

Research Article

EFFICACY OF COGNITIVE BEHAVIOUR THERAPY (CBT) IN MANAGING CHRONIC PAIN (CP) IN PATIENTS OF FIBROMYALGIA

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Abstract

Objective: Pain is a crucial part of biological mechanism that points out the disruption or impairment in body. It evades further harm by avoiding overuse of the suffering area, and finally promotes physiological homeostasis. Fibromyalgia, a form of chronic pain, does not give signals of damage to the body rather it becomes a potential hazard to the physical and psychological well-being of the person. There is an increased need for management tactics to chronic pain, other than chronic medical illnesses. The present study was aimed to find out the efficacy of CBT in managing chronic pain in patients of fibromyalgia.

Method: A total number of 45 participants were approached from different government and private hospitals of Lahore. Initially the participants were assessed on pain intensity and functioning on daily routine activities. After screening total ten participants were further recruited for second phase of this study. The second phase of this study was comprised of two groups; one is control group which received the treatment as usual and the second group was treatment group which received the cognitive behavior therapy to reduce their pain intensity. All the 10 participants were women with the age range of 20-40 years (M=34.60, SD=3.84). Total 9 sessions of CBT with the average of 45 minutes were conducted following the treatment protocol given by Craig and Austin.

Results: The results showed that two group (treatment and control) were significantly differ on their pre-post pain ratings and their pre-post daily routine functioning. Hence it can be concluded that CBT based treatment protocol works efficiently in reducing pain in patients. *ASEAN Journal of Psychiatry, Vol. 24 (1) January, 2023; 1-9.*

Keywords: Cognitive Behavior Therapy, Fibromyalgia, Chronic Pain, Homeostasis, Potential Hazard

Introduction

Fibromyalgia is a condition that is characterized by extensive pain and musculoskeletal tenderness, fatigue, sleep problems, and morning stiffness. Different manifestations can be seen among patients of fibromyalgia as some people with fibromyalgia often report that they feel hurt all over body. However, many define the pain as painful, draining, or distressing. Pain is commonly associated with the neck region,

shoulders, chest wall, elbows, knees, hips, and back. Muscle cramping and spasms are also common in Fibromyalgia. Though Fibromyalgia is defined as one of the types of chronic pain, but it may be the reason of "flares" of acute pain. In fact, pain may become so intense that it affects the mobility and functional ability [1-3].

Cognitive Behavioral Therapy (CBT) has been proven to be efficacious throughout some of mental and behavioral conditions. CBT is extensively researched, time limited

psychotherapeutic technique that is known for its effectiveness in dealing psychological problems effectively. CBT focuses on a structured manner of treatment that highlights the relationships among feeling, thoughts and actions that how these things are linked together and if you change only one, others two will automatically change in accordance with the previous one. Either delivered as a single modality or as a part of a cohesive, multimodal, and interdisciplinary pain management program, CBT based treatment has proved successfully useful intervention for the management of chronic pain. As chronic pain has affected the daily routine functioning, and reduces the quality of life, but evidence proposes that CBT-CP mends functioning and quality of life for a variety of chronic pain conditions [4-6].

The focus of CBT-CP is to make progress in the individual's quality of life and in improving daily routine functioning across many areas related to daily routine life. Cognitive Behavior Therapy-Chronic Pain (CBT-CP) is a different approach from old psychotherapies as old psychotherapies aimed to reduce the symptoms of specific disorders in that those who might show fluctuating psychological symptoms. However, CBT-CP approach is developed to deal with those participants who are suffering from fibromyalgia, a form of chronic pain, and this chronic pain has negative impact on their lives. Psychological and psychosocial factors exacerbate a person's pain is of central importance as it can help to modify the experience and severity of pain and on the other hand it is useful to maximize the benefit of all treatments including CBT-CP [7].

A study was conducted in order to explore the psychological therapies to manage chronic pain. Pain being a complex stressor, mainly in its chronic form that challenges majority of daily routine functions and leads to significant bodily, mental, job related, and monetary cost [8]. The requirement for treatment frameworks to chronic pain, especially mind related treatment as frequent unrelenting pain cannot completely resolve by medical interventions. So instead of focusing on trying to reduce pain, psychotherapy for chronic pain mainly points to seek amelioration in bodily, affective, communal, and

job related functioning. Nevertheless, every modality of psychological therapies has its particular way of treatment for chronic pain and so they vary in their extent, time span, and aims. There are fundamentally four categories of therapies for treatment of chronic pain such as operant behavioral therapy, mindfulness based therapy, cognitive behavioral therapy, and acceptance and commitment therapy [8].

