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EFFECT OF PLANNED TEACHING ON KNOWLEDGE AND PRACTICES OF CHILDREN WITH TYPE I DIABETES MELLITUS IN RELATION TO SELECTED ASPECTS OF SELF CARE

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ABSTRACT

India shows the high incidence of childhood diabetes which is 4,000.000 & the peak incidence is between 10-15 years. IDDM best managed in home by self care activities & health education which helps the IDDM children to improve self care management. There was significant improvement in post teaching knowledge (t=20.26, P<0.001) & practice score regarding administration of injection insulin (t=17.o5, P<0.001). The calculated' value was found greater than the table't'value at 0.001 levels in all areas of knowledge & practices. The calculated't' value was found greater than the table't' value at 0.001 level, in all areas of knowledge and practices, so null hypothesis was rejected and research hypothesis (H_1) was accepted .There was significant association between post teaching knowledge & practice score with age of children & duration of disease as post teaching score was improved as age & duration of disease was increased. Planned teaching with demonstration was very effective method to improve self care management skill among children with Type I DM Children between the age group of 10 to 15 years. Present study may helpful for clinical teaching to IDDM children to improve self care abilities.

KEYWORDS : Planned Teaching Programme, Type I Diabetes mellitus, Knowledge, practices, children

Diabetes is a global health problem; it is a chronic disease and is now growing as an epidemic in both developed and developing countries. In the early 1970s, the prevalence of diabetes among urban Indians was reported to be 2.1% which has risen to 12-16%. There is a rising prevalence of diabetes in children also and it is the reflection of the effects of globalization and industrialization affecting all the societies.

Latest WHO report (2005) says that out of total diabetic population 5% is childhood diabetes. It also says that India shows the high incidence of childhood diabetes which is 4,00,000. In Mumbai, Bai Jerbai Wadia Hospital for Children, Institute of Child Health & Research Center, the total number of children with Type I Diabetes mellitus registered in the Endocrinology OPD are around 100 in number. Even though the disease in children can occurs from infancy through the age of 30 years, the peak incidence is between 10 year and 15 years and 75% are diagnosed before 18 years of age.

Successful management includes regimens that includes diet, medication, exercise, prevention of complications and follow up. Type I Diabetes is a chronic disease which can be kept under very good control but cannot be cured. It must be managed best in home by self care. One of the most important goals of nursing care is to provide children with adequate knowledge and help them to gain independence in self caring to have a better quality of life.

MATERIALS AND METHODS

Objectives of study were to assess the knowledge & practices of children with Type I Diabetes mellitus on self care management before and after planned teaching programme & to find out the association between the selected demographic variables and the change in status of knowledge of children with Type I Diabetes mellitus on self care management.

A study was conducted with evaluative approach on 40 ambulatory children with Type I Diabetes mellitus with age group 10years -15 years, attending endocrine OPD at B.J.Wadia Children's Hospital, Parel Mumbai during month of April 2009 to May 2009.A single pre test & post test design was adopted .A semi structured validated questionnaire & observational check list used to gather information before & after administration of planned teaching programme. Part I consisted of demographic data of child includes age, sex, education of parent, family income, diet, duration of disease. Part II consisted semi structured questionnaire use to assess the knowledge regarding structure & function of pancreas, meaning of diabetes mellitus, causes, signs-symptoms, diagnosis & control of disease. Part III consisted of observation check

