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SOCIAL & DEMOGRAPHIC RISK FACTORS OF DIABETES MELLITUS DURING GESTATION PERIOD

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Abstract:
Objective: This case work aimed to state the social & demographic risk factors linked with GDM (Gestation Diabetes Mellitus).
Methodology: This case work carried out in chemical science institute Lahore. In this case work, one hundred and three females with gestation diabetes mellitus and ninety seven healthy females with pregnancy registered in Jinnah Hospital, Lahore. Seventy five milligram OGTT (oral glucose tolerance test) was in use for the diagnosis of the gestational diabetes. The collection of the information about the social and demographic risk factors carried out with the utilization of a questionnaire.
Results: Body mass index, maternal age & parity of the females suffering from GDM were very high in comparison with the healthy females with pregnancy. The past history of GDM as well as the history of the family for diabetes in the family of the females suffering from GDM were very high in comparison with the healthy females with pregnancy. Social & economic condition, level of qualification & professions of females of both groups were not different from each other significantly.
Conclusion: Body mass index, maternal age, parity, family past history of GDM are very important risk factors for the gestation diabetes mellitus. There is no impact of social and economic status on the incidence of gestational diabetes mellitus.
Keywords: *Gestation, diabetes mellitus, impact, parity, demographic, BMI, questionnaire, profession, maternal, OGTT.*

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Please cite this article in press Sana Zahra et al., **Social & Demographic Risk Factors of Diabetes Mellitus during Gestation Period.,** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

Pregnancy is a change of severe physiological change in the life of female. Fetus is totally reliant on mother for healthy development. Different types of changes are the need in the period of normal pregnancy as well as in different pregnancy's complications. To handle the environment of pregnancy, the body of pregnant female enhances its sugar, cardiac output & rate of breathing. For the better development of the fetus, there is an increase in the progesterone, cortisol & estrogen. Biochemical alterations in the pregnancy period cause gathering of lipid in initial pregnancy which is the cause of resistance to insulin as well as syndrome of metabolism.

In the changed physical condition of the female with pregnancy, there is possibility of various occurrence to be occur. Obesity, hypertension, and GDM are some of the very severe complications which have an association with the period of pregnancy. Gestational diabetes mellitus normally starts in the period of pregnancy and finish after the delivery [1]. In USA, prevalence of GDM is 14.0% among total pregnancies and this rate of occurrence is increasing continuously [2]. Gestational diabetes mellitus is very famous risk factor for the promotion of type-2 diabetes mellitus in future [3]. There are some futures that will suppose the female to acquire diabetes in future are GDM in the period of pregnancy, requirement of the insulin therapy during period of pregnancy, immature delivery etc. [4].

There is strong association between GDM & maternal as well as fetal morbidities and mortalities [5]. The newborns of the mothers with gestational diabetes are normally huge in size and large for the age of gestation [6]. The incidence of gestational diabetes mellitus has very weak but important association with social and economic condition including level of education, ethnic group, parity of mother, cigarette smoking, and age of mothers & past history of gestational diabetes mellitus [7]. Socially deprived females with GDM are less likely to appear perinatal care & have more complications during the pregnancy period [8]. The risk factor which has impact on GDM are past history of diabetes mellitus, fatness, treatment of infertility, infections of urinary tract, premature delivery, pre-eclampsia & high maternal age at the time of pregnancy [9-10]. The precise administration of the gestational diabetes mellitus will cause the better maternal and fetal outcome [11, 12].

METHODOLOGY:

This case work started in February 2018 and finished in October 2018. In this case work, we compared the females suffering from gestational diabetes mellitus and healthy females with pregnancy. A special organized questionnaire was in use for the collection of the information. All the participants of both groups were available with the period of pregnancy of at least twenty eight weeks and without any past of serious illness as heart or kidney issues and hypertension. We ensured in the start that no female was under treatment which was affecting its lipid profile and concentration of the hormones.

Face-to-face interview carried out with every patient to collect the information regarding social and demographic information. In this case work, the screening of gestational diabetes mellitus carried out with the determination of random & fasting level of glucose. If the level of the fasting blood glucose was greater than 105 mg/dL & level of random glucose of blood was greater than 140 mg/dL, the diagnosis of GDM in the pregnant females was confirm. The healthy females with pregnancy were constituting the control group. The patients got admission in the hospital for the treatment of the serious complications in a consequence of GDM. All the females gave their consent to participate in the case work. There were total one hundred and three females with GDM and ninety seven healthy controls participants of the study after exclusion of some members due to insufficient information.

Standard formula for the calculation of BMI was in use. A well-organized questionnaire was in use to collect the information from participants of this case work. SPSS V. 10 was in use for the statistical analysis of the gathered information. Chi square method was in use for the analysis of the categorical variables.

RESULTS:

Table-1 displays the social and demographic risk factors in pregnant females suffering from gestational diabetes mellitus and healthy females with pregnancy. The collected information showed that out of one hundred and three admitted females with GDM were from Pakistan & 26.20% were not from Pakistan.

Table-I: Sociodemographic risk factors for GDM in Pakistan.

