Evidence-Based Practices for Diabetes

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Worldwide, diabetes is a major cause of morbidity and complications such as amputations, cardiovascular diseases, and blindness. It is demonstrated in many studies that the risk factors for diabetes such as diet and physical activity are modifiable and can reduce burden of diabetes and related disorders. Globally, approximately 383 million people (8.4%) are suffering from diabetes and it is reported that this figure will increase to 593 million by 2030. China and India have the greatest epidemic and it is found that the prevalence of diabetes in China has exceeded the United States with 11.8% of Chinese adults suffering from diabetes. The increasing prevalence of diabetes has been attributed to a secular shift in people’s lifestyles that results from rapid urbanization and upward social mobility. The cost associated with diabetes is significant worldwide. Individuals with diabetes use more medicines, have more outpatient visits, increased hospitalization, and require long term care as compared to those without diabetes (Franz, Boucher, Green-Pastors, & Powers, 2008). In the United States, diabetes and chronic disease management are major causes of health care burden. It is estimated that the total cost of diabetes has been increased to $246 billion in 2012 from $175 billion in 2007 (Franz, Boucher, Green-Pastors, & Powers, 2008). In the US, the annual medical expenditure is about $13750 per year, of which $8000 is attributed to diabetes. Research on the effectiveness of diabetes control and prevention has been concentrated in Europe and the United States (Franz et al., 2008). A study was conducted which reported a 59% reduction in the risk of developing diabetes through lifestyle interventions.

**Evidence-Based Nutrition Therapy**

In 1990, the American Dietetic Association reported the need for the formulation of nutrition practice studies and guidelines to evaluate the clinical outcomes of their use. Guidelines of nutrition practice were written for gestational, type 1 and type 2 diabetes (Franz et al., 2008). These guidelines demonstrated that medical nutrition therapy positively affects the outcomes of diabetes. Evidence has been provided by registered dieticians on the effectiveness of medical nutrition therapy guidelines. The main role of registered dieticians in improving the quality of life and clinical outcomes is demonstrated in the framework of Dietician Practice. Diabetes nutrition therapy is very effective (Franz et al., 2008). Observational studies and randomized controlled trials of medical nutrition therapy have shown a decrease in hemoglobin A1C depending on the duration and type of diabetes. Medical nutrition therapy has a great impact on the initial diagnosis and is very effective at any time of the disease process. The outcomes that result from nutrition intervention are recognized in six weeks to three months and evaluation is mostly done during this time (Franz et al., 2008). If clinical improvement in glycemic control is not seen in three months, then the registered dietician recommends a medication change. Type 2 diabetes is defined as a progressive disease and blood glucose-lowering medicine should be combined with medical nutrition therapy to achieve the goal of normal blood glucose level (Franz et al., 2008). The nutrition counseling should be sensitive to the cultural preferences and personal needs of individuals and their ability and willingness to make changes. Studies have shown that there are different types of effective nutrition interventions. Counseling and education should be provided on a continued basis.

Interventions and recommendations of nutrition therapy have also been published by the American Diabetes Association. The most recent recommendations and interventions are delineated in a statement of nutrition position published in the year 2008 (Franz et al., 2008). These recommendations are created on a key reference and technical review published since the year 2000 (Garabedian, Ross-Degnan, & Wharam, 2019). A technical review is a literature analysis related to a particular topic, including conference proceedings, research studies, and review articles. The evidence grading system is used by the American Diabetes Association that comprises ratings A, B, and C. Studies on medical nutrition therapy have reported different nutrition intervention outcomes that are provided by a dietician. The diabetes self-management training and medical nutrition therapy also focus on nutrition intervention. It is also demonstrated in several studies that self-management training of diabetes is provided by a multidisciplinary team that comprises of registered nurses and dieticians (Garabedian et al., 2019). Studies include cross-sectional studies, randomized and non-randomized trials, chart audits, and chart reviews. It is reported consistently in all studies that Hb A1C is a major clinical outcome (Garabedian et al., 2019). Other outcomes include weight change, blood pressure, and body mass index. Evidence-based guidelines of nutrition practice help registered dieticians to apply the research to practice and also improve outcomes and quality of medical nutrition therapy (Franz et al., 2008). These guidelines do not define the scope practice and exclude the components of practice standards but are necessary for the application of medical nutrition practice and nutrition care process utilization.

