



REVIEW ARTICLE

COGNITIVE BEHAVIORAL THERAPY (CBT) AND TREATMENT OF PEDIATRIC PATIENTS WITH CHRONIC RENAL DISEASE

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ARTICLE INFO

Article History:

Received 07th March, 2016
Received in revised form
21st April, 2016
Accepted 07th May, 2016
Published online 15th June, 2016

Key words:

Children,
Chronic Kidney Disease,
Cognitive Behavioral Therapy

ABSTRACT

The aim of this study was to evaluate the effectiveness of an intervention with CBT in patients with chronic renal disease. The study findings are in the context of previous researches and existing theories. Searches were done in the professional literature related to different chronic diseases and respectively with Chronic Kidney Disease in children and adolescents. Many pediatric chronic diseases are difficult to be managed because of the limitations caused by the disease itself, consequently some of them need to be subjected to painful and difficult medical procedures as well. Respectively, for children diagnosed with CKD life changes completely because of limitations, mainly physical ones, due to the characteristics of the disease which require constant adaption as well as development of strategies to face the disease. Their behaviors must change accordingly as part of a new life of self-care. Cognitive-Behavioral Therapy is a psychological therapy, which has been investigated extensively and has been found as very effective to reduce psychological symptoms caused by the disease. This therapy integrates the modification of behavior with the cognitive restructuring, the aim of which is to change the patient's unhealthy behaviors through cognitive and behavior techniques.

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Citation: Jeta Ajasllari, 2016. "Cognitive Behavioral Therapy (CBT) and treatment of Pediatric patients with chronic renal disease", *International Journal of Current Research*, 8, (06), 32860-32866.

INTRODUCTION

A chronic illness is one that is prolonged in duration, does not often resolve spontaneously and is rarely cured completely (Dowrick *et al.*, 2005). Chronic Kidney Disease CKD, is a term which includes the disease in which the patient suffers a grave and irreversible reduction of the kidney function for over 3 months. Frequent hospitalizations, medical treatments some of which are painful and intensive, limitations to activities because of the medical treatment and the disease cause in children and adolescents with CKD feelings of uncertainty. Constant absence at school, lagging behind in lessons compared to their age mates create the feeling of not belonging to the class; they develop low self belief because of the experiences they have at school or somewhere else and reveal lack of proper behavior by becoming withdrawn and suppressed (Schotlen *et al.*, 2011). According to investigations it results that children and adolescents with chronic disease are twice likely to develop psycho-social problems compared to their healthy age mates (LeBlanc *et al.*, 2003).

About 25% of the children with chronic disease need psycho-social support. Children and adolescents with chronic disease are often different from their age mates, while they are isolated their age mates are more sportive, attend different places, go to parties, dance etc. (Last *et al.*, 2007). Quality of Life (QoL) of patients with CKD is damaged considerably because of the requests deriving from their condition and clinical treatment (Soliday, Kool, & Lande, 2001). They experience a wide range of somatic symptoms and anxiety (Murtagh *et al.*, 2007). In these patients are also seen problems with adaption and a low sense of self control (Kimmel *et al.*, 1998; Christensen & Ehlers, 2002). Some parents are obliged to give up their jobs committing themselves to the needs of their child. Family members are responsible to follow the treatment protocol and meanwhile must face the stress and requests of the disease (Fielding, 1985). Although anxiety accompanying CKD may have negative effects on physical functioning and health, so far there are satisfactory data which reveal that psychological treatment of anxiety and difficulties in patients with CKD improves clinical symptoms and quality of life (Reuben & Tinetti, 2012). The study aims to identify that intervention with CBT has a positive effect not only on the psychological wellbeing of the patients but also on their beliefs about health.

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Usually because of the aggravated emotional and psychological state are prescribed antidepressants, but in that instance the negative effects must also be kept into consideration (Chilcot *et al.*, 2010). Academy of Medical Royal Colleges and Royal College of Psychiatrists (2010) maintaining a focus on physical health and physical healthcare is important because the presence of a mental disorder may 'overshadow' the recognition and treatment of physical health problems, reducing the quality of physical care provided. Researches support the value of psycho-therapeutic approaches especially behavioral cognitive therapy (CBT) in the treatment of pediatric patients with chronic disease. There are a variety of techniques which require professional intervention which are more appropriate for these patients, such strategies include: (Asay, Lambert, Duncan, & Miller, 1999).

