

Original article:

Pre Diabetes: An Alarming and Frightening Situation about Life Time Syndrome (Diabetes)

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Abstract:

Background: Diabetes mellitus is one of the common problems in Pakistan; it is a disease that is extensively spreading within all age groups. It is a misconception that it suddenly affects a person's metabolism and the next morning the patient becomes diabetic. Actually diabetes gives an intense era of time for recovery which is usually never identified. **Aim and Objective:** The aim of the study is to identify the time lap known as prediabetes which can also be taken as the prevention stage. **Materials and methods:** In this study 201 population sample data was collected on the basis of their age, gender, family history, life style and many other contribution factors and analyzed through SPSS. **Results:** It is concluded that majority of the population belonging to a different age groups are on the route that leads to diabetes and having principle symptoms of diabetes that is polyuria (increased urination), polyphagia (increased appetite), polydypsia (increased thirst), 55% of the individuals experience frequent urination, 58% of the population have been observed with increased appetite and 60% of the people have complains of increased thirst. **Conclusion:** It is a frightening situation as indicated by the WHO that by 2030 Pakistan will be the 4th most diabetic populated country, so the study played an important role in investigating population lying in prevention stage.

Key words: Pre Diabetes; Poly Urea; Poly Dypsia; Poly Phagia; Risk Of Diabetes

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Introduction:

Diabetes always considered as shocking and surprising news for an individual and family and usually left a confusion in the victim with a question why me? But there is a long chain of interconnected incidents and item that guided your body towards a prison you have chosen for yourself and that era is known as pre diabetes stage. It can also become prevention(prevention) stage for the life time syndrome Diabetes¹. Pre diabetes is a grey area between a green area and a red area of healthy life and diabetes². These are the individuals having blood glucose higher than normal and less than the diabetic range, and are classified as borderline diabetes³. In such individual the desired balance between glucose and insulin secretion is unnerved so they are at higher risk of

developing diabetes type II and other associated disease like heart attack stroke and other lethal disease⁴. It may happen due to impaired glucose tolerance, severe insulin resistance and abdominal fat accumulation. Impaired glucose tolerance is very common in obese individuals, thus decrease insulin sensitivity acts as pillar to situate diabetes in a young obese individual after some time⁵. So pre diabetes is an alarming condition before the bell rung on your head and you become a vessel for the disease like diabetes. Similar to the realization of any adverse event in life mostly the pre diabetic situation is never realized, once one got to know that he is now a sufferer of diabetes, he/she consider this as an accident which is uncertain. But available facilities and improved health science makes this possible

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now, to realize this event before time and can help a person standing at the borderline of hell and heaven, at this stage one question should be raised or asked that you want to choose.

Diabetes can be delayed or prevented in individuals at high risk by changing diet, adding exercise, subtracting weight thus modifying life style⁶. The World Health Organization has identified that "Education is a cornerstone of diabetes care and prevention". It is imperative to equip education regarding prediabetes in all segments of population⁷. Educating children and adolescents about healthy lifestyles and implementing diabetes prevention programs in primary and secondary schools will yield not only short-term but also long-term benefits⁷, many substantiations are accumulated to sustain a role of sleep turbulence, including inadequate sleep, poor sleep excellence and insomnia, and obstructive sleep apnoea, as independent risk factors for insulin resistance development and exacerbation⁸. One factor that should be evaluated and emphasized in an individual with prediabetes is obesity⁹.

Major health risk factors for diabetes are strongly associated with obesity¹⁰. Several studies have proved that obesity and weight gain are associated with an increased risk of diabetes¹¹. Factors that contribute towards diabetes are body fat and abdominal fat, insulin resistance, ethnicity, and onset of puberty¹². Men seem more susceptible than women to the consequences of obesity and indolence, probably due to divergence in insulin sensitivity and regional fat accumulation, women are, however, more likely to transmit Type II diabetes to their offspring¹³.

