

2018

A Nurse-Led Evidence-Based Quality Improvement Program on Childhood Obesity Prevention

Ana Flor Rasonabe Ciocson
Walden University

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Walden University

College of Health Sciences

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Ma. Ana Flor Ciocon

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Dr. Oscar Lee, Committee Chairperson, Nursing Faculty
Dr. Janice Long, Committee Member, Nursing Faculty
Dr. Diane Whitehead, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

A Nurse-Led Evidence-Based Quality Improvement Program on Childhood Obesity
Prevention

by

Ma. Ana Flor R. Ciocson

MS, Ateneo de Davao University, 2008

BS, Aquinas University of Legazpi, 1995

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

Walden University

January 2018

Abstract

The increased prevalence rate of childhood obesity in Saudi Arabia is a nationwide health issue. The doctoral project was instituted in the pediatric out-patient clinic (POPC) of a tertiary university hospital in Riyadh, Saudi Arabia. Child obesity clinic and clinical practice guideline (CPG) for primary prevention were not available in the pediatric outpatient clinic with a high incidence of newly diagnose obese children. The focus of this doctoral project was to improve the clinical nursing practice of POPC nurses through the adoption of CPG on primary prevention of childhood obesity. The knowledge translation into action framework provided a summary of descriptive series of ideal CPG implementation steps in POPC. The search for published CPGs was taken from DynaMed, National Guideline Clearinghouse, Guideline International Network, Pubmed, and Google scholar. There were 2 tools applied for analysis and synthesis. First, the appraisal of guidelines for research and evaluation II instrument was used to assess the quality of the guidelines. Second, the BARRIERS' scale was used to assess the extent of nurses' perception of barriers in CPG utilization. The 1st findings from this study revealed that RNAO CPG was the best and high-quality CPG over the Endocrine Society and the Institute for Clinical Systems Improvement CPGs. The 2nd findings showed that most of the nurses perceived BARRIERS to utilization towards on the unclear implications of the CPG in their daily nursing practice. Hence, one of the vital recommendations was to have CPG awareness and education before the implementation. Overall, the doctoral project contributed to positive social change through guidelines, policies, and protocol provision for childhood obesity prevention in similar settings.

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Dedication

I would like to dedicate this proposal primarily to our creator almighty God as I hold onto his promise in Jeremiah 29:11. God knows the plan for good and not for evil, to give a future and hope to everyone. Secondly, I thank my husband Rico Pascua for encouraging and supporting my studies most especially in times of stressful days and sleepless night. Third, I thank my son Lorenz Matthew for understanding and cooperating on the financial budget. Fourth, I thank my closest cousin Lejardine Salcedo for listening to my stories about frustration and success in studies, career, and life while staying in Saudi Arabia. Fifth, I thank my church family the Good Shepherd the Messiah Christian Ministry for spiritual uplifting and prayers as well. Lastly, I appreciate my preceptor, Dr. Yasser Amer, for being a passionate and genuine mentor in the years of my doctor of nursing practice journey. You are a one of a kind person who never complained about my demands for advising.

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Section 1: Nature of the Project

Introduction

The World Health Organization (WHO, 2012) recognized obesity as a global concern and one of the most serious public health challenges in the 21st century. An estimated 43 million obese children were affected worldwide, with the number increasing each year (Pulgarón, 2013). In the Arab region, 25%–40% of children were either overweight or obese (DeNicola, Aburizaiza, Siddique, Khwaja, & Carpenter, 2015). The magnitude of obesity in Saudi Arabia found that Saudi children and adolescents had reached a high rate of obesity ranged from 6% to 9% while overweight was 15% to 23% respectively (Al-Shehri et al., 2016). A similar incidence of increased prevalence of childhood obesity was observed in the pediatric outpatient clinic (POPC) of a tertiary university hospital in Riyadh, Saudi Arabia. The nurses were known as the front liner of the healthcare professionals to deliver the primary care through evidence-based prevention interventions in POPC. Therefore, children at risk of overweight and obesity were provided by the POPC nurses to achieve the desired optimum health outcomes. This chapter included the problem statement, purpose, nature of the doctoral project, and significance of the doctoral project.

Problem Statement

In Saudi Arabia, the prevalence rate of childhood obesity increased continuously. Notably, for every six children, one patient was diagnosed with obesity (Almarzooqi & Nagy, 2011). Ideally, primary care providers (PCPs) administered not only treatment but even primary preventive approaches both in the clinical and community health center

settings (Vine, Hargreaves, Briefel, & Orfield, 2013). Unfortunately, primary preventive strategies did not exist in POPC. Thus, a nurse-led evidence-based quality improvement program was conducted in POPC of a tertiary university hospital in Riyadh, Saudi Arabia. The DNP project influenced the clinical decision-making of the nurses, physicians, clinical psychologist, and nutritionist in the pediatric outpatient clinic.

Purpose

The purpose of the project was to design implementation strategies for translation of the clinical practice guideline (CPG) in a pediatric outpatient clinic (POPC) to prevent childhood obesity. The practice-focused question for the scholarly project was: Can an evidence-based CPG be adopted for use by the nurses to reduce childhood obesity in the POPC? The objective of the scholarly project was achieved through identification of an evidence-based CPG for primary prevention of childhood obesity, evaluation of the applicability of the CPG, and designed CPG implementation strategies for POPC setting.

Nature of the Doctoral Project

The focus of this doctoral project was to adopt an evidence-based clinical practice guideline (CPG) on primary prevention of childhood obesity for nurses. There were three parts in the development of this nurse-led quality improvement program. First was the retrieval of national and international CPGs. The second was the identification of BARRIERS to CPG utilization in the nurses' daily practice. And, third was the development of implementation strategies for primary prevention on childhood obesity based on the selected CPG implementation tools.

Viewpoint of Sources of Evidence

There were two sources of evidence in this doctoral project. The first source of evidence was the selection of best clinical practice guideline (CPG) for primary prevention of childhood obesity. And, the second source was the assessment of the most perceived BARRIERS to CPG utilization in daily nursing practice.

There were three methods in the searched for the best clinical practice guidelines of this doctoral project. The first method was the retrieval of publishing international and national CPGs using the two screening process. After the retrieval of the CPGs, it was filtered by the use of health question framed from the component of the patient population, intervention, professional, outcomes, and healthcare setting (PIPOH) model. The children at risk of obesity were the target patient population. Primary prevention of childhood obesity was the selected intervention in this project. The nurses caring for the children were the professional identified to use the CPG. Then, decreased the incidence of obesity and improved daily nursing practice in managing children at risk for obesity were the expected outcomes in this project. The PIPOH model can be applied to any topic when adopting CPGs and been useful to any discipline or specialty (Amer, Elzalabany, Omar, Ibrahim, & Dowidar, 2015).

