

Evidenced Based Clinical Applied Project Final Report:
Health Promotion for Overweight and Obesity in Adults with Endocrine Disorders

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Abstract

Purpose: The purpose of this project was to implement health promotion education for overweight and obese adults with endocrine disorders. The overarching goal was to change dietary intake and improve exercise to reduce the incidence, prevalence, and impact of comorbidities associated with obesity. **Background/Synthesis:** Obesity is a significant epidemic facing the nation today with multiple impacts on the national healthcare system. There is often an association between obesity and endocrine disorders such as type 2 diabetes and prediabetes. Both obesity and diabetes cost the nation billions of dollars annually in healthcare costs. Evidence shows that lifestyle modifications related to nutrition and physical activity are effective in weight reduction and prevention of chronic disease, especially when given by a healthcare provider. **Methods:** Fifteen adult patients at an endocrinology office in Arizona received individual counseling using the teach-back method focusing on health promotion behaviors through nutrition and exercise with a two-week follow-up phone call. Short-term outcomes measured in this project included changes in dietary intake and exercise behaviors through a pre- and post-test adapted from an obesity-screening tool developed by Greenwood et al. (2008). **Outcomes/Results:** Participants were primarily Caucasian and Hispanic, married, female, average age of 50 years, average BMI of 34.5, and some college education. There was a statistically significant increase in health promoting behavior on posttest scores ($M=66$, $SD=6.23$, range=58-76) compared to pretest scores ($M=61$, $SD=4.72$, range=50-66), $t(14)=-2.55$, $p=0.023$. **Conclusions and Implications:** Overall, patient health promotion behaviors increased with this educational intervention. Clinical implications include a potential decrease in patient comorbidities related to overweight and obesity. Implications for the greater healthcare system include decreased comorbidities, utilization of healthcare resources, and costs associated with

overweight and obesity. Future recommendations would include determining weight and BMI changes over a longer period of time for even better outcome measures.

Keywords: obesity, obese, overweight, health promotion, health education, diet, exercise, nutrition

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Health Promotion for Overweight and Obesity in Adults with Endocrine Disorders

Obesity and overweight are a significant health issue in the United States. Obesity is defined as a body mass index (BMI) of greater than 30 while overweight is a BMI of greater than 25. This problem has multiple influences on the healthcare system. There are numerous comorbid conditions for which obese patients are at increased risk including, heart disease, stroke, type 2 diabetes, and cancer (Centers for Disease Control [CDC], 2014). These comorbidities are associated with increased utilization of healthcare resources and therefore healthcare costs.

Chapter 1

Background and Significance

The socio-demographic factors that predominantly characterize adult obesity rates are: female gender, middle-aged and older adults, and those from a Caucasian, African American, or Hispanic ethnicity (Ogden, Carroll, Fryar, & Flegal, 2015). According to the CDC (2014), the national cost of obesity in 2008 was 147 billion dollars. An obese patient has an increased annual medical cost of \$1,429 compared to that of a normal weight patient. Those with significant obesity-associated comorbid conditions have increased office visits for management of their chronic conditions and therefore, also limit resources in addition to the increased cost of care.

Endocrine disorders are some of the leading health diseases facing of our nation's healthcare. There are an estimated 86 million Americans with prediabetes and 29.1 million with diabetes (American Diabetes Association [ADA], 2014). In 2010, diabetes was the 7th leading cause of death in our nation (ADA, 2014). According to the ADA (2013), the cost of diabetes was \$245 million dollars in 2012. Since type 2 diabetes is a risk factor of obesity, there is

oftentimes a common association between the two diseases (CDC, 2014; Golden, Robison, Saldanha, Anton, & Ladenson, 2009).