**Evidence-Based Self-Care Management**

Diabetes is a chronic disease that needs complex care activities and self-care management decisions. Diabetes self-management support and education provide a strong foundation to assist diabetic patients to navigate these activities and decisions which in turn improve health outcomes (Garabedian et al., 2019). Self-education of diabetes is a process that facilitates the skills, knowledge, and ability necessary for diabetes self-care. Self-management support of diabetes refers to the support that is needed for sustaining and implementing the behavior and skills needed to self-manage on an ongoing basis (Garabedian et al., 2019). All health care professionals need to have sufficient resources and referral processes to ensure that the diabetic patient receives support and training to cope with the disease (Garabedian et al., 2019). Diabetes education programs should be designed to address patient cultural beliefs, current knowledge, emotional concerns, financial status, health literacy, and family support. Diabetes self-management support and education have proved to be very cost-effective as it reduces hospital readmissions and health care costs associated with diabetes complications (Garabedian et al., 2019). In 2012, the cost associated with diabetes was reported at almost $246. It is projected that by 2050, 1 in every 3 people will suffer from type 2 diabetes. The health care system of the United States will not be able to afford the health care cost associated with diabetes unless diabetes-related complications and incidence rates are reduced. Diabetes self-management support also has a positive effect on behavioral, clinical, and psychosocial aspects of diabetes (Garabedian et al., 2019). It is also helpful to reduce the diabetes onset and advancement in the complication of diabetes by improving the quality of life, self-empowerment and efficacy, decrease diabetes-related depression and distress, and also improve lifestyle behavior (Franz et al., 2008). A diabetes diagnosis is overwhelming (Garabedian et al., 2019). One of the significant barriers for self-management and education is emotional response associated with the diagnosis of diabetes. Education at the time of diagnosis should focus on the treatment plan of diabetes.

Diabetes educators should also emphasize the importance of involving the patient’s family members and ongoing support and education. The diabetic patient should be provided with education regarding different treatment approaches of diabetes (Garabedian et al., 2019). The main topics of diabetes education include planning meals, physical activity, treatment targets, regular blood glucose monitoring, and behavior change strategies. The patient factors and diabetes complication identification that impact self-management should be considered as important indicators for education and support of diabetes.

During routine care of diabetes, the health care provider can identify different factors that influence self-management plan and treatment. The factors include the ability of the patient to cope and manage diabetes complications, physical limitations, basic living, and emotional needs. The need for additional medication and health conditions can complicate the patient self-management plan (Franz et al., 2008). Additional emotional support is needed for stress and anxiety associated with diabetes. Diabetes-related health complication includes restricted physical activity, visual impairment, and dexterity issues. The educators of diabetes should help the patient to manage these limitations through different support resources and education (Garabedian et al., 2019). Diabetes is a burdensome and complex disease which requires that diabetic patient should decide medication, physical activity, and food. It also helps diabetic patients to become proficient in self-management skills. It is widely accepted that self-monitoring of glucose is important for every individual with diabetes. Patients should be encouraged to monitor their blood glucose level as it is very helpful in managing diabetes.

# Evidence-based Four-Step Nutritional Practice

Certain evidence-based practices are observed to be commonly practiced among healthcare providers. Among these practices, the American Diabetic Association (ADA) four-step evidence-based practice is more operative among healthcare providers (Garabedian et al., 2019). This is a four-step process of evidence-based practice and includes identification, analysis and synthesizing practices. Step one is the process of identification of the workgroup and selection of topics (Garabedian et al., 2019). Presently, ADA has been practicing with 24 groups among which diabetes is the most important group. The evidence-based practice guide registered dieticians to provide services that are more effective in preventing diabetes (Franz et al., 2008). Studies have shown that evidence-based practices are often recommended in the identification of research related to diabetes studies. These studies have shown that research in the field of diabetes control and prevention is the most commonly observed practice among healthcare professionals (Garabedian et al., 2019). As it has been observed and research has shown that healthcare providers often recommend prevention over cure. They think that diabetes is a preventable and avoidable condition because it is related to obesity and a sedentary lifestyle. Changes in lifestyle activities can significantly improve conditions among communities. Prevention of diabetes involves various significant steps that can effectively reduce the burden of disease from communities (Garabedian et al., 2019). Evidence-based practice involves the identification of diseases, diagnosis and treatment plans that can help the patient prevent this problem effectively.

ADA evidence-based practices include several policies and plans that help to implement such processes that can significantly reduce the burden of diseases (Garabedian et al., 2019). For example, several nutritional plans are available however, the most effective one needs to be tested before applying it to the people (Garabedian et al., 2019). Pilot testing of effective nutritional plans needs to be identified and implemented on the sample population to effectively evaluate the efficacy of the plan. The effective nutritional plan will ultimately help the population to reduce diabetes and related diseases from communities.

# Evidence-Based Nutritional Plans

Evidence-based nutritional plans available in ADA’s analysis library includes several questions to be addressed (Garabedian et al., 2019). For example, how effectively a nutritional plan can reduce obesity, how a nutritional plan can effectively manage diabetes among individuals, what relationship between diet and diabetes is present to effectively manage diabetes and obesity (Garabedian et al., 2019). Controlling blood glucose is the major issue in diabetic patients and therefore, blood glucose level maintenance is significantly important in diabetes. An effective nutritional plan is the one that can control blood glucose levels in diabetic patients and body mass index should also be maintained.

