A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge of Skill Associated to Self-Administration of Insulin Among Gestational Diabetic Women Attending Different Hospitals of District Budgam, Kashmir

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ABSTRACT

Gestational Diabetes Mellitus (GDM) is a form of diabetes occurring during pregnancy which can result in short- and long-term adverse outcomes for women and babies. GDM is carbohydrate intolerance resulting in hyperglycemia with onset or first recognition during pregnancy. Accurate diagnosis allows appropriate treatment. A pre experimental one group pre-test post-test design with non-probability purposive sampling technique was used. The sample size for the study was 500 pregnant women. The findings of the study revealed that 96.7% had poor knowledge and few numbers of study subjects (3.3%) had average knowledge and no study subject had good knowledge regarding management of gestational diabetes mellitus in pretest. All the study subjects (100%) had good knowledge, and none of the study subjects had average or poor knowledge regarding management of gestational diabetes mellitus in posttest. The mean post-test knowledge level (98.842±4.1604) was higher than the mean pre-test knowledge level (26.783±7.0653). This indicates the effectiveness of the Structured Teaching Programme in increasing the level of knowledge of pregnant women regarding management of gestational diabetes mellitus at 0.05 level of significance. There was no statistically significant association between posttest knowledge level of study subjects with their selected demographic variables such as age, educational status, parity, type of family and monthly family income, at 0.05 level of significance. The findings of the study concluded that pregnant women were not possessing adequate knowledge regarding management of gestational Diabetes Mellitus. The Structured Teaching Programme was found effective in increasing the knowledge level of study subjects, hence there was dire need to educate them regarding management of Gestational diabetes Mellitus.

Keywords: Effectiveness, Gestational Diabetes Mellitus, Knowledge, Structured Teaching Programme, Gestational Diabetic Women.

Introduction

Gestational Diabetes Mellitus (GDM) is a form of diabetes occurring during pregnancy which can result in short- and long-term adverse outcomes for women and babies.[1] GDM is carbohydrate intolerance

resulting in hyperglycemia with onset or first recognition during pregnancy.[2] Diabetes results in a rise in blood glucose above normal physiological levels.[3] GDM is associated with a range of adverse pregnancy outcomes for mother and infant.[4] If left untreated this may cause damage to many systems including the cardiovascular and renal systems and perinatal morbidity and mortality may be increased. Use of different tests and different criteria will influence women which are diagnosed with GDM [3]. Pregnancy increases resistance to insulin action; for those women who have pre-gestational diabetes, this results in an increasing insulin requirement.[2]

Gestational diabetes generally results in few symptoms; however, it does increase the risk of pre-eclampsia, depression, and requiring a Caesarean section. Babies born to mothers with poorly treated gestational diabetes are at increased risk of being too large, having low blood sugar after birth, and jaundice. If untreated, it can also result in a stillbirth. Long term, children are at higher risk of being overweight and developing Type 2 Diabetes Mellitus.[5]

Gestational diabetes is thought to arise because the many changes, hormonal and otherwise, that occur in the body during pregnancy predispose some women to become resistant to insulin. Insulin is a hormone made by specialized cells in the pancreas that allows the body to effectively metabolize glucose for later usage as fuel (energy).[6]

A prospective study by Zargar, Sheikh, Bashir, Masoodi, Laway, Wani, Bhat, Dar was conducted to determine the prevalence of gestational diabetes mellitus (GDM) in Kashmiri women and to assess the effect of various demographic factors. Two thousand pregnant women (divided into groups A and B, being the first and last 1000 consecutive women) attending various antenatal clinics in six districts of Kashmir valley were screened for GDM by 1 hour 50 g oral glucose challenge test. Four hundred and fourteen (20.8%) women (216 from group A and 198 from group B) had an abnormal screening test and proceeded to oral glucose tolerance testing. Women from group A had 3 hours 100-gram oral glucose tolerance test (OGTT). A 2 hours 75 g OGTT was performed on group B subjects and WHO criteria applied for diagnosis of GDM. The overall prevalence of GDM was 3.8% (3.1% in group A versus 4.4% in group B-P-value 0.071). GDM prevalence steadily increased with age (from 1.7% in women below 25 years to 18% in women 35 years or older). GDM occurred more frequently in women who were residing in urban areas, had borne three or more children, had history of abortion(s) or GDM during previous pregnancies, had given birth to a macrosomic baby, or had a family history of diabetes mellitus. Women with obesity, hypertension, osmotic symptoms, proteinuria or hydramnios had a higher prevalence of GDM.[7]

