

Group cognitive-behavioral therapy for chronic pain adults: review of Brazilian trials*

Terapia cognitivo-comportamental em grupo para adultos com dor crônica: uma revisão de estudos brasileiros

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ABSTRACT

BACKGROUND AND OBJECTIVES: Group cognitive-behavioral therapy has shown to be effective for chronic pain management in the international literature. However, the need to bring evidence-based practices to health services requires that therapies like this are implemented and evaluated in Brazil. This study has not intended to evaluate the efficacy of group cognitive-behavioral therapy for chronic pain adult patients, but rather to identify how studies in this area are being performed by Brazilian investigators.

CONTENTS: A search was carried out about Brazilian studies published in the last two decades (1994-2014), evaluating the efficacy of group cognitive-behavioral therapy for adults with non-malignant chronic pain. Health Virtual Library databases were used and search terms were: Chronic pain “and” Psychology “or” Cognitive-Behavioral Therapy. Evaluated variables were clinical and socio-demographic characteristics, pre and post-intervention evaluation tools, sessions’ structure (sessions number and duration), primary results, and evaluation of the quality of studies by means of the PEDro scale.

CONCLUSION: Six out of 816 articles available were selected for analysis, because they were the only ones to meet chosen search criteria. One should stress the scarcity of Brazilian studies in the area, the use of exclusively subjective evaluations aimed at unidimensional pain aspects, and the concern with the methodological quality of studies, especially with regard to internal validity.

Keywords: Chronic pain, Group cognitive-behavioral therapy, Psychology.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A terapia cognitivo-comportamental em grupo tem se mostrado eficiente no tratamento para dor crônica, na literatura internacional. Entretanto, a necessidade de trazer práticas baseadas em evidências para os serviços de saúde exige que tratamentos como este sejam implantados e avaliados no Brasil. O presente estudo não pretendeu analisar a eficácia da terapia cognitivo-comportamental em grupo para adultos com dor crônica, mas identificar como os estudos nessa área têm sido conduzidos por pesquisadores brasileiros.

CONTEÚDO: Realizou-se uma busca de estudos brasileiros publicados nos últimos 20 anos (1994-2014), que avaliaram a eficácia da terapia cognitivo-comportamental em grupo para adultos com dor crônica não maligna. Utilizaram-se as bases de dados da Biblioteca Virtual em Saúde, e os termos de busca foram: Dor Crônica “and” Psicologia “or” Terapia Cognitivo-Comportamental. As variáveis avaliadas foram características clínicas e sócio-demográficas dos participantes, instrumentos de avaliação pré e pós-intervenção, estrutura das sessões (quantidade e duração das sessões), principais resultados, análise da qualidade dos estudos realizada por meio da escala PEDro.

CONCLUSÃO: Seis dos 816 artigos disponibilizados foram selecionados para análise, pois foram os únicos a atingir os critérios de busca escolhidos. Destaca-se a escassez de estudos brasileiros na área, o uso de avaliações exclusivamente subjetivas e voltadas a aspectos unidimensionais da dor, e a preocupação com a qualidade metodológica dos estudos, sobretudo no que se refere à validade interna.

Descritores: Dor crônica, Psicologia, Terapia cognitivo-comportamental em grupo.

INTRODUCTION

Pain is experienced by almost all individuals, since it alerts the body with noxious physical and chemical stimulations, protecting it against future injuries. Since the dawn of civilization, men try to explain what justifies pain and, this way, to develop procedures to control it. From pre-history to the Renaissance era, pain was understood as a divine punishment coming from bad spirits for misconducts or from the loss of vital body substances. In mid 15th century, the advance with regard to this phenomenon was greatly influenced by Descar-

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tes, who described pain as a sensation perceived in the brain, resulting from the stimulation of sensory nerves¹. In the 20th century, scientific advances have contributed for the understanding of pain as a complex nociceptive sensory system. As from 1950s, it is understood that painful information is captured by morphologically differentiated receptors located on nervous fibers terminations (nociceptive receptors) which respond to several exogenous substances (ex., heat, cold and pressure) and to endogenous chemical substances (produced by the body in response to irritation or injury), transmitting nervous impulses to the spinal cord. Before long, the Gates theory² has proposed that stimulated nociception in this process is different from that perceived by the individual, and that inhibitory interneurons responsible for the regulation of emotion (endorphin, norepinephrine and serotonin, among others), would be involved in pain perception modulation process. With advances in studies, psychosocial variables and individual characteristics started to be observed to explain the painful process and this started to be defined as a complex psychophysiological phenomenon^{1,3}.