- Motivational interviewing techniques
- Interpersonal therapy
- Mindfulness based cognition therapy
- Problem solving therapy
- Make attendance compulsory as part of the pre dialysis education pathway/education program
- Behavior therapy
- Cognitive behavior therapy

Cognitive Behavioral Therapy has been seen as an efficient therapy in treating symptoms caused by illness on children and adolescents with CKD. CBT is a therapy based on theories of behavior analysis (Bergin, 1975), on cognitive theory (Beck, 1979) and theory of social learning (Bandura, 1977). CBT includes a series of strategies which aim to modify social/environmental factors and those of behavior which may aggravate the state and cause symptoms. Also the therapy aims to modify thoughts, feelings and behaviors in order to reduce symptoms and prevent relapse. Cognitive behavioral therapy (CBT) has been seen as an effective and feasible therapy (Speckens *et al.*, 1995).

Description of CBT Therapy

Psychologist Aaron Beck developed cognitive therapy in year 1960. Treatment is based on badly adapted behaviors (non effective, self defence behaviors) which are initiated from irrational models of thinking called automatic thoughts. The person instead of reacting based on the real situation in which he is, reacts according to the perception he himself has for the situation. Cognitive therapy changes this models of thinking by examining, rationalizing and certifying assumptions behind them. This process is called cognitive reconstruction. Cognitive Therapy is a psycho-social therapy (psychological and social) which supposes that wrong models of thinking (cognitive models) cause improper behaviors and emotional responses. Treatment is focused on changing these thoughts in such a way that they can solve psychological problems. Cognitive therapy drew a variety of other theories and researches including the principles of classic conditioning of Russian psychologist Ivan Pavlov (1849-1936), the work of B. F. Skinner (1904-1990), and work of psychiatrist Joesph Wolpe (1915-1997). While behavioral therapy enjoyed great popularity in year 1970 since 1980, many therapists started to use the cognitive – behavioral therapy to modify the unhealthy behaviors of their clients by

replacing the models of negative thoughts with positive models. Thus behavioral therapy treats emotional and behavioral problems as learned badly adapted responses which must be replaced with healthy ones.

Therefore interventions of cognitive-behavioral therapy are specifically based on:

- Behavior is socially and historically contingent (Skinner, 1953).
- Cognition is an emergent property of behavioral context (James, 1980).
- Behavior is regulated by cognitive goals (Bandura, 1989).
- Fourth, emotions influence both behavior and cognition (Ashby, 1999; Gilliom, 2002).
- Fifth, most behavior is deployed outside of conscious awareness or control (Bargh, 2008).
- Finally, some attempts to control cognition and behavior can have paradoxical negative effects on desired outcomes (Wegner, 1994).

In cognitive- behavioral therapy the therapist works with the patient to identify thoughts which are causing stress and applies behavioral techniques to achieve the desired behavior. Patients may have beliefs, schemes which have negative effect on behavior and its functioning (Alford & Beck, 1997; Beck, 1999).

Functioning of Cognitive and Behavioral Therapy in treatment of chronic diseases

Cognitive therapy has been seen as an effective therapy in treatment of psychological symptoms (DeRubeis, Crits-Christoph, & Empirically, 1998) caused by physical chronic diseases, including chronic pain (Greer *et al.*, 1992; Morley, Eccleston, & Williams, 1999). This is a cognitive psychological therapy that is focused, structured and cooperative and a therapy which aims to facilitate the solution of the problem and modification of non-functional thoughts and behaviors. Cognitive therapy in treatment of chronic disease: Patients with chronic disease have their own ways of thinking about themselves, the surrounding world and the disease. Therefore different patients have different thoughts. Many patients with chronic disease develop psychological disorders which must be referred to by a cognitive therapy specialist (White, 2001). In this context cognitive therapy uses techniques to manage chronic disease in a more structured way, focused on the solution of the problem (Leahy, 1996; Enright, 1997).

