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The efficacy of Cognitive Behavior Therapy on Psychological Health among the Patients with Parkinson's disease: A Qualitative Analysis

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Abstract

Parkinson's disease appears with a range of challenges and difficulties that influence various domains of individual life. The present studyattempts to study the effect of cognitive behavior therapy on psychological health and looking into the experiences of individual dealing with Parkinson's disease. Qualitative analysis was carried out on60 individuals (30-experimental, 30-control group) with Parkinson's disease. Interview schedules were prepared to understand the impact of Parkinson's disease on psychological health as well as to see the effect of cognitive behavior therapy on participants' psychological health in post-phase. Results revealed that Parkinson's disease not only affect physical health but also affect psychological, emotional and social aspect of an individual as well. The main theme i.e., psychological health was emerged through Content analysis. The content analysis further suggested few subthemes under psychological health. The experience of dealing with PD was not an easy process; it lead stress, anxiety, sleep difficulties, body-image issues and stress. Post-Phase content analysis results revealed the effectiveness of cognitive behavior therapy for the improvement of symptoms and complaints of anxiety, depression, stress, disturbed Sleep, irritability, feeling of doing nothing, feeling of being dependent, and self-perception on experimental group.

Keywords: Cognitive Behavior Therapy, Psychological health, Parkinson's disease and Qualitative Research

Introduction

Parkinson's disease is a neurological disorder that affects movement. The clinical picture of PDnot only includes motor symptoms but also non-motor symptoms and behavioral problems. The etiopathogenesis of psychological problems in PD is linked with various factors. The common hypothesis involves various neurotransmitters like serotonin, dopamine and noradrenalin/acetylcholine (Grover, Somaiya, Kumar, &Avasthi, 2015). Another common etiopathogenesis is reaction to the illness, consequences and used medications for the management of PD. More than 50% of existing psychiatric comorbidites like depression, insomnia, anxiety, fatigue, pain, autonomic dysfunction and cognitive decline dominate the clinical picture. Associated psychopathology with Parkinson's disease increases disability therefore, decreases quality of life and shortens life expectancy in advanced PD (Grover etal., 2015). Pharma cological intervention appears with many limitations therefore a combination of other treatments is required for long term intervention for PD.

To overcome the limitations of pharmacological therapy,non-pharmacological approaches proved to be an effective supportive treatment for psychological problems in PD (Koychev&Okai, 2017). Among non-pharmacological approaches psychotherapies were established as an effective method for the treatment of associated psychological comorbidities. Certain forms of psychotherapies were found to be effective

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in reducing the burden of 'potential drug-drug interaction' and the side effects of medicines (Thase, Friedman, & Biggs, 2007).

Among these forms of psychotherapies, cognitive behavior therapy has been verified to be well-established psychotherapy for the treatment of associated psychological problems in specialized population of neurological disorders (Mohr, Goodkin, &Likosky, 1997). Cognitive behavior therapy is a structured, time limited, form of psychotherapy, with various cognitive and behavioral techniques that help in addressing negative pattern of thinking that contribute further in the management of behavioral and emotional problems (Farabaugh et al., 2010). CBT has been found effective in the treatment of depression, fatigue and other psychological issues in chronic illness however the therapeutic process for every chronic illness is different (Poort et al., 2020).Few studies have suggested CBT as a helpful method in reducing the psychological distress in caregivers and patients of PD.Dissanakya et al. (2017) studied the tailored and manualized cognitive behavior therapy on anxiety in PD. CBT facilitate the healthy coping approaches in reducing anxiety and care giver burden. Cole and Vaughan (2004) administered brief CBT for four patients of PD with depression. The improvement in feeling of failure, guilt, pessimism and perceived quality of life was found. The present researchwork was designed to study the impact of Parkinson's disease on psychological health of patients along with studying the effect of cognitive behavior therapy on these psychological problems.

Objective of the Study

The present study aims to study the effectiveness of cognitive behavior therapy module on psychological health of experimental group as compared to the waitlist control group.

Method

Sample

Sixtyparticipants, diagnosed by neurologists with concerned various private hospitals and clinics were selected using purposive sampling.The comorbid neurological conditions were also assessed by the neurologist. Participants from stage one to stage three of Parkinson's disease, assessed by neurologists were selected for study. On the basis of feasibility, flexibility of hospital visit by the participants, they were divided into two groups: a) - experimental group, b) –waitlist control group. Thirty participants were kept in the experimental and 30 participants in the waitlist control group. The consent form was taken after briefing the study. They were told about the confidentiality and other ethics of research. Participants were told about the study in detail before starting with thesis process. They were told that they can discontinue any time in between the study work.

