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Staff education on Metabolic Syndrome in Patients Taking Antipsychotic Medications

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This is to certify that the doctoral study by

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2019

Abstract

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by

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MS, Walden University 2015

BS, Immaculata University, 2005

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Second-generation antipsychotics (SGAs) are prescribed for treatment of psychosis. A major side effect of SGAs is an increased risk of metabolic syndrome (MetS) with symptoms of hypertension, hyperlipidemia, hyperglycemia, and truncal obesity. A clinic in the northeastern United States was not screening patients for MetS when being treated with SGAs. The purpose of this project was to educate staff on MetS risk factors, signs, symptoms, and patient management with a goal to improve their knowledge of MetS. Lewin's change theory provided a conceptual framework for the project. The project question explored the development and evaluation of an educational module on MetS increased staff knowledge. Educational content was guided by current literature and the American Psychiatric Association and American Diabetic Association practice guidelines. Five expert panel members, consisting of 3 psychiatrists, an advance practice nurse, and a registered nurse reviewed the education program and evaluated content using a Likert-type questionnaire. Expert panel evaluations indicated that the module content contained useful clinical information on MetS screening for patients on SGAs. After panel review, the program was presented to 7 clinic staff. Pretest and posttest questionnaires asked 10 multiple choice questions and results were compared. Questions on SGA side effects, MetS complications, prevalence, baseline assessment measures, lab work, and needed collaboration were answered correctly by 6 of the participants pretest and all questions after receiving the education program. The project has the potential to promote positive social change through staff education on MetS screening for patients, thus improving patient outcomes.

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Dedication

This DNP scholarly project is dedicated to my six children, Michael, Richard, Jennifer, Rachael, Juliana, and Anthony Etumnu. My children are my pride and as a mother of six, I have been a role model to them and through my perseverance, they have learnt the importance of education in my family. I would also dedicate this scholarly project to my family friend, who is like an elder sister to me, Ms. Edith Ogwo, who constantly supports me with her prayers and encourages me to persevere especially when the journey becomes tough. I would also like to dedicate this scholarly project to my sister, Mrs. Damiana Nwankwo, my brother-in-law, Mr. Lucky Nwankwo, and my niece, Ms. Andra Nwankwo. Lastly, I would like to dedicate this scholarly project to my brother, Mr. Anthony Omile, for his support and encouragement to me during this education journey.

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My profound gratitude goes to God Almighty who gave me the grace and strength to persevere to complete this project, without Him, I'm nothing, but with him, I'm a majority. I would also thank my committee chair, Dr. Cheryl McGinnis immensely for her perseverance and guidance to me throughout the course of my program and writing of this scholarly project. My regard also goes to the committee member, Dr. Sue Bell for her support and my preceptor, Mr. James Nestor. Lastly, I thank my siblings and friends for their support and encouragement which make this accomplishment possible in my life.

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Introduction to the Study

Mental health providers' knowledge about MetS risk and screening will improve both physical and mental health of the patients on antipsychotic drugs and support the mission of Walden University to promote positive social change. Educating nursing staff and providers regarding the prevalence of MetS in psychiatric patients placed on antipsychotic drugs has the potential to improve their knowledge of MetS risk and will produce a positive patient outcome. Secondly, staff knowledge about the use of practice guidelines for MetS monitoring and MetS screening tools should facilitate adherence for the screening of MetS.

Problem Statement

According to Kioko, Williams, and Newhouse (2016), MetS is defined as a combination of symptoms including elevated blood pressure, increased cholesterol level, elevated fasting glucose, and truncal obesity which can lead to cardiovascular disease or type two diabetes. High values of blood pressure, cholesterol, blood sugar, and increased waist circumference should be warning signs for the development of MetS. Individuals suffering from severe mental illness (SMI) (e.g. bipolar disorder, schizoaffective disorder, schizophrenia) are at higher risk of developing MetS than the general population. SMI patients have also been found to have significantly increased morbidity and mortality as compared to people without an SMI diagnosis. The mortality rate for individuals with SMI is 2–3 times higher than in the general population, and the life expectancy for people with SMI is estimated to be 10–20 years reduced than in the

general population. The prevalence of MetS in people with mental illness is 2–3 times higher than the general population with an estimated occurrence of obesity at (45%–55%), hypertension at (19%–58%), diabetes at (10%–15%), and elevated lipids at (25%–69%) (Lopuszanska, Skorzynska–Dziduszko, Lupa–Zatwarnicka, Makara–Studzinska, 2014). SGAs have led to an increase in their use due to the ability to control both negative and positive symptoms of psychosis. The use of SGAs among patients with SMI has resulted in an increase in the occurrence of MetS as one of the side effects (Kioko, Williams, and Newhouse, 2016).

At the local clinic, individuals placed on antipsychotic drugs are not screened for MetS. It is essential for the clinicians to screen patients with mental illness for MetS before the initiation of the treatment with SGAs. Screening will help clinicians detect the potential for MetS and review the need for early treatment initiation, thereby decreasing morbidity and mortality associated with MetS. Individuals with SMI and MetS are at a higher risk for developing cardiac problems and type two diabetes. Nurses therefore are in a position to screen and identify patients at high risk for MetS development, provide teaching for lifestyle modifications to prevent complications associated with MetS, and help individuals to maintain optimum health. Section one of this project will include problem statement, the purpose, nature of the project, significance, and a summary.

Purpose

Many patients with mental health problem are treated at psychiatric outpatient clinics. There has been an increase in the use of SGAs in the treatment of treatment of psychiatric disorders. One of the common side effects of these drugs is the development

of MetS. Many clinicians are unaware of association of SGAs with the development of MetS among mentally ill patients who are placed on these drugs and therefore do not take precautionary measures to watch out for patients who are at risk for MetS. Mentally ill patients are managed by mental health clinicians as well as primary care physicians for their medical issues. There has been a problem about whose responsibility it is to monitor these patients for MetS development. It is imperative for both clinicians to collaborate in the plan of care of the patients to ensure they have optimal health in the areas of their physical and mental well-being (Donna, 2017). The purpose of this project was to educate staff in an urban mental health clinic located in the north eastern United States. on the risk factors and management of MetS, with a goal to improve their knowledge of MetS and patients' outcomes.

. **Practice-Focused Question**

The practice-focused question I used to ground this study was: Will the development and evaluation of an educational module on MetS have the potential to increase clinic staff's knowledge, confidence and skills in caring for SMI patients at risk for MetS?

Nature of Doctoral Project

I used several databases during the literature search, and they included MEDLINE, CINAHL, Pub Med, CINAHL full text, Ovid Nursing journals, ProQuest health, and medical collection. Keywords in the search included *MetS*, *mental illness*, *antipsychotic medications*, and *metabolic screening*. The sources of evidence I used had been published within the last 8 years. I reviewed the literature for the current evidence-

based practice (EBP) by utilizing American Psychiatric Association/American Diabetes Association Practice Guideline for MetS.

The setting for this project is a psychiatric outpatient clinic located in the North Eastern United States. The clinic patient population is adult and geriatric patients from the ages of 18 years through 70 years. The clinic has one registered nurse (RN), one license practical nurse (LPN), one medical assistant (MA), two advanced practiced registered rurses (APRNs), and three psychiatrists. I designed the educational project for the clinic staff, including the RN, LPN, MA, APNs, and the psychiatrists. I developed the educational content and presented it to a panel of experts for evaluation of the content and usefulness to staff. The panel of experts include 3 psychiatrists, a clinical registered nurse practitioner, and 1 RN. The chief executive officer (CEO) has over 15 years of experience of managing mental health clinics with varieties of individuals with different kinds of mental disorders and addiction problems. The chief medical officer (CMO) is a medical doctor with specialty in psychiatry. She has been a psychiatrist over 12 years and she also works in one of the local behavioral hospitals.