Behavioral Therapy

Behavioral Therapy is one of the mostly used interventions worldwide. This approach includes techniques based on the theory of social learning and mostly works with attitudes, beliefs and cognitions. It is highlighted the fact that some behaviors (e.g. daily routines) are difficult to change if they have been created for a long time and modification is possible only by collapsing old models and creating new behavior models (David, 2006). The program for treatment of children and adolescents with chronic disease includes:

- Self-monitoring which consists in keeping a graph with the timetable of administration of medicaments.
- Setting of control on stimulations which bring back undesired old models of behavior – such as for example brushing of teeth and temptation to drink liquids in dialyses children whose consumption of liquids must be the least possible.
- Setting of goals – to monitor certain behaviors in children and adolescents.
- Avoidance of blaming and reproaches and use of encouragement or rewarding for desired behaviors.

L. David has described some typical useless reactions related to chronic disease as follows:

Table 1. Typical unusual reactions

Thoughts	Feelings
Catastrophizing of pain	Low humour
Unusual beliefs about adaption to pain. (e.g. must always rest)	Anger and frustration Trouble and anxiety
Hyper vigilance	
Loss of self-esteem	
High self-criticism.	
Behavioral Factors	Physical Symptoms
Behaviors such as excessive moaning and incessant talking about the disease.	Pain, weakness, Lethargy, tiredness
Reduction of activities in general	Problems with sleep, Symptoms of anxiety
Excessive rest.	Medicaments side effects.
Social isolation.	
Avoidance of behaviors which eliminate pain.	

According to L. David some pieces of advice given to patients with chronic disease are:

- Physical Exercises.
- Relaxation.

Behavioral Treatment

- Increase of positive behaviors, setting of aims.

Cognitive Treatment

- Accepting of the disease, management, earning of self-security, entertainment, avoiding of negative thoughts, useful thinking.

Emotional management of chronic disease includes:

- Providing of accurate information (written) as regards health state, treatment, referring etc.
- Use of communication centered on the patient in order to draw and discuss specific beliefs and fears related to the disease.
- Preparation for undesired medical procedures – detailed information may reduce anxiety and unknown fears.
- Questions about emotional symptoms rather than focusing only on medical aspects of health care.
- Receiving of feedback to avoid misunderstandings.
- Explanation of disease symptoms.

Effectiveness of application of CBT in chronic diseases

With regard to the effect that CBT has on the treatment of children and adolescents with chronic diseases there have been considered several studies in which was applied the Behavioral Cognitive. According to Cochrane, (2003) for Chronic Fatigue Syndrome - CBT is an effective treatment, improving mood and function (Cochrane, 2003). Psycho-social interventions have been developed to encourage patients to follow professional goals, this way it is done a planning of life and certain goals are set. Behavioral cognitive approach has been very successful, use of its techniques in psycho-education and promotion of the health of patients in care centers has resulted to be very effective and with a positive impact on psychological wellbeing, adaption strategies and use of medical resources (Beck, 2012). Creer (1993), reviewed the success of behavioral techniques on children with asthma (Creer, 1993), while Delamater focused himself on the revision of intervention in an individual, group and family way on children and adolescents diagnosed with diabetes. At the end of the review it was noticed that the intervention results were promising. From 12 groups for diabetes patients on which the intervention was applied it was noticed improvement in the metabolic control (Delamater, 1993). In some cases the problems to adherence could be related to other behavioral problems. Many behavioral interventions have resulted to be effective in improving adherence to daily protocol to be followed by the patients dealing directly with behavioral problems of nutrition (Stark, Bowen & Tyc, 1990).

There are a considerable number of studies which have shown the effectiveness of cognitive-behavioral techniques in the treatment of psychological symptoms caused by chronic disease, although there are few investigations which show a term effect where the change of lifestyle is essential for patients with chronic disease. Therefore, there arises the need for methods which will make possible the prevention of relapse and to make sure the change of behaviors for a long period for children and adolescents with chronic disease. The study performed by (Schotlen *et al.*, 2011), aimed to investigate the effectiveness of applying group CBT for children with CKD and also to test the effect of an added parent component. Participants in the study were (n = 194) children, adolescents and their parents who participated in a multicenter randomized clinical trial where it was compared intervention applied only on children to another group on which the intervention was applied on patients as well as their parents.

