

The Effectiveness of Acceptance and Commitment Therapy for Children with Chronic Pain on the Quality of Life on 7 to 12 Year-Old Children

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Abstract

Backgrounds:

The purpose of this study is to evaluate the effect of Acceptance and Commitment Therapy for Children with Chronic Pain (CHACT) on quality of life of 7 to 12 year-old children. Thus, the basic problem of the current study is whether CHACT can increase the quality of life on 7 to 12 year-old children with chronic pain?

Materials and Methods:

According to the criteria of chronic pain, a number of children suffering from chronic pain were selected by available sampling method from specialty and subspecialty pediatric hospitals of Tehran. Then, among the children, 20 children who according to their parents were prepared to participate in this study and met the inclusion criteria, were selected and were placed in the experimental group (n=10), and the control group (n=10). The KID Screen was administered in both groups at the pre-test, post-test, first and second follow-up.

Results:

The results showed that the experimental group compared with the control group showed significant change in quality of life in multiple stages ($P < 0.05$). These changes continued after the treatment, first and secondary follow-up.

Conclusions:

Regarding the used protocol in this study on the quality of life of the children, it can be said that this protocol can be applied in the clinical fields, especially in relation to improving children's quality of life.

Keywords: Acceptance, Children, Chronic Pain, Quality of life.

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Introduction

Various studies have reported a high prevalence of chronic pain in children. For example, the research results of Barber and colleagues (1) show that about 7.5 to 32.1 percent of the children and adolescents experience chronic pain and 8 percent of the population will experience severe chronic pain. In addition, the results of many studies indicate low quality of life for children with chronic pain (2-9). In general, chronic pain, because of its social and emotional effects on children and families, has a negative impact on the quality of children's lives (10).

The experience of pain can affect different aspects of the quality of life (11-15). A significant number of patients with chronic pain continue to experience pain despite medical intervention (16). In such circumstances, patients may turn to ineffective strategies of pain management to restore their well-being (17). It seems that various studies advocate the idea that inflexible effort is largely ineffective to control unwanted thoughts and emotions, and can be followed by a lot more of these experiences (18-19), pain (20-21) and reduction of worthwhile activities and the quality of life (22-23).

In recent years, the interest in relation to the identification of adaptive mechanisms through which people continue to improve their psychological well-being, despite the experience of chronic pain, is seen. Acceptance is one of these positive psychological factors (24). Acceptance is the response to pain experiences without trying to control or avoid it, especially when this effort limits the patient's quality of life (25). Acceptance of pain prevents any attempt to fight the pain and thus ends the negative effects of these ineffective strategies in patients with chronic pain (17). Acceptance is positively associated with psychological adjustment and well-being of patients with chronic pain (25-

28). The research results of Elander and colleagues (29) showed that activity engagement and pain willingness have significant impact on the quality of life (physical and mental dimensions). Acceptance of pain somewhat regulates the impact of pain on the psychological dimension of the quality of life and engagement in activities and acceptance of pain moderates the impact of negative thoughts on the mental aspect of the quality of life (29).

Recently, approaches derived from cognitive-behavioral therapy (CBT) rather than control or reduce symptoms, are following pain or other negative experiences such as fear, anxiety and fatigue (30). One of these approaches is Acceptance and Commitment Therapy (ACT). ACT focuses directly on effective life in valuable areas and thus leads to improved quality of life (31). The target of ACT is clearly improving the performance and quality of life through the experience of thoughts, emotions and negative feelings of body with a more flexible manner (32-33). Thus, this approach through psychological flexibility leads to improve function and quality of life (34). Previous studies of patients with chronic pain have supported the role of flexibility in the well-being of patients (34-35). Some studies suggest the effect of this treatment on the quality of life in patients with chronic pain. For example, the research results of Ljotsson and colleagues (36) showed that therapy based on mindfulness and exposure affects the quality of life in patients with irritable bowel syndrome.

A series of review studies have shown the importance of psychological therapies in the treatment of children with chronic pain (30). In general, as noted, high prevalence of chronic pain among children and its impact on the quality of life, stresses intervention in the context of

improving the quality of life for children with chronic pain. But, few studies are done in the field of interventions based on improving the quality of life in children with chronic pain. Among these studies, it can be referred to the study of Berger et al (37), and Galantino et al. (38) and White (39). They showed that yoga techniques are an accepted technique in the pediatric population and various studies have proven the effects of yoga techniques on well-being, quality of life, reduction of stress and pain in children and adolescents (15). Also, on the other hand, as noted, among the various interventions, acceptance-based interventions have significant impact on improving the quality of life for children with chronic pain; however, few studies have been conducted in the field of acceptance-based interventions on the quality of life of children with chronic pain. According to the above, the main problem of the current study is whether Acceptance and Commitment Therapy for Children with Chronic Pain (CHACT) can increase the quality of life of children suffering from chronic pain?

