

Cognitive Emotion Regulation and Quality of Life Among Children with Type 1 Diabetes

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ABSTRACT

Background: Type 1 diabetes is a chronic disease that happens when the pancreas doesn't produce adequate insulin or otherwise, when the body cannot effectively use the insulin, it produces. The aim of the study was to assess the cognitive emotion regulation & quality of life in children with type 1 diabetes. **Methodology:** 50 participants (children of 8-12 years) with type 1 diabetes were included in the present study. The tools administered were Cognitive emotion regulation – Kids version, Kid screen health related quality of life. **Results** revealed that on cognitive emotional regulation 84% participants scored high on refocus on planning, 50% on positive reappraisal, 46% respectively. On quality of life 86% participants scored high on social acceptance, 82% on parent relation, out of total sample 54% participants reported positive self-perception, school environment and sense of autonomy. It is **concluded** on the basis of findings that there is a close association among all the two variables in children with type 1 diabetes in respect to their psychological or cognitive functioning and quality of life.

Keywords: Type 1 diabetes, cognitive emotion regulation, quality of life

Recently, physicians and pediatricians are facing new challenges due to novel epidemics distressing children's physical and psychological health. Earlier, infectious diseases like viral infections, mumps, chicken pox, pneumonia, diarrhea, nutritional deficiencies conquered childhood diseases. Nowadays these are being substituted by non-communicable diseases like overweight/obesity and diabetes. Diabetes mellitus is among the commonest endocrine and metabolic diseases of childhood. Till recently, diabetes in children (defined as onset below 12 years) and adolescents (defined as onset between 12 and 19 years) was almost wholly type 1 diabetes (T1DM). Type 1 diabetes is one of the most well-known endocrine and metabolic conditions in childhood and adolescence. According to WHO (2008) Diabetes is a chronic disease that happens when the pancreas doesn't produce adequate insulin (a hormone that regulates blood sugar) or otherwise, when the body cannot effectively use the insulin it produces.

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Prevalence

As indicated by World Health Organization (2014), the number of individuals with type 1 diabetes has ascended from 108 million of every 1980 to 422 million in 2014. The worldwide prevalence of type 1 diabetes among children below 18 years of age has ascended from 4.7% in 1980 to 9.5%.

According to International Diabetes Federation report (2015) across worldwide, there are 415 million people affected by diabetes in which 78.3 million belongs to South East Asia. After China, India is second largest globally with maximum diabetes population.

Cognitive Emotion Regulation

In regular day life, frequently experience solid emotions that essentially be overseen to work well in the family, school, network or society and so forth. Handling or managing emotions means comprehending and separating emotional experience, utilizing solid approaches to control painful emotions, and participating in suitable conduct (e.g., going to classes, taking part in social connections) when upset. Consequently, it has both intellectual and behavioral perspectives (Garnefski et al., 2002).

Regulations of emotions plays significant role in the growth and maintenance of situations that includes a wide series of conscious and unconscious processes (Sawyer et al., 2011). In fact, in emotion regulation, there is the requirement for the optimum collaboration of cognition and emotion to deal with adverse situations (Aikens et al., 2013). Cognitive emotion positive strategies, such as positive reappraisal, to test an underlying understanding and clarification regarding illness to alter its sense in an optimistic way, as acceptance and refocusing attention on constructive stimuli, more likely to stimulate positive emotional reactions, such as appreciation, and reduce the experience of undesirable reactions, such as irritation or blame whereas use of negative strategies may strengthen or uphold negative emotions regarding illness. Instances include reflecting on adverse opinions and feelings, indulging in self-depreciation, and concentrating attention on adverse aspects regarding the stressor.

Cognitive Emotion regulation is expected to be significant factor in defining psychological wellbeing (Garnefski et al., 2001), assumes an important role in our adjustment to long term illness like diabetes (Garnefski and Kraaij, 2006), and perhaps may impact on quality of life. Children with type 1 diabetes need to manage by a complex and challenging regular treatment routine, can have an adverse effect quality of life (QoL).

