

# Tsunami of Diabetes in Pakistan

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Dear Editor,

Diabetes is believed to be a leading issue worldwide. It disables and kills people at most of their productive age, depriving households or decreasing elderly people life expectancy. Diabetes is one of the major threats which does not consider social class and borders. None of the countries of the world is protected from diabetes while the endemic is anticipated to continue. Disease burden depletes health care budget, slows financial growth, decreases productivity, causes disastrous expenditure for susceptible families and devastates health care systems<sup>1</sup>. Diabetes mellitus (DM) is a metabolic disorder associated with disturbances to protein, fat metabolism and carbohydrate resulting from complete or relative deficiency of insulin with malfunction in the organ systems of body<sup>2</sup>. The word DM is taken from diabainen and its meaning is 'to pass through' while mellitus meaning is "sweet". This narrates passing of the "sweetened" urine. DM could be due to pancreas failure that makes insulin (type-1 diabetes) or due to faults in the insulin action such as faults in the insulin sensitivity and inequality between pancreatic supply and insulin physiological demand that are frequent in gestational and type-2 diabetes<sup>3</sup>. Complications of diabetes contribute significantly to enhanced morbidity as well as mortality. These complications are generally divided in two major categories, for example, macrovascular complications like stroke and heart disease; and microvascular complications such as nephropathy, neuropathy and retinopathy<sup>4</sup>. Diabetes is themed like 'iceberg disease'<sup>5</sup>. Globally, the diabetes mellitus is most widespread disease with a growing incidence<sup>6</sup>. As per International Diabetes Federation (IDF), 352 million individuals at present have impaired glucose tolerance (IGT) and have more risk in future of developing diabetes. It was anticipated in 2017 that about 425 million individuals' aged 20-79 years suffered from

diabetes mellitus while these numbers are expected to increase to 629 million by the year 2045<sup>7</sup>. Diabetes is a leading health problem among developing countries including Pakistan. In Pakistan about 6.3 million individuals have diabetes while these numbers are expected to increase up to 11.4 million by the year 2030<sup>8</sup>. Presently, Pakistan comes on seventh position among world countries that have significant burden of diabetes mellitus; it is anticipated that it will come on fourth position if current situation persists. A survey carried out in Pakistan demonstrated that newly diagnosed prevalence of diabetes in urban areas was 5.1 percent among males and 6.8 percent among females while in rural areas it was 5.0 percent among males and 4.8 percent among females. In urban areas vs. rural areas the IGT was 6.3 percent among males and 14.2 percent among females against 6.9 percent in male and 10.9 percent among females, respectively. At early age, this endemic can be linked with fast cultural transformation and high level of urbanization that encourage population to adopt unhealthy lifestyles and reduced physical activity<sup>9</sup>. Junk food is considered a leading cause of Type-II diabetes in Pakistan. Junk food consumption makes immune system of body hyperactive and aggressive, therefore, when human body changed to healthful food the immune system of human body lingers in its hyperactive condition and such adaptations and changes lead to diabetes and atherosclerosis. A significant increase in consumption of fast food is seen due to social media revolution because population is quite showing off themselves on the social media by making and uploading pictures to show their friends. Due to social media, children spend inactive lifestyles which could be a leading cause responsible for early diabetes mellitus<sup>10</sup>. Obesity is recognized as one of the risk factors for Type-2 diabetes (T2D)<sup>11</sup>. It has been acknowledged