The second method in the selection of best trustworthy CPG was the inclusion criteria. The inclusion criteria were as follows: An evidence-based CPGs with methodology of development or a consensus-based document and sections for implementation. CPGs written in English language and published within five years by a professional, an organization, or an authorship group. Likewise, CPG s with

comprehensive strategies for prevention of pediatric obesity such as the promotion of healthy diet, activity, education, and environment. Conversely, the exclusion criteria were adapted CPGs, non-English CPGs, single-authored CPGs, and CPGs without a comprehensive prevention component. Then, the third method was to appraise the selected CPGs to determine the quality of the CPG.

The second source of evidence was the identification of BARRIERS' in utilizing CPG in daily nursing practice. The BARRIERS' scale assessed the extent of nurses' perception related to problems in using research findings into practice (Majid et al., 2011). Each of this characteristic corresponded with questions focused on the four factors in CPG utilization that included research, organization, research, and communication factors (Funk, Champagne, Wiese, & Tornquist, 1986). The BARRIERS' assessment supported the planning of the CPG implementation approach in POPC. Notably, the POPC nurses considered the terms research, research reports, literature, and articles found in the BARRIERS' assessment scale pertinent to CPG on primary prevention of childhood obesity showed in Figure 1.

No	Questions	This is a BARRIER				
		To no extent	To a little extent	To a moderate extent	To a great extent	No opinion
1	Research reports/articles are not readily available	1	2	3	4	5
2	Implications for practice are not made clear	1	2	3	4	5
3	Statistical analyses are not understandable	1	2	3	4	5
4	The research is not relevant to the nurse's practice	1	2	3	4	5
5	The nurse is unaware of the research	1	2	3	4	5
6	The facilities are inadequate for implementation	1	2	3	4	5
7	The nurse does not have time to read research	1	2	3	4	5
8	The research has not been replicated	1	2	3	4	5
9	The nurse feels the benefits of changing practice will be minimal	1	2	3	4	5
10	The nurse is uncertain whether to believe the results of the research	1	2	3	4	5
11	The research has methodological inadequacies	1	2	3	4	5
12	The relevant literature is not compiled in one place	1	2	3	4	5
13	The nurse does not feel she/he has enough authority to change patient care procedures	1	2	3	4	5
14	The nurse feels results are not generalizable to own setting	1	2	3	4	5
15	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	1	2	3	4	5
16	The nurse sees little benefit for self	1	2	3	4	5
17	Research reports/articles are not published fast enough	1	2	3	4	5
18	Physicians will not cooperate with implementation	1	2	3	4	5
19	Administration will not allow implementation	1	2	3	4	5
20	The nurse does not see the value of research for practice	1	2	3	4	5
21	There is not a documented need to change practice	1	2	3	4	5
22	The conclusions drawn from the research are not justified	1	2	3	4	5
23	The literature reports conflicting results	1	2	3	4	5
24	The research report is not clear and readable	1	2	3	4	5
25	Other staff are not supportive of implementation	1	2	3	4	5
26	The nurse is unwilling to change/try new ideas	1	2	3	4	5
27	The amount of research information is overwhelming	1	2	3	4	5
28	The nurse does not feel capable of evaluating the quality of the research	1	2	3	4	5
29	There is insufficient time on the job to implement new ideas	1	2	3	4	5
	Are there other things you think are barriers to research utilization? If so, please list and rate each on the scale:	1	2	3	4	5
30		1	2	3	4	5
31		1	2	3	4	5
32		1	2	3	4	5
33		1	2	3	4	5
	Which of the above items do you feel are the three greatest barriers to nurses' use of research?					
34	Greatest Barrier Item #: _____					
35	Second Greatest Barrier Item #: _____					
36	Third Greatest Barrier Item #: _____					
37	What are the things you think facilitate research utilization?					

Figure 1. BARRIERS' Scale Assessment Questionnaire. Adapted from "BARRIERS: The barriers to research utilization scale" by Funk, S. G., Champagne, M.T., Wiese, R.A., & Tornquist, E.M., 1991, *Applied Nursing Research*, 4(1), 39-45.

Approach for Organizing and Analyzing the Selected CPGs

An appraisal of guidelines for research and evaluation II (AGREE II) was used to determine to ensure the high-quality and trustworthy CPG. The AGREE II is the second version of the validated international tool for assessing the quality of CPGs, and it is also used as the methodology of reporting tool in developing a CPG (Brouwers et al., 2010). The AGREE II provided an accurate and explicit report of CPG appraisals that was organized into six quality domains known as scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence (Brouwers et al., 2010). Then the final steps of AGREE II were the overall assessment and final recommendations to determine the applicability of the CPG in POPC.

Significance

Translation of evidence into clinical practice was an integral part of the doctoral student project. Evidence-based practice includes not only the best available scientific research but also patient values and preferences and expertise of clinicians and practitioners (Terry, 2015). The doctoral student used the network technique or snowball technique to gather expert clinicians through referrals that were a potential provider of essential information needed for the project (Grove, Burns, & Gray, 2013). The recruitment of stakeholder members included expert clinicians managing overweight and obese children, nurse educators, CPG methodologists, healthcare quality professionals, and pediatric staff. The findings of this project can be generalizable, useful, and transferable to other settings with similar characteristics to the study. Hence, the end

product of this doctoral project will give significance to health care providers of POPC as well as stakeholders involved in this project.

Indeed, the American Nurses Association (ANA) recognized that nurses could contribute to reversing the childhood obesity epidemic through education, advocacy, and partnership since nurses are a firsthand witness of the complications of the disease in the emergency room, primary clinic, school clinic, and other settings (Jones, 2010). Also, the Institute of Medicine (IOM, 2011b) encouraged primary care nurses to expand their role from the traditional routine growth assessment and body mass index (BMI) measurement to assuming leadership positions and partnership in redesigning healthcare outcomes. Thus, the doctoral student prioritized the selected topic to provide an impact on primary prevention of childhood obesity through clinical practice recommendation for nurses.

Summary

Before obesity reaches a critical level in Saudi Arabia, primary prevention was perceived as a cost-effective measure for managing the disease. The clinical practice guideline was perceived by the nurses as fundamental in their daily practice for better patient care. However, the CPG implementation may face challenges once the barriers are not addressed. Hence, selecting the best quality and trustworthy CPG will ensure that nurses will deliver the best practice to the patient.