In mid 1970s, pain was defined by the Taxonomy Committee of the International Association for the Study of Pain (IASP) as an unpleasant sensory and emotional experience related to real or potential tissue injury or described in terms of such injury⁴. Due to this definition, pain started to be understood as a subjective experience in which each individual learns how to describe it based on his/her own experiences³. Pain concept developed by IASP has leveraged the integration of different health professionals (physicians, nurses, psychologists, physiotherapists and occupational therapists), who started to act in a multi- and interdisciplinary way to control pain⁵. Authors also add that interdisciplinarity is an ideal to be reached by health services, since multidisciplinary practices still prevail. Approximately 20 to 30% of the world population are affected by chronic pain (CP) and although there are few Brazilian epidemiologic studies, some authors indicate similar incidence for the Brazilian population⁶. Some authors state that suffering and disability as a function of pain is the primary reason for looking for outpatient assistance⁷. Anxiety, depression and sleep disorders are commonly associated to CP⁵, being such comorbidities one of the aspects characterizing the importance of psychological pain evaluation and intervention⁸. There are different psychological theories trying to understand and intervene on pain^{9,10}, however our study will be based only on the Cognitive-Behavioral Therapy (CBT) model.

CBT is the most accepted approach for psychological CP treatment, being recognized in this area since the 1970s¹¹ and currently showing the highest scientific evidence of effectiveness^{12,13}. Within the cognitive-behavioral perspective, pain is understood as a product influenced by the interaction of behaviors, feelings, and thoughts not adaptive to the environment of the individual, which intensify pain as a feedback system⁵⁻¹². Treatment helps patients identifying this non adaptive interactional process, recognizing its impact on pain, and changing it to improve pain and general health¹².

There is no standard treatment protocol, but major techni-

ques are psycho-education, cognitive restructuring, assertive training, problems resolution and progressive muscle relaxation, which may be used by individual or group assistance modalities¹²⁻¹⁴. Both assistance modalities are effective, however CBT applied in groups may promote even more promising results, when considering cost-benefit ratio of the treatment¹⁵. For the authors, group intervention may promote a broader support network and exchange of experiences among people going through the same problems, in addition to favoring encouragement for change¹⁵.

This treatment has been widely applied for people with different CP diagnoses. Some international meta-analyses, taken as a whole, have shown that treatment has produced mild or moderate effects on pain intensity, depressive symptoms and sleep quality, and minor effect on daily performance. Such results were observed by comparing experimental group and control group^{12,16,17}.

Investigators argue that CBT efficacy for CP is so well-established that there is no need for further studies evaluating its results¹⁴. However, to bring such evidence-based practices to Brazilian health services, it is necessary that such therapeutic modality is implemented and validated for this population.

Our objective was not discussing GCBT efficacy and effectiveness to manage CP, but rather identifying how studies in this area are being performed by Brazilian investigators. For such, we have identified studies published in the last 20 years, which evaluated GCBT applied to adults with CP, being identified participants' characteristics, pre- and post-intervention evaluation tools, sessions structure (sessions number and duration), and quality of studies with regard to statistical description and internal validity.

CONTENTS

Selected materials for analysis were studies developed by Brazilian investigators, published between 1994 and 2014, and available in the Virtual Health Library (BVS) database. Keywords were *Dor Crônica* "and" *Psicologia* "or" *Terapia Cognitivo-Comportamental*, and should be inserted in titles, abstracts or keywords. Selected studies should have as primary objective to describe GCBT directed to adults with non-malignant CP. In addition, studies should have quantitative analysis of data and should describe the tools used for pre- and post-intervention evaluation. Studies carried out with other age groups (below 18 or above 65 years of age) and/or which did not describe the use of GCBT procedures were excluded from the analysis.

As from these selection criteria, BVS online database made available a total of 816 articles, but only six were selected for analysis. Remaining articles described correlational, epidemiological studies and/or other types of treatments not including GCBT. These data summarize the lack of publications in this area of Psychology, especially the contribution of GCBT to the treatment of CP patients.

Pain is a subjective and personal experience, which should be observed from the biopsychosocial perspective. So, the role

of Psychology in understanding and treating CP patients is unquestionable⁸. The Clinical Protocol and Therapeutic Guidelines for Chronic Pain recommends GCBT as one of the non-pharmacological treatments for CP¹⁸. In addition, the Brazilian Society for the Study of Pain (SBED) indicates the existence of several multidisciplinary groups committed to the amplitude of assistance to teaching and research about this subject, distributed throughout Brazil, being Psychology inserted in those services¹⁹.

Psychological treatment is often integrated to multi- and interdisciplinary programs which gather the action of different health professionals, among them: physiotherapists, occupational therapists, physicians and others⁵. With regard to intervention programs objectives, it was observed that, among selected studies, two have evaluated the efficacy of sequentially applied GCBT and physiotherapy^{20,21}; one has evaluated the effect of a single intervention by physician, occupational therapist, physiotherapist, psychologist and social worker, where some GCBT techniques were inserted²²; one has compared the effects of pharmacological treatment versus GCBT²³; and two have evaluated the effect of GCBT alone.

