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Staff Education in Caring for Children with Type 1 Diabetes

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Walden University

College of Nursing

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Freda Ansah-Larbi

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the review committee have been made.

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Walden University
2022

Abstract

Staff Education in Caring for Children with Type 1 Diabetes

by

Freda Ansah-Larbi

MS, Walden University, 2016

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

February 2022

Abstract

Type 1 diabetes affects over 1.6 million people living in the United States of which about 200,000 are children under the age of 20, with an increase of 1.9% per year between 2002–2015. The large number of children with type 1 diabetes was observed in the project's practice setting. In addition to the physical health impact on children, this disease also has major personal, economic, and social impacts on children and their families. Therefore, effective management is essential in reducing the risk of complications and achieving an overall improvement in the quality of life of patients. The purpose of the project was to develop and implement a staff education program on caring for children with type 1 diabetes. The question was, "Will nurse knowledge increase about EBP care to children with type 1 diabetes after participation in the education program". The project ensured that nurses in the practice setting had the necessary knowledge, skills and confidence to successfully manage children with diabetes. Pre and post-test questionnaires were designed to better understand participants knowledge of diabetes prior to and after the education program. A convenience sample of nurses ($N = 20$) participated in the project. The evidence-based teaching materials were evaluated by an expert panel. The findings showed that the intervention was effective in improving the knowledge of 85% of participants ($n = 20$) based on comparison of pretest and posttest scores using descriptive statistics. The findings have important implications to facilitate a positive social change for individuals, communities, institutions, and systems in the improvement of the management of diabetes in children.

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Section 1: Nature of the Project

Type 1 diabetes, also referred to as juvenile diabetes, is marked by the destruction of insulin-making cells by the immune system (DiMeglio et al., 2018). In many cases, type 1 diabetes develops early in life and is often diagnosed during childhood. According to the *National Diabetes Statistics Report, 2020* there are over 1.6 million people living in the United States with type 1 diabetes of which about 200,000 are children under the age of 20 (Centers for Disease Control and Prevention [CDC], 2020a). This report also stated that approximately 18,000 new cases of type 1 diabetes among children and adolescents are diagnosed each year.

Nurses are part of an interdisciplinary team that plays an important role in helping these children manage their disease. The effectiveness of diabetes management in children is dependent on a range of patient factors, provider factors, and system factors (Cheng et al., 2019). Patient factors include self-care, educational level, health beliefs, attitude, financial resources, and age. Some of the provider factors are clinician's knowledge, beliefs, and attitude about diabetes (LeBlanc et al., 2015). System factors are mainly related to accessibility of diabetes care (Baptista et al., 2016). Effective diabetes management also calls for a knowledgeable interdisciplinary team that provides comprehensive care. Nurses were the focus of this education project as they need to have the knowledge and skills to effectively facilitate the treatment and management of this disease (Bacha & Klinepeter, 2016).

The purpose of the project was to develop and implement a staff education program on caring for children with type 1 diabetes. This Doctor of Nursing (DNP)

project provides evidence-based practice (EBP) content related to the care of children who have type 1 diabetes to the nursing staff working in an inpatient pediatric setting. The goal of this project was to increase the knowledge and skill of the nurses on the management of type 1 diabetes management in children, thus contributing to EBP in my area of practice. Further, the project was expected to contribute to positive social change by reducing the mortality and morbidity of type 1 diabetes in children.

Local Problem Statement

The need to address childhood diabetes in the target setting was evidenced by an increase in diabetic patients over the years (Rogers et al., 2017). The practice site has experienced a continued increase in the number of patients with type 1 diabetes for the last 5 years. Various efforts have been implemented to address the problem that have been unsuccessful. This DNP project addressed this gap in practice and contributed to the care of children who have type 1 diabetes through a staff education project. The educational initiative took place in the health care setting. Nurses provided essential support during the intervention. This doctorate project makes an important contribution to nursing practice by demonstrating the impact that staff education can have on patient outcomes.

Purpose Statement

Nurses play an important role in helping patients manage their disease, but they may lack adequate knowledge related to the management of type 1 diabetes in children (DiMeglio et al., 2018). Based on discussions with nurses at the project site, there is a practice gap as nurses do not have this knowledge. The purpose of this project was to

develop and implement a staff education program on caring for children with type 1 diabetes. Education is one of the interventions to promote health that is used solely or in combination with other interventions to address gaps in knowledge, skills, and attitude (Chrvala et al., 2016). Nursing interventions related to reinforcing medication regimes and providing health education is necessary to help patients achieve effective management goals. Though staff education has been associated with positive outcomes, few studies have measured the impact of educational programs focused on staff knowledge for professionals caring for children with type 1 diabetes (Abualulaet al., 2016). This DNP project thus addressed a gap regarding the nursing care of children who have type 1 diabetes by educating nurses on practices that have the potential to improve diabetes.

Practice-Focused Question

The practice-focused question that guided the project was “Utilizing a pre- and post-test, will nurse knowledge increase about EBP care to children with type 1 diabetes after participation in the education program?” By implementing my project, the gap in practice has the potential to be addressed as nurses were educated on practices that have the potential to improve diabetes management.

Nature of the Doctoral Project

The project was carried out in a health care organization that serves a large undeserved population. In the DNP project, I developed and implemented a staff education module as an intervention to improve care for children with type 1 diabetes to fill the existing gap. The sources of evidence were gathered from a literature search of the

scientific databases to include the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, Cochrane, and PubMed for peer-reviewed scholarly articles published within the last 5 years. Primary articles within the last 5 years were considered for the most recent EBP for educating providers regarding caring for children with type 1 diabetes. A combination of key terms was used to search pertinent articles including *nursing staff*, *staff training*, *type-1 diabetes mellitus*, *children*, *educational intervention*, and *educating providers*.

