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Cognitive Behaviour Therapy: An Intervention of Depression in Fibromyalgia Patients

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The current study aimed to determine the effect of Cognitive Behaviour Therapy (CBT) on depression in fibromyalgia patients. Randomized Control Group Pre-Post-test design was used to study the effect of CBT on depression in fibromyalgia patients. Sample comprised of (N=120) female patients ranging in age between 25 to 50 years diagnosed with fibromyalgia were selected from three hospitals in Peshawar. The Siddiqui Shah Depression Scale (SSDS) was used on all the patients (N=120) to measure depression among the patients suffering from fibromyalgia. Both experimental (n=60) and control groups (n=60) were prescribed medications but CBT sessions were received by experimental group only. Results showed that fibromyalgia patients in experimental group obtained low scores (61.9±16.16) on SSDS after completion of the CBT sessions compared to control group (81.6±10.60). Findings concluded that CBT is an effective intervention for fibromyalgia patients in terms of reducing depression and coping with the disorder.

Keywords: fibromyalgia, depression, CBT.

Fibromyalgia (FM or FMS) is a syndrome of an unknown etiology characterized by widespread fatigue, pain, sleep disturbance, and decline in physical functioning(McDonald, Cope, David, 1993).The disorder has emotional impact, causing anxiety, mood disturbances, and stress reactions (Thieme, Turk, Gracely, Maixner, & Flor, 2015). According to Buskila and Cohen FMS is not only associated with pain, but there also exist some other major and minor signs and symptoms that lead to the term fibromyalgia as a syndrome. It is often associated with anxiety, depression (Goldenberg, 1989) posttraumatic stress disorder, tingling (Thieme et al., 2015) and cognitive dysfunction (Dick, Verrier, Harker, Rashiq, 2008). However, there are individual differences in FM patients in terms of experiencing these symptoms (Thieme et al., 2015).

Fibromyalgia is a musculoskeletal disease in which patients experience certain neuro-psychiatric symptoms which have no cure or specific treatment, however, patient's education, physical exercise, behavioral interventions and medications play a crucial role in reducing severity of the symptoms (Wolfe, 2009). In 2005, the disorder affected about 0.5 million populations of the world (2%) and higher rate was found in females (3.4%) as compared to males (0.5%) (World Health

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Organization, 2009). In 1990, researchers tried to investigate biological and psychosocial factors that might be contributing to the development of FMS when this disorder was designated by American College of Rheumatology as legitimate medical disorder with symptoms that could be diagnosed clinically (Bennett, Bushmakin, Cappelleri, Zlateva, & Sadosk, 2009; Goldenberg, Burckhardt, & Crofford, 2009; Wolfe et al., 1990).

New approach to diagnose FMS consists of pain index and measurement of severity of symptoms, however, the process of diagnosis is often complicated and frustrating not only for patients but for the physicians as well because of the complex, subjective and variable nature of symptoms of the disease (Bartels, 2009). According to Wolfe et al. (2010) because of less severe anomalies during physical examination and lack of availability of any objective diagnostic tests, some health care providers consider that FMS is not a disease at all. Research has found marginal short-term benefits for a number of pharmacologic interventions, still there is no findings related to long-term pharmacological therapies of satisfactory nature to control and cure the disorder (Goldenberg, 2008; Häuser, Bernardy, Uceyler, & Sommer, 2009; Ngian, Guymer, & Littlejohn, 2011).

In the absence of a solid etiology of FMS, research focused on personality characteristics and psychiatric disturbances in order to understand its phenomenology (Epstein, Kay, Clauw, Heaton,Klein, & Krupp, 1990). Numerous researches reported high rates of psychiatric co- morbidity prevalent in FMS patients (Fietta, Fietta, & Manganelli, 2007; Bennett, Bushmakin, Cappelleri, Zlateva, & Sadosk, 2009). Borsbo, Peolsson, and Gerdle (2009) studied pain intensity, depression and anxiety among fibromyalgia patients. Results showed that compared to anxiety (13.63%), the rate of depression (20 to 80%) was higher in FM patients.

In a recent study, Taymur et al., (2015) compared personality-related core beliefs in patients diagnosed with fibromyalgia and depression with healthy controls. Study found significant difference between two groups in terms of neuroticism, and tendency to interpret painful sensation in an extreme dysfunctional way. Numerous researches reported that fibromyalgia patients having higher depression also exhibit cognitive dysfunction in diverse areas such as attention, concentration (Grace, Nielson, Hopkins, Berg, 1999), executive functioning (Park, Glass, Minear, & Crofford, 2001), vocabulary (Suhr,2003) profound difficulties in memory (Leavitt & Katz, 2006) and word fluency (Park, Glass,Minear, & Crofford, 2001).

