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IMPACT OF HEALTH COUNSELLING ON SELF EFFICACY AND GLYCEMIC LEVEL AMONG DIABETIC ADOLESCENT PATIENTS

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Abstract

Children and adolescents with diabetes have significant risks for psychological problems, including depression, anxiety, eating disorders and externalizing disorders. These risks increase exponentially during adolescence. Studies have shown that psychological disorders predict poor diabetes management and control as well as consequently, the negative medical outcomes. The presence of psychological symptoms and diabetes problems in children and adolescents are often strongly affected by caregiver/family distress. Research has demonstrated that while parental psychological issues may distort perceptions of the ward's diabetes control, often, they are related to poor psychological adjustment and diabetes control. Maternal anxiety and depression are associated with poor diabetes control in younger adolescents and with reduced positive effect and motivation in older teen. The results of the study indicate that parental anxiety related to the diabetes control among the subjects and health counselling has significantly develops the diabetic control. The study concludes that to avoid both health and Psychological/psychiatric risks the (adolescent) patients should be referred for diabetes education, ongoing care and psychosocial support to a diabetes team with psychopharmacological expertise.

Key Words: Health Counselling, Self efficacy, Anxiety, Adolescents

Introduction

Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively. The prevalence of diabetes is predicted to double globally from 171 million in 2000 to 366 million in 2030 with a maximum increase in India. It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India (Kaveeshwar & Jon Cornwal, 2014).

A recent study by Mohan et al, (2011) & Mohan, Shah, and Saboo, (2013) reported that diabetes control in individuals worsened with longer duration of the disease (9.9±5.5 years), with neuropathy the most common complication (24.6 per cent) followed by cardiovascular complications (23.6 per cent), renal issues (21.1 per cent), retinopathy (16.6 per cent) and foot ulcers (5.5 per cent). These results were closely in line with other results from the South Indian population (Rema et al., 2005). However further data from different sections of India is required to be able to assess whether patterns of complications rates vary across the country

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(Unnikrishnan, et al 2007). Poor glycemic control, a factor that has been observed in the Indian diabetic population, is responsible for micro- and macro vascular changes that present with diabetes, and can predispose diabetic patients to other complications such as diabetic myonecrosis and muscle infarction (Rastogi et al., 2011).

Type 1 diabetes (T1D) is a chronic illness requiring complex daily management, including adherence to an insulin regimen (via injections or an insulin pump), blood glucose monitoring, and careful attention to nutrient intake and physical activity (Wysocki, Buckloh, & Greco, 2009). As one of the most common chronic diseases it affects many include adolescents also and thereby their parents. Many studies have demonstrated that consistent adherence to a T1D regimen is challenging, with particularly high rates of non-adherence among adolescents (Anderson, Ho, Brackett, Finkelstein & Laffel, 1997). There is strong evidence that interpersonal (e.g., parental) and intrapersonal (e.g., mood, self-efficacy) factors contribute to youths' self-care and adherence to T1D regimens (Greening, Stoppelbein, & Reeves, 2006). The social ecological model posits that these interpersonal and intrapersonal systems interact with one another to influence behavior and adjustment (Bronfenbrenner, 1977). Examining these interrelationships is important for understanding illness management in youth with T1D. For example, Naar-King and colleagues (2006) examined the joint effect of intrapersonal and interpersonal factors and found that child externalizing behaviors, poor family relationships, and less satisfaction with healthcare providers interact to contribute to poor illness management.

Parental Involvement

Parental involvement in the management of T1D care in youth has been associated with increased adherence to youths' medical regimens as well as better glycemic control (Anderson et al., 1997; La Greca et al., 1995; Wysocki &Nansel et al., 2009). However, it appears that the quality of the parental interaction is paramount. In fact, negative family interactions have been shown to be associated with *worse* adherence and metabolic control (Hood, Butler, Anderson, & Laffel, 2007; Jaser & Grey, 2010; Lewin et al., 2006; Schafer, McCaul, & Glasgow, 1986). Specifically, critical parenting (i.e., criticism, nagging, and negativity) appears to be a salient predictor of poor adherence and metabolic control, especially for older adolescents (Duke et al., 2008; Lewin et al., 2006).