Azu T, Essel J.[8] in there article, "Awareness and knowledge of gestational diabetes mellitus among pregnant women at the Tema General Hospital, Ghana", has found that the use of mass media as a tool to intensify and disseminate information about GDM and re-emphasis of causes and risk factors associated with GDM during health talks for early detection and early reporting for management has a great impact on the maternal and foetal outcome and has shown positive results in raising the knowledge and upgrading the life styles of pregnant women.[8]

Mendelson[9] studied to examine the effects of a parish Nurse Intervention program on maternal health behaviours, glycemic control, and neonatal outcomes among Mexican American women with gestational diabetes and found that with a supplementary 1-hour education session for diabetes education reinforcement by a parish nurse significantly improved health. 100 samples were taken, out of which 49 were given the intervention programme and 51 received usual care. Two measures of glycemic control pre and post intervention were done. Outcome indicate significantly improved health promoting profile scores in the parish nurse Intervention program group post intervention as compared to the usual care group.

Providing safe, effective and comprehensive care to the gestational diabetic mothers require a joint effort from all health care personnel as well as family members with each member contributing unique skills, talents and support to provide optimal maternal and infant outcome.

On the basis of the given studies, the evidences have shown that gestational diabetes comes out with both maternal and infant fatal outcomes and morbidities and due to the rising incidence, prevalence, lack of knowledge, its consequences and lack of awareness about the condition, the diabetic pregnant women needs to be acknowledged, informed and addressed. Personally, the investigator experienced and found a major group of pregnant women with gestational diabetes who are unaware, uninformed and uneducated about its consequences on outcome and its management. Thus, the investigator felt grave need to assess the effectiveness of structured teaching programme on knowledge regarding management of gestational diabetes mellitus among pregnant diabetic women.

Objectives

- To assess the pre-test knowledge level associated to skill on self-administration of insulin among the gestational diabetic women.
- To assess the post-test knowledge level associated to skill on self-administration of insulin among the gestational diabetic women.
- To compare the pre-test and post-test knowledge level associated to skill on self-administration of insulin among the gestational diabetic women.
- To find association between the pre-test knowledge levels associated to skill on self-administration of insulin with their selected demographic variables i.e. age, educational status, parity, life style, monthly family income.

Materials and Methods

A pre-experimental one group pretest and post-test design were used for the study in order to evaluate the effectiveness of Structured Teaching Programme on knowledge associated to skill on self-monitoring of blood glucose among gestational diabetic women attending different hospitals of district Budgam. The main study was conducted from 20th April 2023 to 20th June 2023. Purposive sampling technique was used for selection of 500 pregnant women with Gestational Diabetes Mellitus from accessible population. The prepared tool (self-structured interview schedule) and intervention (Structured Teaching Programme) was validated by a panel of experts included in Annexure No. X. Pre-testing of the tool and intervention was done to check them for the clarity and feasibility. Pilot study was conducted on pregnant women with gestational diabetes mellitus other than the study sample to assess the feasibility of the study. Pre-test was done on 1st day after administering self-structured interview schedule followed by Structured Teaching Programme on the same day and on day 7th post-test was conducted by using same interview schedule. The data collected was analyzed by using descriptive and inferential statistics. In descriptive statistics frequency and percentage, mean, standard deviation and range was found while as in inferential statistics, paired 't' test and chi square test was done at the 0.05 level of significance

Results of the study

The results of the present study are presented under the following sections:

Description of Demographic variables

Out of 500 pregnant women, majority of study subjects (61.7%) belonged to age group of below 30 years and 38.3% belonged to age group of below 30-40 years. The maximum number of the study subjects (56.7%) were illiterate whereas there were about 33.3% study subjects whose education was up to primary and very few study subjects (5%) had education up to high school(as per figure no 6). The majority of the study subjects (78.3%) were primiparous whereas a smaller number of study subjects (21.7%) were multiparous. Maximum number of study subjects (90%) are moderate workers and only 10% are sedentary workers. The maximum number of the study subjects (90%) belonged to families with monthly income of Rs. 10,000-30,000, few (10%) belonged to families with monthly income of Rs. 30,001-50,000 and no study subject belonged to families with monthly income of above Rs. 50,000.