The current study seeks to inquire the theoretical uniqueness, therapeutic aims, and efficacy of CBT along with procedures and idiosyncrasies that keep an account into reaction to management and dysfunction and distress associated with pain. However, a study was conducted with the purpose to test the relationship between overall physical fitness and subjective well-being with fibromyalgia severity [9]. This study also aimed to determine whether the combination of overall physical fitness and subjective wellbeing is linked with fibromyalgia severity among adult women patients. For this purpose, cross sectional study was conducted which recruited 424 participants from Andalusia, southern Spain. Physical fitness, subjective well-being components such as positive affect, negative affect and cognitive well-being and severity of fibromyalgia were assessed by using relevant and standardized measurements. Results revealed that overall physical fitness, subjective well-being were all associated with severity of fibromyalgia. However, results advocated that patients with higher overall physical fitness and increased subjective well-being reported lower fibromyalgia severity than those with low levels of overall physical fitness and subjective well being [10].

Materials and Methods

In present study, quasi experimental research design (non-equivalent control group) was used to assess two groups (control group and treatment group) which were diagnosed patients of fibromyalgia. Experimental group was assigned to receive cognitive behavior therapy while the control group was given treatment as usual of medicine, or physiotherapy.

Sample characteristics

Initially purposive sampling techniques was used to get the desired sample. Total number of 45 participants who were diagnosed patients of fibromyalgia was recruited from different hospitals of Lahore. They were initially screened out on pain intensity and daily routine functioning. After screening, 10 participants, who fulfilled the inclusion criteria of being women with age of 20-40 years, individuals diagnosed with fibromyalgia (not empirically established to have a psychogenic basis) from at least past 6 months, their daily routine functioning was being compromised, and individuals having fibromyalgia experiencing exacerbation in pain due to some psychological factors were recruited for present study. After getting 10 participants, they were assigned to two groups *i.e.*, control group and treatment group. Control group received the treatment as usual what they were taking to reduce their pain due to diagnosed condition of fibromyalgia. However, treatment group received the structured session of cognitive behavior therapy in the premises of center for clinical psychology, Lahore. Centre for clinical psychology is the well-known consultation center in university of the Punjab, Lahore which offers its services for community wellbeing apart from providing education. The individuals who were diagnosed with a medical condition other than Fibromyalgia and individuals, who had undergone any surgical procedure from past 6 months, were excluded from this study.

Procedure

The present study was completed in two phases. In the first phase, the researcher recruited 45 participants from different hospitals of Lahore and screen them on pain intensity and daily routine functioning. Ten participants who got high scores on pain intensity and whose daily functioning was much compromised due to Fibromyalgia were further recruited for the second phase of study. After screening procedure 10 participants were assigned to two groups *i.e.*, control group and treatment group. Participants in both groups were asked to fill demographics and daily routine functioning. They were pre and post

assessed about pain intensity, and daily routine functioning questionnaire. Individuals who were ready to receive cognitive behavior therapy as a treatment module were grouped as treatment group and called in the premises of center for clinical psychology, university of the Punjab, Lahore, which was established and well-known consultation center. The participants were briefed about the procedure and duration of study that 9 sessions would be conducted. The participants were also informed about their rights, willingness to participate and withdraw from the study at any time if they want. Their informed consent was taken and therapy was given according to above mentioned therapy protocol.

After completing 9 sessions, participants in control group and treatment group participants were again assessed on pain intensity and their daily routine functioning by the relevant measuring instrument. All of the participants, who were in experiment group, responded well to therapy. They remained cooperative throughout the research. However, the participants who were in control group were also in touch about their treatment as usual and they also cooperated till the end of study.

Measures

Demographic sheet was developed by the researcher to obtain information about the participant's age, education, gender, income, and religion. The demographic sheet also comprised of screening questions that would be devised to rule out the participant's childhood abuse and trauma, medical condition unrelated with fibromyalgia, and recent surgical procedure to mitigate probable confounding of the study. It also included visual analogue to assess subjective pain experienced by patients of Fibromyalgia. The functional status questionnaire [11]. Was used for functional assessment of a patient seen in primary care. It gave information about the patient's physical, psychological, social and role functioning. It could be used both to screen initially for problems and to monitor the patient over time. However, by the permission from relevant author, the questionnaire was translated into Urdu and after translating it into Urdu it was

administered on the participants to get the information regarding the participants' daily functioning activities. The participants needed to respond on physical function in the activities of daily living, psychological function, role function, social function and variety of performance measures. The Cronbach alpha reliability of functional status questionnaire ranged from 0.70-0.80.

Interventions

Treatment as Usual (TAU) group. The participants in the control group were told to take help in a routine manner (usual way) if any need arises. They could either opt medicine or physiotherapy if they were suffering from pain. In control group all of the participants were evaluated with the help of above mentioned assessment measure to get the idea about their daily routine functioning at the start and end of the study. The phone number of the participants, who were the members of control group, was taken to call them at the end of therapy to get the post assessment on pain and daily functioning activities. During this duration they were asked to take the usual treatment that they were taking to manage their pain.