There are three methods [*i.e.*, fasting plasma glucose (FPG), glycosylated hemoglobin (A1c) and 2-h oral glucose tolerance test] used to measure prediabetes and diabetic ranges¹⁴. The most common clinical tool used to measure and test blood glucose levels for diagnosing diabetes (*i.e.*, A1c \geq 6.5%) in non-pregnant adults is (A1c)¹⁴. Patients with impaired glucose tolerance (IGT) (A), impaired fasting glucose (IFG) (E), or an A1C 5.7–6.4% (E) should be referred to an effective ongoing support program targeting weight loss of 7% of body weight and increasing physical activity to at least 150 min/week of moderate activity such as walking¹⁴.

Prediabetes is an independent predictor of conversion to type 2 diabetes, and most can be identified through a fasting glucose, measure of obesity, A_{1c}, FPG, 2-h

PG, albuminuria, and insulin resistance (IR) help predict this conversion⁹.

Aim of this study is to develop the realization of the fact that diabetes can be prevented and is not impossible to reverse the condition. We should be aware and impart knowledge in young individuals who are knocking at the door of diabetes and their body is trying to neglect the call as if they will not work for it then diabetes will occur. We want steps to be taken in the regard of the impartation of information regarding helping the body from failing the battle against this group of metabolic disorder or syndrome. We can do this by focusing the current life styles of individual and other risk parameters that are considered as risk factors or contributors of diabetes.

Methodology:

For this purpose, we had conducted a survey among different population of Karachi and visited different hospitals, universities in order to get the target population of this research that are young individual having age between 20 to 40 years. Sample size n= 201, and a questionnaire having 17 questions is distributed, questions are general in a sense that they are related to their life style and risk factors associated with their life style are also asked with the determination of individual potential for diabetes. Parameters that are inquired with the help of questionnaire are,

Education, gender, Obesity, diet and eating habits walk habits life style family history and other symptoms of prediabetes are inquired like hunger, thirst, and dry mouth so that directly related with the incidence of diabetes in an individual.

The data was coded and analyzed on SPSS version 16.0 by which frequency distribution, mean standard deviation and cross tabulation was applied to find the occurrence prediabetes a sleeping factor inside body. This study was approved by local ethics committee.

Analysis:

Our total data comprises of 101 males and 100 females, from different social class and backgrounds from population of Karachi. Data was collected from two different age groups *i.e.* 20-25, 26-30, 31-35 and 36-40 and the frequency is shown in below figure 1:

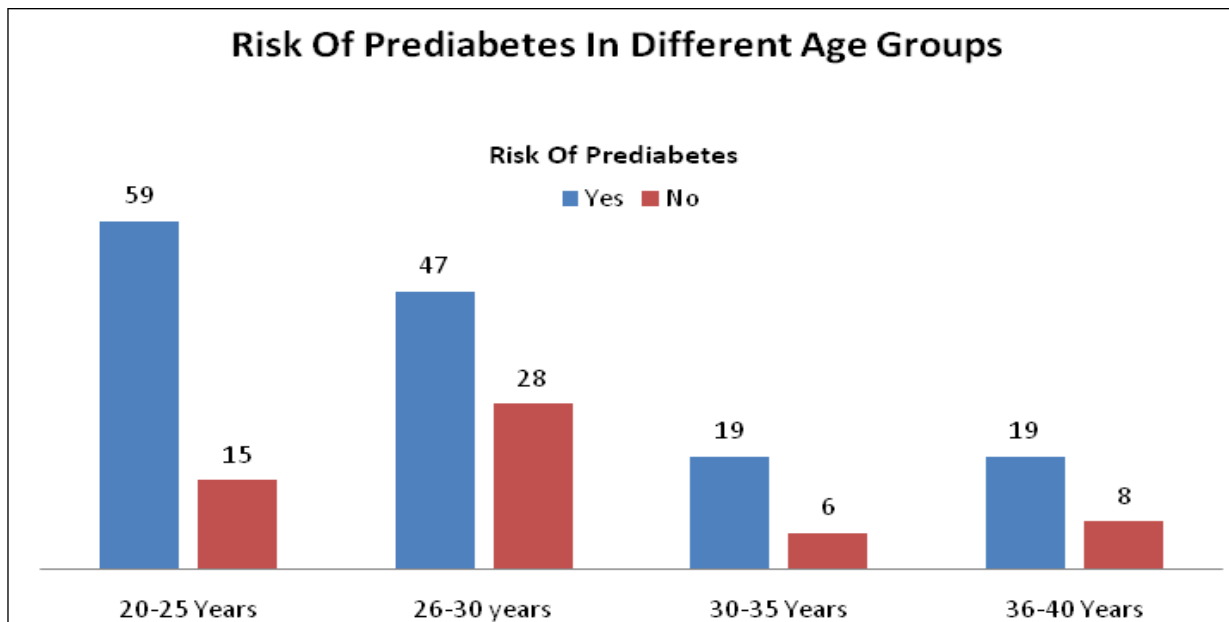


Figure1: Risk of Prediabetes in Different Age Groups Of Individuals

Above figure shows the risk of prediabetes in individual of different age groups among the sample population, 144 are at risk of diabetes as having symptoms of prediabetes.

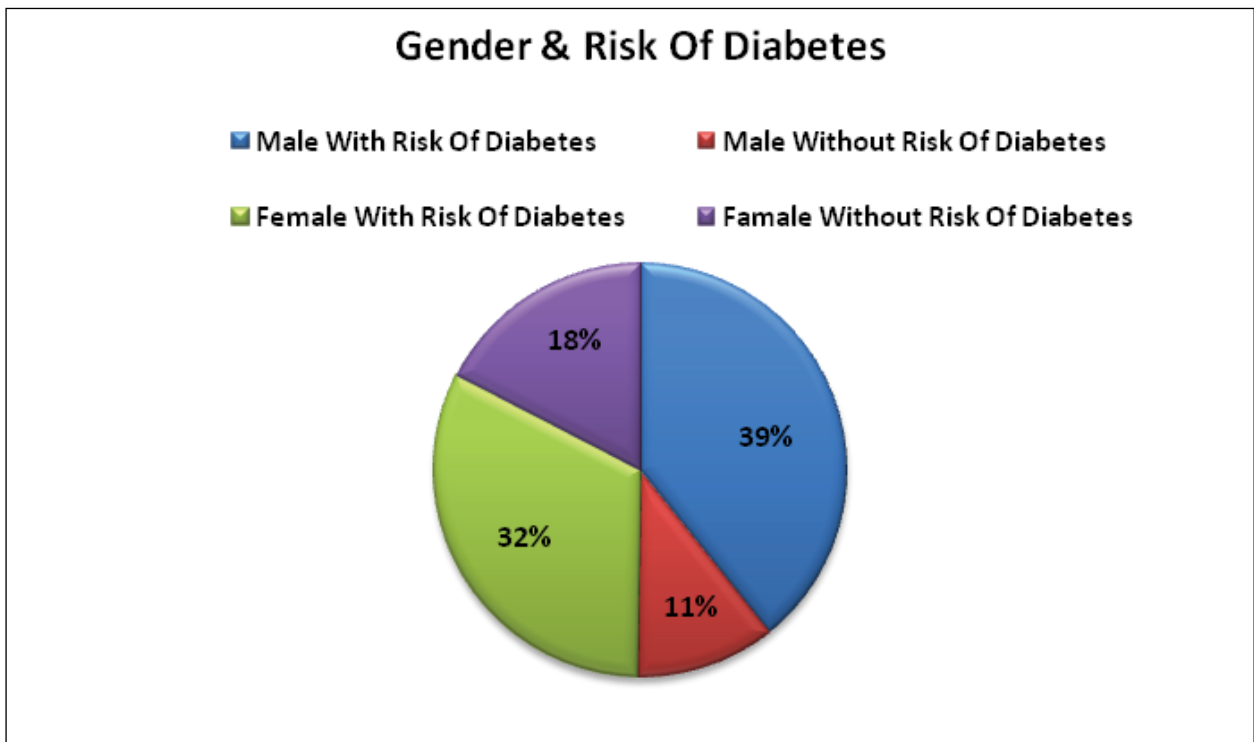


Figure 3: Gender Distribution of Population On the Basis Of the Risk of Diabetes

Above figure explains gender distribution on the basis of risk for diabetes in individual indicating increase risk of diabetes in the population.

