

# Quality of Life and Therapeutic Compliance of Children with Type 1 Diabetes Mellitus

Nitha. K

Lecturer, Baby Memorial College of Nursing, Kozhikode

## ABSTRACT

The study aimed to assess the quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus attending Diabetic clinic, Mittayi in Institute of Maternal and Child Health, Kozhikode. The objectives of the study were to assess the quality of life of children with Type 1 Diabetes Mellitus, assess the therapeutic compliance of children with Type 1 Diabetes Mellitus, find out the relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus, find out the association between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus and selected socio personal variables. The study was conducted by a non experimental descriptive design among 53 children with Type 1 Diabetes Mellitus by convenient sampling technique. The tools used were semistructured interview schedule to collect the socio personal data of children with Type 1 Diabetes Mellitus and their parents, Pediatric Quality of Life Inventory (PedsQL) to assess the quality of life of children with Type 1 Diabetes Mellitus, and rating scale to assess the therapeutic compliance of children with Type 1 Diabetes Mellitus. The data were analyzed using descriptive and inferential statistics. The result revealed that 69.8% of children with Type 1 Diabetes Mellitus reported good quality of life, 22.6% reported moderate quality of life, and 7.5% reported poor quality of life whereas 69.8% of their parents reported good quality of life, 28.3% reported moderate quality of life and 1.9% reported poor quality of life. The study findings also revealed that 83.0% of children with Type 1 Diabetes Mellitus had good therapeutic compliance, 11.3% had moderate therapeutic compliance and 5.6% was found to have poor therapeutic compliance. There is a positive correlation( $r=0.38$ ) between the quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus. The study found that there is a significant association between quality of life of children with Type 1 Diabetes Mellitus and age ( $p=0.005$ ), class in which studying ( $p=0.027$ ), type of family ( $p=0.025$ ), age at onset of illness ( $p=0.004$ ), duration of illness ( $p=0.026$ ), education of the mother ( $p=0.001$ ), and family history of diabetes mellitus ( $p=0.013$ ). The study also revealed that there is a significant association between therapeutic compliance of children with Type 1 Diabetes Mellitus with their age ( $p=0.010$ ), birth order (0.025) type of family (0.020), duration of illness ( $p=0.020$ ), and education of the mother ( $p=0.031$ ).

**Keywords:** Quality of life; Therapeutic compliance; Type 1 Diabetes Mellitus; Children with Type 1 Diabetes Mellitus.

## INTRODUCTION

Type 1 Diabetes is a chronic autoimmune disease characterized by insulin deficiency and resultant hyperglycemia. In this form of Diabetes, the beta cells of the pancreas no longer make insulin because the body's immune system has attacked and destroyed them. It is one of the most common endocrine and

metabolic conditions in childhood. Children with Type 1 Diabetes commonly present with symptoms of polyuria, polydipsia, and weight loss; approximately one third present with diabetic ketoacidosis. Treatment for Type 1 Diabetes includes taking insulin shots or using an insulin pump, a healthy diet, exercising regularly, and controlling blood pressure and cholesterol. Individuals are advised to regulate their own blood glucose levels through daily monitoring and injections of insulin, and matching insulin to diet and exercise. Without adequate self-care behavior to control glucose levels, complications can arise which, left untreated, may lead to coma or even death.

Type 1 Diabetes Mellitus usually develops during infancy and adolescence and may affect the quality of life of children. Quality of life is the degree to which a child experiences the important possibilities of his/her life with the expected wellbeing in his/her physical, emotional, social and school functioning. By following proper therapeutic regimen children with Type 1 Diabetes Mellitus can lead a normal life.