Significance

The purpose of this project was to educate RNs, MA, APRNs, and psychiatrists on the risk factors of MetS and its management. The practice-focused question was: Will the development and evaluation of an educational module on MetS have the potential to increase clinic staff's knowledge, confidence, and skills in caring for SMI patients at risk for MetS? The scholarly project required stakeholder involvement. Lee, White, and Altschuld (2018) identified three level of stakeholders. Level one stakeholders are

patients with mental illness who are placed on antipsychotic drugs in the urban mental health clinic in Eastern Pennsylvania. Level two stakeholders include clinicians providing services to the patients, and they include two RNs, two APNs, one MA, and one psychiatrist. Level three stakeholders are the CEO and the CMD, and they are involved with the clinic policy making and allocation of resources. The project impacted only level two and level three stakeholders. RNs, MA, APRNs, psychiatrist improved awareness of MetS will promote collaboration with primary care physicians caring for patients on antipsychotic drugs in regards to early detection and management of MetS. Providing adequate care to the patients in this clinical setting will promote a positive health outcome. Most of the clinical referrals are by word of mouth, and positive health outcome will increase more referrals, increase resources for the clinic, there by benefiting the third level stakeholders.

Significance to Nursing Practice

MetS is a term used to describe a cluster of symptoms that when expressed together, increase the person's risk of diabetes, stroke and cardiovascular disease. MetS symptoms include hypertension, central obesity, impaired fasting glucose, and dyslipidemia. Atypical or second□generation antipsychotic medications have been shown to compound the risk of developing MetS primarily through weight gain, and other metabolic disturbances. Therefore, SMI patients on antipsychotic drugs should have their blood pressure, waist circumference, and body mass index checked on a frequent basis. It is also crucial to screen SMI patients for MetS before and during treatment with antipsychotic drugs to help in identifying those who are at risk thereby facilitating early

intervention and also prevent complications from developing. In the clinical setting, mental health professionals are aware of the dangers posed to SMI individuals by MetS, but they do not practice the screening of MetS in clinical practice. The commitment of a service to address physical health screening in mental health consumers and the actions employed by clinicians to identified risks are also important determinants in screening practices. Psychiatrists prescribe antipsychotic medications linked to adverse physical health outcomes emphasis is placed upon them to be proactive and integrate physical care practices into everyday work. Nurses should play a leadership role by providing education to consumers about the medications they are taking, the need to maintain healthy lifestyles or alcohol and smoking cessation programs. Early detection is vital to lower cardiovascular risk and to improve consumers' physical health outcomes. As importantly, when nurses administer these drugs as care coordinators, the knowledge deficit can impact their ability to effectively screen and monitor any adverse effects on consumers. Nursing staff are well placed to monitor metabolic parameters and support SMI patients with behavioral health implementations thereby bridging the gap between primary health care and tertiary mental health services. Leadership from mental health nurses is needed to role model good clinical practice and improved screening and monitoring rates. Improved knowledge of metabolic screening procedures will instill the importance of EBP and help to improve overall patient screening rates. Staff nurses will be taught EBP guidelines and lifestyle modifications for the management of MetS to support healthy lifestyles, physical, and mental wellbeing.

Implication for Social Change

The mortality rate of people with mental disorders is 2–3 times higher than in the general population, and premature death occurs 10–20 years earlier than people of the same age who do not have a mental disorder. People with a mental disorder taking antipsychotics experience significant increases in weight, glucose level, waist circumference, and cholesterol level. Antipsychotic-induced metabolic side-effects are as substantial to increasing the risk of people with mental illness developing metabolic disorders as sedentary lifestyle and other risk factors such as smoking and poor diet (Chee, Wynaden, and Heslop 2017). Staff knowledge about the use of practice guidelines for MetS monitoring and MetS screening tools will facilitate the screening of MetS and improve the quality health of SMI patients, thus promoting positive social change.

Summary

MetS is linked with antipsychotic medications which are primarily used in the treatment of patients with mental disorders, especially SGAs. I developed an educational module for the clinic staff on the MetS risk factors and management. Awareness of MetS association with SGAs by the clinician will improve their knowledge when initiating treatment with SGAs for SMI patients. Improved patient outcomes among SMI patients may be seen after staff education and application of the treatment guidelines. In Section two of this DNP project, I will discuss the concepts, models, and theories chosen for the DNP project. I will also provide information and context on the local setting, consider the project's relevance to nursing practice, and discuss my role in the project.

Section 2: Background and Context

Introduction

SGAs are effective drugs in controlling symptoms of schizophrenia and other psychotic disorders. However, SGAs are also known to cause MetS and the number of psychiatric patients suffering from SGAs-induced metabolic side effects continues to rise (del Campo et al., 2018). MetS in general, is a major public health problem as reflected by the estimated prevalence of approximately 34.7 per cent in adults in the United States. MetS, as a whole or its individual components, is seen to contribute to the physical morbidity of persons with serious mental illnesses. MetS is a chronic and progressive condition that influences physical, mental and sexual functions (Padmavati, 2016).

The purpose of this project was to educate clinic staff on the risk factors and management of MetS, thereby improving their knowledge of MetS and patients' outcome. Staff knowledge on MetS and associated risk factors will facilitate their monitoring of SMI patients placed on antipsychotic drugs for MetS development and early referral to their PCP for proper management and prevention of complications, morbidity, and mortality. In section 2, I will discuss the model and theory that I used to support the project, relevance to nursing practice, local background and context, and my role as the doctor in nursing practice (DNP) student.

Concepts, Models, and Theories

The change theory chosen for this project was Kurt Lewin's theory of change. According to Wojciechowski, Murphy, Pearsall, and French (2016), implementing a change in an organization is very difficult. One of the major challenges encountered during organizational change is resistance, especially to those who might be affected by the change, and in this case the clinic staff. Kurt Lewin's theory of change has three phases, unfreeze, change, and freeze. In this urban mental health clinic where this change is going to be implemented, clinic staff has to be involved during the planning phase of the change. Unfreeze simply means ready to change and in this phase, the DNP student has to schedule a meeting with the clinic staff and the administrators with the agenda to discuss about the proposed change and in this case educating the clinic staff about MetS risk factors and importance of screening SMI patients for MetS at the initiation of antipsychotic drugs especially SGAs which is strongly linked to MetS development. There was no current protocol or standard in this clinic for monitoring of SMI patients for MetS and clinic staff has no significant knowledge about the association of MetS and antipsychotic drugs. This was brought to their attention during the meeting and the DNP student acted as a change agent discussed the implications of the proposed education program. Having the support of the administrators, especially the CMO and CEO facilitated the buy-in of the project because they are involved with the allocation of resources in this urban clinic. Change is the second phase of the Kurt Lewin's theory and is called implementation. In this phase, the DNP student acted as a change agent

discussed the implications of the proposed education program, presented the education module to clinic staff on MetS risk and screening. The intended outcome of this education was to improve the clinic staff knowledge on MetS risk and increased in their skills to manage SMI if patients develop MetS. Freeze is the final phase and it's also called refreeze, which simply means making the change stick. It is important for the clinic staff to take a full advantage of what they have learned to effective manage SMI patients under their care when they have MetS and to properly refer them to their PCP in a timely manner for early treatment to decrease morbidity and mortality associated with MetS if not properly managed. According to Wojciechowski et al.(2016), complex adaptive systems require that, in order for organizations to maintain equilibrium and survive, the organizations must respond to an ever-changing environment. Healthcare organizations are complex adaptive systems where change is a complex process with varying degrees of complexity and agreement among disciplines. Lewin's theory proposes that individuals and groups of individuals are influenced by restraining forces, or obstacles that counter driving forces aimed at keeping the status quo, and driving forces, or positive forces for change that push in the direction that causes change to happen. The tension between the driving and restraining maintains equilibrium. Changing the status quo requires organizations to execute planned change activities using his three-step model.