From the sample population of 201, 76 individuals

are illiterate and 87 were intermediate while remaining are masters indicating the awareness of people about disease and other life style parameters that should be controlled

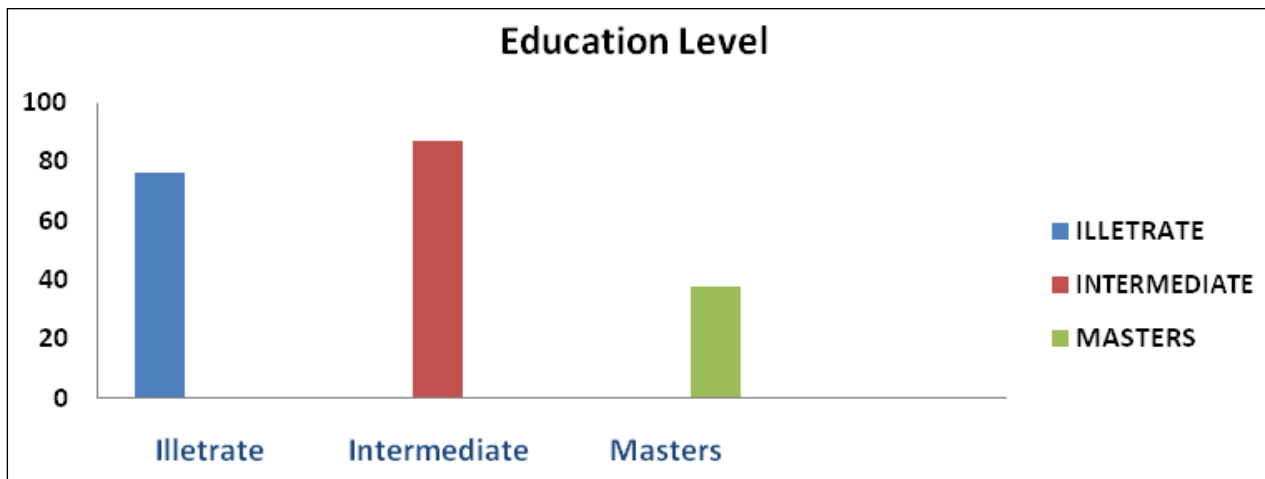


Figure:3 Education Level Among The Population As It Directly Impacts On Life Style Most of the population is illiterate and this reflects their understanding level about the seriousness of disease. The mean and standard deviation of other parameters are as follows indicating education level, work hours and stress level,

Table-1 Mean and Standard Deviation of Education Level, Work Hours, and Level of Stress in Population Indicating the Risk

S.No	Parameter	Mean	Standard Deviation
1.	Education	2.313	1.48
2.	Work Hours	6.85	3.143
3.	Stress Level	1.90	.848

The mean of education is found to be 2.313 while mean of hours of work is 6.85hours and stress mean is 1.90.

In order to summarize the data we have divided age groups in two that are 20-30 and 31-40.

Table- 2 Lifestyle Pattern in Different Age Groups Having Diabetic Family History or No Diabetic Family History and the Risk of Prediabetes among the Population

S. No	Life Style	Diabetic Family History	20-30 Years	31-40 Years	Total
1.	Do Exercise	Yes	11	3	14
		No	5	1	6
2.	No Exercise	Yes	95	35	130
		No	38	13	51

Among the population of 201 they were inquired about their life style that does it include exercise or not, or their life style is such that included physical exertion or not, secondly about their diabetic family history or presence of diabetes among their blood relatives and divided the combination data in the

age group and found the chances and probability of diabetes to that individuals, because of the life style they are adopting or the diabetic family history. Majority of the population is having life style which does not include exercise and having diabetes in the family, i.e 130.