Lifestyle modifications targeting obesity and physical inactivity were the most important interventions in preventing the development of diabetes (Tabák, Herder, Rathmann, Brunner, & Kivimäki, 2012). Perhaps one of the most pivotal studies to date on the reduction of developing diabetes in prediabetic individuals was conducted by the Diabetes Prevention Program Research Group (DPP) in 2002. They addressed lifestyle modifications related to being overweight and living a sedentary lifestyle as compared to the use of medications (DPP, 2002). Investigators found in a randomized control trial that lifestyle modifications reduced the incidence of developing diabetes by 58%; this was almost twice as effective as using medication to prevent diabetes (DPP, 2002). Heart disease is another major risk factor associated with both obesity and diabetes (Zhang, 2014). In a systematic review, Zhang found that lifestyle changes through exercise and nutrition habits were of primary importance in preventing heart disease in obese and diabetic patients. These studies suggest a strategized focus on health promotion related to nutrition and exercise might significantly reduce risk for heart disease and reduce medication use.

Healthcare providers are ideal coaches to assist patients in lifestyle modifications (Wadden, Butryn, Hong, & Tsai, 2014; Whittemore et al., 2009). Many providers have an ongoing relationship with their patients, especially in those patients with chronic diseases such as diabetes and thyroid disorders for which they are seen regularly; subsequently, this may make patients more comfortable receiving information from them (Whittemore et al., 2009). Whittemore et al. (2009) found that nurse practitioners were successful in improving exercise and nutrition behavior changes using both in-person and phone counseling sessions. Wadden et

al. (2014) determined in their systematic review that counseling by primary care practitioners induced weight loss even if it was only done quarterly. The teach-back method has been widely used by the nursing profession as an effective teaching method for patient education. This method can be effective in helping patients plan weight loss and physical activity regimens (Hyde & Kautz, 2014). This evidence emphasizes the need for primary caregivers of overweight and obese patients to encourage a weight management program or provide continuous counseling on proper nutrition and exercise needs with appointments.

Internal evidence. The patient population at an endocrinology office in Chandler, Arizona is comprised of adults diagnosed with a variety of endocrine disorders, primarily diabetes, prediabetes, and thyroid disorders. Seventy percent of this office population is either overweight or obese. Oftentimes patients have questions regarding weight loss suggestions, but due to the limited appointment time are unable to get adequate education and instruction. Rescheduling to discuss the matter at another appointment is always an option, but it can take several weeks before another appointment may become available. Additionally, insurance does not always cover the costs of weight loss counseling sessions by an endocrinologist. Therefore, this office had a dire need for sustainable health promotion education regarding diet and exercise to address the significant incidence of overweight and obesity in their patient population.

Problem Statement

According to Healthy People 2020 [HP 2020] (2014), 33.9% of the United States (U.S.) population was considered obese ($BMI \geq 30$) from 2005 to 2008. Recently, this number has risen to 36.5% for U.S. adults in the years 2011-2014 (Ogden et al., 2015). Because of the enormity of the issue, one of the goals for HP 2020 (2014) is to reduce the total rate of obesity in the US.

PICOT

The above information culminated into the following PICOT question, “In adults with endocrine disorders, how does providing health promotion education on diet and exercise when compared to the standard of care, affect obesity rates and health promotion behaviors regarding diet and exercise?”

Search Strategy

In attempt to answer the proposed PICOT question, an exhaustive search was held within the following databases: PubMed, The Cochrane Library, CINAHL. Also performed were ancestry searches. The ancestry searches came from the current literatures’ references. The ancestry literature contained key data for the intervention and therefore was included for background and significance of the issue.

PubMed. The PubMed database was searched using the individual keywords: *obesity, overweight, exercise, physical activity, diet, nutrition, weight loss, lifestyle intervention, health promotion, and health education*. These search terms yielded as high as 442,782 articles. Limitations were then applied using the Boolean connectors *and* and *or*, combining the keywords *obesity or overweight and health education or health promotion, obesity or overweight and exercise or physical activity, obesity or overweight and diet or nutrition, obesity or overweight and weight loss or lifestyle intervention, obesity or overweight and diet or nutrition and exercise or physical activity, and finally obesity or overweight and diet or nutrition and exercise or physical activity and health education or health promotion and weight loss or lifestyle intervention*. This yielded as many as 449,161 articles. The limitations of English language, humans, and published in the last 10 years were applied to the search reducing the number of

articles to 106 citations. After review of each citation, eleven were found to be relevant to the topic and retained for further review.