Findings of the Knowledge level of Study Subjects before and after Administration of Structured Teaching Programme on knowledge on skill associated to Self-Administration Of Insulin subjects among study.
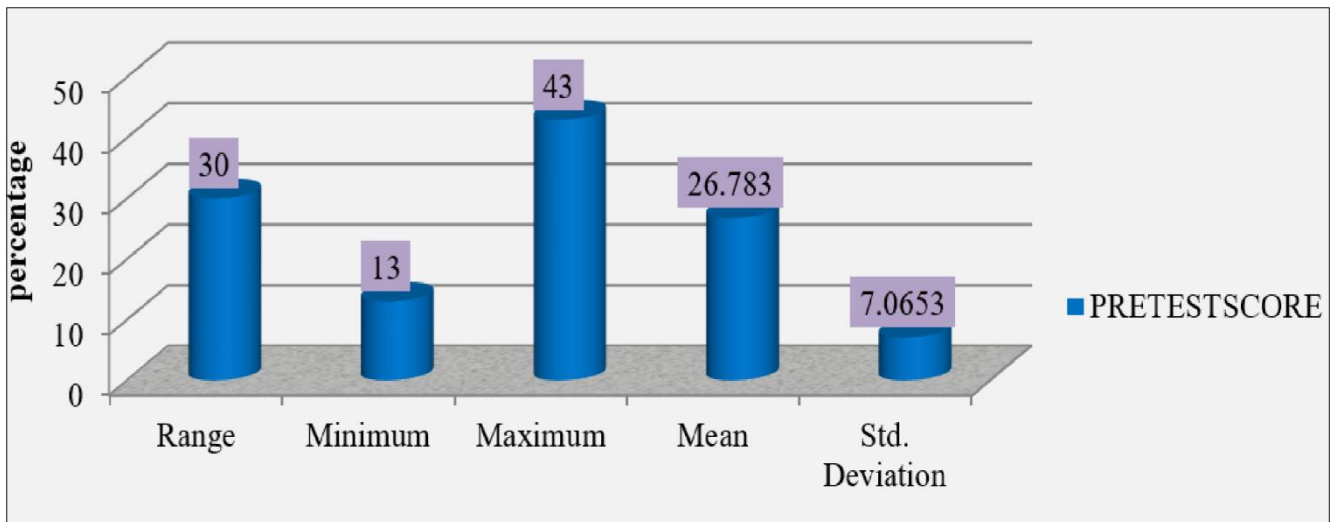

Figure 1.Cylindrical diagram representing mean, standard deviation, maximum, minimum, range, of study subjects according to their pre-test knowledge level
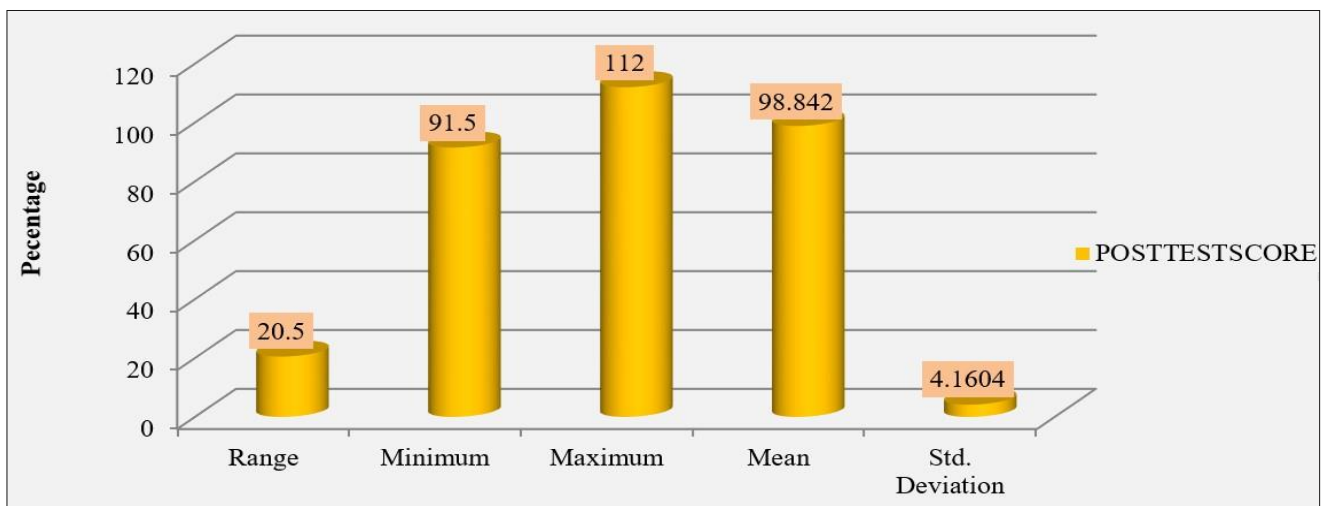