## OBJECTIVES

1. Assess the quality of life of children with Type 1 Diabetes Mellitus.
2. Assess the therapeutic compliance of children with Type 1 Diabetes Mellitus.
3. Find out the relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus.
4. Find out the association between quality of life of children with Type 1 Diabetes Mellitus and selected socio personal variables.
5. Find out the association between therapeutic compliance of children

## HYPOTHESIS

1. H<sub>1</sub>: There is a significant relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus.
2. H<sub>2</sub>: There is a significant association between quality of life of children with Type 1 Diabetes Mellitus and selected socio personal variables.
3. H<sub>3</sub>: There is a significant association between therapeutic compliance of children with Type 1 Diabetes Mellitus and selected socio personal variables.

## MATERIALS AND METHODS

Non experimental research design was used among 53 children with Type 1 Diabetes Mellitus who fulfill the inclusion criteria. Convenient sampling technique was used.

Description of the tool

- Tool 1 - Semi structured interview schedule to collect the socio personal data of children with Type 1 Diabetes Mellitus and their parents.
- Tool 2- Pediatric Quality of Life Inventory (PedsQL) to assess the quality of life of children with Type 1 diabetes mellitus.
- Tool 3 - Rating scale to assess the therapeutic compliance of children with Type 1 Diabetes Mellitus.

## DATA COLLECTION

Written permission was obtained from concerned officials, from the setting Diabetic clinic, Mittayi Institute of maternal and child health, Kozhikode children with Type 1 Diabetes Mellitus were selected according to the inclusion criteria. The investigator introduced herself and explained the purpose of the

study to selected children and their parents. Informed consent was taken from the parents and assent taken from the children as per the need. Confidentiality of the data was assured. Socio personal data was collected by interviewing the parent. Pediatric quality of life inventory for assessing the quality of life of children with Type 1 Diabetes mellitus was administered to the child and parent. After that, the rating scale for assessing therapeutic compliance was administered to the child. Ethical adherence was strictly followed during study.

## RESULTS

The data was collected from 53 sample using semi structured interview schedule, Pediatric Quality Life Inventory (PedsQL), and rating scale. Data were organized, tabulated, analyzed, and interpreted using descriptive and inferential statistics using SPSS package.

### Section 1: Sample characteristics

- Half of the children with Type 1 Diabetes Mellitus (52.8%) were belonged to the age group of 8-<13 years.
- Out of the children with Type 1 Diabetes Mellitus 62.3% were female.
- Among the children with Type 1 Diabetes Mellitus, 62.3% of children were studying in class 3-<8 Standard.
- Most of the children with Type 1 Diabetes Mellitus (98.1%) were delivered at term.
- More than half of children with Type 1 Diabetes Mellitus (58.5%) were firstborn children.
- More than sixty percent of children with Type 1 Diabetes Mellitus (62.3%) belonged to Islam religion.
- Majority of the sample (67.9%) were residing in Panchayath.
- Majority of the participants (76.9%) belonged to nuclear family.
- Nearly half of (49.1%) of children with Type 1 Diabetes Mellitus had BMI less than 18.5kg/m.<sup>2</sup>
- Among the sample HbA<sub>1c</sub> value of 41.5% of the children with Type 1 Diabetes Mellitus was found to be >9%.
- Majority of children with Type 1 Diabetes Mellitus (66.0%) had onset of illness between 10-18 years and 45.3% of children with Type 1 Diabetes Mellitus had duration of illness less than 3 years.
- Among the children with Type 1 Diabetes Mellitus 94.4% were completely immunized, 5.6% were partially immunized and none of them were un immunized
- Considering age of the mother and father, 49.1% of mothers of children with Type 1 Diabetes Mellitus belonged to 36-46 years and 64.2% of fathers of children with Type 1 Diabetes Mellitus belonged to the age group 41-51 years.
- Considering education of the mother and father, 54.7% of mothers of children with Type 1 Diabetes mellitus and 49.0 % of fathers of children with Type 1 Diabetes Mellitus had high school education.
- Regarding occupation of the mother and father, most of the mothers of children with Type 1 Diabetes Mellitus (90.6%) were homemakers and 39.6% of fathers of children with Type 1 Diabetes Mellitus were privately employed.
- More than half (56.6%) of family had 2 children.
- Regarding economic status, 52.8% of children with Type 1 Diabetes Mellitus belonged to APL family.
- Majority of children with Type 1 Diabetes Mellitus (66.0%) were having no family history of Diabetes Mellitus.