Primary outcomes gave importance to parents and to self-reported internal and external problems; secondary outcomes were child disease related coping skills (receiving of information, relaxation, social competences, cooperation with medical therapy and positive thinking). Assessments took place at baseline and at 6- and 12-month follow-ups. The study results were positive, the intervention had a positive effect in changing self-reporting of parents related to internalizing of problems. Children reported externalizing of problems, receiving of information related to their disease, social competence and. Kind of disease and disease level of difficulty did not impact the intervention effect.

Intervention did not affect the patients' self-reporting in internalizing of the problems, self-reporting of parents in externalizing problems, relaxation or/and medical compliance. The study performed by (Last, Stam, Onland-van Nieuwenhuizen, & Grootenhuis, 2007), aimed at determining the effectiveness of group psycho-educating intervention for children with chronic disease. Based on principles of behavioral therapy and data from different researches related to experience of children with chronic disease and their efforts to adapt with the disease it was held an intervention for children independently from the kind of chronic disease they were diagnosed with. The intervention was applied in 6 sessions for different age groups. The results of the study revealed that there was an improvement in behavior and emotions, in social competences, receiving of information, relaxation and positive thoughts.

The program had a positive impact on children diagnosed with different chronic diseases (Last, Stam, Onland-van Nieuwenhuizen, & Grootenhuis, 2007). Adding of a parallel program for parents to teach them to motivate their children to apply the skills acquired in everyday life made the effects even bigger. To further investigate the intervention effects and to identify which protocols are more appropriate, those when intervention is done only on children or parent-children intervention, it is important to investigate the pre-treatment risks or the resistant factors which are as moderators (Hinshaw, 2007; Simon & Perlis, 2010).

CBT effect in treatment of chronic kidney disease (CKD)

Many studies have come to the result that ESRD patients perceiving greater illness related disruption of lifestyle and social activities report poorer emotional well-being (Devins *et al.*, 1990; Sacks, Peterson, & Kimmel, 1990; Devins, Beanlands, Mandin, & Paul, 1997). Since 1990, CBT has been suggested as an appropriate therapy to prolong life of dialyses patients. (Kimmel, Weihs, & Peterson, 1993). The study of (Hare, Carter, & Forshaw, 2013) investigate an applied cognitive behavioral therapy (CBT-based intervention) which was applied on haemodialysis patients and those receiving peritoneal dialyses in order to win control and for them to respect regulations of consumption of liquids; utilizing clinical indicators used in practice. In this study Fifteen PD patients identified as fluid non-adherent were randomly assigned to an intervention group (IG) or a deferred-entry control group (CG). The study lasted 21 weeks, with five data collection points; at baseline, post-intervention and at three follow-up points; providing a RCT phase and a combined longitudinal analysis phase. The group intervention was focused on education, cognitive and behavioral components and aimed to win the patients' self control to consume liquids. At the end were noticed positive and significant results when it was measured the psychological wellbeing, beliefs on health, quality of life and liquid control. In a study in Brazil where CBT intervention was applied for about 12 weeks on patients with dialyses it was concluded that there was improvement of the depressive symptoms after 3 and 9 months compared to other patients who receive only standard care (Duarte *et al.*, 2009). A study which had made use of RCT design, based on adherence of haemodialysis patients to limitation of liquids.

This study used 56 participants who were doing haemodialysis (Sagwa, Oka, & Chabayer, 2003). The study results show that group applied CBT (over a 4-week period) was effective in treating adherence of patients to limitation of liquids. Another study applied the program of education of parents using CBT and compared this program to another standard educating program related patients' salt intake and weight gain. At the end of interventions it was noticed that both programs were effective but CBT had an affect over a longer period of time (12 weeks against 8 weeks), (Nozaki, Oka, & Chaboyer, 2005). Patients who are at the last stages of kidney disease ESRD are usually diagnosed with depression, (Cukor, Peterson, Cohen, & Kimmel, 2006) and sleep problems (Hanly, 2008), which have been linked to increased mortality. A recent randomized controlled pilot trial with 24 PD patients in Taiwan, researchers found that patients who received CBT reported improved sleep quality.