Approach

The sources of evidence were obtained from multiple scholarly databases and professional organizations that focus on type 1 diabetes (e.g., Juvenile Diabetes Research Foundation). The literature was graded using Melynk and Fineout-Overholt's (2015) rating scale to determine the level of evidence and summarized in a literature review matrix. I then developed a curriculum plan guided by the analysis, design, development, implementation, and evaluation (ADDIE) instructional design model (Cheung, 2016) and cognitive adult learning principles (Arghode et al., 2017). I utilized the project team to review the curriculum plan for content and appropriateness for the participant audience. I used a pretest–posttest approach for data collection; the same test was administered before and after the education session. The pretest and posttest were developed by me with input from the project team and used to evaluate the effectiveness of the education program.

The Child and Adolescent Structured Competencies Approach to Diabetes Education (CASCADE) was used for the educational program. The CASCADE

intervention is a structured education program designed for children and young people with type 1 diabetes and their caregivers (Sawtell et al., 2015), which is delivered primarily by nurses caring for children with diabetes. The educational model is composed of four modules:

- Module 1: Focuses on the relationship between food, insulin, and blood glucose (BG; e.g., considering the pros and cons of matching insulin to food to attain better glycemic control).
- Module 2: Reviews BG testing and factors influencing BG fluctuation (e.g., identifying factors that cause BG to rise and fall and explore hypoglycemia definitions, reviewing symptoms according to severity).
- Module 3: Looks at the pros and cons of adjusting insulin (e.g., a brainstorming session considers when, how, and who to contact for help managing glycemia).
- Module 4: Addresses aspects of living with diabetes, including managing BG levels and exercise.

Slides were presented to the participants related to this material, and trainers also used role-modeling, and demonstrations. All sessions were recorded.

Gap in Practice

Staff education has been associated with positive patient outcomes (Hill et al., 2015). But few studies have measured the impact of staff educational programs focused on children with type 1 diabetes. Thus, I addressed the knowledge gap in my practice site regarding the nursing care of children who have type 1 diabetes.

Significance

Patient outcomes rely on gains in knowledge and skills of health care staff (Hill et al., 2015). As such, there is a link between the outcomes of educational programs and the outcomes of patients (Stanek et al., 2015). To achieve changes in skills, knowledge, and attitudes of staff, education programs may be implemented. The implementation of the education program was essential in improving the outcomes of children with diabetes. The activation of knowledge by staff should lead to an improvement in the health behavior of children with diabetes.

Impact on Stakeholders

To effectively implement this evidence-based staff education project, buy-in from the key stakeholders was important. The important stakeholders in the project include staff, patients, and the health care organization. The knowledge gained by completing the staff education program improved quality nursing care. Patients can benefit from the knowledge and skills obtained by practitioners. The health care organization is expected to benefit from a potential decline in patient complications resulting from type 1 diabetes, improving quality of care and reducing costs of care.

Contributions to Nursing Practice

This project contributes to nursing practice by demonstrating the impact that staff education can have on patient outcomes. The literature shows that nurses nationally lack the knowledge in the management of type 1 diabetes in children (Bacha & Klinepeter, 2016). Thus, this project impacted type 1 diabetes management through staff education.

Implications for Social Change

Type 1 diabetes affects a significant portion of the population; about 200,000 Americans under 20 are estimated to have type 1 diabetes (CDC, 2020a; National Diabetes Statistics Report, 2020), with an increase of 1.9% per year (CDC, 2020b). As such, efforts to improve patient outcomes are critical in addressing the rising trend. The effective management of type 1 diabetes is essential in reducing the risk of complications and achieving required improvement in the quality of life of children with the condition (Riddell et al., 2017). This doctorate project has implications for social change, as it addresses the need to reduce the mortality and morbidity of type 1 diabetes in children (see Orchard et al., 2015).

Summary

The number of children with type 1 diabetes has been increasing, indicating the need to address childhood diabetes. The practice site has experienced a continued increase in the number of patients with type 1 diabetes for the last 5 years. This DNP project fills a knowledge gap and contributes to the care of children who have type 1 diabetes. Nursing staff are positioned to implement interventions and best practices to improve patient outcomes. As such, staff benefited significantly from an education program focused on improving knowledge and skills. Therefore, the implementation of the education program is critical in improving the care of children with type 1 diabetes. By implementing this project, I assessed whether participation in an education program about EBP care to children with type 1 diabetes leads to a knowledge increase among nurse participants. The next section focuses on background and context.

Section 2: Background and Context

The practice site has experienced a continued increase in the number of patients with type 1 diabetes for the last 5 years. The purpose of this project was to develop and implement a staff education program on caring for children with type 1 diabetes. The practice-focused question was “Will knowledge increase and nursing practice change following participation in an education program about EBP care to children with type 1 diabetes?” This DNP project addressed the knowledge gap in my practice site regarding the nursing care of children who have type 1 diabetes.

Concepts, Models, and Theories

The social cognitive theory (SCT) is a theoretical perspective grounded by several general assumptions (Young et al., 2014). One of the assumptions is that people can learn through observation. The acquisition of new knowledge and behavior is possible through the observation of a model. Another assumption is that learning is an internal process. As such, educational efforts may or may not lead to change in behavior. Additionally, individuals are continually constructing meaning and learning from communication (Young et al., 2014). According to the SCT, learning occurs when cognitive factors are modified in a supportive environment (Beauchamp et al., 2019). The SCT describes the influence of environmental factors, the actions of others, and individual experiences on a person’s health behaviors (Beauchamp et al, 2019).

The SCT guided the implementation of the project. Learning theories are essential in guiding educational programs, including clinical training. Cognitive psychologists believe that learning improves the capacity and capability of a person to improve

problem-solving (Surya & Putri, 2017). The cognitive processes of the learner's behaviors affect person-behavior interaction (Tougas et al., 2015). I organized the learning environment in a manner to allow effective learning. Additionally, external factors can also impact learning. Some basic concepts of the SCT include observational learning, self-efficacy, reproduction, and self-regulatory capability (Darmedru et al., 2017). The SCT was used as the basis for educating the nursing staff in this project.