Materials and Methods

The present study was designed to investigate the effect of CHACT on the function of children with chronic pain and was based on quasi- experimental model. The sample of the current research is composed of some of the 7-12 year-old children with chronic pain who referred to clinics and departments of specialty and subspecialty pediatric hospitals in Tehran. The sampling method is based on the available sampling method. Among patients referred to different clinics and departments of specialty and subspecialty pediatric hospitals in Tehran such as Mofid Children's Hospital, Children's Medical Center, Hazrat Ali Asghar Hospital and Bahrami Hospital (In these

centers, different parts and clinics were used, such as: neurology, neurosurgery, surgery, blood, rheumatology, orthopedics and physiotherapy), 20 children who according to their parents were prepared to participate in this study and met the inclusion criteria, were selected. Inclusion criteria for this study are as follows:(1) Being in the age range of 7 to 12 years old.(2) Engagement with education; evaluation of educational status (success or failure), according to the school status, was done by psychologist. (3) Obtain a score of 13 to 29 (moderate disability) in Function Disability Inventory (FDI). Information about FDI will be provided in the research tools(4).

Having a history of developing chronic pain for 6 months or more and at least 3 months of the first medical treatment in relation to chronic pain, according to the viewpoint of the physician and (5) the ability to attend meetings, according to confirmation of physician. After the selection of subjects based on inclusion criteria, they were placed in the experimental group (n=10) and control group (n=10). Then, CHACT was implemented on the experimental group. This protocol was designed based on the books of ACT, initial grete of ACT on children, ACT on adults with chronic pain, model of anxiety treatment in children, model of Obsessive-compulsive disorder (OCD)treatment in children and consultation with Association for Contextual Behavioral Science (ACBS) (such as doctor Hayes, Wicksell , Murrell and Wilson). More details about the protocol, such as templates and content of the meetings is given in the previous paper (40).

Tools: the used tools in this study were as follows:

1) Demographic questionnaire:

The questions were about age, sex, education, chronic pain criteria (a history

of developing chronic pain for 6 months or more, according to the approved physician and at least 3 months of the first medical treatment in relation to chronic pain), taking or not taking pain medication, type and amount of pain medication (if used), and education and occupation of parents.

2) Function Disability Inventory (FDI) (41):

FDI is a 15-item scale that measures the child's ability for functional activities, such as school, home, leisure and social activities. The addressed activities in this questionnaire include: reading, watching TV, going to the heights, doing homework and so on. Two factors associated with FDI include: physical activity (8 items) and daily activities (7 items). FDI is based on a 5-grade scale from 0 "no problem" to 4 "impossible"(42). The scores' range of FDI is 0 to 60. The range of 0 to 12, 13 to 29, and the range of 30 or above, measure respectively mild or no disability, moderate disability, and severe disability (43). Suitable internal consistency and reliability of the FDI has been reported. Numerous researchers have shown good psychometric properties of the instrument for both clinical and non-clinical samples (44).

3) KID Screen (45):

This study used a version of KID Screen with 27 questions that consists of five dimensions and include: Physical well-being (5 items), psychological well-being (7 items), parent relation and self-perception (7 items), social support and peers (4 items), school environment (4 items). The answers are according to the likert scale that indicates the frequency of a particular behavior or emotion (1=never, 2= seldom, 3= sometimes, 4=often, 5= always), or intensity of attitude (1= never, 2= somewhat, 3= average, 4=very, 5=extremely). The time frame refers to the past week. Then, the scores convert linearly to a scale of 0 to 100 points that 100 represents the best quality of

life and 0 indicates the worst quality of life.

In order to construct validity of the questionnaire, Robitail and colleagues (46) conducted a study of 8 to 18 year-old children and adolescents from 13 European countries. Proper results were obtained from exploratory and confirmatory factor analysis of this instrument. Cronbach's alpha coefficient for all dimensions varied between 0.78 and 0.84. Convergent validity of KID Screen -27 was assessed using the Strengths and Difficulties Questionnaire in children and adolescents (SDQ), the Child Health and Illness Profile-Adolescent Edition (CHIP-AE), The Youth Quality of Life Instrument- Surveillance Version (YQOL-S), The Children with Special Health Care Needs (CSHCN), the Family Affluence Scale (FAS) and the Pediatric Quality of Life Inventory (PedsQL). The correlations between KID Screen -27 and quality of life questionnaires that measured similar structure was moderate to high (between 0.36 to 0.63) (46). Nick-Azin and colleagues (2012) studied the reliability and validity of this instrument on 551 Iranian students. The results of their study were similar to previous research (46).