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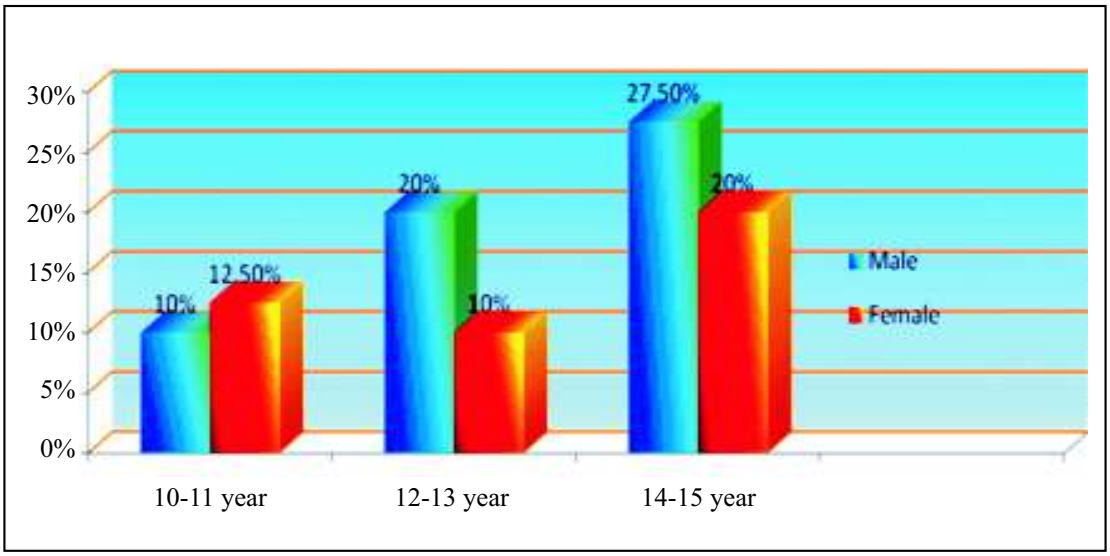

Figure 1 : Distribution of sample with regard to their age

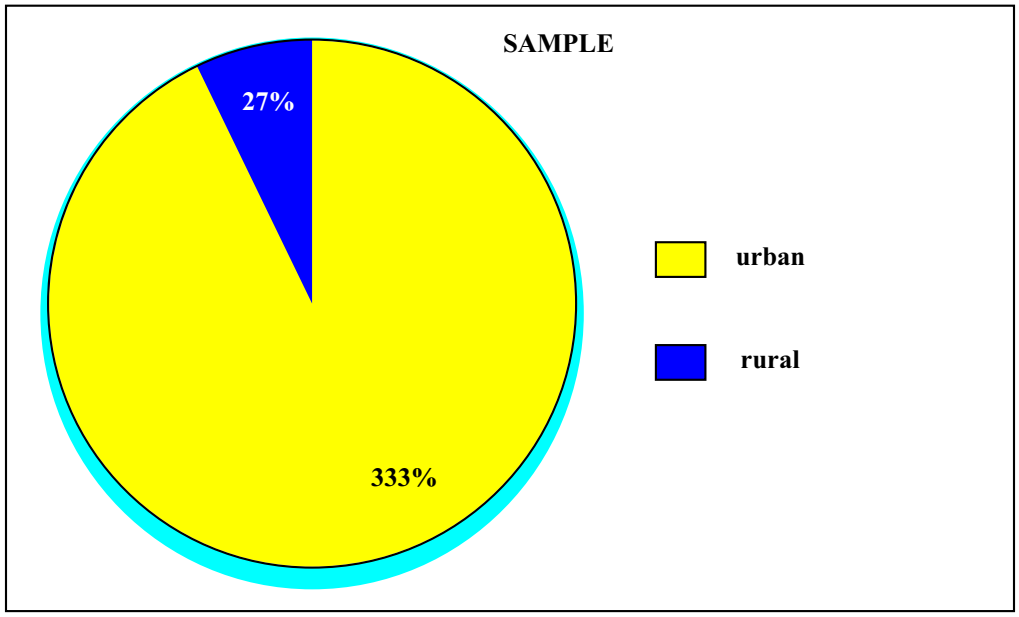

Figure 2 : Distribution of sample according to their residence

list for procedure of self administration of injection insulin. One score given for correct answer & correct procedure step. The tool was validated by 12 experts from field of endocrinology & child health nursing. The reliability of the tool is computed by using Pearson correlation coefficient .The value obtained was r= 0.752. The data was analysed in terms of objectives by descriptive & inferential statistics.

Findings

SECT - I DEMOGRAPHIC DATA OF THE CHILDREN:

Age: - Maximum children belonged to the age group of 14-15 years i.e. Males 11(27.5%) and females 8 (20%), total 19 (47.5%). Among total Type I DM children, there were 23(57.9%) males and 17(42.5%) females. Male children are more than female children.

