

The Effectiveness of Cognitive Behavior Therapy to Reduce Chronic Fatigue Syndrome among Iraqi Employees

*Najlaa N. Wadaa **

ABSTRACT

CFS refers to chronic fatigue syndrome. It is a disabling disorder that is characterized by certain persistent or relapsing sorts of fatigue. It is argued that the employment of cognitive behavior therapy CBT for treating chronic fatigue syndrome may help in reducing impairment and fatigue. In this sense, it was recently argued that any changes in the factors of fatigue-perpetuating (such as control over fatigue, perceived activity, focusing on symptoms and physical functioning) can associate with and explain about fifty percent of fatigue symptoms during the period of cognitive behavior therapy for chronic fatigue syndrome. The participants in the current study were Iraqi employees in Al-mustansyriah university; (96) females and (83) males were assessed by modified fatigue Impact Scale (MFIS) to identify chronic fatigue. (66) patients diagnosed by chronic fatigue syndrome, they divided randomly into two groups: (30) were assigned to the experimental group and were subjected to the cognitive behavior therapy program, and (36) were assigned to the control group. This was done in order to determine the effectiveness of cognitive behavior therapy in reducing chronic fatigue syndrome among Iraqi employed. The results showed that cognitive behavior therapy was effective in reducing chronic fatigue syndrome. It was shown that (20-46%) of the variance in terms of fatigue were explained in increases in the sense of control over fatigue, self-reported physical functioning, perceived activity and decreases in focusing on symptoms. However, the increase in terms of objective activity was not a process variable.

Keywords: Cognitive behavior therapy, chronic Fatigue, Iraqi employees

Introduction

The present research deals with chronic fatigue syndrome (CFS), which is a sort of disabling disorder. Its causes are unknown, and it tends to be a common phenomenon found in both of general as well as working communities. It prevails between (0.4-2.5%) in the United Kingdom. In the United States, this percentage is (7- 45%) with a considerable increase (Haibers, et al., 2004; Bultmann, et al., 2002). Evidence shows that, so far, aspects of the prevalence of chronic fatigue syndrome disorders are not scientifically investigated in Iraq. These symptom may include poor concentration as well as sleep disturbance, pain in muscles or joints and fatigue. The above identified symptoms may not remit with rest and get worse and deteriorated by patients activity. Thus, the treatments that were established for chronic fatigue syndrome focus on the supportive and re-habilitative remedies and therapies of cognitive behavior therapy (NICE, 2007). Emonds et al., (2004), Malouff et al., (2008), Price et al., (2008) and Castell et al., (2011) agree that various meta-analyses of such therapies reveal moderate advantage from these treatments. Based on the newly published PACE experiments, it was concluded that cognitive behavior therapies (CBT) were highly supportive and effective in decreasing or reducing physical disability and fatigue than other adaptive pacing therapies (APT) if each was given with specialist medical care (SMC), and had better results than specialist medical care alone (white, et al., 2011). Based on the findings of the PACE treatments and experiments, it was observed that the majority of patients got improved with the employment of cognitive behavior therapies. Nevertheless, the question of the exact number of recovered patients remains yet unresolved. For most of patients, fatigue is not attributed to any

* College of Education, Al-Mustansyriyah University. Received on 1/5//2019 and Accepted for Publication on 7/8//2019.

obvious somatic interpretation or cause (Sharpe and Wilks, 2002), but it tends to appear as a functional symptom (Wessely, et al., 1999; Mayou and Farmer, 2002). Fatigue may be interpreted as a continuous symptom that ranges from moderate complaints that are frequently found in a specific community to a severe sort of disability fatigue (as in chronic fatigue syndrome) (Lewis and Wessely, 1992)/ if fatigue tends to develop into a persistent and severe case, it can probably lead to continuous long-term sickness (Janssen, et al., 2003) and it eventually leads to work disability and failure (Amelsvoort, et al., 2002).