that body excess weight aggravates or induces insulin immunity that is main characteristic of type-2 diabetes mellitus (T2DM)<sup>12</sup>. T2D major cause is obesity and weight gain, as per WHO, 2.3 billion people were overweight and above 700 million people were obese in 2013, driving epidemic of T2M. Characteristic phenotype comprises obesity/overweight, hyperinsulinemia, central adiposity, dyslipidemia, hypertension and older age. Surplus adiposity causes insulin resistance or beta cell malfunction that is a fundamental cause of Type-2 diabetes. The United State DPP (Diabetes Prevention Program) demonstrated that weight loss plays a significant role in reducing the incidence, with risk of T2D reducing by 16% per kilogram body weight lost during three years intercession. As described by American Diabetes Association that obesity is number one cause of T2D. Among three most important risk factors namely family history, obesity and age, obesity is only the adjustable cause and therefore a main target for the prevention of T2DM<sup>13</sup>. Poverty is not only associated with the development of diabetes but also with several other diseases. Numerous factors are responsible for diabetes. Educational status, profession, monthly income, gender inequalities and surrounding neighborhood all have association between diabetes and poverty. Diabetes is observed more among people with low socio-economic status. Fetal malnutrition and low birth weight can affect pancreas beta cells of infant at delivery time. Hence, seeds are sown which reap during later life as increase insulin discharge and hyperglycemia during adulthood. It is one more cause because socio-economic status is significant for the distribution of diabetes among population<sup>14</sup>. Physical activity plays an autonomous part for the prevention of T2D individually from its impact on body composition and weight loss. Several researches have encouraged the argument that physical activity independently boots insulin sensitivity of any activity effect on fat distribution and weight loss<sup>15</sup>. Among children with T1DM (type 1 diabetes mellitus), physical activity can help insulin sensitivity, glycemic control, make better body composition, protect against heart diseases, improve quality of life and permanent

health<sup>16</sup>. Type-2 diabetes mellitus occur due to less physical activity. On the other hand, regular physical activity not only prevents from T2DM development but also increases anti-diabetic drug effects, thus enhancing glycemic control. Hence, it is necessary that all health care providers engaged in T2DM prevention and treatment must have complete information about physical activity<sup>17</sup>. In Pakistan, due to fast increase in diabetes prevalence, it is significant that upcoming national efforts should not only focus on the treatment but also on prevention. In this association, awareness is essential because it has been reported that most of the patients have insufficient knowledge regarding diabetes mellitus<sup>6</sup>. Health care practices and knowledge are imperative to understand the cause behind the diabetes and its prevention. Increased educational level helped in improving the knowledge regarding diabetes prevention. Health education programs at community level showed better results to impart knowledge among people about diabetes. Print and mass media are considered most powerful tools to disseminate information about diabetes in developing countries. Internet is also believed a best source of information regarding health care knowledge. Radio, television, hotline, SMS and cinema also played important role for the prevention of diabetes. The better response was observed among general population when camps were organized about diabetes at general places for example community halls, bus stands, parks beaches, open grounds, supermarkets and railway stations etc<sup>18</sup>. A few researches have suggested following measures to create awareness regarding diabetes such as disease management programs, community based programs, community healthcare workers and trained peer, use of latest technology and nutritional therapy<sup>19</sup>. It has also been suggested that health care providers should educate patients regarding prevention of diabetes such as weight control, use of medicines, foot care and urine testing<sup>18</sup>. A research project carried out in Chennai on PACE (Prevention, Awareness, Counseling and Evaluation) of diabetes suggested physical activity, obesity prevention and healthy diets for the prevention of diabetes. The project researchers

recommended that to make awareness program more successful, free blood glucose tests must be provided to population to ensure their participation in awareness programs<sup>20</sup>. Another study conducted by British Diabetic Association suggested that awareness programs about diabetes should comprise information about diabetes symptoms such as weight loss, visual disturbance and polyuria & genital irritation<sup>21</sup>. In spite of the apparently never ending problems, the measures taken by NGOs and governments to educate population regarding diabetes are noteworthy<sup>22</sup>.

