Grace Peterson Nursing Research Colloquium

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Effective Teaching by Nurses Through Use of Latest Technology for Type 1 Diabetics

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Effective Teaching by Nurses Through Use of Latest Technology for Type 1 Diabetics
An Integrative Review of Literature

Background:
Type 1 diabetes is caused by an autoimmune reaction that destroys the insulin-producing beta cells in the pancreas ("Type 1 diabetes," 2017). As of 2017, it is estimated that over 1 million people under the age of 20 are living with type 1 diabetes and over 100,000 new diagnoses occur each year worldwide (Karuranga, Fernandes, Huang, & Malanda, 2017). This number has increased drastically over the past decade and researchers estimate this number will continue to rise. With the growth of the number of children and adolescents with type 1 diabetes, it is crucial that they receive proper education around their disease. With proper education and understanding, the long-term complications of the disease can be minimized. Education in health care is always a priority, however utilization of various techniques to educate patients could impact the overall effectiveness of that provided. While it may be easier to teach adults by providing them with pamphlets and handouts, this might not be a very effective way to teach younger populations that may not have as much knowledge about their disease. For example, children and adolescents have been exposed to technology their entire lives thus far, so this may be an effective method to educate this population. They can pick things up quickly and learn things easily through the use of technology. The technology available to help manage diabetes is also being improved and becoming more prominent every day. Newer devices are available now that are capable of much more than devices that were available just a few years ago. With the use of these devices as well as other tools (i.e. videogames, phone apps, websites) the way healthcare providers can educate patients is improved.

Problem Statement:
Education is an essential factor when it comes to diabetes management. Nurses play a vital role when it comes to educating patients properly. Nurses can help educate patients continually to try to decrease the end-organ damage that results from complications. With the use of technology to educate these diabetic patients, nurses can impact how and what patients are taught to ultimately decrease the possibility of complications from diabetes.

Research Question:
Is teaching provided by nurses to type 1 diabetics more effective when using the latest technology?

Conceptual Framework

The theoretical framework that can best support this analysis about patient education is the Interaction Model of Client Health Behavior. This model was developed in 1982 by Cheryl Cox. It is a model organized by three main elements. The outcome of the model is a health behavior or a health state that results from that behavior. This model focuses on the patient and how they are educated impacts their health outcome (Robinson & Thomas, 2004).

Methods:
The Rosalind Franklin University’s library website was used to search for articles. The databases searched included PubMed and the Cumulative Index to Nursing and Health Literature Complete (CINAHL). Subject headings used in PubMed included: nursing; technology; diabetes mellitus, type 1; and patient education as topic. The search was also completed using the terms: technology; patient education as topic; and diabetes mellitus, type 1. The term nursing was used in that search as a subheading of diabetes mellitus, type 1. In CINAHL, subject headings that are used include: type 1 diabetes mellitus; patient education; and technology.

Inclusion criteria: research articles published after 1/1/2007, written in English, and had a full-text available were included in the search.

Exclusion criteria: articles that did not pertain to the topic.

Nursing Practice Implications:
Technology has begun to play a huge role in healthcare and can quite possibly make a positive impact on the education that nurses provide to patients. Using technology to educate children might also increase motivation and coherence. Technology can help nurses better serve the younger populations with proper education. Type 1 diabetes is a growing population and every person needs the proper education to thrive and to avoid complications. Technology has become a large part of our everyday lives and when added to education, it can help nurses effectively educate their patients.

Results & Discussion:
There are many common ideas related to the use of technology in education that were found amongst the collection of articles and studies. The most frequent ideas include: teaching is tailored to the individual; independence, sense of control, and coherence; extrinsic and intrinsic motivation; ease of use of technology; and high cost of technology. Each of these themes impact the effectiveness of the use of technology in their own way. The biggest barrier to education discussed in these articles in general was determined to be motivation. Without the motivation to learn, patients will not learn more based on the style of learning used. Due to the findings of all of these studies, further research is recommended on this topic. It is not fully understood whether or not technology truly increases the effectiveness of teaching by nurses to type 1 diabetics. Research conducted in the future on the use of technology to educate patients should include larger sample sizes from the beginning of the study. Most studies that have been conducted have small sample sizes and this makes it difficult to generalize the results. Future research should also include more assessment prior to implementing the study to consider many factors, especially those that are discussed in the results section to explore pertinent topics. Research should be conducted in a hospital setting with inpatient and outpatient subjects and should be conducted over longer periods of time in order to get sufficient data.