Cochrane library. The Cochrane Library database was searched using the individual keywords: *obesity, overweight, exercise, physical activity, diet, nutrition, weight loss, lifestyle intervention, health promotion, and health education*. These search terms yielded as high as 50,876. Limitations were then applied using the Boolean connector *and*, with the keywords *obesity* and *weight loss* or *intervention* and *exercise* or *diet*; this yielded 53,989 articles. The limitation of published in the last 5 years was applied to the search reducing the number of articles to 2,649 citations. Upon review of those citations, some were citations already retained from PubMed. Only relevant, Cochrane-unique articles published in the last five years were retained. This reduced the final number of retained citations to eighteen.

CINAHL. The CINAHL database was searched using the individual keywords: *obesity, overweight, exercise, physical activity, diet, nutrition, weight loss, lifestyle intervention, health promotion, and health education*. These search terms yielded as high as 115,110 citations. Limitations were then applied using the Boolean connector *and*, with the keywords *obesity* and *weight loss* or *intervention* and *exercise* or *diet*; this yielded 105,965 articles. Applying the limitation of articles published after 2010, English language, humans, full text, journal article, and all adults, the yield was decreased to 6,473 articles. To further reduce relevant articles limitations were then applied using the Boolean connector *and* with the keywords *obesity* and *weight loss* and *intervention* and *exercise* and *diet*; this yielded 57 articles. Upon review of those remaining citations, only eight relevant citations were retained.

Evidence Synthesis

A total of ten studies were retained for this review, critically appraised, and placed in an evaluation table (Ali et al., 2012; DPP, 2002; Mastellos et al., 2014; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014). The studies consisted of six systematic reviews of which two performed meta-analyses (level I evidence), three randomized control trials (level II evidence), and one cohort study (level IV evidence). The studies were of good quality based on high level of evidence, appropriate design methods, and appropriate randomization (Appendix A). Validity and production bias was an issue for one study that received funding from the pharmaceutical company of the medication they were including in their intervention (DPP, 2002). Reliability was reduced for two studies that utilized self-reported anthropometric measures (Mastellos et al., 2013; Shaw et al., 2013). All remaining studies obtained anthropometric measures during clinic appointments or from the electronic health record (Ali et al., 2012; DPP, 2002; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Spring et al., 2013; Wadden et al., 2014). All studies showed an interest in weight loss and therefore measured weight and BMI (Ali et al., 2012; DPP, 2002; Mastellos et al., 2014; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014). There were a variety of interventions noted amongst the studies, which is important for evaluating the most effective intervention style to promote weight loss. Interventions were either phone-based, in-person individual counseling, in-person group counseling, or a combination of those methods, with all studies using a form of participant self-management (Appendix B). Four studies utilized a phone-based intervention either by phone calls or text messages, all of which resulted in clinically significant weight loss for their participants theorized to be effective due to the regular reminders of the participant's

weight loss efforts (Ali, 2012; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014). Similarly, one study implemented a group-based intervention, all of which also resulted in clinically significant weight loss (DPP, 2002; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Spring et al., 2013;). Overall, outcomes were homogenous with clinically significant reduction in weight related lifestyle interventions regarding nutrition and physical activity (Ali et al., 2012; DPP, 2002; Mastellos et al., 2014; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014).