Residence

Majority of children were from urban area i.e. total children 37(92.5%) because study was conducted in

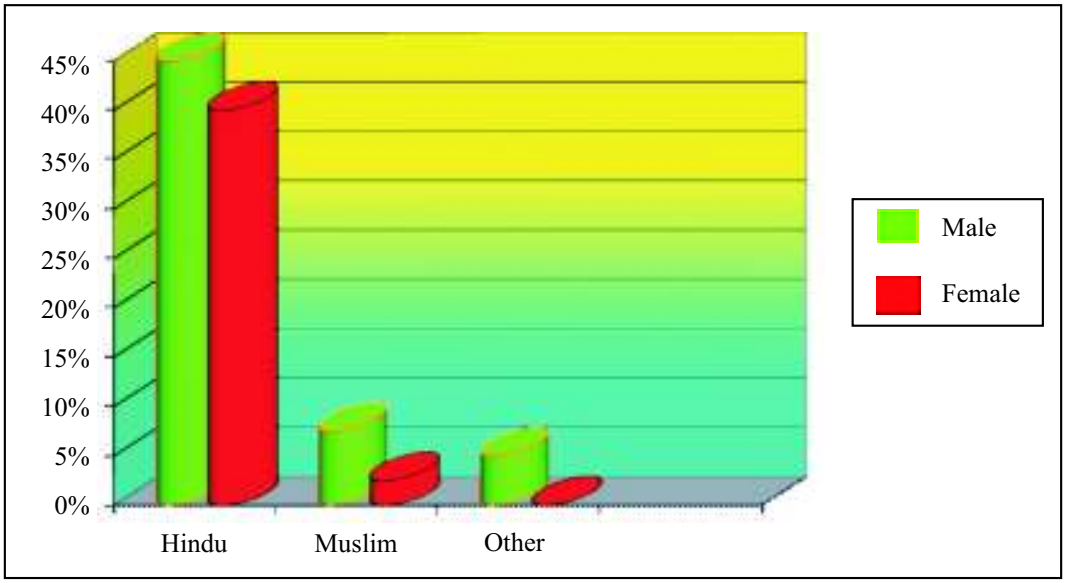

Figure 3 : Distribution of sample according to their religion

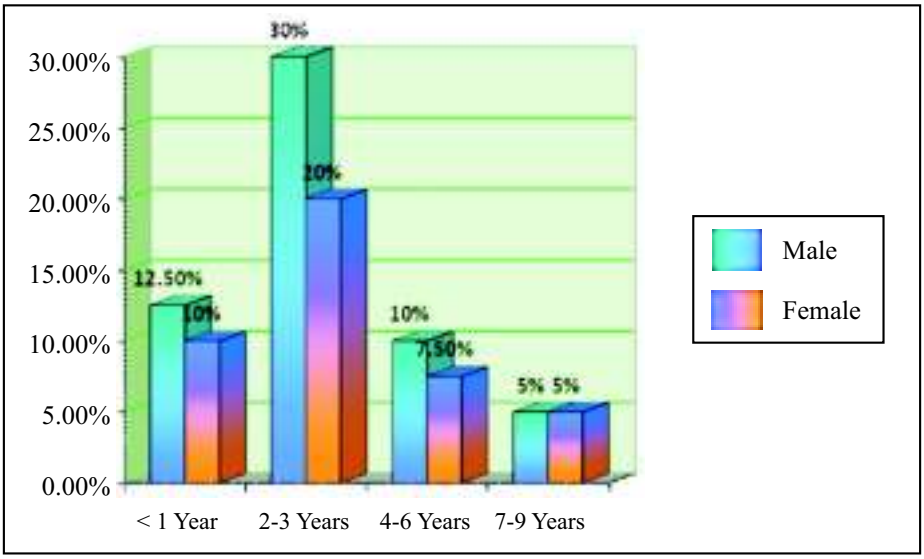

Figure 4 : Distribution of sample according to their duration of disease

specific setting. Less samples were from rural area i.e. only male 3(7.5%) because they are referral cases.

Religion

Majority of samples were from Hindu religion i.e. male 18(45%) & female 16(40%), and less samples were from other religion i.e. only males 2(5%).