**Section 2: Quality of life of children with Type 1 Diabetes Mellitus.**

This section deals with the total quality of life and quality of life in physical and psychosocial domain of children with Type 1 Diabetes Mellitus. Quality of life was analyzed by mean and standard deviation.

The quality of life graded as

Good	62-92(67-100%)
Moderate	31-61(33-66%)
Poor	0-30(<33%)

The mean quality of life score of children with Type 1 Diabetes Mellitus reported by children (64.2±16.9) and their parents (72.7±14.2). was good. The majority of children with Type 1 Diabetes Mellitus (69.8%) reported good quality of life, 22.6% reported moderate quality of life, and 7.5% reported poor quality of life whereas 69.8% of parents reported good quality of life, 28.3% reported moderate quality of life and 1.9% reported poor quality of life.

**Section 3: Therapeutic compliance of children with Type 1 Diabetes Mellitus.**

Section III deals with the total therapeutic compliance of children with Type 1 Diabetes Mellitus and the distribution of participants based on therapeutic compliance. Overall therapeutic compliance is graded as:

Good 38-56 (67-100%)  
 Moderate 19-37(33-66%)  
 Poor <19(<33%)

Therapeutic compliance was analyzed by mean and standard deviation. The mean therapeutic compliance score of children with Type 1 Diabetes Mellitus was found to be good (41.9±7.57). Most of the children (83%) with Type 1 Diabetes Mellitus had shown good therapeutic compliance, 11.3% had moderate therapeutic compliance and 5.6% was found to have poor therapeutic compliance.

**Section 4: Relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus.**

This section deals with the relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus. To find out the relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus Pearson correlation coefficient was used

**Table 1: Relationship between quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus.**

Sno.	Variable	r Value	p-value
1	Quality of life Vs Therapeutic compliance	0.387	0.004***

\*\*\*Significant at 0.001 level

There is a weak positive correlation between the quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus(r=0.387)

**Section 5: Association between quality of life of children with Type 1 Diabetes Mellitus and selected socio personal variables.**

This section deals with the association between quality of life of children with Type 1 Diabetes Mellitus and selected socio personal variables

**Table 2: Association between quality of life of children with Type 1 Diabetes Mellitus and selected socio personal variables.**

Slno	Variable	$\chi^2$	df	p- value
1	Gender	0.355	2	0.837
2	Birth order	2.995	6	0.810
3	Place of living	1.185	4	0.881
4	Religion	7.225	4	0.124
5	HbA <sub>1</sub> C	7.129	4	0.129
6	Mother's age	1.843	4	0.765
7	Occupation of the mother	6.871	4	0.143
8	Father's age	4.227	6	0.639
9	Education of the father	8.920	8	0.349
11	Occupation of the father	10.359	6	0.110
12	No of children in the family	7.289	6	0.295
13	Economic status of the family	4.550	4	0.337
14	Child's age	12.346	3	0.005
15	Class in which studying	7.257	2	0.027
16	Type of family	9.448	6	0.025
17	Age at onset of illness	19.304	6	0.004
18	Duration of illness	5.124	1	0.026
19	Education of the mother	14.816	2	0.001
20	Family history of diabetes mellitus	6.627	1	0.013

\*\*\*Significant at 0.001 level

There is a significant association between the quality of life of children with Type 1 Diabetes Mellitus with age, class in which studying, type of family, age at onset of illness, duration of illness, education of the mother and family history of Diabetes Mellitus.

**Section 6: Association between therapeutic compliance of children with Type 1 Diabetes Mellitus and selected socio personal variables.**

This section deals with the association between therapeutic compliance of children with Type 1 Diabetes Mellitus and selected socio personal variables.