FDI and KID Screen were used before and after the treatment and first follow-up (1.5 months after the treatment) and second follow-up (5 months after the treatment).

Method of data analysis:

In this study was used descriptive statistics. Also, because of the lack of the assumptions related to parametric tests, Friedman test was used for examination of change in different time periods and Mann-Whitney test was used for comparison of difference between the groups in the pre-test, post-test, first and second Follow-up. We used spss-19 software for data analysis.

Results

The results are presented in two sections of descriptive and analytical results:

A) Descriptive results:

The descriptive results of this study suggest that the mean age (SD) of the experimental and control group were respectively: (10.60±1.7) and (10.20±1.81). The experimental group consisted of 4 girls and 6 boys, and the control group consisted of 5 girls and 5 boys. In both groups, most patients were suffering from chronic pain caused by rheumatoid disease and the rest were suffering from the pain in the chest, leg, kidney, and so on. Many subjects in both groups were taking medication.

In both group, many parents were educated in middle school.

(Table1) presents the descriptive indicators of quality of life variable. As can be seen, in the experimental group, the subscales of quality of life have changed from pretest to posttest and have remained relatively constant in the first and second follow-up. In the control group, subscales of quality of life remained relatively constant in all four time sections. Significant and non-significant statistical results of this status will be presented in the next section.

Table1: Mean (SD) of the studied variables in experimental and control groups based on the responses of children.

		Pretest	Posttest	Follow up 1	Follow up 2
Physical well-being	Experimental group	12.10 (2.68)	18.80 (2.44)	18.30 (2.26)	18.50 (2.50)
	Control group	15.80(4.31)	16.90 (3.90)	16.70 (4.13)	16.80 (3.66)
Psychological well-being	Experimental group	27.30(2.79)	30.90 (1.66)	30.40 (1.42)	30.70 (1.70)
	Control group	23.90(5.78)	24.10 (4.33)	24.60 (4.67)	24.20 (4.21)
Parent relation and self-perception	Experimental group	28.80(5.80)	30.70 (4.08)	30.68 (4)	30.90 (3.57)
	Control group	26.90(3.57)	26.10 (3.38)	26.30 (3.75)	25.90 (3.14)
Social support and peers	Experimental group	15.30(2.66)	16.80 (2.20)	16.73 (2.34)	16.70 (2.40)
	Control group	13.30(2.90)	13.40 (2.58)	12.50 (2.50)	13.10 (2.60)
School environment	Experimental group	16.30(2.75)	17.20 (2.48)	17 (2.53)	17.30 (2.26)
	Control group	16.30(1.49)	16.40 (1.26)	16.50 (1.58)	16.30 (1.25)

B) Analytical results:

Before addressing these results, it is worth mentioning that in both groups, comparing quality of life subscale is not significant in pre-test (Physical well-being, -1.937 (.053); psychological well-being, -1.112 (.266); parent relation and self-perception, 1.519 (.129); social support and peers, -1.446 (.148); school environment, -.816 (.414)). The analytical results of this study are presented in (Tables2 and 3). As can be

seen in (Table2), in experimental groups, subscales of quality of life are obtained significant at different time sections. (Table3) shows the meaningful comparison of variables between the control and experimental groups. As can be seen in the table, generally, both groups showed a significant difference in relation to many variables. Thus, we can say that CHACT is able to increase the quality of life in 7 to 12 year-old children with chronic pain.

Table 2: Quality of life change in the four time; pre-test, post-test, first and second follow-up.

		Chi - Square	df	P value
Experimental group	Physical well-being	23.464	3	.001**
	Psychological well-being	17.813	3	.001**
	Parent relation and self-perception	11.762	3	.008**
	Social support and peers	9.938	3	.019*
	School environment	17.580	3	.001**
Control group	Physical well-being	6.039	3	.110
	Psychological well-being	1.169	3	.760
	Parent relation and self-perception	8.400	3	.058
	Social support and peers	7.016	3	.071
	School environment	.517	3	.915