Quality of Life

Diabetes is a demanding disease, so it can influence your life in different perspectives. Dealing with your diabetes can be distressing, the manner in which you feel when your blood glucose levels are low or high adds to the stress. In children with type 1 diabetes, quality of life is anticipated by confidence in one's capability of treatment to manage diabetes, conviction that diabetes won't significantly influence on one's lifetime, and large insights of the illness and one's -administration behaviors (Skinner, et al., 2003). The quality of life is composed of several components which involve physical and social functioning, psychological status and disease or treatment related symptoms which vary from person to person depending on the chronicity of their illness or ailment (Talbot, 1999).

Examination of quality of life helps in recognize clusters with low quality of life, and this could direct interventions that will recover the circumstance and prevent added effects, allot

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inadequate resources grounded on urgent requirement and direct policies to enhance quality of life, as significant result of remedial regimen in children with diabetes.

METHOD

Aim

To assess the, cognitive emotion regulation & quality of life among children with type 1 diabetes.

Objectives

1. To assess cognitive emotion regulation among children with type 1 diabetes.
2. To assess quality of life among children with type 1 diabetes.
3. To assess the relationship among cognitive emotion regulation and quality of life in a group of children having type 1 diabetes.

Hypotheses

1. There would be maladaptive cognitive emotion regulation strategies among children with type 1 diabetes.
2. There would be low quality of life among children with type 1 diabetes.
3. There would be significant relationship among cognitive emotion regulation and quality of life in a group of children having type 1 diabetes.

Sample

Total 50 participants (children) with type 1 diabetes were selected for study by using the purposive sampling technique.

Inclusion Criteria

1. Children with type 1 diabetes were included who have been diagnosed for at least one year.
2. Children with type 1 diabetes having age range of 8-12 years were included.
3. Children of both sexes were included.

Exclusion Criteria

1. Children below or above age group were excluded.
2. Children with any psychiatric illness were excluded.
3. Children having any major co-morbid disease or physical condition were excluded.

Tools

The variables used for the present study are Cognitive Emotion Regulation and Quality of Life. Here the tools used for the study is discussed.

1. **Cognitive Emotion Regulation Questionnaire- Kids Version):** It has been constructed by (Garnefski et al., 2002). It is a 36-item questionnaire, designed to measure the cognitive emotion regulation strategies used by individuals after the occurrence of a negative event. The internal consistencies ranging from 0.68 to 0.83 with utmost Cronbach's alpha beyond 0.80. Test-retest correlations ranged among 0.40 and 0.60.
2. **KIDSCREEN Health Related Quality of Life:** It has been constructed by KIDSCREEN Group (2006), It is a self-report measure to assess generic health-related quality of life (HRQOL) in children. The Cronbach's alpha reliability coefficients obtained, ranged from 0.66 to 0.84.

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Procedure

The participants were selected by using purposive sampling technique from non-for-profit organization – DIYA (Diabetes India Youth in Action), in Delhi on the bases of above mention inclusion and exclusion criteria. Informed consent was then taken from these children after explaining them the nature and purpose of the study. Socio- Demographic details of the participants were obtained. Cognitive Emotion Regulation Questionnaire & KIDSCREEN Health Related Quality of Life will be administered on the participants. The instructions were read out to the respondents. Once the questionnaires were completed, the data sheets were collected back, and preliminary screening was undertaken to determine if the sheets are complete. The responses were scored according to the scoring key. Data will be analyzed by using Statistical Package for Social Sciences, version 20.

Statistical Analysis

For data analysis descriptive and inferential statistics were adopted. Percentage Frequency distribution and Pearson’s correlation were obtained to assess the percent value of variables and relationship between cognitive emotion regulation and quality of life respectively.

