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International Diabetes Education Program: A simplified Distance Education Program Focused at Training Diabetes Educators in Rural India

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Background

Prajakta Khare-Ranade is a research program coordinator and dietitian at Washington University School of Medicine, St Louis, MO. Prajakta manages the operations of the large multicenter clinical trial Diabetes Prevention Program Outcomes Study of which Washington University is one of the centers. She also serves as the lifestyle coach for study participants, and this role consists of delivering a series of one on one and group nutrition education sessions. Over the past six years Prajakta has served as a dietitian for various research studies at Washington University. Ms. Khare-Ranade is a member of the advisory committee of Manav Seva Foundation Inc, a not for profit organization registered in the USA that serves the marginalized population of Northern India suffering from diabetes and its cardiovascular complications. At the local level Prajakta has served as corresponding secretary and a member of the web communication committee at the Saint Louis Dietetic Association. Prajakta completed her dietetics internship from Saint Louis University and earned a master's degree in Foods, Nutrition and Dietetics from Nirmala Niketan College of Home Science, Mumbai, India.

Introduction

Diabetes is a growing health concern worldwide. According to the most recent statistics, an alarming 382 million people worldwide are estimated to have diabetes. Numerous studies have shown that diabetes is one of the leading causes of death in developed countries. More recent evidence suggests that diabetes is also a growing epidemic in newly industrialized countries with a vast majority of low and middle income population. India, a developing nation, stands out in this race with a startling 65.1 million people with diabetes and with one of the highest number of children with Type 1 diabetes.[1]

Poverty, poor access to medical care, poor nutrition and lack of diabetes education are among many problems that worsen this epidemic. In rural areas, diabetes is considered a taboo and takes a toll on the entire family. Diabetes education provided at medical facilities in resource poor areas rarely includes nutrition information, and most patients have little knowledge of

foods affecting blood sugars. Needless to say, these clinics rarely have dietitians on their team, and the burden of providing nutrition education is shared by doctors, nurses and community healthcare workers. Diabetes education is widely referred to as the cornerstone of care, and diabetes self-management education has proven effective in lowering complications in high-income countries worldwide. But access to culturally appropriate diabetes education is severely limited in many low and middle-income countries and non-existent in rural areas of the developing world. Without effective prevention and management programs, the burden will continue to increase worldwide.[1]

In developed nations nutrition education has an important place in the management of diabetes, and numerous programs have been designed to efficiently convey the importance of a balanced diet and carbohydrate counting. Such resources are unavailable for diabetes educators in India. There is an urgent need to address this situation and with this in mind International Diabetes Education Program (IDEP) was established. The vision of this program is to narrow nutrition information disparities between developed and developing nations.

IDEP Aim

Nutrition education is an integral aspect of prevention and management of diabetes. Although the science behind nutrition and carbohydrate counting is without borders, it can be challenging to translate this knowledge across different cultures with diverse food habits and lifestyles. Food models have long been used in developed nations like the United States to successfully teach concepts of carbohydrate counting, meal planning and portion control. Through this community outreach program I proposed the use of food models to overcome such barriers. These attractive food models break language and literacy barriers that commonly impede the education process. The aim of IDEP was to train the trainers on how to impart diabetes education to chiefly underserved population from diverse age groups using fun and interactive techniques.

IDEP Objectives

The objective of the IDEP program was to train the diabetes educators at two clinics in India using electronic media. To achieve this objective Nasco™ food models and MyPlate™ food plates were used. The education materials developed were intended to teach patients with diabetes to:

- Identify foods containing carbohydrates and
- Plan a balanced diet consisting of 3-5 carbohydrate choices using MyPlate™ and Nasco™ food models.

Community Partners: Manav Seva Foundation (MSF) & Ramkrishna Mission Hospitals (RKMH)

Manav Seva Foundation, a non-profit organization headed by Drs Santosh and Jitendra Gupta from Washington University School of Medicine, St Louis MO, graciously served as a community

partner for the IDEP. MSF has done the enormous work of creating diabetes awareness and has developed novel techniques for diabetes treatment at the grassroots level in India. Over the past eight years MSF has worked tirelessly with medical staff at two Ramkrishna Mission hospitals located at Vrindaban and Haridwar. The majority of people seeking diabetes treatment at these hospitals come from low income families and, needless to say, many patients have low literacy levels. The Ramkrishna Mission hospitals at Haridwar and Vrindaban are charitable hospitals, and medical resources such as insulin, glucometers, lab tests etc are made available to patients at little or no cost through several grant fundings received by Manav Seva Foundation.

Nutrition education, which is an important piece of the puzzle, required a boost in this program. Most education materials used by educators were written by foreign authors with examples of foods unfamiliar to the Indian population. Also the food lists lacked cultural foods and overlooked the fact that majority of the patients followed a meatless diet. Unlike animal proteins, plant based proteins contain carbohydrates in quantities similar to starches. This poses a challenge as diabetic patients work on controlling carbohydrate intake. In short, we identified a need to develop a diabetes education program that was easy to follow, included commonly consumed foods and offered a fun learning experience to educators and patients.