Inclusion Criteria

1) The age range was from 25-70 for selection of participants.
2) Severe to moderate level of depression on Beck Depression Inventory (BDI)
3) Severe to moderate level of anxiety on Beck Anxiety Inventory (BAI)
4) Severe to moderate level of quality of life on Parkinson's Disease Quality of Life (PDQL)
5) Both male and female participants
6) Minimum education graduation
7) Comfortable with reading and understanding English.
8) Patients with stage 1 to 3 of Parkinson's disease

Exclusion Criteria

1) Comorbid Dementia
2) Patients with comorbid Psychosis
3) Stage 4 and 5 of Parkinson's disease
4) Participants who were not comfortable with English

Research Design

Participants, given their consent were selected for the study. Semi-structured interview schedules were prepared to understand their individual experiences while they are dealing with Parkinson's disease. As mentioned earlier sample was divided into two groups. The experimental group was provided the sessions of cognitive behavior therapy along with the treatment as usual whereas the control group was provided only treatment as usual. As a part of qualitative methodology content analysis was used to analyze the semi-

structured interviews schedules in pre and post condition of experimental group and wait-listcontrol group (Flick, 2018).

Materials Used

Semi-structured interview schedules were prepared to carry outthe study. To understand the experiences related with Parkinson's disease and cognitive behavioral intervention, semi-structured interview schedules were prepared for both groups. Interview schedules were prepared on the basis of previously published literature on Parkinson's disease. The questions in the interviews were checked by the expert of the field. All interview schedules were approved by the experts of the field.

Intervention Module

Cognitive behavior therapeutic module includes cognitive and behavioral techniques, those are as follows:

1. Psychoeducation
2. Cognitive Restructuring (Thought Record, Identifying Automatic Thoughts, Evaluation of Automatic Thoughts and Modification of negative automatic thoughts)
3. Self-Monitoring and Activity Scheduling
4. Problem Solving
5. Graded Task Assignment
6. Role Play
7. Visual Imagery Relaxation
8. Sleep Hygiene Techniques
9. Behavioral Activation
10. Positive Self–statement Logs

Procedure

After finalizing the interview schedule and the sample size, a pilot study was carried out. The required changes in semi-structured interview schedules were made. All the participants were given semi-structured interview individually(pre-condition) before subjecting them to intervention. All the questions were answered by all 60 participants in detail. The research process was carried out in various hospitals and clinics. Experimental group was given the sessions of cognitive behavior therapy and waitlist control group was on pharmacotherapy only. Both groups were reassessed on semi-structured interview schedules after completion of twelve sessions of cognitive behavior therapy. The waitlist control group was provided the same module after completion of the study.

Data Analysis

Content analysis method was used for analysis of all the interviews. With the help of content analysis themes were generated. Under the main themes, sub-themes were emerged. The content analysis was done by following the general content analytic model (Mayring, 1983). Themes were emerged through four phases and stages. These phases are Initialization, construction, rectification and finalization. All the interviews were recorded and transcribed. In the initialization phase all the interviews were read again and again. After several reading the meaningful units in content was highlighted. Participant's experiences were coded through 'Participant perspective codes.' The other codes were also used for the analysis. The setting code showed the general understanding about the treatment. The participant characteristic code reflected upon the individual efforts in self-management. During the construction phase the meaningful content was classified. The generated codes were analyzed further in similarity and differences perspective to assign the cluster its own place in relation to research objectives. Third phase 'Rectification Phase' the developed label and themes were evaluated. During this phase the themes were critically evaluated from an 'outsider perspective.' The main objective was here to evaluate the phenomenon from a new perspective. In the finalization phase the themes are finalized and subthemes were generated. The themes and subthemes were formed in connected manner.

Results

With the help of content analysis various themes were generated. Various aspects of life were found to be affected. The results are presented below. The results are presented in pre and post phase of study for both groups.

Main themes in pre-phase and post phasefor both groups (experimental group and control group) are presented in below mentioned table 1.