RESULTS

Demographics

Table-3.1 (a): Socio-demographic profile (categorical variable) (N=50)

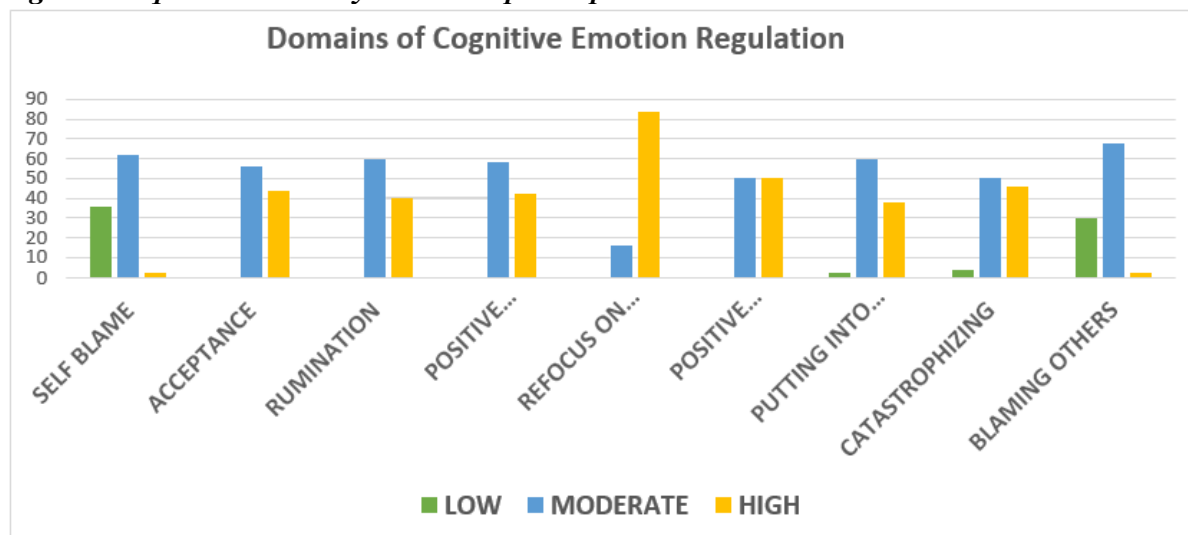
Age in Years	Frequency (N= 50)	Percentage	Mean ± SD
8	8	16%	10.08±1.36
9	10	20%	
10	12	24%	
11	10	20%	
12	10	20%	

Table-3.1(b): Socio-demographic profile (categorical variables) (N=50)

Socio-Demographic Variables		Frequency (N= 50)	Percentage
Gender	Male	32	64%
	Female	18	36%
Religion	Hindu	26	52%
	Muslim	21	42%
	Sikh	3	6%
Domicile	Rural	20	40%
	Urban	30	60%
Family Type	Joint	17	34%
	Nuclear	32	64%
	Others	1	2%
Family Support	Present	49	98%
	Absent	1	2%
Member of Social Group Support	Yes	25	50%
	No	25	50%
Family History	Yes	11	22%
	No	39	78%

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Graph 1 showing Percentage Distribution of scores obtained on Cognitive emotion regulation questionnaire by all the 50 participants



Graph 2 showing Percentage Distribution of scores obtained on Quality-of-life questionnaire by all the 50 participants