Relevance to Nursing

In conducting a literature review on the effect of antipsychotic drugs especially in the development of MetS, I reviewed many articles within the past 8 years. I conducted

searches using MEDLINE, CINAHL, Pub Med, CINAHL full text, Ovid Nursing journals, and ProQuest health. I also used the following keywords to conduct searches: *metabolic Syndrome, mental illness, antipsychotic medications,* and *metabolic screening.* Laugharne, Waterreus, Castle, and Dragovic (2016) conducted a survey study in Australia with the aim to investigate current reported psychiatric practice in relation to screening for the metabolic syndrome in patients prescribed antipsychotic drugs. Researchers used a 28-item questionnaire inquired into different aspects of screening and monitoring for metabolic syndrome in patients on antipsychotic medication. Of 3123 questionnaires sent, 955 were returned. Of respondents, 55% had no established metabolic monitoring protocol or guidelines in their work place, with 13% saying they did not know what to monitor to detect metabolic syndrome. Altogether, 76% reported there was no reliable system in place to remind them when to monitor. Fewer than 50% of respondents routinely check weight, fasting glucose or lipids in their patients on antipsychotics and under than 30% checked blood pressure. Waist circumference was routinely checked in fewer than 7% of patients. Basic monitoring equipment was reported unavailable in more than 50% of clinical settings. The study showed that routine screening for metabolic syndrome in patients on antipsychotic agents, by Australian psychiatrists, is inadequate and interventions to improve screening rates need to be developed, implemented and evaluated. Hermes, Sernyak, and Rosenheck (2013) conducted a survey study in a veterans affairs medical center to determine the extent of providers' sensitivity to the presence of cardiometabolic disorders in the selection of second-generation antipsychotics. As part of an academic detailing effort conducted

between October 2007 and May 2009, all psychiatric providers at a single veterans affairs medical center completed a survey for every new prescription of an on-patent second-generation antipsychotic. The survey documented the drug prescribed, patients' sociodemographic data, psychiatric and comorbid diagnoses, and reasons for the prescription. The association between obesity, hypertension, hyperlipidemia, diabetes, and cardiovascular disease and the choice of antipsychotics with varying levels of cardiometabolic risk was evaluated. Result from the study with the data consisted of 2,613 surveys completed by 259 providers. Olanzapine, with high cardiometabolic risk, and quetiapine and risperidone, with moderate risk, accounted for 79% of prescriptions. There was a significant ($p<.001$) association between the second-generation antipsychotic prescribed and obesity, hyperlipidemia, and diabetes but not hypertension or cardiovascular disease. The proportion of patients receiving olanzapine was only slightly smaller, by an average of four percentage points, among patients with cardiometabolic disorders than among patients without cardiometabolic disorders. The proportion of patients receiving aripiprazole, with little or no cardiometabolic risk, was consistently higher, by an average of only two percentage points, among patients with a cardiometabolic disorder versus without one. The study indicated that a statistically significant sensitivity by providers to cardiometabolic risk, this sensitivity was neither robust nor uniformly statistically significant, but researchers suggest more research into how providers use medication risk information when making treatment decisions may help improve the quality of care. Misiak, Frydecka, Laczmanski, Slezak, and Kiejna (2014) conducted a study with the aim to determine alterations in one-carbon metabolism

(OCM) have been repeatedly reported in schizophrenia. The 39 first-episode schizophrenia (FES) patients and determined serum profile of total homocysteine (tHcy), folate, vitamin B12, lipoproteins and glucose at baseline and after 12 weeks of treatment with SGAs including olanzapine and risperidone in monotherapy. After 12 weeks of treatment, all patients had significantly higher body mass index (BMI), serum levels of total cholesterol (TC), low-density lipoproteins (LDL), triglycerides (TG) and tHcy together with significantly lower levels of folate and vitamin B12. The analysis of differences between SGA revealed the same biochemical alterations in patients treated with olanzapine as in the whole group, while those receiving risperidone had no statistically significant changes in serum folate, vitamin B12 and TG. There was a significantly higher increase in BMI and TC in patients treated with olanzapine in comparison with those treated with risperidone. Patients receiving olanzapine had a higher decrease in vitamin B12 than those assigned to the treatment with risperidone. Changes in folate, vitamin B12, tHcy and TC levels were significant only in males, even after Bonferroni correction. Multiple regression analysis revealed that changes in tHcy levels are associated with gender and baseline metabolic parameters (BMI, glucose, TC, LDL and HDL) but not with selected SGA. In conclusion, SGA may influence OCM, especially in first-episode schizophrenia (FES) males. Kioko, Williams, and Newhouse (2016) conducted a quality improvement project with the purpose ofstressing the importance of screening for metabolic syndrome (MS) on patients with serious mental illness (SMI) managed with second generation antipsychotic (SGA) medication. One hundred charts of patients who were on SGA (n = 100) were randomly selected from

more than 1000 charts for the purpose of this project with (n = 50) charts for pre-intervention and (n = 50) charts for post intervention. Result indicates that the use of the screening and monitoring tool showed that gaps exist in the screening for MetS among patients on SGA. Seow et al. (2017) conducted a study on MetS and cardiovascular risk among institutionalized patients with schizophrenia receiving long term tertiary care with the aim to determine the cardiometabolic profile and the associated risk factors in a group of institutionalized patients with schizophrenia or schizoaffective disorder receiving prolonged hospital care in the only tertiary psychiatric institution in Singapore. Participants were Patients residing in long stay wards who were hospitalized for a minimum period of 1 year. Fasting blood sample was collected to obtain levels of blood glucose, total cholesterol, high-density lipoprotein (HDL) and triglycerides. Waist circumference, blood pressure, height and weight were also measured. The prevalence of MetS and the 10-year cardiovascular risk were determined. Results show that the prevalence of MetS in this group was 51.9% and 26.9%. Those in the high risk BMI category and those who had pre-existing diabetes had higher odds of MetS. Their 10-year cardiovascular risk was estimated at 12.8%, indicating intermediate risk based on the Framingham risk function. The study found the use of atypical antipsychotic medications to increase the risk of MetS; we did not find any significant association. Yang, Lo, and Peng (2016) conducted a study entitled *Prevalence and Predictors of MetS in People with Schizophrenia in Inpatient Rehabilitation Wards* with the aim to explore the prevalence of MetS and the predictors associated with the number of MetS components in people with chronic schizophrenia. 357 participants from 10 rehabilitation

wards in northern Taiwan were recruited for the study. Results indicate that the prevalence of MetS in this sample was 37.8%.

For clinic staff to properly monitor SMI patients taking antipsychotic drugs and at risk for the development of MetS, they should have the knowledge of MetS risk factors. Review of several studies showed an association of MetS with SGAs, some of the studies also indicate lack of proper screening of the SMI patients for MetS at the initiation of treatment with antipsychotic drugs. Therefore there is a need for mental health nurses (MHN) to be vigilant in monitoring a person's physical state during the initiation of treatment with antipsychotic drugs and throughout treatment. Monitoring will facilitate an early detection for people who are potentially at risk of developing metabolic abnormalities. Since antipsychotic medications also play a vital role in a person's susceptibility to the development of MetS, it is critical that MHN have access to training and education in managing people at high risk of developing metabolic abnormalities associated with MetS (McDaid & Smyth, 2015).

Guidelines for Metabolic Syndrome Management

In 2004, American Diabetes Association (ADA), American Psychiatric Association (APA), American Association of Clinical Endocrinologists (AACE), and North American Association for the Study of Obesity (NAASO) held a consensus development conference on antipsychotic drugs, obesity, and diabetes. Given the serious health risks, patients taking SGAs should receive appropriate baseline screening and ongoing monitoring. Clinicians who prescribe SGAs for patients with psychiatric illnesses should have the capability of determining a patient’s height and

weight (BMI) and waist circumference. These values should be recorded and tracked for the duration of treatment. Clinicians should also encourage patients to monitor and chart their own weight. It is particularly important to monitor any alteration in weight following a medication change. The patients' psychiatric illness should not discourage clinicians from addressing the metabolic complications for which these patients are at increased risk (ADA, 2004).