Table 1

Themes, subthemes and their examples as derived from content analysis

Theme	Subthemes	Examples
Psychological Health	Anxiety	I am worried about my future. Sometimes my heartbeats are quite fast. I might get an heart attack soon.
	Depression	I do not feel good now days. Nothing makes me happy.
	Feeling of loneliness	I feel lonely. Despite being with family, this feeling exists.
	Feeling of irritation	Minor issues make me irritated. I do not feel relaxed. I am restless most of the time.
	Financial worries	The treatment is costly. I do not know how I will take care of myself for whole life.
	Stress	Why God has done this to me? I just do not understand how will I manage my life. At times I am so much stressed that I can't sleep and to calm down myself, I talk to my doctor.
	Feeling of doing nothing	I have no urge of going back to work. I do not even go to walk now.
	Feeling of being dependent	I feel handicapped in doing so many daily activities. Without family member's support I can't even get up from chair. What kind of life it is.
	Lack of sound sleep	My sleep is completely disturbed. I wake up in the middle of sleep many times at night.
	Crying spells	I am crying a lot in these days. I try to stop it but can't help.
	Fluctuation in mood	Suddenly I am upset without no reason and there are days when I am quite happy and that is also without no reason.
	Lack of interest in hobbies	I have stopped gardening.
	Unable to Handle responsibility of family	Suddenly my muscles are stiffed and then I am helpless in doing anything. I feel bad seeing myself not able to help family the way I used to.
	Disliking for the body (Body Image)	My hands tremor. Tremors appear anytime and this is embarrassing when I am with people.

Pre-Phase and Post Phase Results

Table2

Effect of illness on psychological health among the participants in Pre phase and Post phase condition of Experimental and Control Group

Psychological Health	Experimental Group		Control Group	
Sub-Themes	Pre (%)	Post (%)	Pre (%)	Post (%)
Anxiety	80	77	77	67
Depression	70	63	67	60
Feeling of loneliness	67	60	53	53
Feeling of irritation	63	60	57	43
Financial worries	60	37	63	60
Stress	60	63	53	53
Feeling of doing nothing	57	60	53	43
Feeling of being dependent	53	43	57	60
Lack of sound sleep	53	60	60	53
Crying spells	53	50	43	33
Fluctuation in mood	40	33	43	50
Lack of interest in hobbies	60	53	63	67
Unable to Handle responsibility of family	60	55	63	70
Disliking for the body (Body Image)	50	47	63	67

Note- The percentages did not add up to 100 because of multiple responses

Pre-phase qualitative analysis concluded, 80% participants of experimental group reported of experiencing anxiety and 70% reported experiencing irritability, lack of interest in hobbies and having depression. Feeling dependency, difficulty/lack of sound sleep and crying spells were reported by 53% participants. Around 60% participants reported of having difficulty in handling responsibility of family (Table 2).

Among participants of waitlist control group, 77% participants reported of being anxious for their health along with getting worried about family members (Figure 3). Participants also had difficulty in getting sound sleep, reported by 60% participants (Table 1). Being depressed due to worsening of symptoms along with having difficulty in handling their daily routine independently, reported by 67% participants (figure 3). Further 63% participants of control group reported of being worried and stressed out dueto financial expenses (Table 2).

Post-Phase Results

The experimental and waitlist control groups were reassessed in post-phase assessment. The analysis revealed improvement in psychological health in experimental group. However,no improvement was reported by the participants of waitlist control group (Table 2).

Participants of experimental group reported reduced symptoms in terms of anxiety, depression, feelings of loneliness, stress, difficulty in sleep, crying spells, financial worries, irritability and feeling of burden, feeling of doing nothing, feeling of being dependent and fluctuations in mood(Table 2).

In pre-phase, 80% participants reported of being anxious due to symptoms of the disease. In post-phase 77% participants reported improvement in anxiety. Out of 70% participants, 63% participants reported improvement in depression in post phase. Around 60% participants reported of keeping themselves engaged in some tasks which helped them to deal with their loneliness (Table 2). Around 60% participants reported an improvement in their levels of irritation. Around 63% participants in post-phase interviews reported of getting over the feelings of stress. Participants could involve themselves again with some activities related to their interests and also felt improvement in sleep, reported by 60% participants (Table 2).Around 53% Participants felt improvement in their attitude towards themselves. They could deal with the feeling of worthlessness and helplessness as a member of family. The reported verbatim of participants are as follows:

"Therapy gave me the understanding to enjoy what I have rather than being negative about things and wasting time by crying over things that are beyond my control."-Participant No.24, 60-year-old male, experimental group

"Well, I feel better now. I am not upset these days." -Participant No.11, 49-year-old female, experimental group

"At least I have the urge to try things out now. Earlier I was completely inactive and felt a sense of worthlessness. -Participant No.24, 60-year-old male, experimental group

"I have also started feeding the birds in my garden which gives me immense pleasure." -Participant No.18, 60-year-old female, experimental group

Control Group:

Analyses of psychological health of pre and post phase are presented through table 2.Findings revealed experiencing same difficulties by majority of participants in post-phase.