It was concluded that CBT is a non-pharmacological therapy and effective on patients under peritoneal dialyses for sleep problems (Chen *et al.* 2008). Also the consideration of other studies shows improvement in patients who are doing haemodialysis. One of the studies whose aim was the effect of CBT in enabling patients to care for themselves, included in the treatment about 10 patients where the first phase lasted for 4 weeks, intervention phase 6-weeks and follow-up phase 4 weeks. The study results reveal that average achievement of the fluid intake objective in the intervention phase was 65%. Fifty percent of participants achieved their objectives at least 75% of the time without individualized reinforcement. Hence, it was concluded that CBT was effective in helping patients change their fluid intake behaviors (Navas- Acien *et al.*, 2009). Interventions to improve compliance fall into three main types: 1-educational, 1-cognitive/ behavioral, 3- self regulatory skill training. There have been a number of useful reviews of these methods (Brownell & Cohen, 1995).

Very appropriate for children and adolescents with CKD would be Op Koers program which was developed and applied at Emma Child Hospital in Netherlands. Op Koers was developed for children with chronic disease to give them more self control on their lives. When describing the aim of the program it is also used the term strengthening (Last *et al.*, 2007) which refers to the strengthening of abilities to have control over their lives and strengthening of belief in their abilities to impact their lives positively (Bolt, 2006). Participants in the program learn facing strategies. These facing strategies aim to increase social competence, so that children and adolescents learn to apply relaxation, how to search for satisfactory and appropriate information related to their condition, and to progress thinking positively. This ensures strengthened self belief and balance in their social emotional functioning. Op Koers program was applied only at "Emma" Children's Hospital until 2008, at the end of year 2008 it was also applied in another five hospitals. Results immediately after Op Koers program and a year and a half after that have revealed that the participants have achieved considerable results, mainly in applying relaxation and positive thinking. There were also more able to search for information on their disease and the treatment revealed their social competences.

According to their parents – the children and adolescents had less problems with their behavior and were less emotional and especially less internalizing problems. Moreover, the participants thought that the quality of their everyday life was improved they experience higher self-esteem and felt better physically. In the evaluations done six months after the treatment it was noticed that the effects were greater than in the evaluations immediately after the end of the program (Last *et al.*, 2008). An important role in improving patients is played by the cooperation of the whole staff working with patients with kidney disease. It is known the fact that psychological and medical treatment of patients with chronic kidney disease is facilitated even more by a common language and the sense of group work among health staff (Naylor & Mattsson, 1973). A short but intensive therapy which includes fast evaluation and softening of behavior disorders is especially useful for patients with dialyses who may suffer irretrievable disorders even if their treatment is delayed (Tuckman, 1970). Grave health diagnoses may cause on patients and family members strong crises and feelings such as fear, grief, shock, anger, sadness, anxiety, shame, guilt, unsureness, self-blame. Also can be created the feeling of loss as a result of aggravation of health, loss of energy and avoidance of happy events. Both intervention through education and support to family and patients by mental health employees helps to relieve the illness, psycho-social strengthening and the increase of coping behaviors. This way it is promoted the sense of self-control, autonomy and independence during the course of the chronic disease (Curtis, Rothstein, & Hong, 2009).

Organization of clinics and holding of trainings with the health care personnel has been seen as a very important process for research and intervention in the future (Meichenbaum & Turk, 1987). Christensen & Ehlers (2002), concludes that important challenges for future behavioral medicine research and practice include establishing clearer, empirically supported guidelines for the psychological assessment and evaluation of ESRD patients. Differentiating mood disorder from physical sequel of disease and developing strategies to more accurately evaluate patient regimen adherence are two important goals for future assessment research (Christensen & Ehlers, 2002). Thanks to exploration of theories and literature on the use of Cognitive Behavioral Theory this study comes to the conclusion that CBT Therapy is an appropriate therapy to treat psychological symptoms of patients with chronic disease and respectively patients with Chronic Kidney Disease. It is very important the need for further observations and research on clinical interventions on these patients. Creation and evaluation of psychological interventions for these patients is very important for the increase of wellbeing, improvement of quality of life and to prolong their life span.

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