Table-3 Effect of Stress on Different Age Groups with or Without Diabetic Family History and the Risk of Prediabetes among the Population

S.No	Stress	Diabetic Family History	20-30 Years	31-40 Years	Total
1.	High	Yes	32	15	47
		No	16	9	25
2.	Moderate	Yes	47	16	63
		No	20	2	22
3.	Low	Yes	27	7	34
		No	7	3	10

Secondly with same combination of age and diabetic family history the level of stress on an individual is compared as the mean of work hours among the population is find to be 6.85, and being the part or population of underdeveloped country everyone is having different stress on themselves so it is found that 157 of individuals are either highly stressed or moderately stressed but people more on risk are the one having the diabetes in their family i.e.110 as compare to the other 47 having no family history of diabetes.

Population was inquired about their diet, that how much of their diet include junk foods as eating habits may alter the lifestyle adapted, so found that our majority of population includes junk food in their diet either mostly or daily and people having diabetes in their family plus junk food mostly or daily are again at high risk for the occurrence of diabetes which are 126 among 201. Secondly individuals were asked about the symptoms of diabetes i.e polyurea, polydypsia and polyphagia and below given pie charts are the distrbtion of symptoms among population.

Table-4 Impact Of Dietary Habit Factor Among Different Age Groups With Or Without Diabetic Family History And An Estimation Of Those Having All The Possible Factors For The Diabetes

S. No	Junk Food	Diabetic Family History	20-30 Years	31-40 Years	Total
1.	Not Included	Yes	11	7	18
		No	4	4	8
2.	Mostly	Yes	70	23	93
		No	23	7	30
3.	Daily	Yes	25	8	33
		No	16	3	19

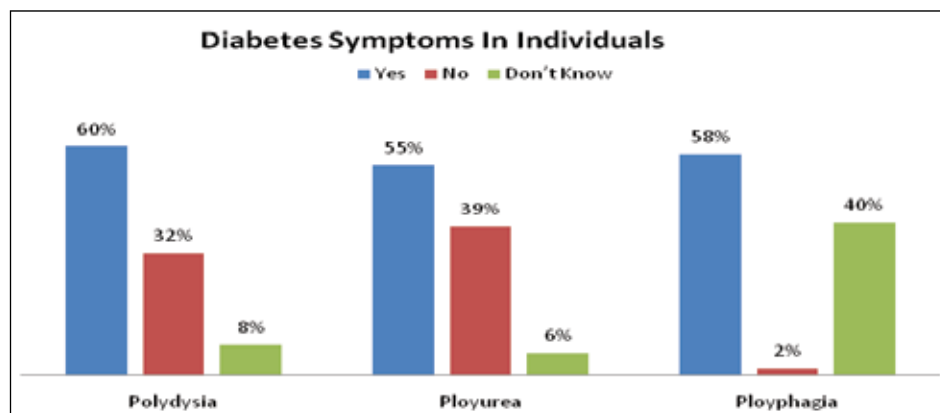


Figure: 5 Increased Thirst, Urea and Hunger Symptom among Population of n=201 in both Males and Females from Different Age Groups

Majority of the population is having symptoms of diabetes, indicating the presence of prediabetes to them but lack of awareness and interest is making think possible easily

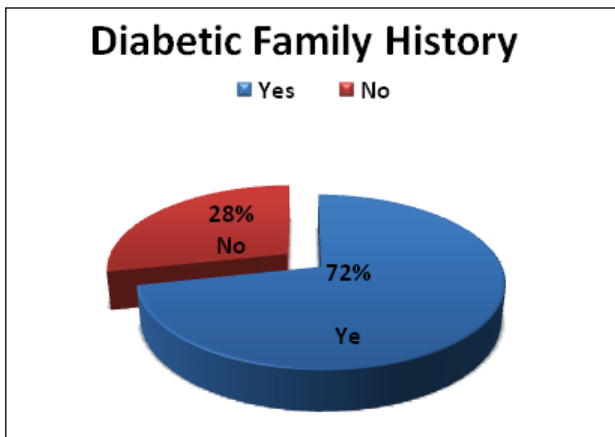


Figure: 6 Diabetic Family History among Population of N=201 in both Males and Females from Different Age Groups

Another distribution of data was observed in terms of presence of family history indicating that majority of the population is having diabetic family history of as its one of the common and most occurring disease of Pakistan because of the life style, dietary habit family history etc.