The ADDIE model was also used as the framework in designing the educational program. ADDIE model is a dynamic guideline for building effective training support tools (Kim et al., 2020). The model was used in the development of a curriculum plan guided by the analysis, design, development, implementation, and evaluation. The model has been used in various programs including improvement of diabetes care (Chae et al., 2020), mental health interventions (Weaver & Lapidos, 2018), and improvement of cancer care (Polo et al., 2019). The effectiveness of this model justifies its use. The approach was useful as it comprises of stages that are clearly defined to facilitate the implementation of effective education (Kim et al., 2020; Lu et al., 2016).

Definitions of Relevant Terms

Staff education: The process of transferring knowledge and skills to meet the learning needs of clinical staff nurses at your healthcare organization (Chen et al., 2016).

Relevance to Nursing Practice

Children diagnosed with diabetes need to have support and guidance from knowledgeable health care team members in order to effectively manage their disease. Studies have demonstrated the importance of health care staff education in the

improvement of clinical outcomes (Garzonis et al., 2015; Waldron et al., 2016). Nursing staff play a critical role in providing essential information to patients and their families. During hospital visits, for example, nurses may teach patients and their families important practices for effective management of type 1 diabetes. Nurses are responsible for providing health education to patients and those who work with pediatric patients often engage in educational efforts targeted to children and their families (Chiang et al., 2018). Therefore, equipping staff with knowledge and skills was not only essential in providing care but also for educating children and their families.

The effectiveness of diabetes management in children is dependent on factors such as staff knowledge and skills (Alotaibi et al., 2017). Health care staff must have appropriate knowledge and skills to facilitate the treatment and management of diabetes. Comprehensive educational interventions promote better care coordination and improve diabetes management (Pansier & Schulz, 2015). The literature review showed that theory-grounded interventions are effective in improving diabetes management (Pansier & Schulz, 2015), which can be used to train medical staff (Driscoll et al., 2015). One of the current practices in diabetes care is providing individualized care. Staff education is one of the strategies that enable the provision of individualized care. The project was in line with the current practices.

This doctorate project advanced nursing practice by providing essential knowledge and skills necessary in diabetes management. Given that patients with diabetes have a higher risk for cardiovascular diseases, a patient-centered approach

should comprise of a comprehensive plan to address healthy lifestyle, physical activity, weight management, and blood pressure (American Diabetes Association, 2016).

Local Background and Context

The education program was implemented in a large suburban community hospital in the southern part of a state on the east coast. The non-profit organization operates in the provision of primary and preventive care services to include disease prevention and case management to meet the needs of the population. The problem addressed by the practice-focused question is relevant for the organization as it provides care to children with type 1 diabetes. The organization handles approximately 120 patients with type 1 diabetes every year. Examining the topic promotes the provision of better nursing care to children with type 1 diabetes.

The program participants were nursing staff who are involved in the care of children with type 1 diabetes. The project is in line with the organization's mission to deliver high quality, preventative, and accessible health care in the community. The vision of the health care organization is to eliminate health disparities while improving the health of the community by providing affordable and quality care. The aim of the doctorate project was to help the organization fulfill the state and federal goal concerning the delivery of quality health services (Douthit et al., 2015). Federal government is at the forefront of improving quality and safety through initiatives that promote safe, effective, and efficient health care (Salmond & Echevarria, 2017). The project was expected to improve the health of the community by educating nursing staff on the management of type 1 diabetes.

Role of the DNP Student

As a DNP student, I was involved in the planning, design, and evaluation of the DNP project. A key task in the planning of the project is to assess clinical guidelines or professional nursing standards and health care standards and how they impact the implementation of the program. I searched the literature, developed a staff education module along with a pre- and post-test, had them evaluated and made revisions as needed, gave the pretest, provided the education, gave the posttest, analyzed the change, wrote the final report, and shared with administration. My role in the completion of the final DNP project was to implement practice change. My relationship with the institute is that I have been a part of the health care organization as a member of the staff. My motivation for choosing the topic is my desire to address a problem facing the organization. The increase in type 1 diabetes cases presented an opportunity to address the challenge.

Role of the Project Team

The DNP project team included 20 educators and nursing leaders who were involved in the evaluation of the teaching materials, implementation of the program, and evaluation of the outcomes. The project team also played an important role in the successful completion of the project by providing consultation as I develop and evaluate the teaching materials. The project team was also involved in conducting the educational intervention and assessing the participants. A briefing to inform the participants about the project was done before the start of the project. The team was involved in disseminating

educational content while nursing leaders oversaw the process. The doctoral project was planned to run for a period of 2 weeks.

Summary

The education program was implemented in a large suburban community hospital on the east coast. The program participants were nursing staff who are involved in the care of children with type 1 diabetes. I engaged in the planning, design, and evaluation of the DNP project but required the assistance of the project team, educators, and nursing leaders to complete the tasks. The SCT and The ADDIE model were used to guide the project. According to the SCT, learning occurs when cognitive factors are modified in a supportive environment. The ADDIE model was used as the framework in designing the educational program. ADDIE model is a dynamic guideline for building effective training support tools. The model was used in the development of a curriculum plan guided by the analysis, design, development, implementation, and evaluation. The next section covers the collection and analysis of evidence.

Section 3: Collection and Analysis of Evidence

Approximately 18,000 new cases of type 1 diabetes among children and adolescents are diagnosed each year (CDC, 2020a). The purpose of this project was to develop and implement a staff education program on caring for children with type 1 diabetes, increasing the knowledge and skill of the nurses and contributing to EBP in my area of practice. The effectiveness of diabetes management in children is dependent on a range of patient factors, provider factors, and system factors (Cheng et al., 2019); the provider factors are staff knowledge and skills. Health care staff should have appropriate knowledge and skills to facilitate the treatment and management of diabetes. In this section, I review the practice-focused question and sources of evidence in addition to presenting the methods that were used for analysis and synthesis.