Fry and Martin (1996) and Gaab (2004) state that there exist several cognitive models of chronic fatigue syndrome that aim at explaining the perpetuation of these symptoms in chronic fatigue syndrome patients (Fry, Martin, 1996; Gaab, 2004). These symptoms begin when patients face a period of hard and severe fatigue. This fatigue is usually attributed by them to a sort of physical illness, their attribution might right or not. For the sake of getting better, patients may often get some rest and tend to be less active. It is assumed, however, that because of this sort of inactivity, the physical status or condition of those patients will gradually deteriorate or decline. Consequently, will be more and more sensitive to this sort of fatigue. Based on the model presented by Vercoulen, et al., (1998), it is the low sense of control over fatigue, the decreased level of physical activity and high level of concentrating upon symptoms which reflect the perpetuation of both impairment and fatigue for patients. It is argued that the decreased physical activity is concerned or related to certain somatic (or physical) attributions, because most patients probably tend to avoid physical activity when they relate or attribute the symptoms they suffer from to a certain somatic disease or illness. Despite the fact that there are many other recent models focusing on social and physiological factors, (Deary, et al., 2007), it is Vercoulen's et al., (1998) model on which all activity and challenging related to dysfunctional fatigue relies on and beliefs in.

When studying chronic fatigue syndrome, it is noted that recurring or continuous fatigue as well as vivid disability sometimes remain for years. It is also noted that, so far, no precise or definite etiology or treatment has been provided and the evidence relied on suggest that chronic.

Fatigue syndrome is extremely heterogeneous with various causes and levels (Swartz, 1988; Demitrack, & Greden, 1991; Wilson, et al., 1994). Unknown causes of chronic fatigue syndrome must not prevent the effective treatment of these symptoms and disorders. Cognitive behavior therapy is employed for various cases such as chronic pain (Turk, et al., 1983; Philips, 1987), or disorders that are similar or analogous to chronic fatigue syndrome, as in the case of fibromyalgia (Goldenberg, et al., 1994) and somatic problems that are unexplained from a rather medical diagnosis (Salkovskis, 1989). When focusing on cognitive behavioral models, it is found that they claim or state that various factors (i.e. social, effective, cognitive, physiological and behavioral factors) take part or cause chronic fatigue syndrome for most of patients (Wessely, et al., 1989; Sharpe, & Chalder, 1994; Surawy, et al., 1995). In this sense, cognitive behavior therapy is employed to modify and alter patients behaviors as well as beliefs and disability. Evidence shows that limited or few attempts were conducted for providing adequate cognitive behavioral therapy for the above mentioned chronic fatigue syndrome. Buter, et al., (1991) state that a particular uncontrolled study showed some encouraging and supportive results and findings (Butler, et al., 1991). These results were increasingly maintained four years later (Bonner, et al., 1994). It is shown (by a rather nonrandomized research) that some improvements in depression were obtained, but none in fatigue or disability (Freid, & Krupp, 1994). However, in a controlled, randomized and double-blind trial (Lloyd, et al., 1993), a rather brief cognitive and behavior intervention was no longer successful or effective than routine clinic attempt of attendance. A rather slight development (or improvement) for patients was hence attributed to nonspecifically factors. Based on the above mentioned factors and observations, the present research aims at testing and investigating whether (or not) cognitive behavioral therapy (that comprise cognitive restructuring and graded activity) were vividly and significantly more active and superior to patients relaxation, selected to cover some nonspecific treatment factors and condition that include support and encouragement expectations, therapist attention and time, and finally homework practice.

In the present study, cognitive behavior therapy was done depending on the therapy of fear avoidance regarding

chronic fatigue syndrome. The above mentioned theory states that chronic fatigue syndrome can be reversible. Furthermore, it adds that cognitive responses (such as patients fear of engaging in any sort of activity) and patients behavioral reactions or responses (i.e. their avoidance in terms of activity) are correlated to (and interact with) patients physiological processes to perpetuate fatigue eventually. This treatment aims at (and focuses on) changing the cognitive and behavioral factors that are assumed to be related to the perpetuation of patients symptoms as well as disability. The employment of such therapeutic strategies is for the purpose of guiding patients to realize and address certain unhelpful cognitions (such as their fears concerning symptoms or activity) by means of testing them by employing behavioral.