**Table 3: Association between therapeutic compliance of children with Type 1 Diabetes Mellitus and selected socio personal variables.**

Slno	Variable	$\chi^2$	Df	p- value
1	Class in which studying	0.618	1	0.432
2	Gender	0.618	1	0.432
3	Religion	0.618	2	0.734
4	Place of living	3.892	2	0.432
5	BMI	2.063	3	0.787
6	HbA <sub>1</sub> C	1.436	2	0.488
7	Age at onset of illness	3.271	1	0.075
8	Mother's age	1.682	2	0.431

9	Occupation of the mother	0.106	2	0.948
10	Father's age	0.570	3	0.903
11	Occupation of the father	1.682	3	0.641
12	Education of the father	1.553	4	0.817
13	No of children in the family	7.289	6	0.295
14	Economic status of the family	0.981	2	0.612
15	Family history of diabetes mellitus	0.824	1	0.469
16	Child's age	15.813	1	0.010
17	Type of family	9.785	3	0.020
18	Birth order	7.378	2	0.025
19	Duration of illness	3.319	2	0.020
20	Education of the mother	4.637	2	0.031

\*\*\*Significant at 0.001 level

There is a significant association between therapeutic compliance of children with Type 1 Diabetes Mellitus with age, birth order, type of family, duration of illness and education of the mother.

### Conclusion

The purpose of the study was to assess the quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus. Majority of the children with Type 1 Diabetes Mellitus having good quality of life and therapeutic compliance.

### Limitation

The findings of the study can only be generalized to limited population due to the smaller sample size.

### Recommendation

- Similar studies can be conducted in a larger sample size in a different setting for the generalization of findings.
- Comparative studies and Case control studies can be conducted to assess the quality of life of children with Type 1 Diabetes Mellitus and general population.
- Interventional studies can be conducted to improve the quality of life and therapeutic compliance of children with Type 1 Diabetes Mellitus.

### References

1. Blatt Steven. Chronic Health Problems in Children. MSD manual .2021 Jan 18; (1)Available from:<https://www.msmanuals.com/home/children-s-health-issues/social-issues-affecting-children-and-their-families/chronic-health-problems-in-children>
2. Watts Sarah. What Is Type 1 Diabetes Causes, symptoms, diagnosis, treatments, and support. Endocrine web.2021Feb3; (2) Available from: [https:// www. endocrineweb.com/conditions/type-1-diabetes/type-1-diabete](https://www.endocrineweb.com/conditions/type-1-diabetes/type-1-diabete)
3. DiMeglio LA, Evans-Molina C, Oram RA. Type 1 diabetes. The Lancet. 2018 Jun16;391(10138):2449-62. Available from: [https:// www.ncbi.nlm.nih.gov/pmc/articles/PMC6661119/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6661119/)

4. Type 1 diabetes. News Medical Life science. 2019 February;26(10) Available from: <https://www.news-medical.net/condition/Type-1-Diabetes>.
5. Nielsen HB, Ovesen LL, Mortensen LH, Lau CJ, Joensen LE. Type 1 diabetes, quality of life, occupational status and education level—a comparative population-based study. Diabetes research and clinical practice. 2016 Nov 1;121: 62-8. Available from: <https://pubmed.ncbi.nlm.nih.gov/27662040>.
6. Kamaleldeen EB, Mohammad HA, Mohamed EF, Askar AG. Microvascular complications in children and adolescents with type 1 diabetes mellitus in Assiut governorate, Egypt. Egyptian Pediatric Association Gazette. 2018 Dec 1;66(4):85-90. Available from: <https://www.science direct. com/ science/ article/pii/S1110663818300594>
7. Raj M, Abish Sudhakar RR, Champaneri B, Joy TM, Kumar RK. Health-related quality of life in Indian children: A community-based cross-sectional survey. The Indian journal of medical research. 2017 Apr;145(4):521. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5663167/>