The long-term analysis would be dependent on the factors that can identify and control obesity in patients because, with an increase in weight, blood sugar level also rises (Garabedian et al., 2019). It has been reported through various studies that blood sugar levels if consistently remain higher in patients, the body becomes vulnerable to several other health-related issues (Franz et al., 2008). These health-related problems include kidney failures and cardiovascular diseases (Garabedian et al., 2019). Various studies have been conducted to identify the glycemic index and metabolic outcomes of nutritional plans to evaluate the efficacy of these diet plans. Relationship of carbohydrates and metabolic changes, protein association with metabolic reactions and fiber intake in reducing and maintaining blood glucose levels have been identified in various studies (Garabedian et al., 2019). These studies have shown that various ingredients and its relationship with metabolic reactions can significantly help physicians in identifying the most effective diet plan for evidence-based practice of diabetes control.

# Management of Diabetes with Physical Activity

Various studies shave analyzed the practices that involve the evidence-based control of diabetes through physical activity (Garabedian et al., 2019). World Health Organization has reported that a regular activity of 150 minutes per week can significantly improve the body mass index of individuals. Various studies and reviews of articles have shown a positive association between diabetes management and the role of physical activities (Garabedian et al., 2019). Several studies have projected that low-socioeconomic status and availability of resources are also the major influencing factors that contribute to the development of diabetes among communities. The evidence has been shown from studies conducted in low and middle-income countries (Franz et al., 2008). Certain communities having higher rates of diabetes are evaluated with a strong correlation of low socio-economic status.

The communities have reported that lack of availability of resources restricts them to avail healthcare services to improve health status. Several studies have been analyzed with more than one year of research that has shown the correlation between physical activities in the management of diabetes among patients (Garabedian et al., 2019). The studies have evaluated that physical inactivity is strongly associated with fewer metabolic activities and increased body mass index. Various studies have identified that poverty is another major factor that has contributed to the burden of diabetes and related disease in the countries (Franz et al., 2008). Very little knowledge is delivered in communities regarding the efficacy of physical exercise as an intervention for the management of diabetes and weight. Management of diabetes through physical activities as an intervention can be effective in less developed countries as this is the most effective and cost-effective treatment (Garabedian et al., 2019). Communities have been observed with higher proportions of finance expenditure on medications for the treatment of diabetes. People with less availability of resources need cost-effective treatment plans to control diabetes.

Developed countries have other factors such as sedentary lifestyles and stress-related issues that are associated with an increase in diabetic patients among communities (Franz et al., 2008). Lifestyle changes such as lack of physical activity along with inadequate nutrition are reported to be the most influencing elements for obesity and obesity-related diseases such as diabetes and cardiovascular disorders. Diabetes around the world is the major health problem that has impacted 382 million people in low and middle-income countries.

# Technology-Assisted Interventions

Studies have shown that technology can also play an important role in the management and reduction of disease burden from communities. Several studies have shown that the management of blood glucose can be monitored through messages and other accessories such as internet services that can help patients identify their glucose levels for example use of smart phones (Franz et al., 2008). Management and treatment through assisted technology can improve the health of patients with severe disorders that can trigger other chronic conditions such as diabetes. This use of technology is termed as telehealth (Garabedian et al., 2019). Internet-related and short messages through message services can be initiated to help patients to improve their health conditions. Community health workers and nurses would be able to help patients identify their normal ranges of blood glucose levels through telephone and messages. To improve the health status of individuals through follow-ups and monitoring is essentially helpful in the management of diabetes. In case, higher blood sugar level can cause serious health issues therefore, through advanced technology, diabetes can be controlled effectively.

Community health workers would be able to help individuals evaluate their blood glucose levels. Blood glucose monitoring is also manageable by giving training and education to patients regarding the use of technology (Franz et al., 2008). Therefore, utilizing mobile services and telecommunication methods, management and intervention of diabetes are possible. However, communities need to know how effectively they can utilize these services to manage their blood glucose levels (Garabedian et al., 2019). Timely intervention can significantly save thousands of lives through mobile services. Rural and underdeveloped areas have been found to have a higher death rate as patients have to travel miles to avail of the healthcare facilities. Effective and efficient sources of mobile services and telecommunication methods in interventional procedures can significantly improve the health status of patients with diabetes and related disorders. The main goal of patient care is to eliminate the symptoms of diabetes and to prevent the complication associated with diabetes. American colleges of physicians have developed the guidelines for the treatment of type diabetes mellitus. Metformin should be prescribed to a patient's o type 2 diabetes to control blood glucose levels. DPP-4 inhibitor, a thiazolidinedione, sulfonylurea, and SGLT-2 inhibitor are used as a second line of drug therapy to treat the symptoms of diabetes.

# References

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