Baseline monitoring for MetS

The ADA, APA, AACE, and NAASO panel of experts recommended that baseline screening measures be obtained before or as soon as clinically feasible after, the initiation of any antipsychotic medication. According to ADA, APA, AACE, and NAASO (2004), the baseline patient screening measures for MetS include the following patient history and assessment components:

- Personal and family history of obesity diabetes, dyslipidemia, hypertension, or cardiovascular disease
- Weight and height (so that BMI can be calculated)
- Waist circumference (at the level of the umbilicus)
- Blood pressure
- Fasting plasma glucose
- Fasting lipid profile

These assessments can determine if the patient is overweight (BMI 25.0–29.9) or obese (BMI ≥30), has pre-diabetes (fasting plasma glucose 100–125 mg/dl) or diabetes (fasting plasma glucose ≥126 mg/dl), hypertension (blood pressure >140/90 mmHg), or dyslipidemia. If any of these conditions are identified, appropriate treatment should be initiated. Psychiatrists should not hesitate to refer the patient to the appropriate health care professional or specialist knowledgeable about these disorders. The panel recommends that nutrition and physical activity counseling be provided for all patients who are overweight or obese, particularly if they are starting treatment with an SGA that is associated with significant weight gain. Referral to a health care professional or program with expertise in weight management may also be appropriate. Health professionals, patients, family members, and caregivers should be aware of the signs and symptoms of diabetes and especially those associated with the acute decompensation of diabetes such as DKA. The latter is a life-threatening condition and always requires immediate treatment. Patients, family members, and caregivers also need to know that treatment with some SGAs may be associated with significant weight gain and a heightened risk of developing diabetes and dyslipidemia. For patients with, or at higher risk for, diabetes and in those treated with other medications that may increase these risks (e.g., valproate, lithium, Depo-Provera), it may be preferable to initiate treatment with an SGA that appears to have a lower propensity for weight gain and glucose intolerance. Potential for weight gain should also be considered in the choice of other psychiatric and non-psychiatric medications (ADA, APA, AACE, & NAASO, 2004).

Follow-up monitoring for MetS

The patient's weight should be reassessed at 4, 8, and 12 weeks after initiating or changing SGA therapy and quarterly thereafter at the time of routine visits. If a patient gains ≥5% or more of his or her initial weight at any time during therapy, one should consider switching the SGA. In such a situation, the panel recommends cross-titration to be the safest approach; abrupt discontinuation of an antipsychotic drug should generally be avoided. When switching from one antipsychotic drug to another, it is preferable to discontinue the current medication in a gradual fashion. The profile of the subsequent drug will determine the initial dose and escalation strategy. Particular consideration should be given before discontinuing clozapine because of the potential for serious psychiatric sequelae. Fasting plasma glucose, lipid levels, and blood pressure should also be assessed 3 months after initiation of antipsychotic medications. Thereafter, blood pressure and plasma glucose values should be obtained annually or more frequently in those who have a higher baseline risk for the development of diabetes or hypertension. In those with a normal lipid profile, repeat testing should be performed at 5-year intervals or more frequently if clinically indicated (ADA, APA, AACE, and NAASO, 2004).

Local Background and Context

The clinic for the scholarly project is an outpatient urban mental health clinic located in the North-Eastern region of the United States. The clinic has two fulltime NPs, one fulltime Psychiatrist, one per diem psychiatrist, two RNs, and one MA. The clinic

also has one chief medical director who is a psychiatrist and involved in policy making, meetings with stakeholders, and management of the clinic. Psychiatrists and NPs are the providers of the clinic who see patients with mental health problems. They diagnose and initiate treatments. On an average day, they see approximately 25 patients of which six are new patients and the remainders of the patients are return patients scheduled for their monthly medication visit. . The RNs and MA are involved with giving injections to SMI patients who are on psychotropic injections and also getting prior authorizations for the patients especially when their prescriptions are denied from their insurance carrier. Most of the patients seen in this clinic are from the minority populations or blacks. Many of them are also unemployed and their source of income is social security disability (SSD) or social security income (SSI). Many of the SMI patients in this clinic have diagnosis of schizophrenia and approximately 98 % of them smoke cigarettes. According to Papanastasiou (2013), it has been estimated that in the U.S. as many as 60% of people with schizophrenia meet the criteria for MetS, MetS is therefore over represented in SMI, and patients with schizophrenia usually have a twofold (or more) risk of developing it compared with the general population. Other risk factors include the length of exposure to psychotic illness and lifestyle habits, such as smoking. The clinic has three departments; Wellness Outpatient Department, Recovery Path Outpatient (RPOP) department, and Targeted Case Management (TCM) department. Wellness outpatient departments have patients who can manage their mental health and keep their regular appointments without problem. RPOP patients are patients who have addiction problems with drugs or alcohol. They are also assigned a Recovery Facilitator (RF) who makes

sure they also take their medications as prescribed and send them to a clinician to have refills if they are running low on their medication. This department works with the patients on their recovery goal plan and provides activities for them Monday through Friday. Patients from this department if do well, graduate from the program after few years. TCM patients have Case Managers (CM) who are responsible for ensuring they are taking their medications as prescribed and schedule for their appointments for their medication visits and ensure there is transportation available for their pickups and drop-offs on the day of their appointments. The CM also oversees that these patients also keep their appointments with their Primary Care Physicians (PCP).

In this clinic, there are no standardized protocols for monitoring patients who are placed on antipsychotic drugs for the development of MetS. According to Kioko, Williams, &Newhouse (2016), the high prevalence of MetS among SMI population has led to increased mortality and morbidity, and increase in use of healthcare resources. To reduce the occurrence of MetS, there is a need for screening and monitoring for its occurrence especially on SMI patients who are treated with antipsychotic drugs. Many health care providers do not screen and monitor for MetS among patients with SMI. Prevalence of MetS is 35% among patients diagnosed with Schizophrenia. In this local urban clinic, approximately 30% of SMI patients placed on antipsychotic drugs have MetS. Undiagnosed and untreated MetS remain high due to suboptimal screening which leads to missed opportunities for use of primary preventive measures. Failure to diagnose MetS among the SMI population in a timely manner has dire consequences which includes development of other comorbidities and decreased life span. The missed

opportunities are linked with high indisposition and death rates. To reduce the occurrence of MetS, there is a need to have better screening methods and tools in place. Regular monitoring and adequate preventive efforts for MetS risk factors are imperative. Lack of knowledge of the required monitoring parameters and communication is one of the biggest obstacles for care success. For this urban local clinic, the lack of staff knowledge creates the need to have an effective tool that can be used to monitor for MetS. Lack of transforming guidelines into action to prevent, diagnose early and treat MetS risk factors among SMI was found to be the highest setback for the patients.

The goal of the project is to provide staff with the knowledge and the importance of MetS risk factors, screening, and monitoring, and if identified early to collaborate with the primary physicians to intervene and initiate early treatment, thereby prevent complications associated with it, and improve quality of health among the SMI patients in this urban clinic setting.

Role of the DNP Student

According to AACN (2006), organizational and systems leadership are critical for DNP graduates to improve patient and healthcare outcomes. Doctoral level knowledge and skills in these areas are consistent with nursing and health care goals to eliminate health disparities and to promote patient safety and excellence in practice. This project is therefore in line with the Doctorate in Practice Nursing essentials; APNs should ensure accountability for quality of health care and patient safety for populations with whom they work. They should also develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and

other clinical sciences, as well as organizational, political, and economic sciences. While on the clinical rotation, it was observed that clinic staff lacks a knowledge about the relationship of antipsychotic drugs in the development of MetS, because there was no standard protocols for screening and monitoring of patients for MetS. Secondly, at the initiation of treatment with antipsychotic drugs for SMI patients, most providers do not order baseline labs and clinic staff does not obtain baseline blood pressure, height, weight, and waist circumference. The CMO and CEO of the clinic were approached and the identified problem of not having a standard protocol in the clinic for monitoring and screening of MetS on SMI patients placed on antipsychotic drugs was discussed with them. The practice-focused question is: Will the development and evaluation of an educational module on MetS have the potential to increase clinic staff's knowledge, confidence, and skills in caring for SMI patients at risk for MetS? A staff educational program will be developed to educate the staff on MetS and its risk factors.

Summary

Review of literatures provides evidence-based guidelines to guide the DNP student to develop the educational content to the clinic staff. Kurt Lewin's theory of change was used to design the educational module. In this clinical setting, there were no standard protocols; the theory guided the DNP student in assessing the need of the clinic. Using the three phases of the theory, the first phase which is unfreeze is where the need was identified and was communicated with the staff via meetings, and during the second phase, which is change, education will be presented to the staff. Final phase of the theory which is Freeze will guide the clinic staff to sustain and stick to the implemented

program; therefore, Kurt Lewin's theory informed the development of the educational program for the clinic staff on MetS risk factors, screening and monitoring of SMI patients on antipsychotic drugs.