Variables		GDM (n=103)		HPW (n=97)		P-value
		No	%	No	%	
Nationality	Pakistani	76.0	73.80	67.0	69.10	NS (0.5310)
	Non Pakistani	27.0	26.20	31.0	30.90	
Monthly Income groups	< Rs.15,000	15.0	14.50	21.0	21.60	NS (0.1840)
	Rs.15,001-30,000	44.0	42.70	48.0	49.40	
	Rs.30,001-45,000	28.0	27.20	16.0	16.50	
	> Rs.45,000	16.0	15.50	12.0	12.40	
Occupation	House wife	78.0	75.70	80.0	82.40	NS (0.2980)
	Professional	25.0	24.30	7.0	17.50	
Education	Illiterate	62.0	60.20	67.0	69.10	NS (0.4220)
	School's Education	25.0	24.30	18.0	18.50	
	Above School's level	16.0	15.50	12.0	12.40	
Parity	Prim parous	10.0	9.70	13.0	13.40	0.0500
	Multiparous	37.0	35.90	48.0	49.40	
	Grand Multiparous	56.0	54.40	36.0	37.20	
Family history of diabetes	Affirmative	87.0	84.50	26.0	26.80	< 0.0010
	Negative	16.0	15.50	71.0	73.20	
Previous history of GDM	Affirmative	78.0	75.50	0.0	0.00	< 0.0010
	Negative	25.0	24.30	97.0	100.00	

GDM: Gestational Diabetes and HPW: Healthy Pregnant Women.
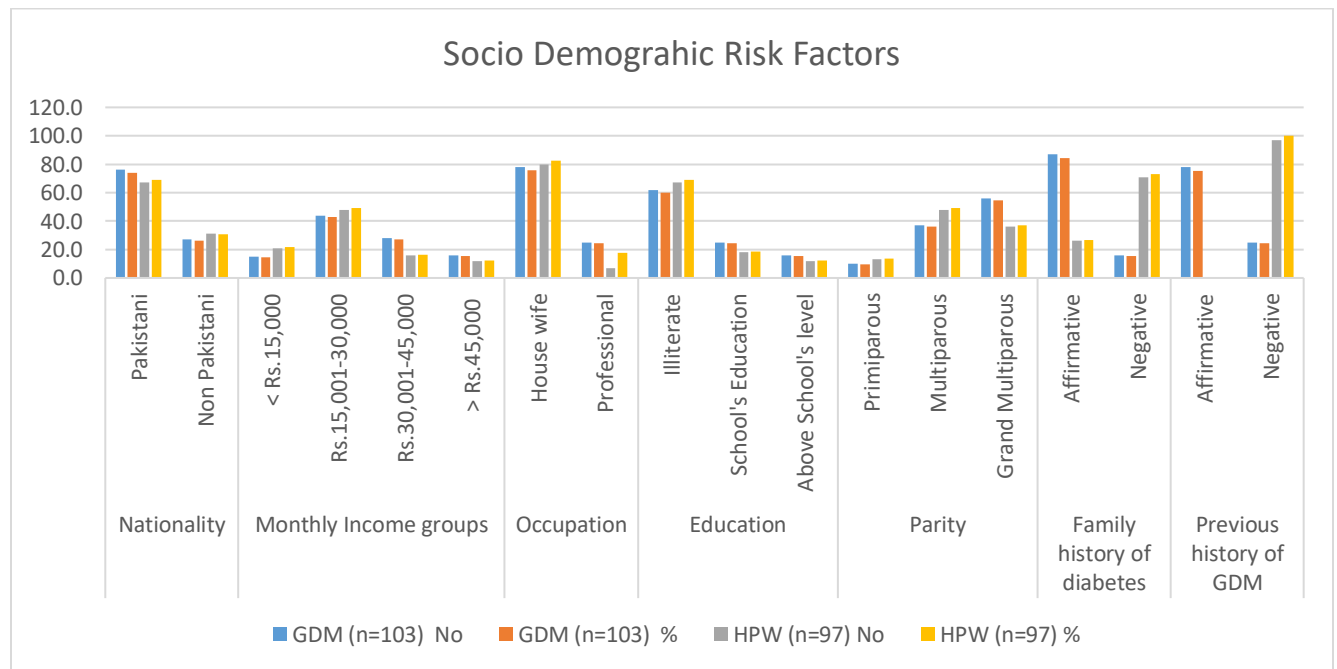
The gathered information also displayed that monthly salary, profession of female and level of education of females with GDM was not much different from the pregnant females without pregnancy. But, parity, past

history of gestational diabetes mellitus in family were different among females of both groups. The amount of the females in grand multiparous group was 54.50% whereas healthy females with pregnancy was 37.20%. The past diabetes history in the family was present in 84.50% GDM females & 26.80% females of healthy control with pregnancy. No healthy female with pregnancy suffered from diabetes in their previous pregnancies.