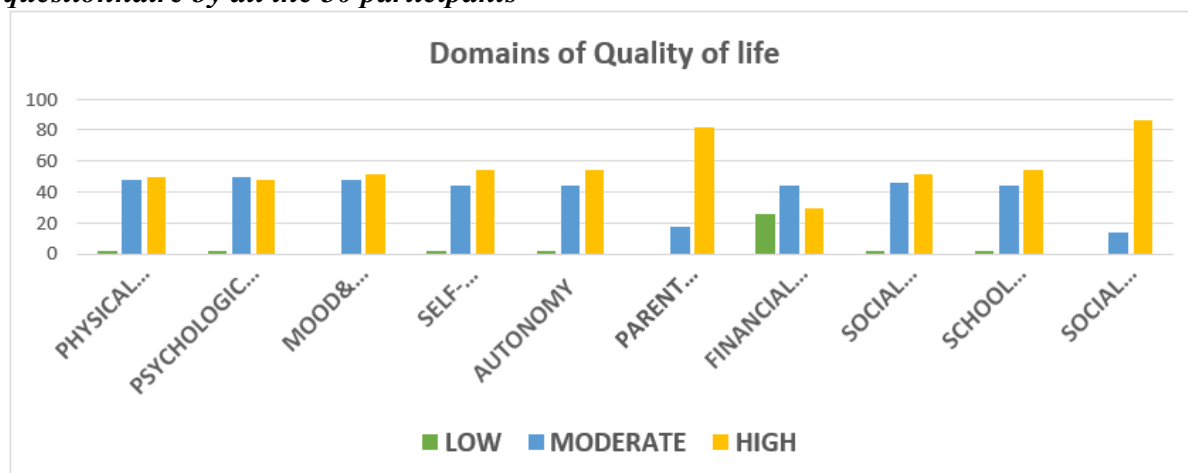


Table -3.1 (c): Correlation table of Cognitive emotion regulation domains with domains of Quality of life

Variables	Quality of Life Domains									
	Physical Well Being	Psychological well being	Mood	Self-Perception	Autonomy	Parent Relation	Financial	Social Support	School Environment	Social Acceptance
Self-Blame	-0.185	-0.287*	-0.209	-0.137	-0.138	-0.204	0.108	-0.167	-0.201	0.065
Acceptance	0.649**	0.618**	0.609**	0.389**	0.685**	0.627**	0.507*	0.724**	0.66**	0.56**
Rumination	0.351*	-0.535**	0.562**	0.641**	0.546**	-0.31*	-0.088	0.537**	-0.589**	-0.44**
Positive refocusing	0.484**	0.62**	0.606**	0.612**	0.551**	0.472**	0.18	0.578**	0.583**	0.396**
Refocus on planning	0.252	0.23	0.115	0.231	0.328*	0.447**	0.097	0.378**	0.292*	0.198

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Positive Reappraisal	0.636**	0.674**	0.624**	0.443**	0.607**	0.755**	0.376*	0.727**	0.648**	0.331*
Putting In to Perspective	0.525**	0.6**	0.611**	0.533**	0.537**	0.56*	0.308*	0.575**	0.503**	0.493**
Catastrophizing	-0.525**	-0.667**	-0.607**	-0.549**	-0.684**	-0.549**	-0.451*	-0.655**	-0.634**	-0.424**
Blaming Others	-0.1	-0.267	-0.147	-0.084	-0.167	-0.103	0.268	-0.184	-0.057	0.299*

(* $p < .05$, ** $p < .01$)

DISCUSSION

In current scenario, changes in lifestyle and predominating prevalence of obesity seem to have leads to an enlarged incidence of diabetes. It is a continuing and hazardous illness chronic requires a perplexing and demanding treatment routine. Frequent administration of insulin, checking blood glucose levels, and treating high and low blood sugars are all a part of day-to-day life of child with diabetes. Managing a chronic illness can be challenging, and developing powerful effective coping strategies to defeat troubles is basic for maintaining child's health, balance and happiness. Subsequently, there is a developing need to find how the presence of the chronic illness influences psychological - conduct, psychosocial angles of children.

The purpose of the current study was to evaluate cognitive emotion regulation & quality of life among children with type 1 diabetes. Another objective was to understand if there is any relation present between cognitive emotion regulation and quality of life under study.

The present study was Ex-post facto correlation study, where 50 participants of age range 8-12 years were selected through purposive sampling technique according to the aforesaid inclusion criteria for the present study.

For the purpose of assessment of the participant's cognitive emotion regulation and quality of life, standardized and widely used tests were used.