Research also reported alexithymia, neuroticism, hypochondriasis, perfectionism, hysteria, fear avoidance, in addition to depression among fibromyalgia patients (Lumley, 2004). Other found fatigue, sleep problems, chronic muscular pain and tenderness, lack of concentration, abnormal digestion and migraines common symptom in depressive fibromyalgia patients (Landro, Fors, Vapenstad, Holthe, Stiles, & Borchgrevink, 2013). Some patients with cognitive dysfunctions experience being unable to remember words, having difficulty in planning and experience disorganized feelings (Dick, Verrier, Harker, & Rashiq, 2008).

It also impacts patient's daily functioning, ability to work and motivational level due to pain and fatigue a condition known as fibro-fog (Katz, Heard, Mills, & Leavitt, 2004).Impaired episodic, semantic and working memory, impaired attention control, loss of vocabulary and susceptibility to distraction have also been reported in this population ((Dick et al., 2008). Studies have shown that even after two decades have passed since research on FMS and it has widely been acknowledged that pharmacological treatment has proved insufficient in majority of the patients (Forseth, Gran, 2002; Godfrey, 1996). Hence, there is a dire need of non-medical therapies i.e. psychological interventions

to be used in the clinical practice for better results.

Rationale of the Study

Most of the patients referred to orthopedics wards by medical doctors, having arthritis usually have FMS which is a common musculoskeletal condition after osteoarthritis. The disorder is misunderstood and not diagnosed properly because patients having this disorder exhibit symptoms that are likely to be found in arthritis patients such as fatigue, muscles and joint pain that result in depression, anxiety and social isolation. Physical and mental stress cause nervousness tends to reduce income, loss of work hours and even job loss. Since major depressive disorder (MDD) has been observed and reported to be the most common co- morbid psychiatric disorder associated with FMS. Research suggested that FMS could be categorized as a particular manifestation of depressive mood disorder (Kaplan, Meadows, Vincent, Logigian, & Steere, 1992). Farooqi and Gibson (1998) reported that FMS is prevalent in the northern region population of Pakistan where the common symptoms of FMS are combined with low backache, and other rheumatic indications. The strategy provided by medical doctors for the treatment of this disease is medication alone. No formal and systematic research was ever conducted to see the possibility of an alternate or additional therapeutic technique in this area. Therefore, present research was initiated to examine the effects of CBT as intervention of depression in fibromyalgia patients. The conclusions derived by the present research will have significant implications among health professionals in term of reducing depression and modifying quality of life in fibromyalgia patients

Method

Sample

Sample comprised of (N=120) female patients ranging in age between 25 to 50 years diagnosed with fibromyalgia disorder who were recruited from three hospitals in Peshawar. Convenient sampling technique was used to collect data.

Instrument

Siddiqui Shah Depression Scale (1992)

Siddiqui Shah Depression Scale (Siddiqui & Shah, 1997) consisted of 36 items, designed to measure depression both in clinical and non-clinical population. It is a 4 point rating scale ranging from 1-4 (Never=1, Sometimes=2, Often=3, All the time=4). The maximum possible score on the scale is 108 and minimum possible score is 36. The alpha reliability coefficient for clinical group was 0.90 and non-clinical was 0.89 (Siddiqui & Shah, 1997). In present study, the reliability computed for SSDS is 0.82 indicating high internal consistency. The scale was significantly correlated with Zung's Depression Scale ($r=0.55$, $p< .001$).

Procedure

Participants were recruited from three hospitals, namely, Khyber Teaching Hospital, Fauji Foundation, and Hayatabad Medical Complex. Doctors and paramedical staff were requested to help in contacting FM patients, getting record of their disease, and in the process of data collection. Written consent was taken from each participant. The sample was equally divided into experimental (n=60) and control groups (n=60). The SSDS was administered on all patients in both experimental and control groups before starting the CBT sessions. Patients diagnosed with fibromyalgia disease having no past or current history of other serious physical or mental disorders were included whereas participants who have other serious physical or mental illness and who were irregular in taking CBT sessions were excluded from the study. The CBT was administered only to the participants of experimental group by the researcher herself who was a designated therapist and permanent

employee in one of the hospitals from where the sample was selected. Each participant was subjected to receive approximately 15-20 sessions with each session comprising of duration of one hour. After completion of the CBT sessions, the SSDS was again administered on both groups and Pre and post-CBT depression scores of both groups were compared in order to determine the effect of CBT intervention on the depression level of FM patients.

Results

The t-test analyses were computed for determining the significance of difference between experimental and control groups.

Table 1

Mean Difference between Experimental and Control Groups on SSDS at Pre-CBT (N=120)

Scale	Exp (n=60)		Control (n=60)				95%CI		Cohen's
	M	*SD*	*M*	*SD*	*t(118)*	*p*	*LL*	*UL*	*d*
SSDS	73.24	15.56	74.80	11.22	.629	.541	-3.35	6.38	0.11

Note: CI = Confidence interval; LL = Lower limit; UL = Upper limit, SSDS= Siddiqui Shah Depression Scale

Result shown in the above table reveals that there is no differences between control and experimental groups on Siddiqui Shah Depression Scale before intervention.