In-person individual interventions, phone calls using motivational interviewing strategies, and self-managed interventions have the greatest impact on health promotion changes for weight loss in overweight and obese patients (Ali et al., 2012; DPP, 2002; Mastellos et al., 2014; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014). Regularly scheduled supportive phone calls help to keep the patient motivated and sustain weight loss efforts (Ali et al., 2012; Spring et al., 2013; Wadden et al., 2014). Phone calls that occur more than once a month and are sustained over a minimum of three months have the greatest impact on weight reduction (Spring et al., 2013; Wadden et al., 2014). Mobile tracking of nutrition and physical activity can be beneficial, but best when used alongside in-person group or phone call sessions (Spring et al., 2013). The use of text messaging has aided with weight loss in some studies, but there is not sufficient evidence to support the exclusive use of text messaging for significant weight loss (Shaw et al., 2013). Self-managed programs help to promote significant weight loss presumably due to the individual's motivation and personal responsibility and accountability for weight reduction. Overall, it seems

the best implementation to create significant and sustained weight loss should focus on in-person individual sessions with supportive motivational interview phone calls.

Purpose Statement

The purpose of this project was to implement health promotion education for overweight and obese adults with endocrine disorders. Short-term outcomes measured in this project include changes in dietary intake and exercise behaviors as measured by pre and post-testing. Longer-term outcomes may also include changes in weight and BMI. The overarching goal of changes in dietary intake and improved exercise is to reduce the incidence, prevalence, and impact of comorbidities associated with obesity.

Study Questions

The above has led to an inquiry of sustained behavior change and obesity rate reduction through health promotion education. Will education regarding diet and exercise influence patients to eat better and exercise more? Will the education assist patients to reduce weight or maintain a current healthy weight? If the project is sustained, will the education reduce future obesity rates?

Chapter 2

This proposed project provides health promotion education to overweight and obese adults with endocrine disorders conducted at the time of their routine endocrinology appointments. The clinical scholar model and health promotion model were the underlying influence for project implementation and intervention. The methods for the project are depicted below along with the projected budget. Finally the results, strengths, and limitations will be discussed with a comparison to current literature.

Evidence Based and Conceptual Models

Evidence based practice model. The Clinical Scholar Model was chosen to guide implementation of a practice change in this project (Fineout-Overholt, Melynk, & Schultz, 2005; Appendix C). It is comprised of five steps. The first step, to observe and reflect, was completed by observing the overweight and obese health of adult endocrinology patients. The second step of critiquing and analyzing the evidence began by searching for the evidence based research currently available and analyzing the results. The third step of synthesizing the data is evidenced in Appendix B. The fourth step, apply and evaluate, was accomplished by implementing health promotion education to adult endocrinology patients. The fifth step, disseminate, occurred by gathering the results from the proposed intervention to disseminate by way of publication, presentation, and a final report presented to the project site.

Conceptual model. There were quite a variety of theories underpinning the evidence in all of the retained studies with no predominant theory apparent. The theories of self-efficacy, trans-theoretical model, diffusion of innovation theory, elaboration likelihood model, small changes theory, social-psychological goal conflict theory, theory of planned behavior, and the health promotion model were used throughout the retained studies. The health promotion model was chosen to guide the proposed intervention because it is based on a patient's belief that there is a perceived benefit to health promotion changes (Ricketts, 2015). Health professionals make up part of the interpersonal environment and thus influence a patient's behaviors (Nursing Theory, 2013). This could therefore guide an evidence-based project by focusing on the multiple health benefits derived from weight reduction in order to promote weight loss when given by a health professional.

Project Methods

Ethics. The protocol, informed consent form, participant education, and recruitment materials were reviewed and approved by the Arizona State University Institutional Review Board (Appendix D).

Setting and organizational culture. The proposed project was conducted at an endocrinology office in Chandler, Arizona (Appendix E). The patient population is largely overweight or obese adults with endocrine disorders.

Participants. To be included in the project, participants had to be English-speaking men or women, aged 18 years old and older, were either overweight or obese ($BMI \geq 25$), were patients enrolled in the endocrinology practice, and were diagnosed with endocrine disorders. Exclusion criteria included minors and adults unable to consent.