Section 3: Collection and Analysis of Evidence

Introduction

According to Hodges and Videto (2011), creating effective and efficient programs requires that the program planner assess needs and assets associated with the target groups and their environments. The assets can be built upon and harnessed to help create more efficient and effective programs. The term needs assessment refers to the process of figuring out what needs to be addressed considering the assets that are present. Needs assessment assist the health educator in investigating the web of factors that affect the health members of the target population and the ability of health educators to positively influence them. Needs assessments are a necessary part of the planning and implementing a program and serve as the beginning of program evaluation. They entail data collection, data analysis, and priority setting tasks, which are designed to provide the foundation for developing and implementing a meaningful program. To evaluate the problem identified in this scholarly project, it is important to collaborate with stakeholders from the clinic especially staff members who are directly involved with the consumers and the CMD and CEO who are involved with allocation of resources. Reviewing of sources of evidence and theoretical framework are essential part of planning process. In section 3, I will discuss the practice focused question, sources of evidence and plan for project design, data analysis and synthesis.

Practice-Focused Question

The practice focused question I used to ground this study was: Will the development and evaluation of an educational module on MetS have the potential to increase clinic staff's knowledge, confidence and skills in caring for SMI patients at risk for MetS? Adequate knowledge of MetS and its risk factors by the clinic staff will help them to identify at risk SMI patients and early referral and collaboration with their primary care physicians for proper management and improve health outcomes.

Project Design

The purpose of this DNP project was to develop and evaluate an educational program on MetS. I reviewed evidence-based literature to establish a foundation for MetS screening and monitoring among SMI patients placed on antipsychotic drugs by the clinic staff in an urban outpatient mental health clinic. Interview was conducted among the expert panels, one RN, one NP, and three psychiatrists. Kurt Lewin's theory of change was used as a conceptual framework to guide the implementation of the educational program for MetS risk factors, screening, and monitoring. The five expert panelists provided anonymous questionnaires using a Likert scale to assess the content and applicability of the MetS staff education program. I asked them to answer an open–ended question and also make recommendations about the program. The feedbacks provided by expert panels are incorporated into the final development of the education module prior to it being presented to the clinic staff via PowerPoint presentation. The PowerPoints will outline the meaning of MetS, association of MetS with antipsychotic drugs, especially SGAs, importance of obtaining a base line

weight, height, blood pressure, and waist circumference, and specific lab-tests including, a fasting blood sugar level, and a lipid profile prior to initiation of treatment with SGAs on SMI patients.Education will emphasize the importance of ongoing monitoring for SMI patients to identify MetS and the need for treatment at follow-up visits.

For this evidence-based educational project, I used a Likert scale type questionnaire to evaluate the program content and usefulness for identification of MetS risk factors, development of MetS, and treatment options. I also included an additional question to gather additional recommendations from the panel of experts. I asked the 5 panel experts to complete questionnaire and provide feedback after program completion. Participation was voluntary and all responses anonymous. I analyzed survey results for content clarity and applicability in the clinical setting. The results required no modification to the program contents prior to providing the education to the clinic staff.

The screening and monitoring for MetS among SMI patients on SGA has the potential to prevent complications associated with the condition, and promote patients' health. Educating mental health providers on the need for monitoring for MetS in patients receiving SGA can prevent complications associated with use of SGA and can improve patients' outcomes. Clinic staff lacking knowledge on antipsychotic drugs and risk of developing MetS in SMI patients on antipsychotic drugs was identified as a practice problem in this outpatient urban mental health clinic in the north–eastern United States.

The purpose of this DNP scholarly project was to educate the clinic staff on MetS and its risk factors and the importance of screening patients for MetS prior to initiation of antipsychotic drugs with a goal to improve their knowledge of MetS and patients' outcomes.

Sources of Evidence

I extracted articles are extracted through Boolean search of databases such as MEDLINE, CINAHL, Pub Med, CINAHL full text, Ovid Nursing journals, and ProQuest health. Keywords in the search included *MetS*, *mental illness*, *antipsychotic medications*, and *metabolic screening*. Inclusion criteria for journal review were articles within the last 8 years, evidence-based, peer-reviewed, and published in English and specific to health and clinical nursing practice settings.

Data Collection

I collected data for this DNP project from the five expert panels members using an anonymous Likert scale survey to evaluate the education module on MetS risk factors, screening, and monitoring. Each expert panel member has over 8 years of experience of working with SMI patients. The five expert panels met at the executive board room in the clinic and they will be given the education module for review on a paper copy. After they have reviewed the education module, they will be asked to complete five-question Likert-type survey. There will be an approximate of 2 hours allocation for each expert panel to review the education content and provide a feedback. Feedback provided from the expert panels from the expert panel will assist with program content revision if needed. All survey results will be anonymous. I analyzed the survey data using descriptive statistics

with table representation of results. I presented the education to the clinic staff after panel evaluation, there was no modifications required.

Protections

I presented the consent for anonymous questionnaires to the five expert panel members. The five expert panels have a minimum of 8 years of experience in mental health nursing and they were invited to participate in the project via an e-mail. The expert panels for this DNP scholarly project include one RN, one NP, and three psychiatrists. Consent for Anonymous Questionnaire forms was provided to each expert panel member prior to the program presentation. Questionnaire results will remain confidential. I obtained Institutional Review Board (IRB) approval from Walden University before implementing this scholarly education project and before presenting the educational program to five expert panels (approval number 03-22-19-0495058); the organization was asked to sign the site agreement. Data was collected and stored with adherence to IRB requirements and all the results obtained through the questionnaires remained anonymous.

Analysis and Synthesis

I used descriptive analysis to analyze the survey results. Prior to the delivery of the educational program to the clinic staff, I asked the five expert panel members to review the program for its usefulness and also to provide feedback as regards to the usefulness of the program. Feedback from the expert panels helped to address the following areas (a) the contents (b) If the contents were comprehensible (c) If the contents met the expected objectives (d) How likely the expert panels are going to

implement the program in their organization (e) Lastly, if the post-test will be a true test of knowledge of the content outlined from the education program. Feedbacks from the expert panelists requires no revisions to the educational program.

Summary

Section 3 included an outline of how the education module was developed for MetS risk factors, screening, and monitoring. The program was guided by the current EBP and guidelines on MetS. During the planning phase of the program, I involved the stakeholders because their involvement facilitated them to take the ownership of the program. Feedbacks from the expert panels required no revisions for the program. The program improved clinic staff knowledge on MetS and its relationship with antipsychotic drugs, thereby creating awareness of the importance of monitoring SMI patients for MetS. The recognition of MetS can lead to improved patient management and treatment of potential complications. Section 4 of this project icludes the project evaluation and findings.

Section 4: Findings and Recommendations

Introduction

In section 4 of this DNP paper I described the results of the appraisals from the panel of experts and the clinic staff. The purpose of the staff education project was to educate staff in an urban mental health clinic located in the north-eastern United States on the risk factors and management of MetS. The goal was to improve staff knowledge of MetS and patients' outcomes. I asked the five expert panelists to evaluate the usefulness of the MetS educational program using a Likert-type survey. In this section, I presented and analyzed the result of the survey and also provided recommendations to improve the program.

Findings and Recommendations

I presented the staff education program on MetS to the five expert panel members to obtain an evaluation of the program content. The five experts included two psychiatrists, one clinical registered nurse practitioner, one registered nurse, and one licensed practical nurse. The five experts included men and women with over 8 years of experience in mental health and ages ranging from 40 to 60 years. The five experts converged in conference room B on the second floor of the clinic. I gave them the consent form for Anonymous Questionnaires prior to their participation in the education program (see Appendix A). I also gave each member of the expert panel the education program to review for content usefulness and applicability to the clinical setting and patient management. After reviewing the educational content, the panel of experts evaluated the program using a Likert-type questionnaire. Six questions were answered

using a scale from 1, strongly agree to 5 strongly disagree. The seventh question asked for program comments and recommendations. Table 1 illustrates the survey results.