The present study consisted of total 50 children of type 1 diabetes with the mean age 10.08 ± 1.36 years. In the present study with respect to socio demographic variables, gender, religion, domicile, family type, family history of diabetes, family support and out group support were included. Findings revealed that there was precedence of males i.e. 32 (64%) over the females i.e. 18 (36%). With respect to religion, out of 50 participants 26 (52%) children belonging to Hindu religion, 21 (42%) children belonging to Muslim religion and 3 (6%) belonging to Sikh religion. In the total sample, 20 (40%) children were from a rural habitat and 30 (60%), children were from an urban habitat. With respect to family type, 17 (34%) children belong to joint family, 32 (64%) children belong to nuclear family and 1 (2%) belong to another category. It was also found that out 50 participants 11 (22%) children reported having family history of diabetes and 39 (78%) children doesn't have family history. Out of 50 respondents, 49 (98%) children get support from their family members and 1 (2%) child doesn't get support from their family members. In the total sample, 25 (50%) of children are member of social group support and 25 (50%) of children are non- members of any social group support.

Cognitive Emotion Regulation in Children with Type 1 Diabetes

It has been identified several specific cognitions, can turn as any help or either obstacle to illness adaptability, many approaches proposals a chance to recognize the serious aspects in child' adjustment to illness. This requires an overall new pattern of skills and changes in the cognitive framework of the individual to cope and survive with the illness. Children who are diagnosed with chronic illnesses develop certain cognitive and emotional viewpoints related to their illness which in-chance affects the quality of life.

In this present study from Graph 1, it was indicated that out of total sample majority of participants scored high on Refocus on planning and Positive reappraisal i.e., 84% and 50% respectively. As, diabetes requires monitoring of self-management behaviors and continuing medical care which includes developing plan keeping in mind the school schedule and conditions physical activity, eating patterns, presence of complications or other medical conditions. As in the present findings, respondents had perceived high in focusing on thinking about the steps to take to handle the negative events and creates a positive meaning associated with the illness which means continuous use of adaptive cognitive emotional strategy.

The findings of this study found that Positive refocusing and tapping into new outlook perceived moderately focusing on the pleasing events, as an alternative of real events which means use of adaptive cognitive emotional strategy to some extent as diversity of approaches to offer sufficient knowledge, growth of different techniques in the numerous characteristics in managing diabetes.

The present study findings revealed that only 2% participants out of total sample scored high on self- blame. On the other hand, 44% participants out of total sample scored high on acceptance. It implies majority of the participants showing acceptance regarding the course and condition of their illness rather than blaming self for their illness. Morisky et al., (2011), found that the participants revealed high rationality and logical view, mirrors one's own comprehension with diabetes. As acceptance is an adaptive cognitive emotional strategy which obviously decreases the expression of negative emotions such as self -blame.

Quality of Life in Children with Type 1 Diabetes

In pediatric diabetes, accomplishing a good quality of life ought to view a similarly as attaining decent metabolic control. It is a useful asset to anticipate a person's ability to deal with the illness and uphold long-standing health and well-being. It is anticipated by confidence in one's capacity over regime of treatment to regulate diabetes, conviction that diabetes would not considerably influence one's life and broad viewpoint of the illness and managing one's behavior. Diabetes significantly effects on social connections, life expectancy, scholastic performance and overall quality of life. Investigation of quality of life can identify children with poor quality of life, and this could direct interventions that will progress the circumstances, deflect more effects, depend on neglected need, manage key plans guide and monitor the intervention.

It can be inferred from graph 2 that it was found that out of total sample majority of participants (ranging from 48 -54%) scored high on Physical well-being, Mood and emotion, Self- perception and Autonomy i.e., 48%, 52%, 54% and 54%. The present findings suggest that physical health was the most affected domain but respondents had perceived high in the in the physical activity, energy and fitness to perform physically demanding activities , high in experiencing and perceiving positive moods and emotions rather than more stressful

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feelings, perceived high in satisfaction with one's appearance and body and perceived high in self- sufficiency, creating one's identity, freedom of choice, independence and adequately providing with chances to indulge in social activities, which means high quality of life.