Practice-Focused Question

The practice site has experienced a continued increase in the number of patients with type 1 diabetes for the last 5 years. Various efforts have been implemented to address the problem that have been unsuccessful. Though staff education has been associated with positive outcomes, few studies have measured the impact of educational programs focused on staff knowledge for professionals caring for children with type 1 diabetes (Abualulaet al., 2016). This DNP project addressed the knowledge gap in my practice site regarding the nursing care of children who have type 1 diabetes. The practice-focused question was “Will knowledge and skills increase following participation in an education program about EBP care to children with type 1 diabetes?”

Sources of Evidence

The sources of evidence for the DNP project were current, peer-reviewed literature obtained from MEDLINE via PubMed, CINAHL Plus and Cochrane databases. Three nursing-focused databases was used. CDC and other government sources were also used as expert resources. The collection and analysis of evidence found in the literature, specifically the ADDIE model, guided the development of the education program. Some of the key terms and combinations that were used include *nursing staff*, *staff training*, and *type-1 diabetes*. The use of an inclusion and exclusion criteria was essential in selecting only relevant literature. All materials were no more than 5 years old since the date of publication. All articles were relevant to the topic and written in English. The Melnyk and Fineout-Overholt (2015) rating tool was used to evaluate the level of evidence.

Research has shown staff training to be an effective intervention for behavioral change (Low et al., 2015). For the purpose of evaluation, the project team was involved in assessing the teaching material, content validity pre-posttest, and the developed project. A pretest (see Appendix B) was given before the beginning of the course as a means of establishing how much participants know about the topic.

Participants

The first step in the implementation of the program was to select program participants. The program participants were nursing staff specifically involved in the care for children with type 1 diabetes. The participants were recruited with the help of the project team. Training sessions were done in a classroom setting. Trainers used role-modeling, videos, demonstration and other strategies to teach participants. All sessions

were recorded for participants who missed the sessions due to work schedules. The number of participants were determined by the number of staff involved in the care for children with type 1 diabetes. The involvement of all 20 participants ensured that the intervention was provided to the most relevant group.

Data collection was completed using pre-test and post-test assessment questionnaires. For the purpose of evaluation, an independent evaluator was involved in assessing the teaching material, content validity pre-posttest, and the developed project. A pretest was given before the beginning of the course as a means of establishing how much participants know about the topics.

Protections

Walden University Institutional Review Board approval was obtained before the initiation of this project (approval no. 04-15-21-0472392). The name of the organization was changed, and a generalized location was cited as to protect its identity. Approval was also obtained from the organization's leader. Participation in the education program was entirely voluntary with informed consent. Participants were provided with informed consent forms before their participation. Participants were also not coerced and were allowed to opt-out of the program at their own will. Participants did not receive any incentives to participate in the project. To protect identifiable information, each participant had their own unique identifiers. The test results and other materials will be stored in my personal computer and copies uploaded to the cloud.

Analysis and Synthesis

To prepare the educational content for this project, evidence was researched and appraised for relevance and appropriateness for nursing interventions in caring for children with type 1 diabetes. Current peer-reviewed articles and evidence from reliable professional or governmental organizations were considered. After careful review of the evidence, the level of evidence was assigned using Melynk and Fineout's (2015) system for assigning levels of evidence. For the education project, change in test scores was analyzed to determine whether they were positive or negative.

Evaluation Plan

Evaluation of participant learning was conducted via pretest and posttests. The pretest was administered to assess the existing knowledge about caring for children with type 1 diabetes. Following the education intervention, a posttest was administered to test the improvement in knowledge. The posttest was the same as the pretest. A nurse leader who was not participating in the project distributed the tests. Assessing staff when they entered the program also established a benchmark against which to measure value-added or growth. Pre- and post-testing were scored and analyzed to determine changes in participants' knowledge and skills, and the scores for each participant at the beginning and at the end were compared. Any improvement in scores signaled improvements in knowledge and potential improvement in care for children with type 1 diabetes.

Summary

The project implementation plan involved formulating a research question, reviewing the literature, assessing the validity of evidence, and implementing outcomes

and analyzing results. The Melnyk and Fineout-Overholt (2015) rating tool was used to evaluate the level of evidence. Data collection was completed using pretest and posttest assessment questionnaires. The approach was appropriate for determining improvements in knowledge and understanding of participants. The DNP addressed the knowledge gap in my practice site regarding the nursing care of children who have type 1 diabetes. The next section covers the findings and recommendations.

Section 4: Findings and Recommendations

This DNP project involved an educational program on the management of type 1 diabetes. The study site has been recording an increase in the number of patients with type 1 diabetes but did not see a significant improvement after efforts to address this issue. This justified the need for an educational program to address gaps in knowledge and skills among nurses regarding caring for children with type 1 diabetes, which contributes to EBP in nursing (see Fiset et al., 2017). The practice-focused question that guided the project was “Will knowledge increase following participation in an education program about EBP care to children with type 1 diabetes?”

The primary sources of evidence for the DNP project were scholarly articles on type 1 diabetes published in health care-focused and scientific databases. The databases used included CINAHL, Medline, Cochrane, and PubMed. The evidence was obtained using a combination of key terms such as *nursing staff*, *staff training*, *educating providers*, *educational intervention*, *children*, and *type-1 diabetes mellitus*. The analytical strategies included a literature review matrix table, and the Melynk and Fineout-Overholt’s rating scale was used to evaluate the level of evidence. The literature review informed the implementation of the intervention. An independent evaluator was involved in assessing the teaching material, content validity pre-posttest, and the project.