Procedure. Patients checked in for their appointments and were brought to the exam room by the office medical assistant; the medical assistant checked all patients' vital signs, weight, height, and BMI before their appointments began. The medical assistant gave patients with a BMI of greater than or equal to 25 a recruitment flyer (Appendix F) and information sheet (Appendix G) introducing them to the project. Interested patients completed the contact information on the bottom of the recruitment flyer and gave this to the medical assistant before being directed to the project room.

Once in the project room, the co-investigator read through the consent form (Appendix H) with the potential participant and answered any questions. If the individual consented, he/she completed the instrument and a demographic questionnaire. For anonymity, the participant composed their ID based on the first three letters of the city in which they live, combined with the last four digits of their phone number. The participant's name, ID, and phone number were added to a master list that was maintained on a password protected external drive, in a locked file

cabinet, of a locked office. While the ID was placed on each of the data collection forms, the master list allowed the ability to link the pre and post-instruments and address the participant by name during the follow-up phone call two weeks later.

The co-investigator then taught the patient for approximately 20 minutes on nutrition and exercise-based health promotion with materials derived from the United States Department of Agriculture's "MyPlate" program and the American College of Sports Medicine's exercise recommendations (Appendix I). The topics included: healthy choices for eating out, portion control, fruits and vegetables, eating breakfast, cutting down on sugary beverages, as well as incorporating regular exercise. The physical activity instructions were modified verbally based on the patient's age, ability, and individual limitations. They were told that they could also break the recommended time into 10-minute increments throughout the day if anything longer is too difficult for them to complete in one session. The goal was to educate them on incorporating physical activity into their day while exercising safely.

At the end of the presentation, the participants were given handouts (Appendixes J, K, & L). The handouts summarized the information presented and were available to take home. Two weeks later, all participants received a follow-up phone call from the co-investigator to check on their progress. At this time participants were asked which method works best for them to complete the post-instrument (Appendixes M). Participants were given a choice on how they wanted to complete their post-test: verbally administered over the phone, mailing back paper and pencil questionnaire using a prepaid envelope, or completing the paper and pencil form in person. All participants opted to take the post-test verbally over the phone. It took approximately 15 minutes to complete the follow-up phone call and post-instrument. Providing options ensured

that patients were able to complete the post-instrument in the manner best suited to individual needs.

Outcome measures. The outcomes measured included the change in dietary choices and frequency of exercise. The expected outcomes were improved dietary choices and increased exercise frequency. The instrument used to determine these changes was adapted from an obesity questionnaire developed by Greenwood, Murtaugh, Omura, Alder, & Stanford (2008). This 14-question, Likert-scaled instrument addressed behaviors related to dietary choices including: eating out, sugary drinks, fruit and vegetable intake, portion size, and breakfast consumption. The instrument also addressed the frequency of physical activity within a week and within a typical week. The negative behaviors such as consumption of sugary beverages, frequency of eating out, and increased portion consumption, were reverse scored in order to provide an overall health promotion score. Higher overall health promotion scores indicate positive health promotion behaviors. The demographic data collected included the participant's gender, age, ethnicity, marital status, highest education level completed, height, weight, and body mass index (BMI).

Data collection and analysis plan. Once all post-instruments were complete, the data collected was entered into SPSS by the co-lead investigator for each participant's pre/post-instrument responses. Statistical analysis of the data was completed to determine the change in nutrition and exercise behaviors from pre to post-intervention. The data was then analyzed using both descriptive and inferential statistics. An alpha level of .05 was used for all statistical tests. The parametric statistical analysis was comprised of a paired sample *t* test to determine changes in behaviors due to the normal distribution of the data.