Section 2: Background and Context

Introduction

The practicum site faced an alarming stage of newly seen obese children after traditional body mass index (BMI) assessment without definitive preventive interventions for nurses to follow. Kim, Kramer, Babyatzky, Radday, and Stanzler (2011) said childhood obesity prevention required holistic community initiatives like policies, system-level change, and behavioral change. In the same way, the Agency for Healthcare Research and Quality (AHRQ, 2013) promoted preventive programs as the most effective strategy for children's excessive weight gain and obesity. Jacobson and Gance-Cleveland (2011) believed that pediatric primary care was the ideal healthcare setting to initiate primary interventions for overweight and obese children. This section discussed the search strategies, model, and relevance to nursing practice, local background, context, and definition of terms.

Model

Closing the gap from research to practice involved clinical practice changes in the daily nursing routine. The use of knowledge translation (KT) into action model was simple and applicable steps to deliver the CPG implementation plan in POPC. The KT model improved the healthcare system, and the health of the individuals in the community serve (Graham & Tetroe, 2007). KT was defined as "dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically-sound application of knowledge" (Tetroe, 2007a, p. 1). The KT definition comprised all the steps of knowledge translation into action framework from the creation of knowledge and

its application to achieve desired outcomes that were appropriate to all disciplines known to other names such as technology transfer, knowledge management, change management, etc. (Tetroe, 2007b). Furthermore, the WHO (2017) defined KT as “exchange, synthesis, and effective communication of reliable and relevant research results” (p. 1). The KT framework encouraged interaction among the producer and user of research, removed a barrier to research use, and tailored information to different target audiences for effective interventions (Campbell & Jessani, 2008, p. 2).

The rationale for selection of KT framework in this doctoral project was simplicity, applicability, and widely cited in published in various articles relevant to CPG implementation. In this doctoral proposal project, the student included only four essential steps of the KT model for implementation: (a) Problem identification and reviewed and selected knowledge; (b) adapting knowledge to local content; (c) assessing barriers to knowledge use, and (d) selecting and tailoring implementation interventions. The remaining three elements were out of the scope of this DNP project such as monitoring knowledge use, evaluating outcomes, and sustaining knowledge use. Graham and Logan developed the KT framework exemplified in an ideal prescriptive steps from the creation of knowledge until translation into daily nursing practice as illustrated in Figure 2.

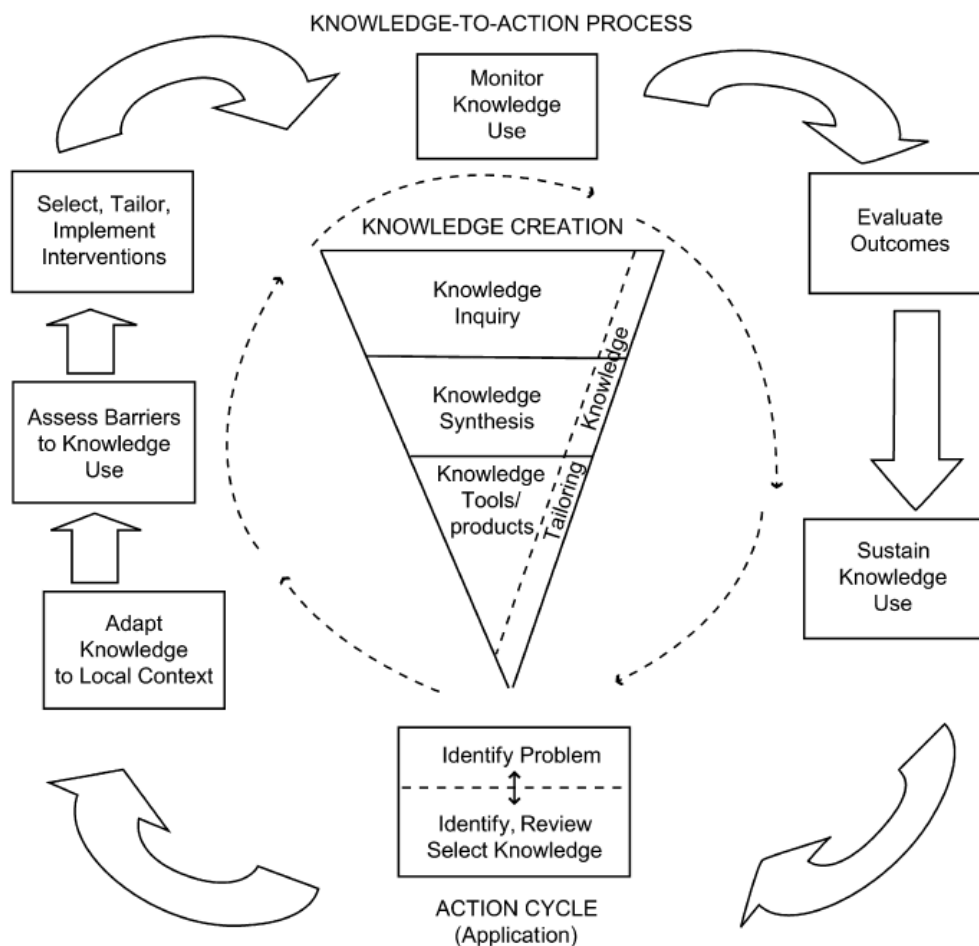


Figure 2. Knowledge Translation into Action Model. Adapted from “Some Theoretical Underpinnings of Knowledge Translation by Graham, I. D., and Tetroe, J., 2007, *Academic Emergency Medicine*, 14(11).

KT framework Step 1: Identify the Problem, Identify, Review, and Select Knowledge

In 2015, a community health needs assessment (CHNA) survey taken from the eligible community of the University Hospitals (practicum site) consisted of Saudi and non-Saudi national employees, staff dependents, students, and paying patients. One of

the top three recommendations for pediatric care was to have a childhood obesity care program in the pediatric outpatient clinic (POPC). Unfortunately, standardized care plan in managing children at risk for overweight and obesity was unavailable in POPC. The problem identified was: What was the best quality trustworthy published CPG for primary prevention of childhood obesity that influenced the decision making of POPC nurses?

KT framework Step 2: Adapt Knowledge to local context

There were 58 retrieved international and national CPGs from the identified PIPOH health question and potential inclusion criteria. A total of 55 CPGs excluded with reasons. Almost 45 CPGs were excluded as they did not comply with the PIPOH health questions and 10 CPG that did not match the inclusion criteria. Then, the remaining three CPGs were considered for further quality assessment using the Appraisal of Guidelines for Research and Evaluation (AGREE) II Instrument as illustrated in Figure 2.

The decision to adopt selected CPGs needs evaluation using Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument. The AGREE II assessed the quality of the CPGs and can also be used as a methodology guide for developing a CPG that provides accurate information for guideline reporting. Furthermore, AGREE II was a standalone and validated CPG appraisal tool.