Findings and Implications

The project was carried out in a health care organization that serves a large underserved population. A total of 20 participants took part in the education intervention that was created to improve care for children with type 1 diabetes, which took place in a

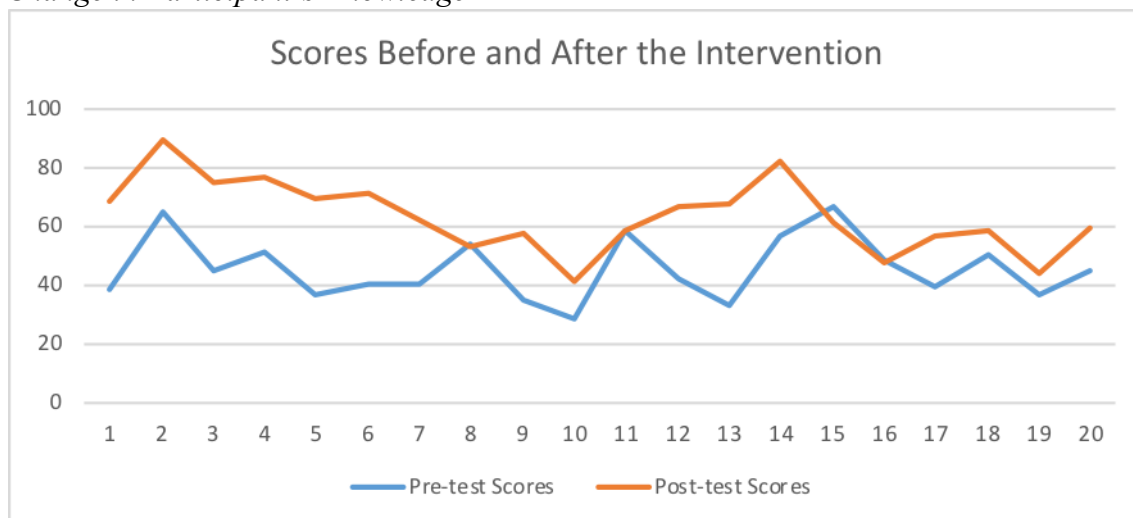
classroom setting. Pretests and posttests were used to determine whether nurses' knowledge increased. Pretests were administered to establish participants' level of knowledge about caring for children with type 1 diabetes. Following the intervention, a posttest was administered to test the improvement in knowledge. Table 1 presents the pretest and posttest scores of each participant, including the comparison and change.

Figure 1 is a graphical representation of participants' performance.

Table 1

Pre- and Post-test Scores

	Pretest score %	Posttest score	Difference	Change
Participant 1	38	68	+40	Improvement
Participant 2	65	89	+24	Improvement
Participant 3	45	75	+30	Improvement
Participant 4	51	76	25	Improvement
Participant 5	36	69	33	Improvement
Participant 6	40	71	31	Improvement
Participant 7	40	62	22	Improvement
Participant 8	54	53	-1	No Improvement
Participant 9	35	57	22	Improvement
Participant 10	28	41	13	Improvement
Participant 11	58	58	0	No Improvement
Participant 12	42	66	24	Improvement
Participant 13	33	67	34	Improvement
Participant 14	56	82	26	Improvement
Participant 15	66	61	-5	Improvement
Participant 16	48	47	-1	No Improvement
Participant 17	39	56	17	Improvement
Participant 18	50	58	8	Improvement
Participant 19	36	44	8	Improvement
Participant 20	45	59	14	Improvement

Figure 1*Change in Participant's Knowledge*

The results showed a significant improvement in the knowledge of 17 out of 20 participants. As such, the intervention was effective in improving the knowledge of participants. The teaching materials were evaluated by a focus group comprising of participants. Questionnaires were provided to establish whether participants liked the materials, enjoyed the topics, found the materials engaging, and if they learned from them. Content validity was achieved on the basis of expert judgment. Two experts in the field were involved in the process. Project evaluation was done after the completion of the educational program. An outcome evaluation was done by determining whether the program achieved its goals. Based on the change in participants' knowledge, the program achieved its goal.

Based on the analysis of evidence from the literature, education programs can be used to address gaps in practice, and practitioners gain considerable benefits from

education programs (Chaghari et al., 2017). The anticipated outcome was an improvement in education. As such, this DNP project was essential in improving the knowledge and skills of nurses involved in the health care of patients with type 1 diabetes. Further, the results supported that education programs can increase providers' knowledge. The findings have important implications for individuals, communities, institutions, and systems. For individuals, the improvement of staff knowledge and skills is essential in improving the management of diabetes in children (Alotaibi et al., 2017). Management of type 1 diabetes is essential in managing the risk of complications and improving patients' quality of life (Abualula et al., 2016). Various factors influence the effectiveness of type 1 diabetes management, including provider factors such as knowledge and skills (Johnson & May 2015). Thus, health care staff with relevant knowledge and skills can improve the treatment outcomes and management of diabetes (Chrvala et al., 2016). Further, type 1 diabetes affects a large percentage of children in the community, so efforts to improve patient outcomes are significant in addressing the rising trend of children with diabetes. The project promotes better care coordination and improve quality of care outcomes. By improving the care of children with type 1 diabetes, measures can put in place to improve systems to ensure continuity in practice such as continuous training for staff.

The findings also have potential implications for positive social change. With the continued trend in the prevalence of type 1 diabetes indicating a large amount of the population living with type 1 diabetes (CDC, 2020b), the findings are relevant to

addressing the care and management of the disease. Improving the management of diabetes has the potential to impact mortality and morbidity.

Recommendations

This project addressed the gap in practice based on existing organizational policy and procedures that provide standardization in staff education (Sharma, 2016). Policies provide clarity when dealing with issues of health and safety, enhancing the effectiveness of education interventions (Buljac-Samardzic et al., 2020). Thus, the recommendation from this project is to continue to use existing policies to support and guide education interventions. Another recommendation is to implement more education interventions, as the results indicated that they can improve knowledge.