Experiments. The employed experiments focus primarily on finding a background of activity, sleep as well as result patterns. Then, the experiment, tend to concentrate on cooperative and planned gradual developments in both mental and physical activity for the patients under study. In addition to this, the selected patients were also encouraged to reveal or address their emotional and social obstacles for the sake of getting a satisfactory improvement by means of solving such problems (Sharpe, et al., 1996; Deale, et al., 1997; Prins, et al., 2001).

The advantage of employing simple pacing are based on stabilizing patients activity and adding some rest intervals with activity. Balancing patients activity is a stage that aims at avoiding their overdrawn. However, patients symptoms are considered as important signs of warnings, thus these must be given due attention. It is believed that such. Symptoms represent a sort of pathological disorder or disturbance, that is not shown or reversed by increasing their activity. Rather, it is assumed that when fatigue and other related symptoms are neglected, this will risk activity and, furthermore, exacerbates patients illness. This will consequently impede their natural recovery or development. On the other hand, it is believed that good pacing has its positive role in increasing the opportunities of patients natural recovery, which will consequently improve function when regarding or viewing the long term results. Accordingly, activity has become a planned issue in order to make a balance between activity as well as rest. The aim, therefore, is to increase the efforts that can be done, and to decrease or limit what are viewed as activity related exacerbations at the same time (Burgess, & Chalder, 2004).

The model presented in this study focuses on the significance of patients own understanding of the nature of their illness and their own understanding and interpretation of symptoms. As an example of this case, patients may regard or think symptoms as a warning sign or signal to decrease or reduce their activity. Hence, patients fear of the symptoms they face and, consequently, their avoidance or rejection of activity associated with these symptoms is of central importance. The present model in this study also states that patients own behavior and beliefs are directly affected and influenced by their own attitudes and information of friends and families. These also need to be addressed and given due attention. It is assumed here that all patients cognitive (i.e. fear of doing activity), physiological (i.e. fatigue) and behavioral responses (i.e. their avoidance of engaging in an activity) are related to each other. Thus, when a particular response is modified, it is expected that adequate changes may be observed in other related responses. Therefore, increasing patients activity (behavior) may gradually help patients reduce the fear (cognitions) that their activity leads to worse or severely deteriorated symptoms (Burgess, & Chalder, 2004).

2. Previous Studies

In this section, we will focus on the previous studies related to chronic fatigue syndrome as well cognitive behavior therapy. Janseab and others (2017) concentrated their study on 511 persons (whose response rate was 88%) who completed a particular follow-up assessment. It was observed that mean fatigue severity. It was observed that mean fatigue severity was considerably increased to reach 37.60 (SD=12.76). However, mean physical (SD=23.56) in comparison with post-treatment assessment. Follow up comparisons and investigation revealed that 37% of the selected participants still had fatigue scores in the normal range, whereas 70% were not impaired with references to physical functioning. The positive effects of CBT for CFS on fatigue as well physical functioning were interpreted in that it partly sustains the long-term follow up. On the other hand, another subgroup of patients again faced hard and severe fatigue and compromised physical functioning. The researchers stated that further studies should investigate the

underlying reasons of this deterioration in order to facilitate the development of the adopted treatment strategies (Janseab, et al., 2017).

Smeitinka, and his colleagues (2016) concluded that the effectiveness of cognitive behavior therapy varied between treatment centres. According to them, the observed differences in term of treatment protocols may reflect or explain this. Thus, such differences should be studies to help in improving findings and outcomes. They stated the selected patients in the United Kingdom reflected worse rates of physical functioning, and there appeared minor demographic difference that could not reflect a difference in centers outcome (Warm-Smeitinka, et al., 2016).

Finally, Heince and others (2013) found a considerable individual variation in terms of change patterns in fatigue as well as related process variables during cognitive behavior therapy for chronic fatigue syndrome. (20 to 30 %) of the variance in patients fatigue was explained by factors as decreases in focusing on symptoms, self-reported physical functioning and perceived activity and patients increases in the sense of control over fatigue. They also argued that any change in terms of cognitive factors proves to be correlated with the observed decrease in fatigue during the period of cognitive behavior therapy employed for CFS. The degree of change, however, was found to be different considerably from one patient to another. Never the less, the changes that occur in fatigue and process variables were found to happen or exist in the same period of time (Heins, et al., 2013).

