $df = 30$,

Table 2
The pre- and posttreatment as well as three month follow-up means and standard deviations for disability, pain intensity, and physical measures in experimental (exp) ($n = 16$) and comparison (comp) ($n = 16$) groups

Variable	Pretreatment Mean (*SD*)		Posttreatment Mean (*SD*)		Three Months Follow-up Mean (*SD*)	
	Exp	Comp	Exp	Comp	Exp	Comp
Pain Disability Index	31.1 (13.5)	25.9 (11.9)	25.3 (18.6)	20.4 (16.7)	26.3 (17.5)	20.2 (15.7)
Pain intensity (NRS)	4.2 (1.8)	3.6 (2.0)	3.5 (1.8)	2.9 (1.8)	3.7 (2.3)	3.4 (2.4)
Head posture	39 (4.9)	38 (6.1)	36 (4.4)	36 (4.9)	37 (4.6)	37 (5.7)
ROM flexion	44 (12.6)	47 (12.8)	48 (17.2)	55 (11.9)	51 (13.5)	56 (15.4)
ROM extension	47 (15.7)	43 (7.7)	48 (16.2)	40 (8.1)	46 (13.3)	43 (15.1)
ROM lat.flexion						
right	30 (7.7)	30 (9.4)	32 (9.6)	30 (9.6)	32 (8.0)	33 (8.0)
left	31 (8.2)	31 (10.5)	31 (8.0)	31 (8.7)	31 (6.2)	29 (10.4)
ROM rotation						
right	57 (10.4)	52 (15.5)	53 (10.6)	56 (11.6)	57 (10.6)	60 (15.8)
left	59 (11.7)	58 (14.6)	54 (11.6)	64 (13.5)	60 (12.1)	60 (14.5)
Coordination in rotation						
right	32.3 (16.6)	38.6 (19.3)	26.9 (15.3)	33.8 (18.5)	24.3 (9.5)	32.3 (16.8)
left	31.0 (19.5)	29.8 (21.3)	23.2 (6.4)	23.5 (12.4)	23.6 (9.3)	28.4 (11.4)

Table 3
Means and standard deviations for the low ($n = 13$) and high ($n = 19$) self-efficacy groups in disability and pain intensity

	Pretreatment Mean (*SD*)		Posttreatment Mean (*SD*)		Three Months Follow-up Mean (*SD*)	
Measure	High	Low	High	Low	High	Low
Disability (PDI)	21.3 (11.2)	37.5 (8.6)	14.7 (13.0)	33.8 (17.2)	15.6 (14.4)	32.9 (14.4)
Pain intensity (NRS)	3.0 (1.4)	5.3 (1.7)	2.7 (1.7)	3.9 (1.8)	2.6 (1.9)	5.0 (2.2)

$p < 0.05$). At posttreatment patients with high self-efficacy scored lower in four subscales: Reinterpreting Pain Sensations ($t = 2.39$, $df = 30$, $p < 0.05$), Praying and Hoping ($t = 2.46$, $df = 30$, $p < 0.05$), Catastrophizing ($t = 3.39$, $df = 30$, $p < 0.01$), and Pain Behaviours (t = 2.09, $df = 30$, $p < 0.05$). At three months follow-up the patients with high self-efficacy scored significantly lower in Diverting Attention ($t = 2.49$, $df = 30$, $p < 0.05$), Reinterpreting Pain Sensations ($t = 2.43$, $df = 30$, $p < 0.05$), Praying and Hoping ($t = 3.12$, $df = 30$, $p < 0.01$), Catastrophizing ($t = 3.26$, $df = 30$, $p < 0.01$), and Pain Behaviours ($t = 2.32$, $df = 30$, $p < 0.05$). There were no other group differences. Thus, patients who have high self-efficacy used less of those coping strategies that are characterised as more avoidant and passive (Lawson et al, 1990).

Two-factor repeated measures ANOVAs were performed to study if there were any interaction effects between the groups including patients with high and low self-efficacy over time in disability or pain intensity. There was no such effect in disability (PDI) indicating a stable and parallel reduction for both low and high self-efficacy groups in disability. However, there was an interaction effect (high/low self-efficacy × time) ($F = 3.84$, $df = 2, 60$, $p < 0.05$) in pain intensity (NRS). Post hocs (Tukey HSD) showed that the low self-efficacy group reported significantly higher pain intensity at each point in time ($p < 0.05$) and that pain intensity decreased significantly ($p < 0.05$) in the low self-efficacy group at posttreatment. At follow-up, this group had resumed their original pain intensity level. Thus, patients with low self-efficacy had a higher risk for relapse after this treatment. Table 3 presents the means and standard deviations for the low and high self-efficacy groups in disability and pain intensity.

