Do Diabetes Self-Management Education (DSME) Programs Merit more Consideration in the Indian Setting?

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ABSTRACT

Many individuals in India are nowadays either being diagnosed early with type 2 diabetes or lack optimal control of their diabetes. Reducing the burden and impact of diabetes mellitus in India is a major priority among the healthcare system. Diabetes educators, through DPP models, have shown to reduce the risk of developing diabetes among pre-diabetics through lifestyle changes. Among diabetics, DSME is seen as an essential intervention and as a cornerstone of diabetes care. Short-lived benefits and presence of barriers & challenges limit the inclusion of sufficient numbers of health educators or trained individuals in resource limited Indian settings to educate high risk individuals and improve self-management behaviors.

Keywords: Diabetes Care, Diabetes Mellitus, Diabetes Prevention Program (DPP), Diabetes Self-Management Education (DSME)

INTRODUCTION

Diabetes mellitus is a major global healthcare and economic burden. According to WHO, more than 180 million people worldwide have diabetes and this estimate is more than likely to increase significantly over the next 2 decades. There are two types of Diabetes mellitus– type 1 and 2. Type 1 diabetes, which is usually diagnosed in adolescents, occurs when the immune system attacks pancreatic beta cells, thereby destroying the body’s production of insulin. Thus, type 1 diabetics are insulin-dependent, meaning they rely on insulin from a pump or injection (CDC, 2011). Type 2 diabetes, which is typically diagnosed in adults, occurs when the body does not use its insulin to properly regulate blood glucose levels. Ninety to ninety-five percent of diabetics are type 2 diabetics and type 2 diabetes is largely preventable with appropriate lifestyle adjustments (CDC, 2011). Diabetics live at an increased risk for many different health complications and diseases; thus, preventing type 2 diabetes from occurring is a crucial public health focus.

India has the dubious distinction of having the highest prevalence of diabetes worldwide. In addition, the numbers of individuals with diabe-
tes will reach 79.4 million by 2030 (King et al., 1998). Along with that, 70% of the population lives in rural areas in resource-limited settings where illiteracy and poor access to quality care can become added burdens (Ramachandran et al., 2004). Though in the past type 2 diabetes was typically a disease of adulthood, physicians now frequently diagnose children with type 2 diabetes and certain minorities are more at risk than others. But how can we prevent individuals from becoming diabetic?

Intervening with individuals before they develop diabetes seems the most promising method to prevent type 2 diabetes. Diabetics must self-manage their disease to prevent the complications that are linked to this disease; similarly, pre-diabetics can self-manage their lifestyle choices to prevent the onset of diabetes. While it is important to control and reduce the morbidity and mortality associated with diabetes for diabetics, equal emphasis needs to be given to the people who are high-risk for diabetes, or pre-diabetics. Pre-diabetics remain at a higher risk of developing diabetes than the general population and nearly 10% of individuals with pre-diabetes develop diabetes (CDC, 2011).

Pre-diabetes is defined by the CDC as a condition in which individuals have blood glucose or glycohemoglobin (HbA1c) levels that are higher than normal, but not high enough to be classified as diabetes (CDC, 2011). People with pre-diabetes have an increased risk of developing type 2 diabetes, heart disease, retinopathy, chronic kidney disease, neuropathy, stroke, and cardiovascular diseases (Buysschaert et al., 2011).

According to the American Diabetic Association (ADA), the criteria for Pre-diabetes* includes having one or more of the following conditions (Buysschaert et al., 2011):

- Impaired Fasting Glucose:
  - Fasting Plasma Glucose level of 5.6 - 6.9 mmol/L (100-125 mg/dL)

- Impaired Glucose Tolerance:
  - Fasting Plasma Glucose level of < 5.6mmol/L (<100mg/dL)
  - Two-hour plasma glucose level after 75 gram Oral Glucose Tolerance Test: 7.8 - 11.0 mmol/L (140-199 mg/dL)
  - HbA1c level of 5.7% to 6.4%

* Pre-diabetes is synonymous to Impaired Fasting Glucose or Impaired Glucose Tolerance (ADA, 2010).

Past literature reported that people with pre-diabetes can delay the onset of diabetes and even return their blood glucose level to normal by losing weight and increasing their physical activity level (CDC, 2011). By implementing lifestyle interventions for the pre-diabetic population, those with pre-diabetes manage their weight and glucose levels and consequently reduce their risk of developing diabetes. By managing these specific factors, which are also some of the targeted factors in diabetes self-management, diabetes will largely be prevented. Preventing diabetes reduces current economic burdens by redirecting the medical costs that were previously spent on diabetes. It also lessens burdens on individuals who suffer from this disease (CDC, 2011).

Past studies have also shown that programs such as Diabetes Prevention Program (DPP) that promote lifestyle interventions and target increase physical activity and dietary changes for pre-diabetics reduce the progression of type 2 diabetes by 58% (Wing et al., 2004; West et al., 2008). In the Indian context, similar to DPP, the Indian Diabetes Prevention Program (IDPP) was proposed and studies were conducted in the Indian population to determine if lifestyle modification resulted in fewer pre-diabetics from developing diabetes. As researchers implemented the IDPP across rural populations, they demonstrated that the IDPP effectively reduces the incidence of diabetes for the pre-diabetic population. In one of the studies by Ramachandran et al. (2006), the researchers randomized 531 subjects with Impaired Glucose Tolerance (IGT) into four groups (control, lifestyle modification, metformin, lifestyle modification and metformin), the primary outcome measure being WHO diagnosis of type 2 diabetes. The relative
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