Parenting behaviors related not only to adherence and metabolic control, they also appear to influence child psychological well-being. For example, in adolescents with T1D, Butler, Skinner, Gelfand, Berg, & Wiebe (2007) demonstrated that a parenting style characterized by attempts to regulate an adolescent's thoughts and opinions through guilt and criticism was associated with higher adolescent reported depression as well as lower self-efficacy for managing diabetes, but was not related to reports of adherence. Further, Jaser and Grey (2010) found that observed maternal hostility was correlated with more depressive symptoms in adolescents with T1D.

As the social ecological model suggests, examining the interrelationship of multiple systems is important to gain a better understanding of the complex factors that are related to self-care and adherence in youth with T1D. Critical parenting behaviors have been found to be related to adolescent depression and low self-efficacy for diabetes care, all of which are additionally

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associated with poorer self-care and adherence to diabetes regimens (Butler et al., 2007; Lannotti et al., 2006; Lewin et al., 2006). Given that these relationships have not been explored during the period of preadolescence, it is therefore important to examine these factors together in a model predicting self-care in adolescents in Indian settings. The current study aims to elucidate the relationship of critical parenting behaviors particularly their anxiety, self-care behaviors in adolescents. Specifically, it was hypothesized that parental anxiety will be related to self-care behaviors in adolescents with T1D and health counselling will help to improve their perceived self efficacy and health behaviour like glycemic control.

Research Methodology

Research Objectives: To find out the efficacy of Health Counselling on Diabetic Adolescent Patients in increasing their perceived self efficacy level and achieve in reduction of blood glucose level. **Hypotheses framed:** To meet out the research objectives two hypotheses were framed namely: H1) there will be a significant relationship between the perceived self efficacy level of the Adolescent diabetic patients and parental anxiety, and H2) there will be a significant reduction in the blood glucose level and increase in self efficacy level of the adolescent diabetic patients. **Sample:** An exploratory design was adopted with Purposive Sampling technique for sample selection. Sample Size: Totally 42 samples were selected from outpatient clinics of a Diabetic specialty hospital in Chennai city comprising 22 boys males and 20 girls females. (n=42). Simultaneously their parents were included in the study. The samples were medically diagnosed to be Type 1 diabetic and taking medical treatment. The range of the samples' age is 14-18 and Parents age is between 42- 54. The qualification of the Adolescents: 8^{th}– 12^{th} .standard and Parent's qualification are varying from Matriculation to Post graduation.

Tools used: Blood Glucose level: samples with their blood glucose levels an average (range = 0–5) and on average had fair metabolic control (*M* hemoglobin A1C = 8.5%, *SD* = 1.6, range 5.8–14). Anxiety: The State-Trait Anxiety Inventory (STAI) is a commonly used measure of trait and state anxiety (Spielberger, 1983). It can be used in clinical settings to diagnose anxiety and to distinguish it from depressive syndromes. It also is often used in research as an indicator of caregiver distress *Self-Efficacy for Diabetes:* Modified version of the questionnaire SED developed by Grossman, Brink & Hauser, (1987) with 24 items assessing how much a child believes that he/she can or cannot handle situation-specific challenges of his/her current diabetes regimens. Responses are rated on a 5-point Likert scale from 1 (very sure I cannot) to 5 (very sure I can), The Internal consistency for both the tools in the current study were good (α for SA -=81, TA= .80, SE = .79). ***Operational definitions:*** *Blood Glucose level:* Sugar in the bloodstream that is transported to supply energy to all the cells in our bodies. (Average=90 mg/dl). *Self Efficacy:* The patients' level of confidence in their ability to perform health behaviors and how much a ward believes that he/she can or cannot handle situation-specific challenges of his/her current diabetes regimens. *Health Counselling*: explanation given to the clients and their parents about the nature of health problems and aid in formulating a plan of action and empowering them to solve the problems on their own. ***Data Collection:*** From the medical record review, the ward's diagnosis was confirmed and the hemoglobin A1C closest to date of study participation (within the previous 6 months) and illness duration along with the

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demographic particulars were obtained. The parents were administered with anxiety inventory and the (diabetic) adolescents with perceived self efficacy inventory. Then the adolescents were given health counselling as an intervention. The patients had attended health counselling sessions for six months at least three times a week regularly and post intervention data was also collected. **Statistics used:** The data collected were subjected to both descriptive and functional statistical analysis like Mean SD, Correlations using SPSS Package.