Table 1 shows major data characterizing studies, especially with regard to evaluation, intervention and results. Studies were evaluated as to methodological quality and statistical description using the PEDro scale²⁴. This scale was developed and is used by physiotherapists²⁵, but has been chosen for meeting evaluation needs of this study. It is composed of 11 evaluating criteria, of which 10 are scored (8 evaluate inter-

nal validity and 2 evaluate statistical description). Maximum score to evaluate the quality of studies is 10; scores equal to or above 5 indicate that the study has moderate or high quality²⁶. With regard to studied population, table 1 shows predominance of females in all studies, being fibromyalgia (FM) the most frequent diagnosis. Nevertheless, literature shows that the prevalence of CP diagnosis is higher in females as compared to males, moreover in case of FM^{29,30}. Females also look more often for health services³¹, which could justify their prevalence in selected studies.

CP is often associated to psychoaffective disorders, such as anxiety and depression, and to sleep disorders⁵. A correlational study has shown that the more severe is the pain, the higher are the symptoms of anxiety, depression and sleep quality³². Quality of life (QL) is also impaired and total or partial incapacity may be seen in at least half of affected individuals. The inter-relation of these problems shows that these comorbidities should also be focus of evaluation and intervention³³. Table 1 shows that all studies have evaluated at least one of different indicators of comorbidities commonly associated to CP (depression, anxiety, sleep disorders), as well as variables related to QL and social life of patients. The six studies have evaluated depressive symptoms (BDI – Beck Depression Inventory) and pain intensity (VAS – Visual Analog Scale, PNVS – Pain Numeric Visual Scale). In addition to evaluating such variables, three studies have investigated symptoms of anxiety (ADHS – Anxiety and Depression Hospital Scale); two have evaluated subjective sleep quality (PSI – Post-Sleep

Table 1. Characteristics of studies applying group cognitive-behavioral therapy to chronic pain adults

Authors	n* (n per group)	Gender/ Diagnosis	Pre- and post-evaluation tool	Structure	Variables indicating improvement	PEDro quality analysis
Brasioet al. ²⁷	21 (6 to 8)	Female (100%) Fibromyalgia (100%)	ADHS VAS LSSI RAS	8 sessions, 90 min	Pain intensity, stress, anxiety, assertiveness	3
Lorençatto et al. ²⁰	64 (4 to 12)	Female (100%) Pelvic pain (100%)	VAS BDI	10 sessions, 150 min (60 min physiotherapy + 90 min CBT)	Pain intensity, depression	5
Calderon et al. ²³	37 (4 to 7)	Female (100%) Temporomandibular disorders (100%)	VAS BDI OHIP PSQI	7 sessions, 90 min	Pain intensity, depression, sleep, quality of life	5
Castro et al. ²⁸	93 (n.inf**)	Female (89%) Musculoskeletal pain (100%)	VAS ADHS SF-36	10 sessions, 120 min	Pain intensity, depression, quality of life	7
Salveti et al. ²¹	79 (n.inf**)	Female (91%) Fibromyalgia (53%)	PNVS ODI BDI	16 sessions, 120 min (60 min stretching + 60 min CBT)	Pain intensity, depression, daily activities	3
Martins et al. ²²	27 (12 to 15)	Female (59%) Fibromyalgia (100%)	FIQ VAS PSI SF-12 ADHS	12 sessions, 60 min (CBT and other activities)	Anxiety, depression, daily activities	4

n*=Participants not responding to pre- and post-evaluation tools; **n.inf – number of participants per group not informed by the study; CBT = Cognitive-Behavioral Therapy; ADHS = Anxiety and Depression Hospital Scale; VAS = visual analog scale; LSSI = Lipp Stress Symptoms Inventory; RAS = Rathus Assertiveness Scale; BDI = Beck Depression Inventory; OHIP = Oral Health Impact Profile; PSQI = Pittsburgh Sleep Quality Index; SF-36 or 12 = Quality of Life Questionnaire; PNVS = Pain Numeric Visual Scale; ODI = Oswestry Disability Index; FIQ = Fibromyalgia Impact Questionnaire; PIS = Post-Sleep Protocol.

Protocol and PSQI – Pittsburgh Sleep Quality Index); and one has investigated stress indicators by means of the Lipp Stress Symptoms Inventory (LSSI), and assertiveness by Rathus Assertiveness Scale (RS), however relationships between such variables (stress and assertiveness) and pain are still poorly investigated^{34,35}.

Pain evaluation is subjective, so that there is no objective and satisfactory measurement to evaluate it³. Subjective evaluation uses one- or multidimensional tools. Multidimensional tools, such as McGill Pain Questionnaire (MPQ) and Multidimensional Pain Inventory (MPI), evaluate pain as from different indicators of dimensions making up the painful experience (sensory, cognitive and affective) and their interactions.