Figure 2. Flow diagram in searching the CPG for Childhood Obesity Prevention.

KT framework Step 3: Assess Barriers to Knowledge use

Nurses were aware of CPG utilization in their daily practice in the modern healthcare practice. But nurses had various reasons for disregarding the integration of research findings into their daily practice like minimum educational level, negative attitude towards research, and lacked of organization support towards research (Usta, Ak, Dikmen, Yorgun, & Yonder, 2016). In Saudi Arabia, nurses revealed low utilization of evidence-based practice due to organizational, communication, guideline adopters, and innovation factors. Thematic groupings of these results were lacked of time to read and appraised research articles, lacked of authority to implement change, lacked of physician cooperation, and lacked of education and training to incorporate research findings into clinical practice (Omer, 2012). Nurses recognized the importance of clinical research but failed to integrate in their daily practice due to lack of educational preparation on the basic research and implementation process (Cruz et al., 2016; Stavor, Zedreck-Gonzalez, & Hoffmann, 2017). Therefore, the DNP student assessed the pediatric nurse's BARRIERS in utilizing CPG key recommendations in the POPC.

KT framework Step 4: Select, Tailor, Design Implementation Strategies

There were seven CPG implementation strategies applied to POPC. First, there were leadership engagement and commitment from the various hospital leaders. The head of Quality department, CPG hospital coordinator, and head nurse of POPC participated in the quality improvement on childhood obesity prevention. The head of the Quality department approved the quality improvement (QI) program and coordinated the QI program to CPG Unit. Likewise, the CPG unit collaborated the activity with the quality coordinator and POPC head nurse for support and commitment. Second, there was an involvement of the local clinical and quality champions during the data collection process. There was a member of the nursing CPG committee who explained and shared the CPG adoption and implementation in the nursing unit. The quality champion discussed the importance of integrating the CPG in the clinical practice because of its proven changes in the quality of nursing care and patient health outcomes. Third, there was an evaluation of nurses' perceived BARRIERS to CPG implementation through the use of adopted BARRIERS' scale assessment questionnaire. A total of 28 staff nurses participated in the data collection. In the questionnaire, the term research, research report, literature, and article implied to the clinical practice guideline on primary prevention of childhood obesity adopted from the Registered Nurses' Association of Ontario (RNAO) CPG. Also, the nurses were instructed to answer the question based on the current setting of the practicum site. The remaining four steps were considered as phase 2 implementation strategies mentioned in this doctoral project.

The fourth approach was a recommendation of post-guideline implementation practice audit, nursing chart audit related to obesity assessment, and prevalence study to determine the impact on patient health outcomes. The fifth approach was a recommendation to network with relevant hospital projects, CPG implementation support projects, accreditation standards related to CPG projects, scientific activities, and QI projects. Furthermore, a patient satisfaction survey can be conducted to assess the impact of the implementation process. The sixth approach was a recommendation for POPC nurses to sustain guideline implementation like CPG educational awareness before implementation and professional development programs. Also, a recommendation to sustain health-care innovation through the integration of CPG into nursing practice and adherence to nursing documentation related to assessment and management of childhood obesity. The seventh approach was the timely dissemination of the CPG final draft through an official memo, quality boards, manual copies, journal publication, and hospital intranet website (<http://icity.ksu.edu.sa>).

Relevance to Nursing Practice

Childhood obesity was associated with long-term chronic conditions, decreased the quality of life and increased financial burden. The American Nurses Association stated that reversing the widespread of childhood obesity was shared responsibility and collaborative accountability of nurses and multidisciplinary teams at the primary care level (Jones, 2010). Similarly, the Institute of Medicine (2011a) recommended primary prevention in early childhood obesity like growth monitoring in well-child clinics, physical activity, healthy eating, marketing and screen time, and sleep. Also, an effective

approach to reversing obesogenic are policy-led solutions that tend to be sustainable and systematic in influencing the target population (Swinburn et al., 2011). For such, guideline recommendations will lead to policy changes in the POPC that are easily implementable.

Local Background and Context

The early recognition of rising childhood obesity was a major health problem when left untreated. An overweight child has a high probability of becoming adult overweight from 20% to 80% (Berkowitz, 2009). The obesity prevalence and risk factors associated with childhood obesity in Saudi Arabia increase its burden to individuals and government (Memish et al., 2014). Childhood obesity was associated with comorbidities like metabolic risk factors, internalizing disorders, attention-deficit hyperactivity disorder, and decreased health-related quality of life (Pulgarón, 2013). For that, nurses addressed the major health issue with the members of the interdisciplinary team and family members of obese children in the primary setting.

Role of the DNP Student

The essential for doctoral education for advanced nursing practice were the cornerstone of developing my competency in this scholarly project. First, the Essentials II enriched my knowledge in quality improvement initiatives on childhood obesity prevention in the practicum site. Second, the Essentials VI enhanced my competency in inter-professional collaborative leadership to become a highly functional team leader in the practicum site. Third, the Essentials VII deepened my engagement in evidence-based clinical practice guideline (CPG) adoption that was high priority topic and consistent with

the national public health issue (American Association of Colleges of Nursing, 2006).

Therefore, the Doctoral of Nursing Practice (DNP) Essentials impacts on the doctoral student learning experience to become dynamically competent in the nursing profession and patient health outcomes.

The doctoral nurse contributed to leadership, quality improvement, evidence-based findings, and research of childhood obesity prevention in POPC. The health needs assessment reported by the quality management department was the motivation of the doctoral student to a nurse-led quality improvement program in the pediatric outpatient clinic.

Summary

The presence of evidence-based clinical practice guideline (EB-CPG) at the point of care provided a statement of recommendations for nurse's use in primary prevention of childhood obesity. To ensure effective diffusion of knowledge in the clinical setting, "Knowledge into Action" model was used to successfully integrate the CPG into the clinical practice for quality improvement and patient safety.

Section 3: Collection and Analysis of Evidence

Purpose

The purpose of the project was the identification of CPG for nurses on primary prevention of childhood obesity, assessment of the applicability of the CPG key recommendations, and design CPG implementation strategies in POPC. The practice-focused question for the scholarly project was as follows: Can an adopted evidence-based CPG for pediatric nurses reduce the risk of overweight and obese children in POPC? This section included the practice-focused question, sources of evidence, and evidence generated for the doctoral project.

Practice-focused Question

Currently, the pediatric outpatient nurses in the practicum site did not have a structured guideline statement on preventive care for children at risk of obesity. This gap in practice resulted in variations of care and lack of early identification of children at risk of obesity. The purpose of adopting an EB-CPG for nurses was focused on behavioral change in nursing practice and quality of care in managing obese children.