Table 1

Panel Program Evaluation

Questions	Answers				
	SA	A	Neither A or D	D	SD
	n=5				
	n=%				
1. Do you perceive the education program to meet the objectives outlined by the author at the beginning of the education?	5 (100%)				
2. Do you perceive the educational program to be beneficial for a new staff to receive during orientation?	5 (100%)				
3.Does the content of the educational program provide knowledge of metabolic syndrome for the clinic staff?	5 (100%)				
4.Will the educational module improve clinic staff monitoring of mentally ill patients taking second generation antipsychotic drugs?	5 (100%)				
5.Is the content presented in the educational program easy for staff to understand?	5 (100%)				
6.Do you perceive the post test questions as the measure of understanding of the contents presented on the education program?	5 (100%)				

Note. SA = Strongly Agree, A = Agree, Neither A nor D = Neither Agree nor Disagree, D = Disagree, SD = Strongly Disagree.

Question 7 was an open-ended question asking for program recommendations. Three out of five expert panels provided comments and recommendations when answering the open -ended question as follows:

- The student scholar provided a very informative presentation and as the clinical director of the clinic, I'm going to incorporate into our practice some of the information provided.
- The presentation was good, easily understood, and the guideline will be easy to follow by the patients and providers.
- The education module can be used to in-service new staff members from the medical team during a new staff orientation.

Results

The educational project was designed to provide mental health clinic staff with current guidelines on monitoring of SMI patients on antipsychotic drugs for the development of MetS. Program content included signs and symptoms necessary for referral to primary care physicians for early management and treatment. Early recognition of MetS can prevent patient complications. Results from the expert panelists indicated that the module will be useful for clinic staff in the management of SMI patients from the clinic placed on antipsychotic drugs. Lack of knowledge and recognition of the signs and symptoms of MetS as a result of the use of antipsychotic drugs were identified as a practice gap by the clinic staff. After reviewing the educational module, the five experts all strongly agreed that module content met the learner objectives, was easy to understand and provided knowledge on MetS. Written comments indicated that the program content

was very informative and would be applied to the clinical practice. No additional recommendations were made for modifications in educational content.

Findings and Recommendations of the Pre/Post test Results

There were seven participants in the clinic staff education training on MetS. They included three psychiatrists, an advance practice registered nurse, a registered nurse, a licensed practical nurse, and a medical assistant. The pre-test survey was first provided to assess the basic knowledge of the staff on MetS and then the education was provided. After the education on MetS, a post-test survey was given to evaluate post program knowledge- (see Appendix C). A total of 10 multiple choice pretest and post-test questions were administered to the clinic staff with all staff answering the 10 questions. Table 2 compares the pretest and post-test staff survey results.

Table 2

Pre- and Post-Knowledge Test Results

Survey Questions	Pre-Education Correct responses (*n* = 7) % Correct	Post-Education Correct responses (*n*= 7) % Correct
1.Metabolic syndrome is defined as a combination of symptoms of:	7(85.7)	7(85.7)
2.Major side effect of Second Generation Antipsychotic (SGAS) is:	7(57.1)	7(100)
3.Major complications of Metabolic syndrome are:	7(85.7)	7(100)
4.The prevalence of metabolic syndrome in patients with mental illness is:	7(0)	7(100)
5.Baseline measurements for metabolic syndrome include the following except:	7(57.1)	7(100)
6.Early detection of metabolic syndrome will help to prevent:	7(85.7)	7(85.7)
7.It is important to monitor severe mental ill patients (SMI) for metabolic syndrome by using the practice guideline as recommended by:	7(85.7)	7(85.7)
8.Why is it important to refer severely mental ill patient with metabolic syndrome	7(85.7)	7(85.7)
9.The most important labs to order at the initiation of treatment with antipsychotic	7(85.7)	7(100)

drugs are: to their primary care physicians?		
10.Why is important for mental health providers to collaborate with severely mental ill patients' primary care providers?	7(85.7)	7(100)

Answers to questions 2, 3, 4, 5, 9, and 10 showed improved knowledge on the post-test. Questions 1, 6, 7, and 8 results from pretest to pre-post test showed no change in the percent of correct answers (85.7%).

Recommendations

Knowledge of MetS, a common side effect of SGAs, is necessary for the clinic staff to identity and monitor for the signs and symptoms of MetS. Educated staff can better recognize signs and symptoms of Mets and initiate early treatment. Promoting optimal health among with SMI will improve collaboration of mental health clinicians and primary care providers of SMI patients.

I recommend the use of an education module on MetS to help clinic staff understanding of the relationship of MetS and antipsychotic drugs, thereby assisting staff to recognize the signs and symptoms of MetS and to manage patients with SMI who are prescribed antipsychotic drugs. The education program provided education on MetS, thus increasing providers' knowledge of signs and symptoms requiring baseline lab testing, specifically fasting blood glucose levels and lipid panels in patients receiving treatment with antipsychotic drugs for SMI. Clinic staff awareness of the signs and symptoms of MetS has the potential to improve patient monitoring for MetS development and early referral to their PCP if indicated. Ongoing monitoring and recognition of MetS

has the potential to improve patients' quality of life and decrease the potential complications of MetS, thus promoting positive social change.

Strengths and Limitations of the Project

Strengths

The strength of the staff education on MetS included a slight improvement in knowledge among the clinic staff on MetS. Clinic staffs were able to understand that patients with SMI can develop MetS when they are placed on SGAs. The program provided current guidelines and evidence on the signs and symptoms of MetS. This type of education had not been introduced to staff caring for patients at risk for MetS thus, introducing new knowledge was a strength of the program. The education module can be used in the clinic to provide an in-service to staff from the medical team during annual in-service training and new staff orientation. A total of seven staff from the medical team received the program. Questions 2, 3, 4, 5, 9, and 10 indicated improved knowledge of signs and symptoms of MetS and MetS risk factors. Administration of pretest and posttest helped to assess participants' basic knowledge on MetS before and after the educational program.

Limitations

The small sample size of seven participants was a limitation of this study. The five expert panelists were included in the sample size causing another limitation, especially with their involvement in reviewing the module contents and participation on pre–posttest questionnaires. The study results cannot be generalized to a larger clinic population at this time. The project was limited by the clinic's use of patient electronic

health records (EHR) that may not include parameters for heights, weights, waist conference, and blood pressure. Assessment for MetS requires ongoing monitoring of these parameters and if not entered with each visit, patient trends will be difficult to track. Lack of the necessary parameters in the EHR will be a patient follow-up issue. It is, therefore, recommended that the clinic administration add the parameters for heights, weights, waist circumference, and blood pressure into the SMI records to enable providers to track the findings while the patients are on SGAs, there was no bias regarding the education program.

Summary

Program evaluation results indicated the potential usefulness of the educational program on MetS for the clinic staff. With the increase knowledge on MetS, clinic staff will be able to monitor SMI patients on SGAs for the development of MetS. The educational module will serve as a guide to nurses and providers in the clinic for the treatment and monitoring of SMI patients for the development of MetS with early referral to their primary care physician if indicated. The MetS educational module was presented to the five expert panel members and feedback was obtained using a Likert-type scale questionnaire. The second step of this project was to provide the educational content to clinic staff participants. Pretests and post-test surveys were completed and 7 clinic staff answered six out of 10 multiple-choice questions correctly on the post-tests and six out of the seven staff also answered the remain of four out of the 10 questions correctly which indicated a slight improvement in correct answers after receiving the educational program. In section 4, I presented and analyzed the project results with clinical

recommendations. Section 5 will include a self-analysis and the plan for project dissemination.

Section 5: Dissemination Plan

Scholarly project dissemination is one of the major components of the DNP project. Through dissemination, the project will be exposed to a larger audience. According to Carter-Templeton (2015), research dissemination has become extremely important in nursing's era of evidence-based practice. DNP capstone projects have the potential to offer new findings or validate best practices and nursing interventions. Sharing this information with nurses who can use it in practice may help address the practice gap. Information that can be shared in the form of articles can provide evidence for nurses to use and offer a road map for study replication resulting in an extension of what is known about best practices and nursing interventions and their impact on patient outcomes. Capstone projects should represent and illustrate the result of knowledge and skills gained throughout DNP courses and activities. In section 5 I will discuss project dissemination plan and self-analysis.