One-dimension tools, such as VAS or PNVS, are designed to indicate just the sensory dimension of pain intensity³⁶. Although one-dimension tools are easy to apply, multidimensional evaluation should be the priority, aiming at better identifying variables interfering with pain³. No selected study has used multidimensional evaluation tools, although all have evaluated pain intensity before and after intervention. As shown in Table 1, three studies have evaluated the impact of pain on daily life by means of questionnaires such as ODI (Oswestry Disability Index), FIQ (Fibromyalgia Impact Questionnaire) and OHIP (Oral Health Impact Profile), and two have evaluated QL aspects by means of tools such as SF-36 or SF-12.

Exclusively subjective evaluations, having as respondent participants themselves, may be considered a limitation of the studies. Although this type of evaluation is the most indicated for pain evaluation, objective measurements and/or the use of other information sources different from patients, could contribute to make data more reliable and it is suggested that they should be used to complement evaluation³⁶. For example, to evaluate sleep, it is possible to use actigraphy, which evaluates activity and rest periods by means of an electronic device, and to evaluate daily activities it is possible to observe patients' performance during certain activities.

With regard to interventions structure, it can be seen that selected studies have carried out from 7 to 16 sessions, lasting 60 to 90 minutes each, which has indicated a higher number of sessions and longer duration as compared to the study by Morley, Eccleston & Williams¹⁶. The studies have involved between 21 and 93 participants, and 4 to 15 was the number of people per group, which is in agreement with the size of groups described by international studies^{13,16}. GCBT effectiveness for CP patients has been proven by the international literature, according to meta-analyses, indicating mild and/or moderate effects on pain intensity, depression, sleep quality and daily performance^{13,16,17}. Such results are consistent with those described in selected studies; from six selected studies, all have indicated that GCBT was effective to decrease depressive symptoms and five studies have indicated decreased pain intensity. There were also improvements in daily performance and sleep quality in all studies which have measured such variables.

With regard to methodological and statistical quality evaluated by PEDro scale, only half (n=3) the selected studies have

indicated scores equal to or above five. One study had no statistical analysis and all of them had failures with regard to participants' homogeneity and randomization, and masking of interventions.

Only two studies have mentioned that there has been randomized distribution of participants, being that one has not clearly described the randomization process. Only one study has identified the masking of interventions which was made just for participants.

Failures regarding homogeneity and clarity of the randomization process were also observed in meta-analysis studies evaluating CBT interventions for CP adults^{13,16}. According to the authors of those studies, masking of interventions for patients and therapists is a difficult criteria to be achieved in Psychology, because the investigator-therapist in general has to know the objectives and stages of the treatment to be administered. However, other criteria should be met by Brazilian studies (participants homogeneous distribution, secret randomization, masking of interventions, use of psychometrically tested tools adapted to the studied population, blind evaluations and presentation of statistical analyses) aiming at confirming the effectiveness of psychological interventions for this population³⁷.

BVS is a portal available in the Internet, which contemplates scientific databases such as Scielo, LILACS, Cochrane and Medline, and gathers the largest number of articles published in national journals of broad circulation³⁸. Although our study was limited to the search of studies in this database, it is known that in Brazil there are few clinical randomized trials in Psychology with the described methodological precision, which probably justifies the scarcity of publications in Brazilian journals describing national studies³⁹.

CONCLUSION

Although pain being considered a biopsychosocial phenomenon since the 1970s, Brazilian Psychology has not occupied its space, and such aspect is in disagreement with the international literature. Brazilian studies found were published approximately 30 years after CBT has been recognized as treatment for CP. This fact is also of concern if one considers the incidence of CP in Brazil and the need for psychological interventions empirically validated for this population.

Exclusively subjective evaluations of selected studies and the use of one-dimension scales are limitations for studies evaluation. We suggest the use of objective measurements and multidimensional pain scales, aiming at further understanding variables interfering with pain.

In spite of the limited number of studies, results were in agreement with those found in international meta-analyses reviews, which have compared the effects on groups submitted to CBT as compared to control groups. However, care should be taken with regard to data generalization for the Brazilian population, since differences in culture and in psychotherapy qualification are very relevant among different countries³⁷. One should invest on studies proving the effectiveness of

CBT for Brazilian adults with CP, and maybe this would be a way to put pressure on politicians and health managers to implement this type of treatment as mandatory specialty in health institutions.

It was, however, observed a concern of Brazilian studies, with regard to methodological quality. We suggest that future studies take fundamental methodological and analytical care, such as: participants' homogeneous distribution, secret randomization, masking of interventions and use of psychometrically tested tools adapted to the studied population, blind evaluations and presentation of statistical analyses.

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