Sources of Evidence

There were three steps in search strategies. First is the identification of published CPGs between electronic or 2012 and 2017. Second is the identification of search terms and criteria using a Boolean operator like *childhood obesity*, AND *Clinical Practice Guideline*, OR *Practice Guideline* AND *Primary prevention of childhood obesity*. And, the third was the selection of guidelines. The selected CPGs were those practice recommendations for children. The selection of CPGs excluded literature that was

authored by a single person, CPGs published in a non-English language, CPGs that lacked a comprehensive primary prevention component. Sourced CPGs that was randomized controlled trials and systematic review documents were also excluded because these type of methodology were used in the development of an original CPGs which was out of the scope of this project.

Evidence-Generated for the Doctoral Project

The evidence of the doctoral project had two parts to analyze the results. Part one, the searching, screening, and selection of source CPGs for quality assessment utilizing the AGREE II Instrument. The instrument has 23 item questions organized into six quality domains of scope and purpose, rigor of development, clarity of presentation, applicability, and editorial independence. The scope and purpose domain was concerned with the overall aim of the CPG, the PIPOH health questions, and the patient population. The stakeholder involvement domain focused on the CPG development group and relevant stakeholders and intended users of the guideline. The rigor of development domain was related to methods used in searching evidence, criteria for selecting and synthesizing the evidence, the methods in formulating the recommendations, health benefits, side effects, and risks and procedures of updating the guidelines. The clarity of presentation dealt with the clarity of the CPG key recommendations, different management options for health issues, and CPG key recommendations. The applicability domain pertained to the potential barriers to CPG implementation and CPG audit and feedback. The editorial independence concerned on the CPG team that formulated the key recommendations without conflict of interest (Brouwers et al., 2010). For each of the

23 items, expert methodologist specified their level of agreement or disagreement in 1-7 Likert Scale. Then, the AGREE II was finalized by the two overall assessment questions. The process ended by selection of a high quality and trustworthy evidence-based CPG

Part two, a survey questionnaire was conducted to nurses in POPC using the BARRIERS scale to assess the extent of nurse's barriers in utilizing CPG in their daily practice. The BARRIERS scale was a nonspecific assessment tool for identifying general barriers to research utilization. The respondent rated each item on the 4-point Likert scale to determine the most perceived barriers by the nurses in CPG utilization in their daily practice. The questions in this tool were categories into four factors such a nurse, setting, research, and presentation factors (Funk et al., 1986). The BARRIERS scale was used extensively by nurses to assess barriers to research. Moreover, the tool can be used by clinicians, administrators and academicians in assessing their perceptions of barriers to the use of research findings in clinical practice (Funk as cited in Kajermo et al., 2010). Kajermo et al. (2010) reported that the BARRIERS scale was reliable and recommendable that the does not need further descriptive studies.

Samples

The setting of data collection was held in the POPC of the practicum site which has 21 subspecialty services with examination rooms and six procedural rooms that serve an average of 300 booked patients. Included in this study were pediatric clinic nurses, while healthcare assistants, physicians, other allied healthcare practitioners were excluded. A convenient sampling was taken from 28 clinic nurses employed in the POPC.

Also, the three CPG appraisers involved in this project were active CPG committee members from the nursing and quality departments. Two CPG appraisers were from the nursing CPG committee, both with doctoral degree qualifications, and clinicians as well. The third one was the CPG hospital coordinator and an expert CPG methodologist.

Procedure

The samples were recruited voluntarily. Participants were given an option to use electronic, or paper-form questionnaires. However, everyone preferred answering the paper-based questionnaire. Then, data collection was taken on three different occasions to ensure all the staff participated in the data collection. Before the data collection, the doctoral student explained the purpose of the data collection, the result of the selected CPG appraisals, and the procedure of using two sets of questionnaires. The first questionnaire was the adopted BARRIERS' scale assessment questionnaire used to assess the barriers to CPG utilization in the daily nursing practice. And the second questionnaire was used to assess the applicability of the RNAO CPG key recommendations in the POPC.

Analysis and Synthesis

The raw data was transferred to a Microsoft Excel 2013 spreadsheet. The AGREE II result was generated from the online calculation of AGREE II scoring using mean score. The barriers scale was computed using the mean score in MS Excel.

Instrument

An agreement form was sent to Dr. Funk via electronic mail for permission to use the BARRIERS scale. The email and signed form served as official permission valid for one study. Then, the raw data from the BARRIERS questionnaire was sent to Dr. Funk for reliability and validity data bank as part of the agreement instruction (Funk, Champagne, Wiese, & Tornquist, 1991).

Protection

The DNP project was in coordination with quality management department as the primary owner of the data collection, and Walden Institutional Review Board (IRB) who approved the scholarly project. The IRB approval number for this study was 09-06-17-0427936.

Summary

The project included two sets of data collection and analyses. Part one, the searching, screening, and selection of CPGs for quality assessment by utilizing the AGREE II Instrument. The process ended by selection of a high quality and trustworthy evidence-based CPG. Part two, a survey questionnaire was conducted to the pediatric outpatient nurses using the BARRIERS' scale to assess the extent of nurse's barriers in utilizing CPG in their daily practice. The result of the BARRIER'S scale determined the challenges of the translation of key recommendations in POPC.

Section 4: Findings and Recommendations

Introduction

Childhood obesity affected the children regardless of age and sex in every generation. In Saudi Arabia, children and adolescents revealed an increased rate of obesity from 6-9% and overweight from 15-23% respectively (Al-Shehri et al., 2016). Similarly, the needs assessment survey from the Quality management department in 2015 identified child obesity program was needed in POPC. Currently, POPC nurses have variability in their practices of preventive care for children with obesity or risks of obesity because of lacking standards to follow. The problem identified was whether having CPGs at the point of care can influence behavioral change in nursing practice. The practice-focused question for the scholarly project was: Can an adopted evidence-based CPG for pediatric nurses reduce the risk of overweight and obese children in POPC? Also, the purpose of this doctoral project was to assess the best CPG for primary prevention of childhood obesity, assess the barriers to CPG utilization in the daily nursing practice, and design implementation strategies for translation of best quality selected CPGs in POPC.

There were two sources of evidence generated in this project and both used descriptive statistical analysis. First, the AGREE II instrument was utilized to appraise the selected three CPGs. There were 23 key item questions, and for each key item the total score was summed up and divided into three CPG appraisers to obtain the mean score. The AGREE II was finalized by the two overall assessment questions related to

quality and recommendation of the CPG. Then, the process ended by selection of a high quality and trustworthy evidence-based CPG.