Project Dissemination

I presented the implemented project to the chief medical officer, who is one of the key stakeholders of the field site, she was impressed with the project and will discuss with the information technology group the need for incorporation in the clinic's EHR a section to record SMI patients' baseline labs, weight, height, waist circumference and future recordings so that providers and other medical team members will be able to track the findings throughout duration of treatments with SGAs. The project will be disseminated in the field site through in-service training of the medical staff and also during new staff orientation for medical staff. Another way my project will be

disseminated is through submission for publication in the Journal of the American Association of Nurse Practitioners (JAANP) and ProQuest.

Analysis of Self

My educational journey started while in my country Nigeria. I completed both my nursing and midwifery programs while in my country and was a nurse-midwife before migrating to the United States. I'm the middle child and the third of six children. Our mother died when I was 11 years old. After her death, my eldest sibling, my brother died at the age of 20 years from sickle cell disease. My youngest sibling and sister became very ill, and I was left to take care of her after my immediate older sister left home to live in the city for job training. Taking care of my little sister was a turning point in my life, from which I developed the passion to care for the sick. My sister later died after I left home to start my nursing education in the city. I completed my Bachelor of Science Nursing (BSN) degree after arriving in the United States. While pursing my BSN, I had a full-time job as a charge nurse in a nursing home. Many nurses were moved and determined to go back to school to get their BSN, too, by following my footsteps. I was married with six children at the time I went back to school to get my master's degree. My husband has moved back to my country and I was left to take care of six children alone. I started my master's degree initially at Thomas Jefferson University in Philadelphia Pennsylvania and dropped out of the program in 2008. I picked up the courage to return to school in 2014 and was accepted to Walden University's Adult-Geriatric MSN program. I was able to complete the program in 2015. I decided to go back to school to complete my DNP program; it was a very tough journey with six children, married, but

more of a single parent of six children with no support, and with full-time job. I told my children that with determination, you can achieve whatever you want to achieve in life.

My current practice is in a mental health outpatient clinic. More of the patients seen in this setting are low income persons from the African American community. The majority of the patients are unemployed. Patients with SMI have problems with trust and I want to make a big impact in their lives. There is a practice gap in the clinic related to monitoring the patients with SMIs for the development of MetS. It is important for the mental health providers to collaborate with the SMI patients primary care physicians to ensure that both their medical and mental health needs are managed adequately, which is in alignment with DNP Essential VI: Inter-Professional Collaboration for Improving Patient and Population Health Outcomes, enabling DNP nurses to take a leadership role in development and implementation of practice models, standards or care, and other scholarly projects (AACN, 2006).

The development of the education module on MetS relied on my experience from working at the mental health outpatient clinic for over 2 years. Through the experience I observed that most of the psychiatrists who work in the clinic isolate mental health from medical problems. Some of them also fail to ask the patients with SMI how often they visit with their PCP. Knowing if patients have a regular PCP is very important to ensure that their medical needs are not left out. PCPs of the patients with SMI are responsible to manage their medical problems including MetS, which is a major side effect of SGAs. It is imperative for the mental health providers to have patients' PCP information in their

medical records to facilitate collaborations between both providers whenever the need arises.

Analysis of Self as a Practitioner

I have practiced as an APRN for a period of 3 years, with specialty as an Adult-Geriatric Nurse Practitioner (AGNP). Prior to becoming an APRN, I worked in many nursing homes as a supervisor and a charge nurse. Prior to my current job as a clinical registered nurse practitioner (CRNP) in an outpatient mental health clinic, my first job was with an agency to conduct home assessments for the elderly in their homes. I had no previous mental health knowledge, beyond 2 months of orientation in a mental health institution in Nigeria as a student nurse and working with elderly patients in the nursing homes with depression, anxiety, and dementia. Patients with SMI are very vulnerable and most of these patients have suffered from traumatic events in their lives, which make it very difficult for them to trust people. I want to help the SMI population by providing services that will help them maintain optimal health in collaboration with other clinicians such as psychotherapists and primary care providers. As a result of the passion I have for this vulnerable population, I have decided to go back to school after the completion of my DNP program to obtain my post master's degree or certification as a Family Psychiatric Mental Health nurse practitioner.

One of my goals after completing the DNP program is to become an instructor for the new generation nurses, especially through online education. My long-term goal is to establish my own independent practice in collaboration with a family practice physician. My journey as a DNP student has sharpened my leadership skills, and I'm going to use

these skills to become involved in resolving ongoing care gaps that require energetic actions based on best practices, teamwork, care coordination, and clinical leadership competencies at the point of care. I want to be a transformational leader who uses evidence-based strategies and an inclusive style for working within the complexity of health care and interdisciplinary teams.

Summary

I created and implemented an educational module on MetS which is a common side effect of SGAs, psychotropic drugs commonly used and preferred by mental health providers in the field site in the treatment of patients with SMI. Increased knowledge of MetS among nurses and providers in the clinic will promote effective monitoring of SMI patients for the development of MetS at the initiation of treatment with SGAs and throughout the duration of the treatment. I used Kurt Lewin's change theory as a guide to implement this scholarly project. The creation and implementation of this scholarly project was made feasible through the collaboration of the clinic staff. Five expert panelists were given Likert-type questionnaires which they answered anonymously. No adjustment was made on the module; the five expert panelists liked the content of the module and would recommend that the module be incorporated into the in-service training for the new medical staff during new hire orientation and periodically for the old medical staff members. DNP projects need to be disseminated and I will have this work published through ProQuest after graduation from my institution.

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Appendix A: Survey Questions

Dear member of the educational program review committee,

I want to use this opportunity to thank you for participating in the evaluation of the educational program. Your comment and feedback will be very helpful in making adjustment for this educational program for the staff in the mental health clinic. Please try and map out time to answer the question listed below. Please feel free to provide your valuable feedback by adding a comment at the end of the survey. Thanks very much for been part of this scholarly project.

Panel of Experts Questionnaire for Metabolic Syndrome Educational Program

1. Do you perceive the education program to meet the objectives outlined by the author at the beginning of the education?

a) Strongly Agree

b) Agree

c) Neither agree nor Disagree

d) Disagree

e) Strongly Disagree

2. Do you perceive the educational program to be beneficial for new staff to receive during orientation?

a) Strongly Agree

b) Agree

c) Neither agree nor Disagree

d) Disagree

e) Strongly Disagree

3. Does the content of the educational program provide knowledge of Metabolic Syndrome for the clinic staff?

a) Strongly Agree

b) Agree

c) Neither Agree or Disagree

d) Disagree

e) Strongly Disagree

4. Will the educational module improve clinic staff monitoring of mentally ill patients taking second generation antipsychotic drugs?

a) Strongly Agree

b) Agree

c) Neither Agree or Disagree

d) Disagree

e) Strongly Disagree

5. Is the content presented in the educational program easy for staff to understand?

a) Strongly Agree

b) Agree

c) Neither agree nor Disagree

d) Disagree

e) Strongly Disagree

6. Do you perceive post test questions as the measure of understanding of the contents presented on the education program?