Figure 2. Cylindrical diagram representing mean, standard deviation, maximum, minimum, range of study subjects according to their post-test knowledge levels

Comparison of Pre-test Knowledge Level with Post-test Knowledge Level on skill associated to Self-Administration of insulin among Study Subjects.
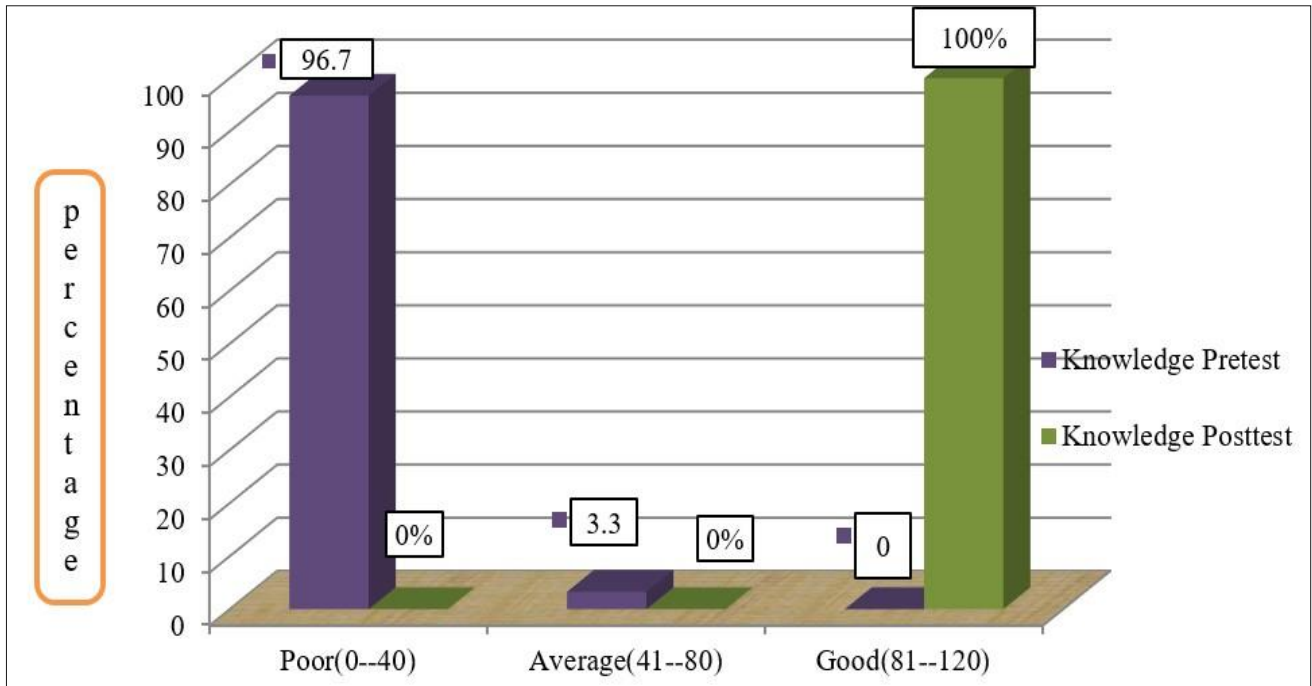

Figure 3.Bar diagram showing distribution of study subjects in terms of comparison of pretest and post-test level of knowledge on skill associated to Self-Administration of insulin.