Project Results

There were a total of eighteen participants, three of which did not complete the second post-instrument portion of the intervention. Participants were primarily Caucasian and Hispanic, with an average age of 50 years, female, married, with some college education, and a BMI of 34.5 (Appendix N). There was a statistically significant increase in health promoting behavior on posttest scores ($M=66$, $SD=6.23$, $range=58-76$) compared to pretest scores ($M=61$, $SD=4.72$, $range=50-66$), $t(14)=-2.55$, $p=0.023$ (Appendix O). Therefore, education regarding diet and exercise did influence patients to eat better and exercise more. It remains to be seen whether this education assisted patients to reduce weight since was not included in the project's short-term outcome measures. Similarly, if the project is sustained, the education could reduce future obesity rates, but this was not an outcome measure of this short-term project.

Discussion

Overall, the project went quite well. The biggest strength of the project stemmed from the participants' excitement about the opportunity to speak with someone about nutrition and exercise without a financial obligation. The best facilitators included the physician practice owner, medical assistants, medical students, and physician assistant students in the office. The students were especially helpful in the recruitment of participants stating they could see the value in providing this individual health promotion education to patients. Some limitations for this project included the short duration of project implementation and limited sample size. The project might have gone better if it were sustained over a longer period of time in order to gain long-term outcome measures. The barriers encountered included patients not knowing how to count their fruit and vegetable intake. For example, one participant was unsure how to count her consumption of salad because it contained multiple vegetables within in it. It is recommended for

future implementations to include an explanation of how to count these items either within the instrument or verbally to all participants. It is also recommended that the duration of the project be increased as well as obtaining routine weight and BMI measurements with each two-week follow-up.

The results were on par with literature of similar projects showing the effectiveness of medical providers eliciting lifestyle modifications for patients (Wadden et al., 2014; Whittemore et al., 2009). Similarly, the project participant socio-demographics also correlate with the overall characteristics of obesity: middle aged Caucasian and Hispanic females (Ogden et al., 2015). The method of this project intervention also had a likeness to the literature by depicting that motivational interviewing phone calls and self-managed interventions have an impact on health promotion changes for weight loss in obese patients (Ali et al., 2012; DPP, 2002; Mastellos et al., 2014; Noel et al., 2012; Norris et al., 2005a; Norris et al., 2005b; Schellenburg et al., 2013; Shaw et al., 2013; Spring et al., 2013; Wadden et al., 2014). Combined, these correlations with similar literature show consistency in the effective interventions for inducing health promotion behaviors in patients.

Conclusion

Patients did increase their knowledge of health promotion as well as their health promotion behaviors lending support to this approach. If sustained, the potential for the practice would be a decrease in patient comorbidities related to overweight and obesity. The implications for future clinical practice include decreased: comorbidities, utilization of healthcare resources, and costs associated with overweight and obesity. It is recommended for future work on this project to include a longer duration of implementation and routine weight and BMI measurements with each follow-up for better outcome measures.

Chapter 3

The impact of this project on the site and potential implications for the greater healthcare system are positive for increasing health promotion behaviors and reducing the incidence, prevalence, and impact of the comorbidities of obesity and overweight. A cost/benefit analysis includes feasible options for a medical practice in order to sustain project implementation and health promotion education for patients. Current policy related to the Affordable Care Act will assist in sustaining project implementation. The leadership role of a doctoral nurse practitioner student aids in constructing a project for eliciting an innovation practice change. Further application of this project on a national level, as well as potential correlated projects, are discussed. Finally, consideration is given towards gaps discovered throughout this evidence based project process.

Impact

Implications for the project include both the dire need and implicit desire of the overweight and obese endocrine patient population to receive health promotion education regarding nutrition and physical activity. The impact of this project on the practice was an increase in health promotion behaviors for those patients who participated. The potential impact to the practice is a decrease in patient comorbidities related to overweight and obesity over time. Potential implications for the greater healthcare system include decreased comorbidities, utilization of healthcare resources, and costs associated with comorbidities of overweight and obesity.

Financial Implications

When compared to the outcome benefits for the practice, the costs would certainly be worthwhile. The monetary cost for the project was based on the cost of the encrypted hard drive

and printing the recruitment materials, consents, pre- and post-test questionnaires, and educational handouts. The encrypted hard drive carried a minimal cost of \$15. The printing of the materials totaled \$150 for thirty of each form by a local FedEx location. A medical practice would only need to purchase printed educational handouts at a minimum and also printed questionnaires if interested in tracking patient progress. Overall the costs are feasible for a practice to sustain (Appendix P).