Cognitive behavior therapy based group. Cognitive behavior therapy is an individual based treatment plan devised for the participants who were suffering from Fibromyalgia. The participants were suffering from intense pain and the psychological factors and distress that exacerbate their pain. It ultimately affects their daily routine functioning. The participants were treated with the help of CBT as theorized by Beck into CBT for CP devised by Murphy, et al. [12,13]. CBT-CP teaches the participants that they need to be more aware about the causes of pain, its origin, and its treatment. There is need to be aware of the connection between thoughts, actions, and feelings that how if one is altered, the other two modalities can also be changed. As the medical origin of the fibromyalgia cannot be changed, but what a person can do, is to be aware about the psychological distresses and factors that will exacerbate their pain and ultimately its effects

their daily routine functioning. So, there is a need to change mind set and thought patterns to deal effectively with the pain exacerbation. At first, therapy was administered through manualized treatment protocol which was devised by the researcher, and supervisor. Cognitive behavior therapy was given by the researcher as the researcher was trained in CBT. Each group (CBT and TAU) consisted of 5 participants with the same pain intensity level and gender. There was total nine session in a therapy protocol, and maximum time was 45 minutes for per session. One session in a week was conducted in the permission of center for clinical psychology. The participants in the treatment group were also given homework, exercises and related material to fibromyalgia.

Results

SPSS was used to analyze the data. Descriptive statistics such as frequencies, percentages, mean, and standard deviation was computed for demographic variables. Non-parametric tests were used to see within and between group differences since the sample size of the research were 10. In the inferential analysis Mann-Whitney U test was used to see the significant differences between CBT-CP and TAU groups to find the therapeutic efficacy of CBT-CP as compared to TAU. However, Wilcoxon Single Ranked Test also used to find the pre and post treatment scores within both groups.

Man-Whitney test was applied to assess the group difference in pre and post intervention to see the efficacy of treatment. Wilcoxon single ranked test was also analyzed to see the difference within group. The detailed findings about results were given below (Table 1).

Table 1. Mann-Whitney U Test for the group differences in pre and post pain intensity, daily routine functioning.

	Treatment group		Control group		U (10)	Z	p
	Mr	Mdn	Mr	Mdn			
Pre intervention pain assessment	5.5	10	5.5	9	12.5	0	1
Post intervention pain assessment	3	3	8	7	0	-2.83	0.005
Pre assessment of functionality	3.7	84	7.3	106	3.5	-1.88	0.059
Post assessment of functionality	5.3	109	5.7	107	11.5	-0.21	0.834
Note. Mr: Mean rank; Mdn: Median; Z: Standardized T- Statistics; p: Level of significance							

Table 1 indicated that the two groups of CBT-CP and TAU were significantly different on pain intensity and their daily routine functioning. It means that cognitive behavior therapy chronic

pain based treatment protocol proved to be effective in lessening the pain intensity of the participants and improving their daily routine activities as compares to the participants who took treatment as usual (Table 2).

Table 2. The Wilcoxon signed ranks test comparison with in treatment group.

Variables	Pre Assessment		Post Assessment				
	M	Mdn	M	Mdn	T(10)	P	r
Pain intensity	9.6	10	2.6	3	-2.06	0.039	-
Daily functioning	97.4	101	113.2	114	-2.02	0.043	-
Note. M: Mean; Mdn: Median; T: Wilcoxon Signed Rank Test; p: Level of significance							

As shown in Table 2 that the participants in the (CBT-CP) treatment group differ significantly on their post treatment scores as compared to

pretreatment scores signifying that CBT-CP is effective to reduce their pain and improve their daily routine functioning (Table 3).

Table 3. The Wilcoxon signed ranks test comparison with in control group.

Variables	Pre assessment		Post assessment		t (10)	p
	M	Mdn	M	Mdn		
Pain intensity	9.6	10	7	7	-2.07	-1.36
Daily functioning	112	101	115.4	115	0.038	0.174
Note. M: Mean; Mdn: Median; T: Wilcoxon Signed Rank Test; p: Level of Significance						

As shown in Table 3 that the participants in the control group does not differ significantly on their post treatment scores as compared to pretreatment scores signifying that TAU did not produce statistical significant result in post treatment assessment. The results recommended that CBT-CP based treatment protocol not only reduces the pain intensity of those who were suffering from fibromyalgia, but it was also useful for improving the daily routine activities of the patients as compared to the control group. The participants in control group were only taking treatment as usual like medicine only, and physiotherapy.