Figure: 7 Level Of Stress among Population of n=201 in both Males and Females from Different Age Groups

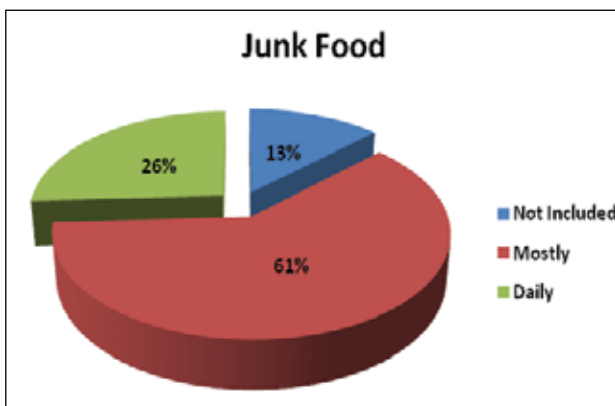


Figure: 8 Inclusion of Junk Food in Diet among Population of n=201 & In both Males and Females from Different Age Groups

Junk food inclusion in a routine diet is also a parameter that should come under the heading of precautions which is mandatory for avoiding the situation like early age diabetes, indicating that majority of the population is at risk. While the stress level is also high which is a second most important contributor after lifestyle habits and which is out of control of one's reach but on the other hand cannot be neglected.



Figure: 9 Habit Of Walk in Individuals, With or Without Diabetic Family History

Lastly people were inquired about their life style regarding walk that how regularly or often they use to walk and the result shown in above figure no 10.

Discussion:

According to the above analysis it is acknowledged that more than a third of the population is illiterate which depicts lack of seriousness and awareness among those who may become a victim of the disease just because lack of seriousness. Obesity which is considered as the major independent risk factor for diabetes mellitus is almost completely ignored by the younger generation. It is concluded that, the younger generation is not particularly concerned with the future consequences associated with obesity¹¹. This attitude of ignorance is one of the major cause of pre-diabetes which when continuously overlooked leads to diabetes in majority of the cases. As among 201 people included in the survey, diabetes runs in the family of 144 of the people and among these majority of the people enjoys moderately active or sedentary life. Population of Pakistan, no matter belonging to which age group or socio-economic status mostly enjoys junk food and soft drinks in their diet.

In the study, we also have observed further predisposing factors like stress in the adult population for diabetes, especially those who have family history of diabetes. Among Pakistani population, stress factor is positive in more than three-fourth of the individuals. When we investigated about whether or not they experience the three principle symptoms of diabetes that is polyuria (increased urination), polyphagia (increased

appetite), polydipsia (increased thirst), so they are considered as having all the symptoms of relating to diabetes

This is an alarming situation for the entire population as this sort of behavior is the major cause of obesity and hence diabetes. According to WHO report 2013, Pakistan has become the 7th largest country in terms of diabetes and by 2030, Pakistan is going to be at number 4th. It is a high time for the responsible authorities to create awareness among the population. This increasing tendency and occurrence of diabetes should not be ignored and wakefulness among the

adult population should be created in order to deal with and successfully fight the upcoming disaster.

Conclusion:

From the above research it is concluded that it is a frightening situation as majority of the population either males or females are at risk for diabetes and prevention in terms of life style modifications, awareness and education to population. Lifestyle modification, including dietary changes, moderate-intensity exercise, and modest weight loss Diabetes can prevent or delay diabetes in high-risk adults.

Conflict of interest: None declared

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