Information in the Table-2 displays that average maternal age, average body mass index and average parity of the females with GDM was very high in comparison with the healthy controls. The average maternal age of gestational diabetes mellitus and controls was 35.01±4.54 verses 31.29±5.79 years, average body mass index was 28.03±2.89 verses 27.29±1.89 kg/m2 & average parity was 5.63±2.01 verses 4.95±2.43.

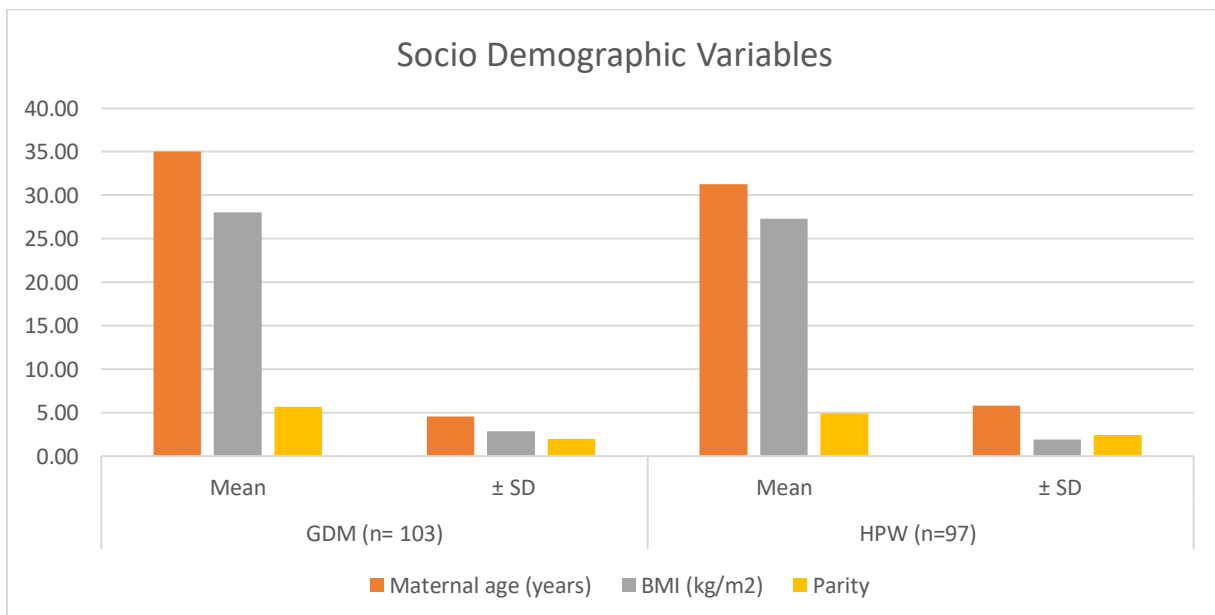**Table-II: Sociodemographic correlation between GDM and HPW.**

Variables	GDM (n= 103)		HPW (n=97)		P-value
	Mean	± SD	Mean	± SD	
Monthly income (Rs)	30845.00	11107.00	28360.00	11511.00	N.Sig (0.120)
Maternal age (years)	35.01	4.54	31.29	5.79	<0.0010
BMI (kg/m2)	28.03	2.89	27.29	1.89	0.0010
Parity	5.63	2.01	4.95	2.43	0.0300

GDM: Gestational Diabetes Mellitus
HPW: Healthy Pregnant Women
N.Sig: Not Significant

DISCUSSION:

The severe rise in the occurrence of the gestational diabetes mellitus and its bad consequences may be decrease with the control of factors of risks for the growth of GDM. In accordance with the current case work, very serious risk factors for the gestational

diabetes mellitus are old maternal age, high body mass index, and parity of female, history of family for diabetes and GDM in the previous pregnancies. These result were too much close with the outcome of the Ben-Haroush [13]. The recent research work diagnosed no important relationship between gestational diabetes mellitus & social and economic condition. Less social and economic condition is very known risk factor for various chronic diseases in the developed as well as under developed countries [14].

The relationship among GDM and social & economic status are not ensure with various out outcomes in accordance with several case works. Tanaka discovered no relationship while Clausen displayed that living in low social as well as economic or deprived area have an association with the gestational diabetes mellitus [15, 16]. Low social and economic condition has association with very high dangers of different outcomes of pregnancies. The case work displayed that 60.20% females with GDM were without education and they were aware about disease. Various studies on the onset and development of these complications identified the multi-parity, past history of diabetes in family, past history of GDM in previous pregnancies are the very severe risk factors for the growth of gestational diabetes mellitus [17, 18]. In this case work, an important increase in the age of mother, body mass index, parity of the females with GDM observed. These outcome are very much same to the case work of Doherty [19].

There are some limitations of this case work as it was a study based on the only admitted patients of GDM in hospital. There was a small sample size.

CONCLUSION:
Latter maternal age, high body mass index, multi-parity, past history of the diabetes during gestation period are very important risk factors of gestational diabetes mellitus. Among various risk factors, the regular exercises and diet with less calories can control the obesity. Proper treatment as well as change in life style during pregnancy can be very helpful for the prevention of such complication in the period of pregnancy.

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