The BARRIERS scale was the second source of evidence. The tool explored the nurses' barriers to CPG utilization in daily practice. The questionnaire was composed of 29 items and coded based on a 4-point scale: 4 (to a great extent), 3 (to a moderate extent), 2 (to a little extent), 1 (to no extent), and 0 (no opinion). Likewise, the BARRIERS scale was categorized into four factors such as a nurse, setting, research, and presentation. The nurse factor questions defined the nurses' values, skills, and awareness of research. The setting factor questions comprised the organizational barriers and limitations. The research factor questions consisted the innovations in research and quality. The presentation factor questions composed of presentation and accessibility in research. The result of each factor was the sum of each response, excluding the no opinion responses, and divided by the total number of items in each factor. Furthermore, respondents answered the remaining eight-item questions by identifying barriers and facilitator not mentioned in the 29 item questions.

Findings and Implications

The Appraisal of Guidelines for Research & Evaluation (AGREE) II Evaluation

There were three CPGs selected for AGREE II evaluation such as the Endocrine Society (ES) CPG, Institution of Clinical Systems Improvement (ICSI), and Registered Nurses' Association of Ontario (RNAO). The three appraiser of the CPGs used the online evaluation of AGREE II instrument. The score was calculated for each of the six quality domains and summed up all mean scores of the individual items in a domain.

Then, the scaled score was calculated according to the AGREE II scoring equation generated electronically from the AGREE webpage.

For clarity and discussion of the three appraisers, the cut-off point of each quality domain was decided to be 75% and above. There were no clear rules established in the AGREE II instrument how to weigh domain scores when making decisions (Anwer et al., 2017). The three appraisers decided to give more weight or emphasis to domain 3 (rigor of development) as an approach to evaluate the quality of evidence, and domain 5 (applicability) which pertains to strategies to overcome potential barriers and facilitators to implementing the CPG.

The AGREE II total appraisal result for domain 3 of RNAO was 87% while ES-2017 and ICSI-2013 were 44% and 68% respectively. The domain five result for RNAO was 83% while ES was 31% and ICSI was 64%. Also, the overall quality of the RNAO-CPG was 89% than the ES (67%) and ICSI (67%). Furthermore, the RNAO CPG resulted in a favorable score in five out of six domains (1, 2, 3, 4, and 6) than ES and ICSI showed in Table 1. The summary of group appraiser's report on RNAO assessment was synthesized herewith.

Table 1

AGREE II Evaluation Results

AGREE II Domain	Endocrine Society	Institution of Clinical Systems Improvement	Registered Nurses' Association of Ontario
1. Scope and Purpose	57%	81%	94%
2. Stakeholder Involvement	30%	57%	78%
3. Rigour of Development	44%	68%	87%
4. Clarity of Presentation	100%	89%	100%
5. Applicability	31%	64%	83%
6. Editorial Independence	81%	78%	44%
Overall Quality of this Guideline	67%	67%	89%
Overall Recommendation of this guideline for use	Yes-0 Yes, with modification-1 No-1	Yes-1 Yes, with modification-2 No-0	Yes-2 Yes, with modification-1 No-0

Domain 1: Scope and Purpose

Item 1 provided the overall objectives of the RNAO CPG document. Appraisers commented that the purpose of the RNAO guideline was applicable across all practice settings with evidence-based practice, health system, education, organization, and policy recommendation for the primary prevention of obesity in infants, preschool, and elementary-school-aged children. Also, the RNAO defined the targeted users like infants, preschool, and elementary school-aged children up to 12 years of age. Item 2 identified the health questions based on the patient population, intervention, comparison or control, and outcome (PICO) model in the RNAO CPG document. Then, item 3 described the patient population that prioritized the primary prevention of obesity in infants, preschool, and elementary school-aged children up to 12 years of age.

Domain 2: Stakeholder Involvement

Item 4 included the guideline development group from all relevant professional groups. The RNAO CPG included full details of the CPG stakeholders like the Ontario government administration, RNAO international affairs and best practice guidelines (BPG) Centre director and co-director. Other stakeholders were included in the document like the RNAO co-chairs expert panel; director of healthy living, the chief nursing officer (CNO) at Toronto public health, manager of clinical programs at Mississauga community health centers, and the RNAO BPG program team. Item 5 considered the views and preferences of the patient population. The RNAO BPG program team recognized the importance of the social determinants of health to the prevention of childhood obesity written in the RNAO document. Item 6 identified target users of the RNAO CPG which included the nurses, other healthcare professionals, administrators, interprofessional teams, and all target users involved in the development of the RNAO CPG.

Domain 3. Rigour of Development

Item 7 used the systematic review and search strategy for evidence in the RNAO document development. Item 8 included the RNAO CPG criteria for selecting the evidence that included the list of websites and inclusion criteria. Also, the systematic literature search was conducted by a health sciences librarian. The search of evidence was an article published in English-language and articles published between 2004 and 2013. The searched was made from various databases like CINAHL, Embase, DARE, Medline, Cochrane Central Register of controlled trials and Cochrane database of

systematic reviews, ERIC, and PsycINFO databases. Item 9 described the RNAO CPG strengths and limitations of the body of evidence. The RNAO CPG fully documented the methodology used to analyze the evidence. Furthermore, the RNAO CPG used validated quality appraisal tools. Item 10 described the methods for formulating the recommendations for implementation of the CPG. Item 11 considered the health benefits, side effects, and risks to the patient population in formulating the RNAO CPG recommendations. Item 12 explicitly link the recommendations and the supporting evidence for each recommendation in the RNAO document. Moreover, the RNAO used methods to assess the quality and strength of the evidence and weighted according to the rating scheme. Item 13 externally reviewed the RNAO CPG by various clinical experts and CPG stakeholders before its publication. Item 14 described the process of updating and reviewing the RNAO document.

Domain 4. Clarity of Presentation

Item 15 specified the practice recommendations for the RNAO CPG users. Item 16 provided the different options for management of the condition or health issues found in the scope section of the RNAO document. Item 17 presented the key recommendations in the table of the RNAO document.

Domain 5 Applicability

Item 18 described the facilitators and barriers to CPG application. The RNAO CPG full document recognized the facilitators and barriers, key recommendation statements and implementation strategies. Item 19 provided tools for RNAO practice recommendations and implementation resources. Item 20 included proposed key

performance indicators and financial resources costs, research gaps, and future implications in the RNAO CPG document. Item 21 included the structure, process, and outcome indicators to be monitored and audited.

Domain 6. Editorial Independence

Item 22 included the funding body found in the disclaimer section of the RNAO document. Item 23 recorded the declarations of interest and confidentiality of the RNAO guideline development group members.