Contribution of the Doctoral Project Team

The responsibility of the project team involved the implementation of the intervention and evaluation of the outcomes. Nursing leaders assisted the project team in implementing the interventions as well as the evaluation of the program. Educators disseminated educational information to the project participants. The project team overall played a role in obtaining findings that helped develop the final recommendations from the study to continue implementing the education intervention in similar settings. The team members met and reviewed the content as well as the pre- and post-test. Some team members suggested changes to the content and tests for improvement. Additionally, the team met throughout the program executives to discuss the progress and issues that needed to be addressed.

Strengths and Limitations of the Project

The major strength of the doctoral project was that it allowed for an in-depth exploration of the topic in a real-life setting. The second strength of the project lies in the ability of the findings to lead to new and advanced research in the field, because the results show the positive outcome of education interventions, which may encourage further research to support these findings. Further, the project addresses a gap in the literature, as only a few studies have measured the impact of educational programs focused on caring for children with type 1 diabetes.

Future projects addressing similar topics and utilizing similar methods may implement the project in different settings. The outcomes of different settings should be measured and compared to determine if education interventions lead to similar outcomes when implemented in diverse settings or whether the intervention needs to be fine-tuned to suit the specific setting. The next section focuses on the dissemination plan.

Section 5: Dissemination Plan

The dissemination of academic scholarly work is an anticipated outcome for DNP students and is essential in communicating about the outcomes of the project (Trautman et al., 2018). The audiences for this project include internal audiences such as health care staff in the organization, leadership, and other members of the health care board who are well informed about the project (Brownson et al., 2017) as well as external audiences such as other researchers and individuals in the profession (Green & Nasser, 2017). Adequate internal dissemination was important in ensuring that the project has a high profile within the organization, uptake of findings, and an opportunity to receive feedback, discuss problems and issues, and share experiences. The external audience can also benefit from the outcomes of the DNP project. The choice of the dissemination audience was selected based on the type of audience that I wanted to reach (Fain, 2020). The health care board was the venue for the dissemination of the research evidence. The hospital board comprises organizational staff such as physicians, nurses, and other professionals involved in the care of patients (Scala et al., 2016). The most appropriate method of dissemination is face to face. The approach facilitates interactions and instant feedback, particularly during questioning sessions. The presentation adopts the face-to-face consultation and discussions with other professionals in the field (Grady & Gouh, 2015).

Analysis of Self

In my role as a practitioner, the project has provided an opportunity to improve an area in my practice. In my role as a scholar, the project improved my knowledge and

awareness of project management. As a project manager responsible for regularly coordinating the operations of the project, I have gained project experience. I learned that practitioners can have a significant impact in their practice settings. I would like to be involved in future projects that have a positive impact in my practice area.

The challenges faced during the project implementation were participants' attendance, with some participants missing a number of sessions due to their work schedule. The solution to these challenges lies in proper planning. I have gained various insights throughout the scholarly journey, including the importance of teamwork and time management in successful project implementation.

Summary

This DNP project was intended to address the knowledge gap in my practice site regarding the nursing care of children who have type 1 diabetes, as only a few studies have measured the impact of educational programs focused on staff knowledge for professionals caring for children with type 1 diabetes. With the development and implementation of a staff education program on caring for children with type 1 diabetes, the project effectively addressed the gap. Nurses were educated on practices and have the potential to improve diabetes. A significant improvement in scores signaled improvements in knowledge and potential improvement in care for children with type 1 diabetes.

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Appendix A: PowerPoint Presentation Slides