Results and Discussions

Table -1 - Mean, Standard Deviations, Correlations (pre-intervention), and Reliability Measures

S.No	Variables	Mean	SD	r-value (with Self Efficacy)	Cronbach Alpha Coefficient
1.	Self Efficacy	41.40	3.14		.79
2.	State Anxiety	14.25	3.87	-.54**	.81
3.	Trait Anxiety	11.22	2.11	-.41**	.80

**= significant at .01 level

From the table -1 it can be inferred that at the pre-intervention level the perceived self efficacy level (M=41.40, *SD*=3.14) of the samples were low. The self efficacy level was negatively correlated with the anxiety levels of the parents. From the r-values both the state and trait anxiety dimensions are seem to be related (at 0.01 level) to the perceived self efficacy level of the diabetic adolescents. So the hypothesis H1 was accepted.

Table -2 - Mean, Standard Deviations, and paired t-value of the samples

S.No	Groups	Mean	SD	t-value	Level of significance
1.	Self Efficacy level				
	Pre - Intervention	41.40	3.14	7.30	.01
	Post- Intervention	70.30	5.24		
2.	Blood Glucose level				
	Pre - Intervention	8.36	0.29	3.64	.01
	Post- Intervention	7.12	0.26		

Table 2 indicates that intervention was effective in increasing self-efficacy level of the adolescents and in reducing their blood glucose level. As quoted above, the self efficacy level of the samples were relatively low. But after the intervention, from the paired t-value of 7.30, it is confirmed that there is a significant increase in the self efficacy level. Similarly from the paired t-value of 3.64 a significant reduction in the blood glucose level was observed. Hence, the hypothesis H2 was also accepted.

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Findings and Discussion

Parental anxiety (both the State and Trait dimensions) is significantly negatively related to perceived Self efficacy of the patients indicating that that more anxious the parents lesser will be perceived self efficacy among the patients which also conveys the role of parental anxiety on the self efficacy of the patients. There was significant improvement in the Self efficacy of the patients after intervention. Significant reduction was appeared in the blood glucose level.

In the important developmental period of preadolescence, critical parenting behaviors appear to be related to youth's self-efficacy for diabetes management, with depressive symptoms also playing a significant role. Certain findings suggest that examining the quality of parental involvement is very important, as critical parenting has been related to poor adherence and metabolic control (Duke et al., 2008; Jaser & Grey, 2010). The findings of the current study are consistent with previous literature concerning adolescents, which has demonstrated that parenting characterized by regulating a child's behavior though criticism is associated with lower levels of self-efficacy and greater levels of depression (Butler et al., 2007). The current study corroborates these findings in a preadolescent population and elucidates the mechanisms by which critical parenting behaviors are associated with self-efficacy and self-care behaviors. The relationship identified between critical parenting behaviors and patient's psychological well-being is of concern because youth with T1D have already been shown to be at greater risk than their non-T1D peers for psychiatric disorders (Blanz, Rensch-Riemann, Fritz-Sigmund, & Schmidt, 1993), including depression (Kovacs, Mukerji, Iyengar, & Drash, 1996). Clinically, parental involvement in diabetes care is a primary focus of treatment of adolescents with T1D and the quality of that involvement as well as the importance of promoting positive parental involvement in care with adolescents is highlighted by these findings. Therefore, the findings from the current study illustrate the importance of helping parents to be involved with their ward's diabetes care in a noncritical way, so as to lower risk for depressive symptoms and poor self-efficacy.

Conclusion

Regarding the Parental anxiety both the State and Trait dimensions are significantly related to perceived Self efficacy of the patients. There was significant improvement in the Self efficacy of the patients after intervention. Significant reduction was also recorded in the blood glucose level.

Limitations of the study: Samples were collected only from a specialty hospital in Chennai city. Control group was not maintained due to ethical considerations. Different results might be obtained if the study is conducted in many other institutions at different geographical areas. Literature indicates that there are certain other potential factors such as parental diabetic level, Income level, individual characteristics and job characteristics of the parents might influence self efficacy and glycemic control. Future research should replicate the framework of this study by incorporating the above mentioned factors to elicit a comprehensive understanding on how personal, bio-chemical, societal and environmental factors affect the recovery of the patients.

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