DISCUSSION

The results of this study showed that there were no significant differences between the two treatment groups over time in disability, pain intensity, or in any of the physical measures. However, the self-experienced benefits of the treatment differed significantly. The experimental group perceived lower pain intensity at posttreatment than did the comparison group. At three months follow-up the experimental group's perceived ability to perform daily activities was significantly better. This group also showed better long-term compliance, that is, they used the skills they had learned to manage or prevent neck pain in daily life significantly more often.

Cognitive behavioural components can be useful in the treatment of chronic WAD patients. Cognitive-behavioural approaches generally focus on coping deficits and maladaptive cognitive appraisals that cause difficulties in adapting to chronic conditions. In enhancing coping effectiveness, a number of cognitive-behavioural skills can be applied. These include for example stress management skills, progressive relaxation, breathing control, and challenging irrational beliefs, as well as teaching individuals to integrate these skills to every day life (Devins and Binik, 1996). In

our study, a physiotherapist with no formal psychotherapeutic training conducted the experimental treatment. Treatment was directed towards changing behaviour in daily life as well as promoting specific coping strategies, but not towards negative cognitions (e.g., catastrophising thoughts). The lack of between group differences may therefore be explained by the fact that patients' thoughts were still dominated by maladaptive cognitions.

There were several differences between the high and low self-efficacy groups in patients' coping repertoire during the course of the study. At pretreatment the group with high self-efficacy scored significantly higher in the coping subscale, Ignoring Pain Sensations. At posttreatment however, the same group scored lower in four coping subscales (Reinterpreting Pain Sensations, Praying and Hoping, Catastrophizing, and Pain Behaviours). Further, they scored lower in five subscales (Diverting Attention, Reinterpreting Pain Sensations, Praying and Hoping, Catastrophizing, and Pain Behaviours) at the three month follow-up. Our results also support the study of Jensen and colleagues (Jensen, Turner, and Romano, 1991) where a strong relationship between self-efficacy expectancies and different coping strategies in adjustment to chronic pain was found. Similarly patients with knee osteoarthritis and high self-efficacy were more likely to cope with pain by ignoring pain sensations, using calming self-statements, and avoiding negative thinking (Keefe, Affleck et al, 1997). Increase in self-efficacy during the course of coping skills training is associated with both short-term and long-term improvements in pain and function (Keefe et al, 1996, 1999).

Maintenance of positive effects in pain control regimens is closely related to adherence and risk of relapse (Turk and Rudy, 1991). Our results showed that patients with high pretreatment self-efficacy scored lower and had decreased pain intensity over time while patients with low self-efficacy scored higher in pain intensity pretreatment and had decreased pain at posttreatment but had increased pain at three-months follow-up. Therefore it is suggested that treatment should aim to enhance self-efficacy in order to prolong improvements over time. Dolce (1987) proposed that patients who do not strengthen their self-efficacy but do improve otherwise during the treatment may be more likely to relapse after completed treatment. It could be argued that patients with high self-efficacy actually did have less pain and were therefore scoring high in the self-efficacy scale. However, in a study of experimentally induced pain Keefe and colleagues (Keefe, Lefebvre et al, 1997) showed that osteoarthritis patients who scored high on self-efficacy had significantly higher pain thresholds and pain tolerance than patients scoring low on that measure.

Self-efficacy is important for the promotion of self-change. It accounts for latency and rate of change during treatment and for individual variations in behavioural change for subjects receiving the same treatment. It also is a predictor of whether specific coping tasks will be successful. In managing chronic diseases, self-efficacy theory provides a framework for structuring and implementation of treatment in the rehabilitation process (Bandura, 1997). The first step would be an assessment of the client's background to identify domains and individual problems to be targeted for self-efficacy improvement. Consequently intervention strategies can be developed or improved (Strauser, 1995).

A limitation in this study is the low number of study participants. This makes generalisations from these results preliminary. The lack of significant between group differences in the main measures might be due to that fact. However, the results in several clinically relevant measures were in favour of the experimental group. Another limitation is that the number of individual appointments varied in both groups (12 as maximum). It would have been possible to incorporate number of appointments as a covariate in the statistical analysis. However, this was not done since the variation did not differ significantly between groups.

In conclusion, the results of this study indicate that physiotherapy with cognitive behavioural components can be useful in physiotherapy treatment for patients with chronic WAD, but its contribution is not yet fully

understood. Further research with larger groups of participants is needed to investigate any effects of this approach. Self-efficacy is an important predictor of patients' use of different coping styles and positive long-term outcomes is likely to be improved by boosting self-efficacy and teaching WAD patients to use adaptive coping strategies.

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