Staff Education in Caring for Children with Type-1 Diabetes

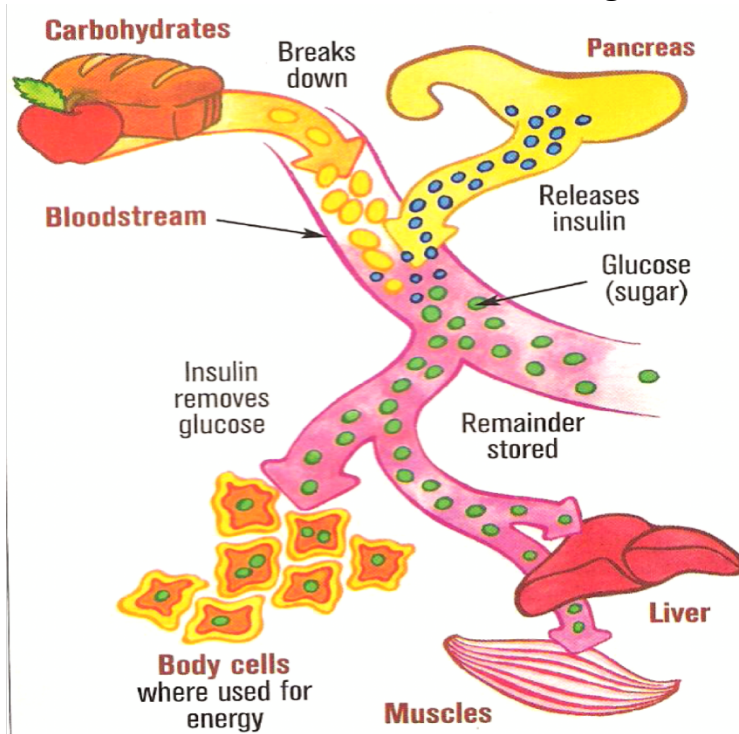
by

Freda Ansah-Larbi, MSN,FNP

Learning Goal/Objectives

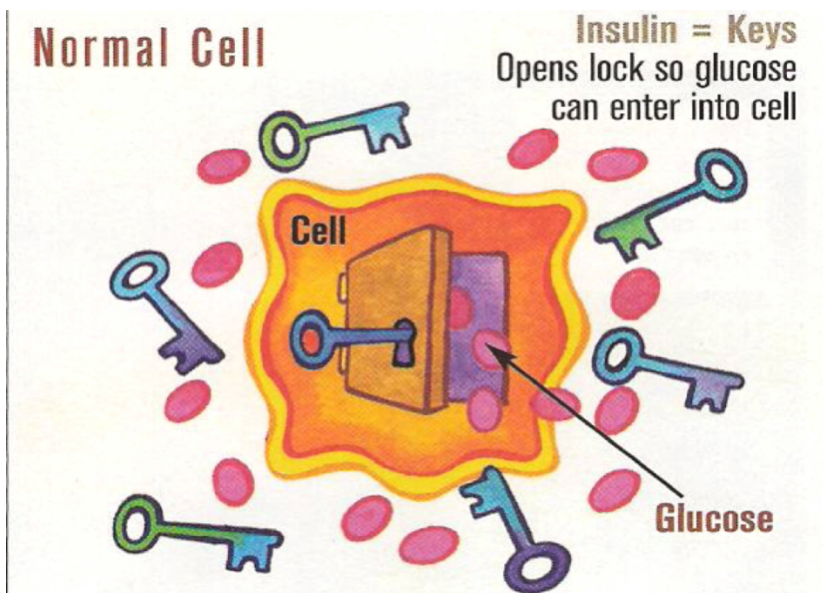
- Identify some evidenced-based practice on some of the steps in preventing diabetes and understanding of the effect of diabetes.
- Describe the important of lifestyle modification, healthy eating, physical activities, self-blood sugar monitoring and weight management.
- Enable healthcare professionals to set age-specific educational goals for their patients.
- Ensure Nurses have the necessary knowledge, skills and confidence to successfully manage children with diabetes.
- Support those who care for children with diabetes on their journey from diagnosis through to the transition from pediatric to adult services.

Understanding Diabetes



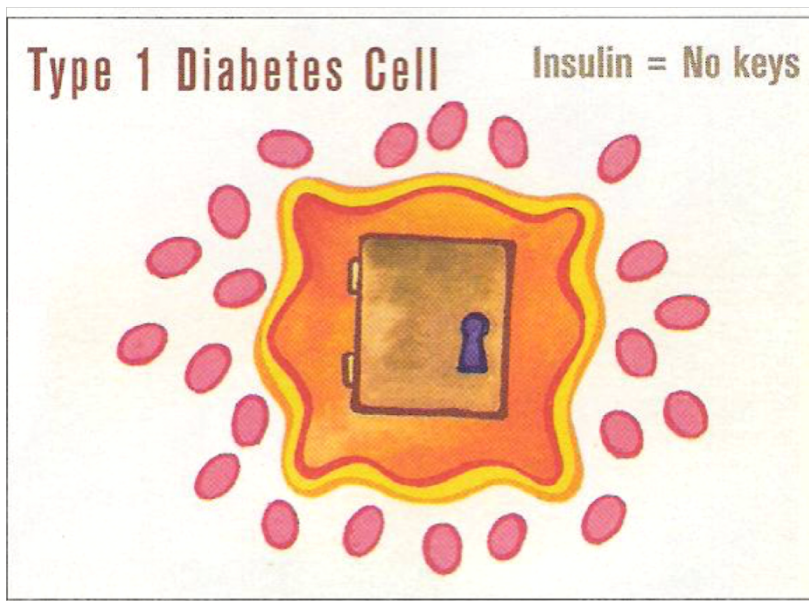
- Complex disease
- Digestion breaks down carbohydrates into sugar (glucose)
- Sugar into the bloodstream
- Insulin moves sugar into cells for energy

Body Function Without Diabetes



No insulin (key) means that sugar cannot enter the cell.

Type 1 Diabetes



Type 1 Diabetes

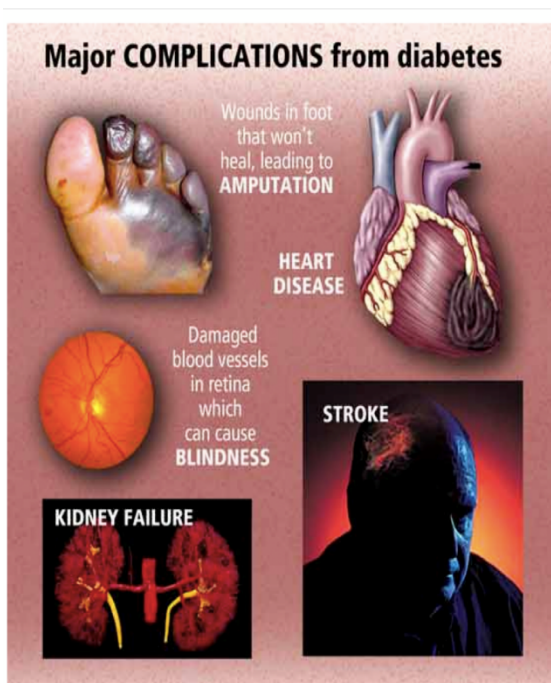
- Insulin-producing cells are destroyed
- Daily insulin replacement necessary
- Age at onset: usually childhood, young adulthood
- Most common type of diabetes in children and adolescents

Onset of diabetes: can happen relatively quickly

Symptoms: increased urination, tiredness, weight loss, increased thirst, hunger, dry skin, blurred vision

Cause: uncertain, both genetic and environmental factors

Complications of Uncontrolled Diabetes



Management Goal

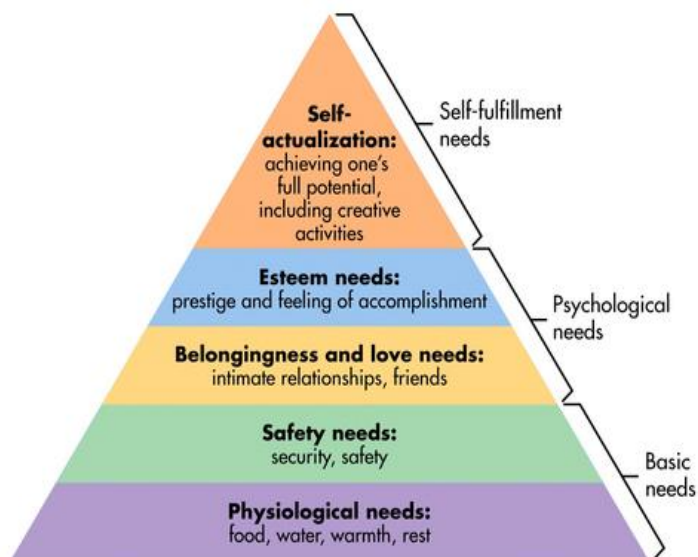
- Diabetes is managed but does not go away
- Goal is to maintain a target glucose range



Diabetes Management Making Diabetes a Part of Life

- Insulin/Medication
- Physical Activity
- Food Intake
- Other Factors

What a Child Needs?