3. Hypotheses

For the sake of investigating the advantages and effectiveness of CBT to reduce CFS, the researcher aims at testing the following three .

- 1- There exist no statistically significant differences in chronic fatigue syndrome between experimental and control groups before applying the cognitive behavior therapy program.
- 2- There exist no statistically significant differences chronic fatigue syndrome and hostility for the selected experimental group before and after applying the cognitive behavior therapy program.

4. Method

4.1 Participants

The participants were registered in AL-Mustansiriyah health clinic. The researcher asked the candidates who were willing to take part in this study, based on a screening questionnaire which were sent to them. Due attention was given to eligibility, which was assessed by a specialized psychiatrist in a clinical interview this purpose. Criteria of inclusion showed a degree of severe fatigue, revealing a score of 35 or more based on the fatigue sub-scale with reference to the Iraqi check list.

Demographic information and background on the participants. The study recruited (179) patients were employees in AL-Mustansyreh university, table 1 shows the age, gender, marital state , education, type of family.

Table 1. Background of the Participants

	Variables	N	(%)
Gender	Female	96	(52.46%)
	Male	83	(47.54%)
Age group (years)	18-33	35	(19.12%)
	34-49	78	(42.62%)
	50-65	70	(38.25%)
Marital State	Married	107	(58.46%)
	Divorcee	43	(23.49%)
	Single	33	(18.03%)
Education	Bachelor	46	(25.13%)
	Master	25	(13.66%)
	PhD	112	(61.20%)

Table (1) shows the percentage of female (52.46%) were more than male (47.54%), and the age (34-49) was the large percentage (42.62%) than other age. And married was large percentage (58.46%) as marital state. (61.20) of participants' were PhD.

Table 2 .Background of Control and Experimental Groups

	Variables	N	(%)
Groups	Control	36	(54.54%)
	Experimental	30	(45.45%)
Gender	Female	38	(57.57%)
	Male	28	(42.42%)
Age group (years)	18-33	15	(22.72%)
	34-49	26	(39.39%)
	50-65	25	(37.87%)
Marital State	Married	29	(43.93%)
	Divorcee	24	(36.36%)
	Single	13	(19.69%)
Education	Bachelor	21	(31.81%)
	Master	16	(24.24%)
	PhD	29	(43.93%)

Table (2) shows the total of participant (66) which divided randomly into two groups, control group (36) percentage (54.54%) , and experimental group (30) percentage (45.45%). percentage of female (57.57%) were more than male (42.42%), and the age (34-49) was the large percentage (39.39%) than other age. And married was large percentage (43.93%) as marital state. (43.93%) of participants' were PhD.

After data analysis, the results arrived at in this study are presented with reference to the three hypotheses (mentioned earlier) as follows.

4.2 Instrument

In this study, a modified fatigue Impact Scale (MFIS) was employed and adapted (Fisk, et al., 1994). The given questionnaire aims at measuring the extent to which fatigue symptoms impact the lives of patients who were suffering from fatigue (or fatigue-like) symptoms. The scale included 21 items that were employed to measure three domains of fatigue (i.e. cognitive, physical as well as psychological functioning domains). A 5-point likert scale was employed to rate participants in this study (it ranges from "0=never" to "4=almost always "). The total score was (0-84). The subscales, however, were: cognitive (0-40), physical (0-36), and psychological functioning (0-8). In addition, a version of 5 items is employed and scored out of 20, in which higher numbers reflected a greater degree of fatigue faced by the patients.

4.3 Procedure

In both experimental and control groups, participants were asked to accept to being followed up for a period (that lasted for more than six months). As for patients of the experimental group, the given sessions (which were five to seven in number) lasted for 30 minutes of cognitive behavior therapy over a course of four months. The intervention employed was partly based on the cognitive behavior therapy programme for chronic fatigue syndrome, developed and reformed by the researcher (Prins, et al, 2001). This intervention primarily aimed at diminishing fatigue symptoms and other related complaints, support work resumption and other related personal goals, and to establish an adequate self-perceived recovery for the patients. It is worth mentioning that the intervention given included two levels or stages:

1- Assessment of perpetuating factors, including (i) patients cognitions (such as their sense of control over the symptoms they face in addition to their non-acceptance of failure).