Overall Assessment

The RNAO CPG was recommended by the three CPG appraisers to be used by the nurses across all practice settings for the primary prevention of childhood obesity. The RNAO CPG contained the recommendations that apply to daily nursing practice, education, system-level, organization and policy targeting the prevention of childhood obesity. Conclusively, the RNAO document was recommended by the three appraisers as the best and high-quality CPG for POPC setting.

The doctoral student conducted the additional survey to identify which of the RNAO key recommendations applied to POPC. After summing up the respondent's scores, the suggested cut-off points were 75% and above for “applicable” key recommendations on the target setting and 75% and below for “not applicable” key recommendations. The final acceptable key recommendations applicable to the POPC setting were summarized herewith:

Table 2

Applicable RNAO key recommendations identified for POPC Nurses

 CPG Key Recommendations

Assessment	<p>Routinely assess children’s nutrition, physical activity, sedentary behavior, and growth as early as possible in a child’s lifespan</p> <p>Assess the family environment for factors that may increase children’s risk of obesity (e.g., Parenting /primary caregiver influences and socio-cultural factors).</p>
Planning	<p>Develop interventions that are: universally applied, as early as possible</p> <ul style="list-style-type: none"> ▪ target toward multiple behaviors ▪ Implement using multiple approaches ▪ Include the parents/primary caregivers and the family ▪ Implement simultaneously in multiple settings
Implementation	<p>Support exclusive breastfeeding for the first six months of life and complementary feeding up to two years of age or beyond</p> <p>Provide education and social support to help parents/primary caregivers to promote healthy eating and physical activity in infants and toddlers</p> <p>Monitor and evaluate the effectiveness of the family’s approach to healthy eating and physical activity.</p>
Education	<p>Health-care professionals should participate in continuing education to enhance their ability to support the positive behavioral and environmental changes for children, families, and communities.</p>

The BARRIERS Scale Analysis

The BARRIERS assessment scale was composed of 29 item questions to assess the extent of nurse's perception of barriers to utilization of the Clinical Practice Guideline (CPG) on Primary prevention of childhood obesity. Each item was group according to four factors or subscales such as Nurse, Setting, Research, and Presentation. As a result, the most dominant perceived barrier in the utilization of the CPG is the setting subscale (61%) subsequent with presentation (58%), research (55%), and nurse (49%) outcomes. To determine the most common perceived BARRIERS in the CPG utilization, the respondent rated each item on the 4-point Likert scale. The "barrier to research utilization," were responses from codes 3 and 4 and "no barrier to research utilization" were responses from codes 1 and 2. Data were calculated from *barrier to research utilization* responses only. Then, rank based on the average response rate. The five key barriers to utilization perceived by the POPC nurses were: (1) Implications for practice are not made clear (3.08). (2) Facilities are inadequate for implementation (2.96). (3) Research reports/articles were not published fast enough (2.96). (4) Research reports/articles are not readily available (2.96). And (5) the nurse does not have time to read research (2.74). The complete data of the BARRIERS' scale assessment showed in Table 3 herewith:

Table 3

BARRIER'S Scale Assessment Result

Subscale/item	Score	%	Sub-scale Rank	Score	% 3&4	M Average Response per item	Rank Based on Average Response per Item
A. Nurse							
The nurse is isolated from knowledgeable colleagues with whom to discuss the research	53			53	48%	2.30	16
There is not a documented need to change practice	52			52	48%	2.26	19
The nurse does not feel capable of evaluating the research	53			53	43%	2.30	17
The nurse sees little benefit for self	44			44	30%	1.91	27
The nurse does not see the value of research for practice	46			46	35%	2.00	26
The nurse feels the benefits of changing practice will be minimal	51			51	39%	2.22	21
The nurse is unaware of the research	49			49	30%	2.13	24
The nurse is unwilling to change/try new ideas	44			44	26%	1.91	28
Nurse Subscale Score	392	49	4th				
B. Setting							
The facilities are inadequate for implementation	68			68	78%	2.96	2
The nurse does not have time to read research	63			63	61%	2.74	5
There is insufficient time on the job to implement new ideas	60			60	57%	2.61	9
Other staff are not supportive of implementation	58			58	57%	2.52	12
The nurse does not feel she/he has enough authority to change patient care procedures	62			62	65%	2.70	7
Physicians will not cooperate with implementation	61			61	61%	2.65	8
The nurse feels results are not generalizable to own setting	63			63	65%	2.74	6
Administration will not allow implementation	53			53	52%	2.30	18
Setting Subscale Score	488	61	1st				
C. Research							
The research has not been replicated	59			59	57%	2.57	10
Research reports/articles are not published fast enough	68			68	70%	2.96	3
The literature reports conflicting results	50			50	43%	2.17	23
The nurse is uncertain whether to believe the results of the research	49			49	39%	2.13	25
The research has methodological inadequacies	54			54	52%	2.35	15
The conclusions drawn from the research are not justified	51			51	35%	2.22	22
Research Subscale Score	331	55.167	3rd				

D. Presentation						
The relevant literature is not compiled in one place	52		52	52%	2.26	20
Research reports/articles are not readily available	68		68	78%	2.96	4
Implications for practice are not made clear	71		71	78%	3.09	1
The statistical analyses are not understandable	56		56	39%	2.43	14
The research is not reported clearly and readable	59		59	57%	2.57	11
The research is not relevant to the nurse's practice	44		44	26%	1.91	29
Presentation Subscale Score	350	58.333	2nd			
No subscale/extra items						
The amount of research information is overwhelming	57		57	48%	2.48	13

Discussion

The findings from this study suggest that RNAO CPG was the best high-quality CPG as evidence from the AGREE II result. Noticeably, the RNAO CPG key recommendations included school or community settings prevention initiatives. For this reason, this justified that the setting was the highest perceived factor in the BARRIERS scale responded by the nurses. Among the 21 RNAO key recommendations, only seven key recommendations were applicable and implementable to the clinic setting.

The guideline suggested for routine assessment that includes nutrition, physical activity, sedentary behavior, growth, and family environmental factors. Cygan, Baldwin, Chehab, Rodriguez, and Zenk (2014) suggested that timely diagnosis promotes appropriate prevention of overweight and obesity.