## REFERENCES

1. International Diabetes Federation (IDF). Diabetes Atlas, 8<sup>th</sup> edition, 2017.
2. Uloko AE, Musa BM, Ramalan MA, Gezawa ID, Puepet FH, Uloko AT, et al. Prevalence and risk factors for diabetes mellitus in Nigeria: a systematic review and meta-analysis. *Diabetes Ther.* 2018; 9: 1307-16.
3. Cloete L, Mitchell B, Morton D. The role of obesity in the onset of type 2 diabetes mellitus. *Nurs Standard.* 2017; 31(22): 59-69.
4. Cheema S, Maisonneuve P, Zirie M, Jayyousi A, Alrouh H, Abraham A, et al. Risk Factors for microvascular complications of diabetes in a high-risk middle east population. *J Diabetes Res.* 2018; 2018: 1-7.
5. Padmanabha UR, Nalam U, Badiger S, Nagarajaiah P. Prevalence and risk factors of type 2 diabetes mellitus in the rural population of Mangalore, South India. *Natl J Community Med.* 2017; 8(8): 456-61.
6. Hussain A, Ali I. Diabetes mellitus in Pakistan: a major public health concern. *Arch Pharma Pract.* 2016; 7: 30-2.
7. Aynalem SB, Zeleke AJ. Prevalence of diabetes mellitus and its risk factors among individuals aged 15 years and above in Mizan-Aman Town, Southwest Ethiopia, 2016: a cross sectional study. *Int J Endocrinol.* 2018; 2018: 1-7.
8. Bilquees S, Memon RS, Khan MAA. The need of dietary guidelines for people with diabetes in Pakistan. *Students Corner.* 2018; 68(10): 1552.
9. Yousuf M. Diabetes: time to stem the tsunami. *J Med Stud.* 2017; 2(2): 1-3.
10. Khalid, N. Social media target on type-2 diabetes: prevent threat for Pakistani population. *J Liaquat Uni Med Health Sci.* 2018; 17(1): 60-1.
11. Ganz ML, Wintfeld N, Li Q, Alas V, Langer J, Hammer M. The association of body mass index with the risk of type 2 diabetes: a case-control study nested in an electronic health records system in the United States. *Diabetol Metabol Syndr.* 2014 6: 50.
12. Belavić A. Diabetes: obesity as a risk for diabetes mellitus type 2. Zagreb: University of Zagreb; 2015.
13. Liu AY, Silvestre MP, Poppitt SD. Prevention of type 2 diabetes through lifestyle modification: is there a role for higher-protein diets? *Adv Nutr.* 2015; 6: 665-73.
14. Shaikh A, Hari Kumar KVS. Diabetes and poverty: a primer for resource poor countries. *J Soc Health Diabetes.* 2018; 6: 11-4.
15. Ansari RM. Effect of physical activity and obesity on type 2 diabetes in a middle-aged population. *J Environ Public Health.* 2009; 2009: 1-5.
16. Quirk H, Glazebrook C, Blake H. A physical activity intervention for children with type 1 diabetes- steps to active kids with diabetes (STAK-D): a feasibility study. *BMC Pediatr.* 2018; 18: 37.
17. Anjana RM, Mohan V. Diabetes and physical activity. *Indian J Med Res.* 2016; 143(4): 530-1.
18. Bansode B, Nagarajan R. Diabetes: a review of awareness, comorbidities, and quality of life in India. *J Soc Health Diabetes* 2017; 5: 77-82.
19. Funnell MM, Brown TL, Childs BP, Haas LB, Hoseney GM, Jensen B, et al. National standards for diabetes self-management education. *Diabetes Care.* 2009; 32: S87-94.
20. Somannavar S, Lanthorn H, Pradeepa R, Narayanan V, Rema M, Mohan V. Prevention awareness counselling and evaluation (PACE) diabetes project: a mega multi-pronged program for diabetes awareness and prevention in South India (PACE-5). *J Assoc Physicians India.* 2008; 56:429-35.
21. Singh BM, Prescott JJ, Guy R, Walford S, Murphy M, Wise PH. Effect of advertising on awareness of symptoms of diabetes among the general public: The British Diabetic Association Study. *BMJ.* 1994; 308:632-6.
22. Niazi AK, Noon MJ. Obstacles to the psychosocial management of diabetes in Pakistan. *J Soc Health Diabetes.* 2013; 1(2): 100-101.