(ii) social factors (including dysfunctional environment at work and lack or decreased social support).
 (iii) patients overt behavior (such as their unbalanced or improper physical activities and the sort of their sleeping pattern whether disturbed or not).

2- Modifying the identified (and perpetuating) factors. This is done by:

- (i) Explain and interpreting the perpetuating circle for patients.
- (ii) Identifying goals for patients activities as well as other problematic concepts.
- (iii) Providing and supporting helpful cognitions for patients.

To ensure of random distribution for experimental and control groups before applying the cognitive behavior therapy program, t-test was employees to measure the differences in terms of chronic fatigue syndrome for participants of the experimental and control groups, for experimental group in cognitive ($M=24$; $SD= 4.1$), and for control group ($M=23$; $SD=4.35$), $t(64)= 0.95$ $p=0.87$ for experimental group in physical ($M= 18$; $SD=5.03$) and for control group ($M= 17$; $SD= 5.21$) for experimental group in psychological function ($M= 4$; $SD= 2.12$); and the control group ($M=5$; $SD=2.99$), $t(64)=1.53$, $p>$ (as in table 2). Hence, it is shown that no significant mean difference exists in terms of chronic fatigue syndrome for both experimental and control group before applying cognitive behavior therapy.

Table 3. t-test for control and experimental groups before applying program

Syndromes	Experimental Group M (SD)	Control Group M (SD)
Cognitive	24 (4.1)	23 (4.35)
Physical	18 (5.03)	16 (5.21)
Psychological function	4 (2.12)	5 (2.99)

5. The results

based on the data analysis and comparing them with the pre-mentioned hypotheses, the researcher arrived at the following

Results of testing first hypotheses

As far as the first hypothesis is concerned, evidence shows that no statistically significant differences exist in terms of chronic fatigue syndrome scores between the experimental and control groups before applying the cognitive training intervention. Based on this, it is found that the first hypothesis got supported by the data. The researcher utilized t-test to find differences in means of chronic fatigue syndrome for the selected experimental group for cognitive ($M=15$; $SD=4.37$) and control group ($M= 22$; $SD=4.53$), $t(64)= 6.39$, $p= 0.00$, for physical syndrome ($M=12$; $SD=4.29$) for experimental group and for control group ($M=18$; $SD= 4.97$), $t(64)= 4.95$, $p= 0.00$ for psychological function syndrome ($M=2$; $SD=2.15$) as well as the control group ($M=4$; $SD=2.09$), $t(64)= 3.85$, $p= 0.05$. thus, it is concluded that there were no significant mean differences in cognitive decline for both experimental and control groups.

Table 4. t-test for control and experimental groups after applying program

Syndromes	Experimental M (SD)	Control M (SD)
Cognitive	15 (4.37)	22 (4.53)
Physical	12 (4.92)	18 (4.97)
Psychological function	2 (2.15)	4 (2.09)

Results of testing the second hypothesis

2- There exist no statistically significant differences chronic fatigue syndrome and hostility for the selected experimental group before and after applying the cognitive behavior therapy program.

The second hypothesis get rejected by the obtained the t-test differences in mean of total chronic fatigue syndrome for the selected experimental group before and after applying the program. The researcher utilized t-test to find differences in means of chronic fatigue syndrome for experimental group in pre-test for cognitive (M=24; SD=4.1) and post-test (M=15 ; SD=4.37), $t(58)=8.14$, $p= 0.00$, and pre-test for physical syndrome (M=18; SD=5.03) and post-test (M=12; SD= 4.92), $t(58)=4.62$, $p= 0.00$ and pre-test for psychological function syndrome (M=4 ; SD=2.12) as well as the post-test (M=2 ; SD=3.15), $t(58)=2.85$, $p= 0.05$. Accordingly, there, exists a significant mean difference in terms of chronic fatigue syndrome for the experimental group after applying the cognitive behavior therapy program. This improvement reflected the general efficiency and effectiveness of applying the cognitive behavior therapy program.