*P<0.05 **P<0.01

Table 3: Comparison of quality of life in experimental and control groups

		Physical well-being		Psychological well-being		Parent relation and self-perception		Social support and peers		School environment	
		Experimental group	Control group	Experimental group	Control group	Experimental group	Control group	Experimental group	Control group	Experimental group	Control group
Pretest with post test	Mean (SD)	-6.70 (2.79)	-1.10 (1.37)	-3.60 (2.59)	-.20 (3.73)	-1.90 (2.07)	.80 (1.03)	-1.50 (2.32)	.00 (1.24)	-.90 (.87)	-.10 (.56)
	Z(P value)	-3.775(.001)**		-2.283(.023)*		-3.199(.001)**		-1.287 (.247)		-2.306(.035)*	
Pretest with follow up 1	Mean (SD)	-6.20 (2.69)	-.90 (1.72)	-3.10 (2.76)	-.70 (3.68)	-1.70 (2.51)	.78 (2.29)	-1.54 (2.29)	.80 (1.39)	-.70 (.67)	-.20 (.78)
	Z(P value)	-3.648(.001)**		-1.751(.089)		-2.682(.007)**		-2.477(.015)*		-1.682(.143)	
Pretest with follow up 2	Mean (SD)	-6.40 (2.91)	-1.10 (1.66)	-3.40 (2.54)	-.30 (3.56)	-3.40 (2.54)	-.30 (3.56)	-1.40 (2.31)	.20 (1.22)	-1.00 (.94)	.00 (.66)
	Z(P value)	-3.538(.001)**		-2.216(.029)*		-2.216(.029)*		-1.649(.123)		-2.436(.023)*	
Posttest with follow up 1	Mean (SD)	.50 (.70)	.20 (.78)	.50 (1.17)	-.50 (.84)	.00 (.66)	.00 (1.63)	.00 (1.15)	.80 (1.03)	.20 (.42)	-.10 (.73)
	Z(P value)	-.912(.436)		-2.243(.043)*		-.653(.579)		-1.303(.247)		-.976(.529)	
Posttest with follow up 2	Mean (SD)	.30 (.48)	.10 (.47)	.20 (.63)	-.10 (.56)	-.18 (.63)	.20 (.63)	.10 (.31)	.20 (.42)	-.10 (.31)	.10 (.31)
	Z(P value)	-1.350(.315)		-1.117(.353)		-1.395(.315)		-.610(.739)		-1.378(.481)	
Follow up 1 with follow up 2	Mean (SD)	-.20 (.78)	-.20 (1.03)	-.30 (1.49)	.40 (1.07)	-.20 (.91)	.20 (1.93)	.13 (1.10)	-.60 (.69)	-.30 (.48)	.20 (1.03)
	Z(P value)	-.244(.853)		-1.405(.190)		-.079(.971)		-1.606(.165)		-1.350(.315)	

*P<0.05 **P<0.01

Discussion

The purpose of the current study was to determine the effect of CHACT on the quality of life on 7 to 12 year-old children with chronic pain. Overall, this research indicated that children who have received CHACT, compared to the children who did not receive this treatment, showed significant changes in terms of quality of life. In general, the significance of the

variable of quality of life in the experimental group is consistent with the findings of research conducted on the effectiveness of therapeutic interventions in improving the children's quality of life (37-39). Specifically, we consider that the results of this study are consistent with the research results of wicksell and colleagues (47) that performed in order to study the effect of ACT on the function and quality of life in children with long-term pain and

comparing it with multi-dimensional treatment (MDT) in the hospital. ACT in this study, similar to the study of Wicksell and colleagues (47) showed a significant effect on the quality of life of children in the experimental group.

Given that the two groups were replaced with common features, it can be asked what the cause of this effect is. It is notable that almost in all of the treatment sessions, the main focus was on the values of patients and stepping in the direction and this status was followed from the first session of treatment that values were examined preliminary to the last session that they were reviewed again. Thus, it can be expected that in the experimental group, the level of quality of life would be raised. This study revealed that in addition to the subscales of physical and psychological well-being, the parent relation and self-perception subscale showed a significant change in the experimental group. Given that this study was performed using a protocol that included parents and children workbook and the content of the sessions was adjusted according to the protocol and parents were present at all meetings, we can expect that the parent relation and self-perception subscale to indicate a significant change in the experimental group.

This study also found that the subscales of social support-peer and school environment, did not show a significant change in the experimental group. It seems that non-intervention in the school setting in the protocol (CHACT) is one of the reasons for the lack of significance because as seen in the literature of working with children, in addition to parents and family, peers and school environment have a significant impact on children. According to the fact that in the protocol of this study, the importance of the child's environment has been taken into account only from side of the parent (48), so we can expect not to

observe any significant differences between control and experimental groups in subscales of social support - peer and school environment.

Conclusions

Regarding the used protocol in this study on the quality of life of the children, it can be said that this protocol can be applied in the clinical fields, especially in relation to improving children's quality of life.

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Conflict of interests

The authors declare that there is no conflict of interests.

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