Disease duration

Majority of children i.e. 20(50%) had disease duration 2-3 years , out of that males were 12(30%) and females were 8(20%). Less sample were found <1year disease duration i.e. males 5(12.5%) and females 4(44.4%).

SECT- II

The analysis and interpretation of the data related to the knowledge score of the sample (pre and post test) in different areas of self care management.

Table 1 shows that there is significant improvement in knowledge about disease after teaching programme among all children with Type I Diabetes

Table 1: Effectiveness of planned teaching on knowledge scores of the sample (pre and post test) in different areas of self care management

Knowledge	Mean score	Mean difference	Standard Deviation	Calculated Value	Table Value	Level of significance
Regarding disease						
Pre- test	9.28	4.90	2.53	4.77	3.55	Significant
Post- test	14.17		2.12			
Regarding medication						
Pre- test	10.78	4.30	2.13	15.88	3.55	Significant
Post- test	15.08		1.98			
Regarding diet						
Pre- test	4.35	1.05	1.42	6.57	3.55	Significant
Post- test	5.40		1.28			
Regarding exercise						
Pre- test	2.25	1.40	1.03	9.02	3.55	Significant
Post- test	3.65		0.62			
Regarding follow up						
Pre-Test	8.92	1.40	2.38	9.02	3.55	Significant
Post-Test	11.38		1.53			

* Level of significance 0.001.

mellitus(t = 14.77, P< 0.001). Also there is significant improvement in knowledge about medication after teaching programme among children with Type I Diabetes mellitus (t = 15.88, P< 0.001).

Table 1 predict that there is significant improvement in knowledge about diet after teaching programme among children with Type I Diabetes mellitus (t = 6.57, P< 0.001).Also there is significant improvement in knowledge about exercise after teaching programme among children with Type I Diabetes mellitus (t = 9.02, P< 0.001).There is significant improvement in knowledge about follow up after teaching programme among children with Type I Diabetes mellitus (t = 9.02, P< 0.001).

Table 2 shows that there is significant improvement in overall knowledge after teaching programme among males (t = 14.94, P<0.001) as well as in females (t = 14.16, P< 0.001).There is significant improvement in overall knowledge after teaching programme among all sample with Type I Diabetes mellitus (t = 20.26, P< 0.001).

SECT - III

Analysis and interpretation of the data related to

Table 2 : Overall Knowledge score regarding self care in the pre test and post test according to sex and all sample

Overall Knowledge	Mean score	Mean difference	Standard Deviation	Calculated Value	Table Value	Level of significance
Males						
Pre- test	36.83	13.22	7.11	14.94	3.55	Significant
Post- test	50.04		6.12			
Females						
Pre- test	33.88	15.29	7.50	14.16	3.55	Significant
Post- test	49.18		5.27			
All children						
Pre- test	35.58	14.10	7.33	20.26	3.55	Significant
Post- test	49.68		5.72			

* Level of significance 0.001

Table 3: Effectiveness of demonstration on practice score of sample by pre demonstration observation and post demonstration observation

Practices	Mean score	Mean difference	Standard Deviation	Calculated Value	Table Value	Level of significance
Regarding withdrawing of injection						
Pre- test	9.25	2.50	1.43	12.54	3.55	Significant
Post- test	11.75		1.30			
Regarding administration of injection insulin						
Pre- Test	5.07	1.05	0.94	7.85	3.55	Significant
Post-Test	6.13		0.56			

* Level of significance 0.001

the practices of the samples by pre demonstration observation and post demonstration observation.

Table 3 shows that there is significant improvement in post demonstration observation score regarding withdrawing of injection insulin in the insulin syringe among children with Type I Diabetes mellitus ($t = 12.54$, $P < 0.001$). There is significant improvement in practices regarding administration of injection insulin after demonstration among children with Type I Diabetes mellitus ($t = 7.85$, $P < 0.001$).