In post-phase 67% participants reported of feeling anxious and around 60% reported of being depressed.Around 53% participants in pre-post phase reported of feeling lonely. Participants reported of not finding their motivation to follow their hobbies as reported by 43% and also feel irritated (Table1). The reported verbatim of some participants are as follows:

"I am tensed but what can I do. I focus on my work and try to be happy. There is not much I can do about it and life will definitely continue. Sometimes I get upset to see myself in this situation." -Participant No.4, 40-year-old male, control group

"My symptoms fluctuate frequently which causes a lot of problems. Sometimes I feel completely fine but at other times I feel completely restless. I think I am still tensed." -Participant No.5, 65-year-old male, control group

Discussion

The present study was carried out to understand individual's experiences while dealing with a deteriorating neurological condition. The impacts of Parkinson's disease studied in detail with the help of interviews. The study was carried out in two phases, i.e., pre-phase (before the administration of CBT), and

post-phase (after the administration of cognitive behavior therapy module of three months).

Content analysis revealed various affected domains of life. The main theme that emerged was psychological health. The other themes under psychological health emerged, based on the complaints made by the participants.These are anxiety, depression, feeling of loneliness, irritability, financial worries, stress feeling of doing nothing, being dependent, lack of sound sleep, crying spells, fluctuations in mood and self-perception. CBT sessions were found effective in dealing with all these sub themes. Present results are supported by the study done by Simon, Thompson, & Smith (2006). In his research eight sessions of group educational programme were provided for PD patients that include coping strategies on the basis of CBT components. The sessions addressed common psychosocial problems. The results indicated improvement on visual analogue scale (self-rating) of depression and anxiety. The present research study has shown the similar results on depression, anxiety, feeling of loneliness and attitude towards self. The improvements in all these subthemes have been reported by the participants of experimental group. Another study by A'Campo, Wekking, Spliethoff-Kamminga, and Ross (2010) described a randomized controlled trial which further evaluated depression on visual analogue scale after completion of therapeutic intervention. Participants reported significant improvement in sadness of mood and quality of life.Presentresearch results are in accordance with the findings of above-mentioned research. Participants in present research also reported improvement in symptoms of restlessness and sudden increased heart beat. The sadness of mood and over thinking was also reported to be reduced by the participants. These findings are supported by the findings of Calleo et al. (2015) they found the feasibility of CBT sessions on PD participants in reducing the level of depression and anxiety. In their study 16 participants of Parkinson's disease experienced significant improvement in depression and anxiety. In the present study, due to nature of symptomatology of Parkinson's (i.e. changes in voice, difficulty in communicating with others, tremors, movement rigidity/stiffness) their confidence and willingness to get engaged in social situation along with fostering a sense of insecurity is affected. These symptoms are visible to others and make them feel very conscious and embarrassed. Even other's sympathetic remarks work as a stressor for them. As a result, they developed feeling of avoidance for socializing. These problems are reported by Participants of experimental group as well as control group. The findings are corroborated with the findings of some review studies (Anderson, 2013; Benharoch& Wiseman, 2004; Soundy, Stubbs, &Roskell, 2014).The worry about future consequence, changes in role and feeling of dependency and lowliness, depression and anxiety were found in qualitative review studies. Post-phase content analysis reported improvement in symptoms of pain and fatigue. The findings are in line with review research done by Hofmann, Asnaani, Vonk, Sawyer, & Fang, (2012). Range of treatment strategies like relaxation, cognitive behavioural treatment, mindfulness-based techniques and psycho-education have been reported as effective treatment techniques for decreasing pain intensity.

Hence, from the findings it was seen that CBT is an effective technique to deal with psychological symptoms (anxiety, depression, stress etc.) on the population suffering with Parkinson's disease.

Conclusion and Future direction

In the present study, the effect of cognitive behavior therapy on psychological health in patients with Parkinson's disease was assessed. The improvement in anxiety, depression, feeling of loneliness, worry about future and financial expenses was observed. CBT was also effective in improving appetite and sleep difficulty in experimental group. This suggests that co-morbid psychological problems in neurological disorders can be treated with the help of cognitive behavior therapy indicating the relevance and usefulness of psychological intervention for people with PD.

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