What a Child Deals With?

Everything that every child deals with +
Diabetes

Hypoglycemia Unawareness

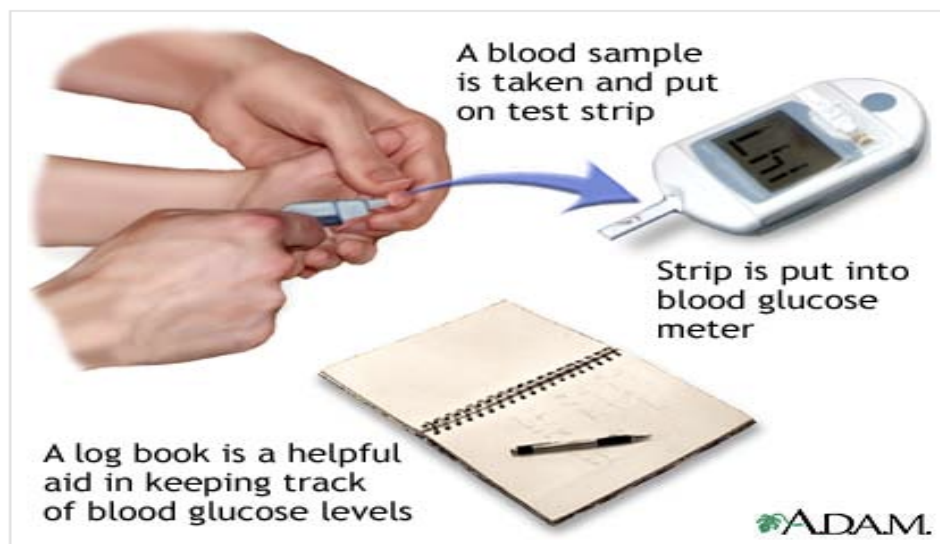
- Their body cannot tell the child the blood sugar is low
- “I just feel funny”

- The child might simply be distracted

- You know a child is just not acting right



Monitoring Blood Glucose



Blood Sugar Classification	Fasting Blood Sugar Levels	Post Meal Blood Sugar Levels
Normal	70-100 mg/dL	70-140 mg/dL
Prediabetes	101-125 mg/dL	141-200 mg/dL
Diabetes	125 mg/dL and above	200 mg/dL and above

Honeymoon Phase

- Not all newly diagnosed individuals experience the Honeymoon Phase
- Can last for weeks up to 2 years
- We cannot let our guard down



Example of Target Range for Type 1 Diabetes

Preschool and Kindergarten (3-5 yrs.)

○ Before meals, blood sugar range 100mg/dl-180

○ **The target range is always “ordered” by Health Care Provider**

○ School Age(6-14yrs.)

○ Before meals, blood sugarrange90mg/dl-180mg/dl

○ **The target range is always “ordered” by the Health Care Provider**

Living with Diabetes

Management

○ Renegotiating adult/child role in diabetes management

○ Learning coping skills to enhance self- management

○ Monitoring for signs of
depression, eating

disorders, risky behaviors

○ Begin discussion of transition to a new diabetes team

○ Integrating diabetes into new lifestyle

○ Supporting the transition to independence

Appendix B: Expert Panel Questionnaire

Please read through the following statements and choose your best options to evaluate the content of the program that will be used in educating the nurses on caring for children with type 1 diabetes. Your responses are anonymous and confidential.

Kindly respond using the following scale: 1=SD 2=D 3=N 4=A 5=SA

Teaching Contents		1	2	3	4	5
1	The teaching program can increase nursing staff knowledge and awareness on caring for children with type 1 diabetes.					
2	The educational teaching contents on managing type 1 diabetes using lifestyle modification will be beneficial in improving diabetes outcome.					
3	The content of managing diabetes, and complications of uncontrolled diabetes will be easy to understand by the staff nurses					
4	The style and contents of the PowerPoint presentation of the instructor will be easy for the staff to understand	-	-			
Overall comments:						

Note. SD = strongly disagree; D = disagree; N = neutral; A = agree; SA = strongly agree.

Appendix C: Participant Pretest and Posttest Questionnaire

Please read the following questions and check the appropriate box that matches to your skills and level of confidence on Staff Education on caring for children with Type 1 Diabetes before and after presentation using the same questionnaire. Your responses are anonymous and confidential.

Kindly use the following scale for your responses. 1=SD 2=D 3=N 4=A 5=SA

		1	2	3	4	5
1	The educational program on caring for children with type 1 diabetes changed my attitude on the importance of lifestyle modification					
2	This program will help nurses in assessing patients' knowledge of diabetes, how they manage their blood glucose and how to set goals for the management of their diabetes.					
3	Taking this educational program improves nurse knowledge on the serious complications of diabetes like kidney failure, blindness, strokes, and amputation and how these can be prevented.					
4	Educating nurses on how to access resources to help patients and their caregivers manage their diabetes and improves their outcome.					
5	Understanding the importance of annual staff education on caring for children with type 1 diabetes and lifestyle modifications such as healthy diet and physical activity for patients with diabetes.					
Overall comments:						

Note. SD = strongly disagree; D = disagree; N = neutral; A = agree; SA = strongly agree.