Discussion

For present study, the sample consisted of two groups of five participants each of experimental and control group with equal number of women, who were the diagnosed patients of fibromyalgia. Frederick, et al., in 1995 investigated the prevalence of fibromyalgia and demographics characteristics in general population. The global mean prevalence of fibromyalgia in women was 4.2 % and in men 1.4 %, with a female to male ratio of 3:1. However, the prevalence of fibromyalgia is higher at the middle age 20 to 40 years [14].

In the current study, the sample consisted of women with the age range 20-40 years. For the present study only women were recruited because the prevalence of fibromyalgia is more in women and this population is at verge of breakdown due to pain and stress. So, they need more help to deal effectively with the challenges of life and to improve their daily routine activities. Yunus and Inanici in 2002 identified sets of procedures and research designs to detect whether a treatment is efficacious or not [15].

Among many criteria, the current research employed the use of control group so that it can be concluded that outcomes observed are due to the effects of the treatment and are not merely observable due to other confounding variables or to chance alone. In the present study, two groups of CBT and TAU did not differ in terms of gender and pain intensity. Outcome of the research was assessed on reliable and valid instruments. The current research was the first one to be conducted

to determine the efficacy of CBT in Fibromyalgia patients. The results of the present findings revealed that the pain intensity was significantly reduced after the implementation of CBT in patients of fibromyalgia in comparison to TAU group. Previous literature supports the results of the present study [16].

Literature also suggests that the pain affects the daily routine functioning and reduce the quality of life. So, daily functioning was also tapped in the present study. The patient's physical, psychological, social and role functioning was assessed using a reliable measure. The findings of the study revealed that the daily functioning of the patients of fibromyalgia was also improved after the implementation of CBT. They were able to carry out the small tasks which they had left due to fibromyalgia such as doing simple household chores and engaging in social interaction with others. Moreover, they were less likely to be sad or irritated than before as depicted from psychological area. Smeets, et al, found that in the patients of chronic pain a phenomena of catastrophizing was observed. On the basis of literature, it was also catered in the therapy by explaining the connection between thought and pain and then generating the coping statements with the patients. During the therapy, the phenomena of catastrophizing were observed in the patients of fibromyalgia regarding pain which reduced significantly by the end of therapy as observed from the thoughts of the patient. However, all of the participants in present study were women so this is also consistent with literature that women reported more intense pain and engaged in pain behavior for a longer period of time than men [17].

Ashburn and Staats described that patients who were suffering from the chronic pain were at the verge of experiencing psychological and behavioral problems like sleep deprivation, sad mood, fatigued, loss of interest in daily routine activities, feelings of hopelessness, and overall decreased energy for physical and mental functioning. This study is consistent with the present study as results showed that the participants who were suffering from fibromyalgia were also suffering from mental

stress, psychological and behavioral problems. As the people who were in chronic pain might be possible had developed a pattern that put them in the hopelessness and helplessness state.

Gate control theory considered as the groundbreaking theory for pain which depicts that pain signals arise from the location of pain and these signals further can be moderated by the psychological variables that are playing their role in exacerbating pain. This model suggests that a gate in the brain is able to control the pain as a consequence of being opened or shut down. Such experiences and perception of pain can be trivialized or magnified by paying selective attention to the particular stimuli that might be playing important role in exacerbation of pain. Moreover, this gate control theory also suggests that pain is solely an idiosyncratic experience which is influenced by so many surrounding factors, including the connection between thoughts, feelings, and actions. In this study the participants were facing exacerbation in pain due to multiple biopsychosocial factors as people lived in collectivistic culture, they shared problems with each other which might be the cause of exacerbation in pain. However, in this study the participants were guided to take control of the gate of their pain, they were guided through proper protocol treatment that how they could take control of their pain gate in orders to shut the other extraneous variables that might be the cause of their pain exacerbation.

Conclusion

This study focused on the use of CBT-CP among women who are suffering from fibromyalgia. This study aimed to serve as a training template for clinicians and physicians, who are working in CBT-CP platform as well as for other clinicians who are interested in exploring and developing their expertise in CBT skills regarding the intervention of fibromyalgia. This study is based on structured format that soothes the way to deliver CBT-CP while keeping focus on a shared approach to work for an individual based protocol for treatment. The study would be helpful for physicians who are new in treating fibromyalgia with chronic pain. Moreover, this study also

provides a meaningful source to those who have broad experiences in dealing with pain and they are in favor to polish their skills or wish to have supplementary session materials.

Limitation

The present study had a small sample and only women with age range of 20-40 years were included in the sample. So, in future, the study can be replicated with a larger sample size and can also include men for gender comparison. Total duration of therapy protocol was 9 weeks with one session in a week. But, due to time constraints and ease of the participants, the duration of therapy was rescheduled to 6 weeks. In future, a study can be conducted with the initially planned schedule of therapy involving more time to see the results.

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