Comparison between Pre-test and Post-test Knowledge Level and the Significance of Difference between the Mean Pre-test and Mean Post-test Knowledge Level of Study Subjects on skill associated to Self-Administration of insulin.

Table 1.Comparison between pre-test and post-test knowledge level and the significance of difference between the mean pre-test and mean post-test knowledge level of study subjects on skill associated to Self-Administration of insulin.

N=500

Knowledge level	Mean ±S.D.	Range	Mean difference	Paired t-test	p-value
Pre-test knowledge level	26.783 ±7.0653	30.0	72.05	79.95	0.000*
Post-test knowledge level	98.842±4.1604	20.5			

*Significant at 0.05 level.

Association of Pre-test Knowledge Level of Study Subjects on Self Administration of insulin with Selected Demographic Variables.

Table 2.Association of pre-test knowledge level of study subjects on self-administration of insulin with selected demographic variable

N=500

Variables	Options	Good	Average	Poor	Chi square test	p-value	df	Result
Age	Below 30 years	0	16	292	1.286	0.257	1	NS
	31-40 years	0	0	192				
	Above 40 years	0	0	0				
Educational status	Illiterate	0	10	275	0.193	0.908	2	NS
	Up to primary	0	10	184				
	Up to high school	0	0	21				
	Up to higher secondary	0	0	0				
	Graduate and above	0	0	0				
Parity	Primiparous	0	8	384	0.979	0.323	1	NS
	Multiparous	0	8	100				
Life style	Sedentary	0	0	50	0.230	0.632	1	NS
	Moderate	0	15	435				
	Heavy	0	0	0				
Monthly family Income	Rs. 10,000-30,000	0	16	434	0.230	0.623	1	NS
	Rs. 30,001-50,000	0	50	0				
	Above Rs. 50,001	0	0	0				

NS=Not Significant.

Discussion

The findings of the present study showed that among the total sample (N=500), in pretest maximum number of the study subjects (96.7%) had poor knowledge whereas a few study subjects (3.3%) had average knowledge and no study subject was found to have good knowledge regarding management of Gestational Diabetes Mellitus

The findings of the present study showed that among the total sample (N=500), in post-test all of the study subjects (100%) had good knowledge whereas none of the study subjects (0%) had average knowledge and poor knowledge on skill associated to self-administration of insulin.

The above findings are supported by a study conducted by Shrestha, Basnet, Parajuli, Baral, Badhu on Knowledge Regarding Self-Administration of Insulin Among the Diabetic Patient Attending the Diabetic Clinic of Tertiary Care Center of Eastern Nepal. The findings of this study revealed that mean knowledge of the participants was 57.55% and practice was 73.98%. Among them 54%(27) of participants has inadequate knowledge, remaining 46%(23) has adequate knowledge. Similarly, 48% (24) of participants

has inadequate practice, and remaining 52% (26) has adequate practice. There was significant association of educational status with knowledge regarding self-administration of insulin with pvalue 0.03 and there was significant association with occupation with knowledge regarding self-administration of insulin with pvalue 0.047. There was also association between knowledge and practice regarding self-administration of insulin with pvalue 0.049. [9]

The findings of present study showed that the mean post-test knowledge level of the study subjects on overall management of Gestational Diabetes Mellitus is significantly higher (98.842±4.1604) than that of the mean pre-test knowledge level (26.783±7.0653) at 0.05 level of significance. The findings are supported by a study conducted by Anitha, to assess the effectiveness of structured teaching programme on knowledge regarding self-care management of GDM among 35 primigravida mothers in outpatient department of CSI Rainey multispecialty hospital at Chennai, found that 50.10% of women had knowledge regarding self-care management in pre-test while 65.14% in posttest. Paired 't' test showed that there was significant improvement between pretest and post test scores at the level of $p<0.001$ The study showed that a possible gain of knowledge regarding self-care through structured teaching programme has increased the knowledge of pregnant women.

Conclusion

Gestational Diabetes poses a great threat to the life of both mother and baby during pregnancy. But the awareness that can be provided to the pregnant women during the pregnancy can improve both the maternal as well as foetal outcome and hence improves quality of life thereafter. It is, therefore, of utmost importance to increase the awareness for management of gestational diabetes mellitus to the pregnant women during pregnancy.

Conflict of Interest: None

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