Table 4 : Distribution of sample according to sex and all samples with regard to overall practices regarding self administration of injection insulin

Practices – Self administration of Insulin	Mean score	Mean difference	Standard Deviation	Calculated Value	Table Value	Level of significance
Males						
Pre- test	13.91	3.78	2.17	12.29	3.55	Significant
Post- test	17.70		1.61			
Females						
Pre- test	14.88	3.24	1.27	12.91	3.55	Significant
Post- test	18.12		0.93			
All children						
Pre- test	14.32	3.55	1.89	17.05	3.55	Significant
Post- test	17.87		1.36			

Table 4 shows that there is very significant improvement in practices regarding , self administration of injection insulin after demonstration , among males (t = 12.29, P<0.001) and also in females (t = 12.91, P< 0.001).There is significant improvement in practices regarding, self administration of injection insulin after demonstration among children with Type I Diabetes mellitus (t = 17.05, P< 0.001.

SECT IV

Association between the selected demographic variables and the change in improvement of knowledge and practices of children with Type I Diabetes mellitus on self care management.

There was significant association between age of children & post teaching knowledge score. As age of children increases knowledge level also progressively increases. There is significant association between educational level and increase in knowledge level of children in 9^{th} and 10^{th} std.

There was relationship between duration of disease and increase in knowledge level of children. It reveals that as duration of disease increases, post teaching knowledge level increases.

There was significant association between practice score with age of children. & duration of disease as post teaching score was improved as age & duration of disease was increased.

There is no significant association between education of children and change in practice level of children in 4^{th}, 5^{th}, 6^{th}, 7^{th} and 8^{th} standard children. Practices are found improved in 9th and 10th standard children. There is association between duration of disease and change in practice score of children. As duration of disease increases, post demonstration practices increases. Maximum practice score found in children had 7-9 years disease duration.

CONCLUSION

Study findings shows that there is significant improvement in overall knowledge after teaching programme among males (t = 14.94, P<0.001) as well as in females (t = 14.16, P< 0.001).There is significant improvement in overall knowledge after teaching programme among all sample with Type I Diabetes mellitus (t = 20.26, P< 0.001). Calculated't' value was found to be

20.26 in all sample. As the calculated value was greater than the table't' value at 0.001 level, so null hypothesis was rejected and research hypothesis was accepted. This result supports the significance of planned teaching programme in the improvement of knowledge regarding self care management of the children with Type I Diabetes mellitus.

There is significant improvement in post demonstration observation score regarding withdrawing of injection insulin in the insulin syringe among children with Type I Diabetes mellitus ($t = 12.54, P < 0.001$). There is significant improvement in practices regarding administration of injection insulin after demonstration among children with Type I Diabetes mellitus ($t = 7.85, P < 0.001$).

Study findings showed that there is very significant improvement in practices regarding , self administration of injection insulin after demonstration , among males ($t = 12.29, P<0.001$) and also in females ($t = 12.91, P< 0.001$).There is significant improvement in practices regarding, self administration of injection insulin after demonstration among children with Type I Diabetes mellitus ($t = 17.05, P < 0.001$).

The calculated't' value was found to be 17.05 in all children. As the calculate value was greater than the table't' value at 0.001 level, so null hypothesis was rejected and research hypothesis was accepted. This result supports the significance of planned teaching programme in the improvement of practices of the children with Type I Diabetes mellitus.

This study highlighted the importance of imparting knowledge about self care to children with Type I Diabetes mellitus.

The findings of the study can be used to conduct health education programme for the children with Type I Diabetes mellitus. This study can be help health team members and care givers to develop positive attitude towards children with Type I Diabetes mellitus. This study can be useful in preventing complications of Type I Diabetes mellitus in children with Type I Diabetes mellitus by early intervention and to reduce morbidity and mortality.

This study can be of helpful for the nurse educator. The nurse educator can play a significant role by participating the nursing students in the health education programme to the children with Type I Diabetes mellitus and care givers. Health education should be given prime importance in curriculum of all basic programmes of nursing.

The findings of the study can help the nurse administrator to plan and conduct in-service education for staff nurses in care of children with Type I Diabetes mellitus, who will in turn give health education to the children and parents with Type I Diabetes mellitus. A protocol could be developed to make health teaching mandatory in nursing care which should be evident through nursing care plan and nurses notes.The methodology, tools and findings of the study have added to the existing body of knowledge in the nursing profession.

- Other researcher may utilize the suggestions and recommendations for conducting further studies.
- The present study may serve as a guideline in preparing health teaching programme for children and parents with Type I Diabetes mellitus.

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