Grant Funding

Funds for the purchase of Nasco™ food models and MyPlate™ food plates were made available through Washington University's Gephardt Institute Civic Engagement Fund award. Due to limitations of available funds, I was able to purchase food models only for the hospital at Vrindaban, yet the medical staff at the Haridwar hospital participated actively in the online education sessions.

IDEP Design

- **Purchasing and Shipping materials**: The "MyPlate food kit" consisting of forty seven food models and five "MyPlate" food plates were purchased online from Nasco™ and shipped to the diabetes clinic at Vrindaban, India. Lesson plan and evaluation form were developed for the educators to help them methodically conduct and evaluate diabetes education using Nasco™ food models and food plates.
- **Week 1**: On the first week following receipt of the shipment at Vrindaban, a video conference call via OoVoo™ was set up to train diabetes educators. We discussed ways of using food models in diabetes education. Our video conference group consisted of four nurses and one doctor from Vrindaban, one diabetes educator and one doctor from Haridwar, Drs. Santosh and Jitendra Gupta from Naples, FL, and myself from St Louis, MO. During this first web conference, I familiarized the educators with forty seven food models and the food plate. This included providing Indian names of foods, portion sizes and carbohydrate contents. Interactive education techniques were discussed to involve patients in planning their meals. The educators were provided with an evaluation sheet to complete after every session. This would help the educators know whether their patients understood carbohydrate counting and the concept of a balanced diet.

Although this is an ongoing project, we decided to collect data from the evaluation sheets for one month to evaluate our program.

- **Weeks 2 and 3**: For the two weeks following our first web conference we stayed in touch via emails. I would pose questions and have the educators calculate carbohydrate content of foods. The educators asked questions and shared experiences using food models with patients.
- **Week 4**: We had our second web conference meeting during the 4th week. During this call I received feedback from the educators and answered questions. We practiced counting food exchanges using the book "Choose your foods: Exchange Lists for Diabetes"
- **Weeks 5 and 6**: During weeks 5 and 6 we stayed in touch via emails. The educators shared pictures taken during group and one on one session. We discussed topics ranging from serving sizes, glycemic indexes and non-nutritive sweeteners.
- **Week 7**: Although this diabetes education is an ongoing project, we had our last web conference during week seven. During this week the educators submitted patient evaluation sheets, shared their experiences, and provided patient feedback.

Diabetes Education Outreach: During the one month deadline for data collection the diabetes educators reported using food models for diabetes education in following scenarios:

- Two diabetes education classes consisting of ten participants each
- One support group meeting consisting of 25 participants
- One family education session consisting of 3 members
- Thirteen one on one sessions

The patient age range was 14-70 years of which 75% had type 2 diabetes and 25% had type 1 diabetes. In almost all sessions, the participants were able to identify carbohydrate containing foods and plan meals using food models and food plates either independently or with help from educators. Follow up education sessions were also conducted to reinforce this information.

The educators reported that food models were very effective for teaching carbohydrate counting and portion control to illiterate patients. Prior to using food models the educators brought real foods during education sessions which made it very tedious. One educator stated "Food models have made my life easier while I am teaching these classes". The food plates, on the other hand, clearly emphasized the importance of balanced diets. There were misconceptions that diabetes worsened with eating fruits and dairy products. The educators reported that many participants were relieved to see the inclusion of fruits and dairy as a part of balanced meal. Carbohydrate counting was very well received by patients since it gave them the freedom to choose from variety of foods and include all food groups in their diet.

Conclusion and Future Plans

The International Diabetes Education program successfully conducted its first distance diabetes education using web communication. The sessions were very well received by the community

partners at Ramkrishna Mission Hospitals at Vrindaban and Haridwar. The educators reported that they benefitted immensely form the distance education sessions. In one email, Dr. Pravakth MJ from Vrindaban reported, "The other beneficiaries apart from patients were our own student nurses. They had reservations about consuming foods like carrot, rajma (kidney beans), etc and their fears were dispelled since those topics came up for discussion. They were excited that patients could be asked to eat cake or a sweet after understanding the importance of carb counting. A Weight loss techniques was another topic that came up for discussion, and this will help them educating type 2 diabetes patients losing weight."

The success of the International Diabetes Education Program has energized all members, including myself and our community partners at Manav Seva Foundation and Ramkrishna Mission Hospitals, to conduct many more distance nutrition education classes. We would also like to apply for additional grant funding to purchase food models and food plates for RKM hospital at Haridwar. This hospital has a larger pediatric population with type 1 diabetes, and food models will help immensely in delivering effective diabetes education. In conclusion, I would like to quote words by Nelson Rolihlahla Mandela on the value of education: "Education is the most powerful weapon which you can use to change the world."

References

1. IDF Diabetes Atlas, sixth edition. International Diabetes Federation. Publication 2013

Websites

- American Diabetes Association
- ChooseMyPlate.gov
- Manav Seva Foundation

Additional Resources

- MyPlate Lesson Plan for Diabetes