The results of the above study also concluded that majority of participants scored high on Parent relation, Social support, School environment and Social acceptance. As social supports predict the health encouraging behavior and capability of foreseeing self- care behavior of diabetes. Therefore, getting the support from family members, teachers and peers can be of significant importance in providing healthcare, as many various individual, social and environmental sources helps for the optimum- care of diabetes.

A literature reviewed that higher levels of social support are linked with better self- management, heightened self- esteem, and self- efficacy which further lead to improved health outcomes. In link with present findings, (Eppens ,2017) observed that social support is one of the influential and significant factors for promoting self – care and for adherence to the treatment and disease control which can enable self -care behavior and compatibility with the disease.

Relationship between Cognitive Emotion Regulation and Quality of Life

Table 1 findings of the present study showed that there is significantly positive correlation between blaming others with social acceptance. It implies that some of the participants tend to blame others for their illness even after getting social support. It might be due to lack of illness coherence and cognitive flexibility in some of them. **The present study suggests that acceptance, positive reappraisal and putting into perspective are significantly positively correlated with all domains of quality of life,** which means participants having adequate understanding of the nature, course and related possible conditions related to their illness are more likely to accept it positively and tend to deal with it accordingly which in turn improves their quality of life positively. **The finding of the present study suggests that positive refocusing is significantly positively correlated with all domains of quality of life, except financial resources.** To support the findings a study conducted by (Sawyer et al., 2011), concluded that out of the all-mental strategies, the weak connotation with negative emotional experience was reported in positive refocusing with quality of life. **The finding of the present study suggests that rumination and catastrophizing are significantly negatively correlated with all domains of quality of life.** It implies that exaggeration of negative aspect of illness in term of thinking, feeling and emotional expression may affect the quality of life negatively. **The finding of the present study suggests that Refocus on planning is significantly positively correlated with autonomy, school environment, parent relations and social support.** It implies that searching and adopting new positive way to deal with the stressful event or situation may enhance participant's autonomy, good relation with peers and parents and social support.

CONCLUSION

This study provides comprehensive knowledge as know how cognition regulate emotions in children, and how this distress the progression of emotional development and their quality of life. The present study revealed that there is a close association between type1 diabetes in children, their psychological or cognitive functioning and quality of life.

The present research finding pave the way for utilizing efficient coping adaptive strategies which can be part of intervention for children diagnosed with diabetes and interventions

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focusing on productive coping strategies could be included in counselling and educational raisings for children with diabetes from the moment of diagnosis.

It endorses construction of agendas and plans for improved cost - effective approaches and prevention methods, targeting the pediatric diabetes to help them manage and reduce the burden of the illness.

Limitations

The total sample size of the study was small. The accuracy of results could be better if the sample size would be big. The findings of the present study could be better if the sampling technique would be randomized. The non- equitable distribution between genders, the findings could not be generalized across genders. Finally, associations between various measures within this study may be confounded by additional variables that were not measured such as child's motivation, personal time constraints etc.

Implications

The present research finding pave the way for utilizing efficient coping adaptive strategies which can be part of intervention for children diagnosed with diabetes and interventions focusing on productive coping strategies could be included in counselling and educational raisings for children with diabetes from the moment of diagnosis. The study endorses construction of agendas and plans for improved cost - effective approaches and prevention methods, targeting the pediatric diabetes to help them manage and reduce the burden of the illness. Evidence-based psychosocial, behavioral or psychiatric interventions should be made available for children or families displaying conflict, chaotic communication, behavioral or psychiatric complications or adherence glitches distressing glycemic control.

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Conflict of Interest

The author(s) declared no conflict of interest.

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