Also, the guideline suggested developing a plan of intervention that targets multiple behaviors, multiple approaches, and family engagement. Murray and Battista (2009) reported that overweight children demonstrated negative traits mirrored from the

habits of parents at home like negative parental perception and teasing to an overweight child. A low self-esteem was demonstrated in overweight and obese children as accumulation effect from peer bullying and social pressure (Diana Jacobson, & Melnyk, 2012). Rabbitt and Coyne (2012) recommended a health promotion for parents or carers that focus on a parental role in determining food choices and importance of role-modeling behaviors to facilitate supportive environment. Thus, pediatric outpatient nurse's interventions should include education concerning multiple healthy nutrition choices and the multiple health benefits of active physical lifestyle for children.

Implication for Practice

The final CPG key recommendations for primary prevention of childhood obesity must address the most perceived barrier to CPG utilization to successfully implement the interventions. Most of the respondent agreed that the implication for the practice of the CPG was not clear to them. In the future, it is recommended to have a comprehensive educational awareness for the POPC before implementation. Additionally, the nurses must engage in the scientific nursing activities like evidence-based practice project, professional development program, and professional training to improve their knowledge in research since most of the nurses expressed perceived barriers of lacking time to read the research. All forms of dissemination will be available at the point of care like a printed document and an electronic copy through the university website. Also, a prompt reminder will be made available through the PC screensaver of POPC clinic rooms.

Although, monitoring, evaluating and sustaining the practice change are out of the scope of this DNP project. However, measuring the success of this CPG will be overseen

by the monitoring and evaluation unit of the Quality management department as evidence of the effectiveness of knowledge translation into practice. An evidence of successful implementation will support the administrative decision making in the approval of the proposed pediatric obesity clinic in POPC.

Furthermore, this project contributes to positive social change as guideline provision for childhood obesity in a similar setting and protocols for childhood obesity prevention in the community and school-based setting. It also applies to improve public health policy and childhood obesity surveillance that impacts on healthy eating, physical activity, and healthy environment. This project can be transferable to the future expansion of family medicine services- child care center of the practicum site

Therefore, include the multi-collaborative team in the implementation of the CPG key recommendation in managing children at risk for overweight and obesity.

Strength and Limitation

This DNP project assessed the highest quality CPG, assessed its applicability of the CPG key recommendations to the target setting, and assessed the perception of nurses on the barriers to utilization of the CPG. Also, the doctoral student conducted one-hour awareness for three groups of nurses to achieve understanding of the CPG statements. Furthermore, the use of Knowledge to Translation (KT) model in this project was practical to use for planning the implementation strategies to end users.

The limitation of the project was time did not include the remaining KT framework steps to implement phase 2. The project had the small sample size, but the group of respondents was the complete target sample and appropriate to the selected high

priority topic. The RNAO CPG recommended three settings such as clinic, community, and school-based. Conversely, the RNAO key recommendations included the community and school-based setting which were out of the scope of this doctoral project. Furthermore, a pediatric endocrinologist specialized in childhood obesity was not yet available at the practicum site to continue the full spectrum of care on diagnosed obese children.

Recommendation for Future Project

This project highly recommends phase two implementation interventions that cover application of the CPG key recommendations, monitor CPG implementation, evaluate CPG implementation outcomes, and sustain CPG use in POPC. Additionally, performance measurement is part of the quality improvement efforts that will evaluate the CPG key recommendations of primary prevention of childhood obesity in POPC by using key performance indicators (Institute for Clinical Systems Improvement, 2013). This doctoral project recommended various indicators such as (a) percentage of patients with annual BMI. (b) Percentage of patients with BMI screening whose BMI percentile is between 85 and 94. (c) Percentage of patients with BMI screening whose BMI percentile is >95. (d) Percentage of patients with BMI screening received education regarding weight management strategies that include nutrition and physical activity.

Section 5: Dissemination Plan

This doctoral project was two parallel activities that overlap each other. The QI efforts and implementation science. The QI efforts started with the identification of the problem in POPC that was recognized at the level of the practicing nurse clinician and lead to the design of implementation strategies for quality improvement and patient safety. Whereas, the implementation science commenced with CPG key recommendations and CPG implementation interventions. Moreover, both approaches shared a common goal, applicability, methodology, outcomes, and standards for patient safety.

The end product of this project aimed to impact on the nursing practice specifically on primary prevention of childhood obesity in POPC. Nursing leaders at all levels must be committed to supporting the CPG implementation. Nurse educators must facilitate the translation and understanding of the key recommendations into the daily practice of nurses through unit teaching, direct practice observation, and CPG awareness sessions for all nurses. Furthermore, multidisciplinary teams are essential in the CPG implementation that will complete the full spectrum of patient care like health educator, clinical nutritionist, child psychologist, and a pediatric endocrinologist.

There are several methods to disseminate the CPG in the point of care of POPC nurses. First, provide awareness to POPC nurses on the availability of CPG at hospital intranet website. Second, use the clinic computer screensaver to remind the user of seven CPG key recommendations in nurses' daily practice. Third, the quality management department will provide quarterly chart audit on nursing documentation relevant to CPG

key recommendations. And fourth, publish the DNP project promptly to the relevant publication.

Analysis of Self

During the conception of the project, I was already enthusiastic about evidence-based clinical practice guideline. My preceptor, Dr. Yasser Amer made a significant influence on my doctoral project. He is the practicum site CPG coordinator and CPG methodologist who facilitates all CPG projects at the practicum site. As a nurse practitioner, I have seen variations in nursing practice once there is no standard in place. Therefore, this nurse-led evidence-based quality improvement project potentially increases patient safety through CPG recommendations on the care provided to the patient.

I was able to practice the AACN essential competencies and translate the knowledge efficiently in the practicum site. The underpinning of this DNP project was to promote patient safety and excellence in practice as delineated in Essential II on organizational and systems leadership for quality improvement and systems thinking (American Association of Colleges of Nursing, 2006). The product outcome of this project is to impact on the nursing practice specifically on primary prevention of childhood obesity. There will be monitoring of the implementation of the CPG and performance measurement of indicators.

I will ensure that the plan for implementation will be executed upon completion of this project as the guidelines are quickly outdated. The nursing leaders and administration must address the perceived barriers of the nurses, support the guideline

dissemination plan, develop policies on childhood obesity prevention that align with key recommendations, and solicit feedback from nurses. Overall, working on this DNP project carried various challenges like prospectus and proposal approval which took me a year. But the experience of doing this doctoral project was more significant in becoming an expert for QI programs and implementations innovation.

Summary

The doctoral project was an evidence of expertise in healthcare quality improvement, patient safety, and evidence-based practice in improving health care quality. The DNP essentials were significant in nurturing the competency of a practice-focused doctorate clinicians to be the leaders in knowledge translation into action. Hence, the doctoral student plans to engage in leadership roles in various settings, manage quality initiatives, and obtain an executive position in healthcare organizations to maximize the knowledge and expertise acquired from the DNP degree.

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