Impact of Current Policy

The impact of current policy is favorable to sustain overweight and obesity counseling services for patients. The Affordable Care Act (ACA) fully supports obesity counseling as a means for prevention and disease reduction (Koh & Sebelius, 2010; Golden, 2015). Because of the prevalent enormity of obesity within our society, under the ACA patients may receive obesity counseling without out-of-pocket costs (Koh & Sebelius, 2010; Golden, 2015). Similarly, the Centers for Medicare and Medicaid Services (CMS) began reimbursing for obesity counseling in 2011 (Stantz, 2013). Closer to home, Arizona is one of thirty-three states to adopt expanded obesity-related services coverage as recommended by the Department of Health and Human Services (Cauchi, 2015).

Role

With knowledge derived from collective doctoral education, the innovation of this practice change was conceived and implemented as a culminating experience of the leadership qualities a doctorally prepared nurse practitioner possesses. Specifically, the intricacies of systems management and healthcare policy assisted in the development of this successful evidence based project. Utilizing knowledge from leadership studies, intraprofessional, and interpersonal communication helped to overcome any barriers within all processes of the project.

Sustainability

The results were presented to the endocrinology office in hopes of continued implementation and thus, sustainability. The stakeholders, including the physician owner, were impressed with the health promotion behavior changes the patients made. The monetary feasibility only further promotes sustainability of the health promotion education. Based on multiple staff interactions and meetings with the stakeholders it is likely that the project will be adopted and adapted for further use at the clinic.

Implications for Further Application

Further application of this project could include implementing a national mandate for providing health promotion education with every patient appointment. The ACA and CMS are already creating feasible pathways for patients to receive health promotion counseling including education specifically addressing obesity. Locally, individual practices can implement policies requiring providers to counsel all overweight and obese patients on health promotion behaviors regarding nutrition and exercise.

Implications for future study could include expanding and testing the applicability of various healthcare providers in educating patients on health promotion. One such suggestion includes determining whether health promotion education given by medical support staff is as effective in eliciting lifestyle modifications in patients.

Gaps

Some gaps identified during the project include lack of obesity counseling specifically at the endocrinology practice and throughout the nation, the general shortfall of healthcare policies enforcing such counseling, and societal behavior changes given the knowledge of the health risks associated with obesity. There is a collective lack of action taken by most providers to dispel

obesity from our society (Kraschnewski, 2013). Perhaps this is due in part to financial and temporal constraints. Medical offices are expected to see a certain quantity of patients within a given time in order to cover overhead practice costs and staff salaries. This makes for shorter patient appointments in order to increase the number of patients seen in a day to maximize profit. With federal and private insurances now covering obesity counseling, there should be an increase, but alas there is not (Kraschnewski, 2013). New healthcare policies should be developed to address this disparity. Finally, society has not aided in reducing the obesity epidemic. There are still a multitude of advertisements globally for known obesity offenders such as sugary drinks, fatty foods, and the ever-increasing restaurant and fast food portion sizes.

Conclusion

Obesity is at epidemic proportions within our nation. Targeted health promotion education regarding nutrition and exercise has been shown in the past to elicit positive health promotion behavior changes in patients. This is particularly true when a healthcare provider gives the education. This evidence based project correlates with the literature to conclude similar results and effectiveness. The methods within this project are monetarily feasible for medical practices to sustain. Throughout the nation, all healthcare providers must incorporate health promotion education to their overweight and obese patients. Healthcare policies and insurances can aid in this process further. Society must also play a role in reducing obesity. Collectively, a difference can be made in the incidence, prevalence, and impact of comorbidities associated with overweight and obesity as well as their impact on the national healthcare system and budget.

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