Table 2

Mean Differences between Experimental and Control groups on SSDS at Post- CBT (N=120)

Scale	Exp (n=60)		Control (n=60)				95%CI		Cohen's
	M	*SD*	*M*	*SD*	*T(118)*	*p*	*LL*	*UL*	*d*
SSDS	61.9	16.16	81.6	10.60	7.96	.000	14.82	24.68	1.44

Note: CI = Confidence interval; LL = Lower limit; UL = Upper limit, SSDS=Siddiqui Shah Depression Scale

Results in table 2 indicate that as compared to the individuals who received therapy (experimental group) the individuals (control group) who were on the medication only score high on the SSDS.

The results shown in table 1 demonstrated no significant difference between mean scores of experimental (73.24±15.56) and control (74.80±11.22) groups in the level of depression at pre-CBT application indicating that both groups are similar in terms of depression before administration of the CBT. However, both groups reveal significant difference in depression scores at post-CBT as shown in table 2. Mean depression scores of the experimental group (61.9±16.16) are lower than mean scores of the control group (81.6±10.60) at post-CBT application. Findings suggested that intervention provided in the form of CBT helped in relieving depression experienced by fibromyalgia patients.

Discussion

The results of present study demonstrated significant difference between experimental and control groups at pre-and post-CBT treatment. The fibromyalgia patients (experimental group) with higher depression level before CBT application scored significantly lower on the depression scale at post-CBT application as compared to control group who were not given the CBT sessions. Findings of meta-analysis are parallel to earlier research that revealed that fibromyalgia patients who were applied CBT for depression along with medication found significant reduction in their depression than those patients who were on medication alone (Cuijpers et al., 2008; Johnsen & Friborg, 2015; Messer, & Wampold, 2002).

Bernardy, Füber, Köllner, and Häuser (2010) examined the effects of CBT intervention program on depression and sleep disturbances in 104 fibromyalgia outpatients. The program consisted of stress reduction technique, behavior modifications, formal lectures on fibromyalgia, and aerobic exercises. Control group received pharmacological treatments while experimental group underwent a six months intervention program. Findings indicated significant reduction in depression score in participants who were subjected to CBT intervention program than the control group.

In another study, William (2003) investigated effectiveness of standard medical management (SMM) that included medications only and SMM along with CBT in 122 fibromyalgia patients. Results showed that compared to control group (25 .0 %), the rate of depression was lower in experimental group (11.6%) after the completion of program. In a review of pharmacological versus non-pharmacological treatments, Arnold (2006) demonstrated that although both treatment options showed mixed results but patients administered with non-pharmacological treatments such as CBT, exercise, stress reduction techniques, acupuncture, diet/nutrition, and education reported less severe depressive symptoms and side effects than patients taking medication alone. Although, Arnold found methodological issues in most non-pharmacological intervention research, still these interventions appeared beneficial in relieving a wider variety of depressive symptoms with fewer adverse side effects reported by patients.

The goal of CBT is to improve physical functions, psychological distress and pain by helping patients to decrease maladaptive and increase adaptive behaviors, identifying and correcting maladaptive beliefs and thoughts, and increasing patients' self-efficacy to manage with pain intensity (Arnold et al., 2008). An increasing number of patients with chronic pain experiencing anxiety, sleep, and mood disorders have found CBT an effective intervention (Bernardy et al., 2010).

Cognitive Behavior Therapy is one of the most effective psychological interventions for the treatment of depression in fibromyalgia patients. Numerous research have demonstrated efficacy of CBT in treating depression in fibromyalgia patients (Bernardy et al., 2010; Falcao, Sales, Leite, Feldman, Valim, & Natour, 2008; Goldenberg, 1989). Goldenberg (2008) found CBT and psychological/behavioral therapies to be moderately effective in treating FMS patients that have also been proved by the evidence-based treatments. It is more beneficial when CBT is advised with exercise (Goldenberg, 2008; William, 2003). Numerous researchers reported CBT an important option in alleviating adverse symptoms of depression in FMS patients (Arnold et al., 2008; Hauser, Bernardy, Arnold, Offenbacher, & Schiltenwolf, 2009). Similar results have been obtained in the current study.

Conclusion

In the light of findings of current study, it is concluded that CBT has appeared an effective psychological treatment to relieve depression in fibromyalgia patients. It is therefore recommended

that CBT may be adopted as an intervention in fibromyalgia patients to manage depression in this population.

Implication

The findings of the study have important implication in health institutions where health professionals and clinicians may use CBT as an intervention besides the pharmacological therapies to reduce depression in fibromyalgia patients.

Limitations and suggestions

Limitation acknowledged in the present study is that the sample of the present research is not large enough so that the findings may not be generalized. Future researchers need to replicate study with large sample in order to make generalization possible. The study investigated the effect of CBT in addition to medication using pre and post- test design. Future researchers may examine the effect of CBT combined with other variables such as exercise, stress reduction and management techniques, and various educational programs to encourage self-efficacy in patients.

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