Table 5. t-test for Pre and Post Experimental group

Syndromes	Pre-test M (SD)	Post-test M (SD)
Cognitive	24 (4.1)	15 (4.37)
Physical	18 (5.03)	12 (4.92)
Psychological function	4 (2.12)	2 (3.15)

Discussion

The treatment results of applying cognitive behavior therapy for chronic fatigue syndrome were compared and analyzed thoroughly. In addition, the effects on fatigue severity were comparable with those of previous results and findings, whereas the effects on physical functioning proved to be relatively smaller. It is here concluded that the impact of implementing the cognitive behavior therapy for chronic fatigue syndrome proved to be advantageous and successful. It was shown that the result of the treatment were, indeed, highly remarkable. As far as participation is concerned, no strict minimum physical or fatigue impairment ranks or scores were required. As for complaints, it is observed that such complaints, particularly on physical functioning, were mild when compared with those noticed in RCTs.

Thus, it is concluded that by the end of this randomized trial, many patients having chronic fatigue syndrome who were treated based on cognitive behavior therapy showed considerably good results or outcomes. In other words, more CBT patients reflected their status as "very much better" or "much better". In addition, more CBT patients met criteria for absolute and complete recovery. Thus, by the end of this treatment, patients stated that they become much better, and their symptoms were described as "mild" or consistently absent", which are all factors that support and emphasize the advantages of this study. Based on this, the researcher, finally, suggests employing overcome their own symptoms and difficulties or various mental, cognitive, physical and psychological level.

as far as the first hypothesis is concerned, evidence shows that no statistically significant differences exist in terms of cognitive decline scores between the experimental and control groups.

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فاعلية برنامج معرفي سلوكي لخفض أعراض متلازمة الإجهاد المزمن بين الموظفين العراقيين

نجلاء نزار وداعة *

ملخص

يشير (CFS) إلى متلازمة الإجهاد المزمن وهو اضطراب تعاطلي يتميز بنوع من التعب المستمر أو الانتكاس. ويذكر أن استخدام العلاج السلوكي المعرفي، لعلاج متلازمة التعب المستمر ربما يساعد في الحد من الإعياء والتعب، وناقشت عدد من الدراسات التغييرات في عوامل الإرهاق (مثل: السيطرة على الإرهاق، والنشاط المدرك، والتركيز على الأعراض والأداء البدني) ارتباطاً وشرح حوالي خمسين بالمائة من أعراض التعب خلال مدة العلاج السلوكي المعرفي لمتلازمة التعب المزمن. وكان المشاركون في الدراسة الحالية من الموظفين العراقيين في الجامعة المستنصرية، وقد تم فحص (96) أنثى و(83) ذكراً، للتعرف على أعراض إجهاد التعب المزمن، وذلك باستعمال مقياس إجهاد التعب المعدل (MFIS). وقد شخص (66) مريض بمتلازمة الإجهاد المزمن، والذين تم تقسيمهم عشوائياً إلى مجموعتين: (30) مريضاً إلى المجموعة التجريبية، وتم إخضاعهم لبرنامج العلاج السلوكي المعرفي، و(36) مريضاً إلى المجموعة الضابطة، وقد تم ذلك من أجل تحديد فاعلية العلاج السلوكي المعرفي في الحد من متلازمة التعب المزمن بين الموظفين العراقيين، وأظهرت النتائج أن العلاج السلوكي المعرفي كان فعالاً في الحد من متلازمة التعب المزمن، وقد تبين أن (20-46%) من التباين من حيث التعب قد تم تفسيره في زيادات في الإحساس بالتحكم في الإجهاد، والوظائف الجسدية التي تم الإبلاغ عنها ذاتياً، والنشاط المدرك، والنقص في التركيز على الأعراض. ومع ذلك، فإن الزيادة من حيث النشاط الموضوعي لم تكن من المتغيرات التي تم معالجتها.

الكلمات الدالة: العلاج المعرفي السلوكي، الإجهاد المزمن، الموظفين العراقيين.

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