a) Strongly Agree

b) Agree

c) Neither Agree or Disagree

d) Disagree

e) Strongly Disagree

7. Please feel free to give your recommendations or feedbacks below the lines.

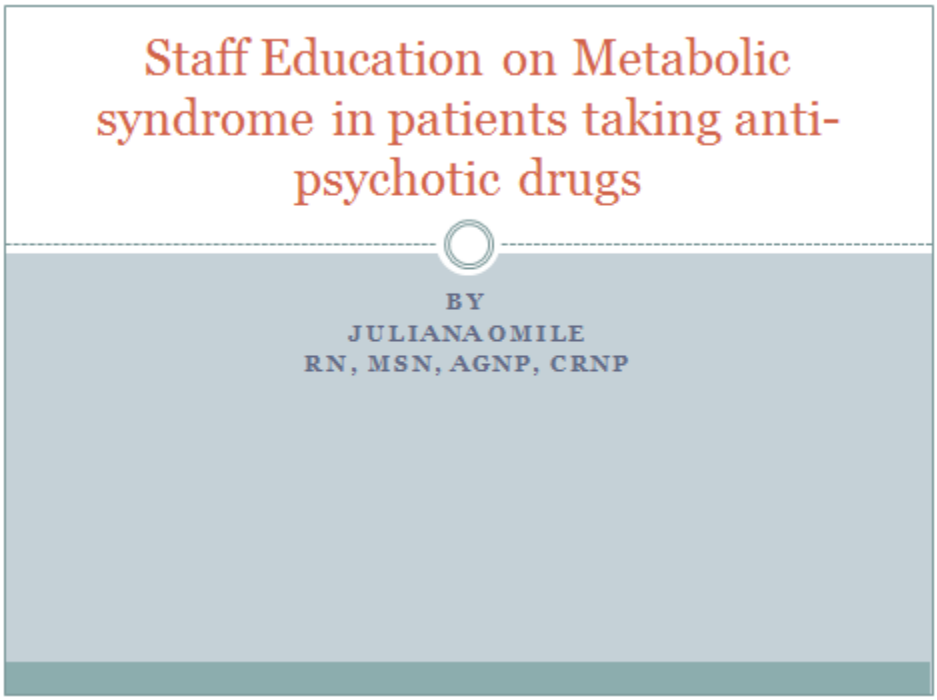
_____

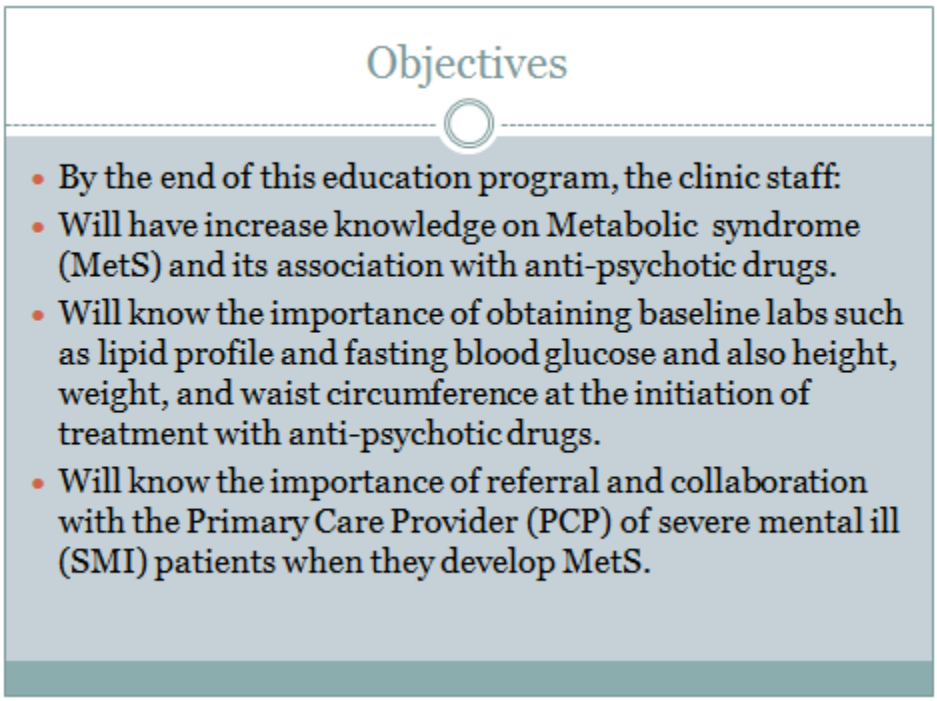
_____

_____

_____

Appendix B : Staff Education on Metabolic Syndrome in Patients Taking Antipsychotic Drugs.





Introduction

- Patients with Severe Mental Illness (SMI) are treated with anti-psychotic drugs. Two major groups are first generation antipsychotics (FGAs) and Second generation antipsychotics (SGAs).
- Mental health providers prefer to use SGAs because the FGAs are associated with many side effects especially movement problems. SGAs have lesser side effect but can cause metabolic syndrome (MetS).

Problem

- Metabolic syndrome (MetS) is defined as a combination of symptoms including elevated blood pressure, increased cholesterol level, elevated fasting glucose, and truncal obesity which can lead to cardiovascular disease or type two diabetes.
- High values of blood pressure, cholesterol, blood sugar, and increased waist circumference should be warning signs for the development of MetS.

Problem

- Individuals suffering from Severe Mental Illness (SMI) (e.g., bipolar disorder, schizoaffective disorder, schizophrenia) are at higher risk of developing MetS than the general population.
- SMI patients have also been found to have significantly increased morbidity and mortality as compared to people without an SMI diagnosis.
- The mortality rate for individuals with SMI is 2 to 3 times higher than in the general population, and the life expectancy for people with SMI is estimated to be 10 to 20 years reduced than in the general population.

Problem

- The prevalence of MetS in people with mental illness is 2-3 times higher than the general population with an estimated occurrence of obesity at (45%-55%), hypertension at (19%-58%), diabetes at (10% - 15%), and elevated lipids at (25% - 69%) (Kioko, Williams, and Newhouse, 2016).
- Second-Generation Antipsychotics (SGAs) have led to an increase in their use due to the ability to control both negative and positive symptoms of psychosis. The use of SGAs among patients with SMI has resulted in an increase in the occurrence of MetS as one of the side effects.

Problem

- In the local clinical setting, patients with SMI who are placed on antipsychotic medications are not screened for metabolic syndrome, and there are no practice guidelines used as a standard of practice to adequately monitor these patients for the development of MetS with the initiation antipsychotic medications and after that.

Purpose

- The purpose of this project is to educate staff in an urban mental health clinic located in the Northeast on the risk factors and management of MetS, with a goal to improve their knowledge of MetS and skills in caring for SMI patients who are placed on SGAs.

Project question

- The practice-focused question is: Will the development and evaluation of an educational module on MetS have the potential to increase clinic staff's knowledge, confidence, and skills in caring for SMI patients at risk for MetS?

Guidelines for metabolic syndrome monitoring

- In 2004, American Diabetes Association (ADA), American Psychiatric Association (APA), American Association of Clinical Endocrinologists (AACE), and North American Association for the Study of Obesity (NAASO) held a Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes.
- Given the serious health risks, patients taking SGAs should receive appropriate baseline screening and ongoing monitoring.

Guidelines for metabolic syndrome monitoring

- Clinicians who prescribe SGAs for patients with psychiatric illnesses should have the capability of determining a patient's height and weight (BMI) and waist circumference (central obesity) R/T MetS.
- These values should be recorded and tracked for the duration of treatment. Clinicians should also encourage patients to monitor and chart their own weight.
- It is particularly important to monitor any alteration in weight following a medication change, Weight gain of 3lbs or more within a month period should be a warning sign to the clinicians. SMI patients with increase weight gain, elevated blood pressure greater than 140/90mmgh, and abnormal fasting glucose level and lipid profile, should be referred to their primary care physicians for early treatment and management of MetS.

Guidelines for metabolic syndrome monitoring

- The patients' psychiatric illness should not discourage clinicians from addressing the metabolic complications for which these patients are at increased risk (ADA, 2004).
- SMI patients with increased in high blood pressure, high cholesterol, elevated fasting glucose, and truncal obesity, and weight gain indicating metabolic syndrome should be referred to their primary care provider for early treatment and management.

Baseline monitoring for metabolic syndrome

- ADA, APA, AACE, and NAASO panel of experts recommends that baseline screening measures be obtained before or as soon as clinically feasible after, the initiation of any antipsychotic medication. According to ADA, APA, AACE, & NAASO (2004), the baseline patient screening measures for MetS include the following patient history and assessment components:

Baseline for metabolic syndrome monitoring

- Personal and family history of obesity diabetes, dyslipidemia, hypertension, or cardiovascular disease
- Weight and height (so that BMI can be calculated)
- Waist circumference (at the level of the umbilicus)
- Blood pressure
- Fasting plasma glucose
- Fasting lipid profile

Baseline for metabolic syndrome monitoring

- These assessments can determine if the patient is overweight (BMI 25.0–29.9) or obese (BMI ≥30), has pre-diabetes (fasting plasma glucose 100–125 mg/dl) or diabetes (fasting plasma glucose ≥126 mg/dl), hypertension (blood pressure >140/90 mmHg), or dyslipidemia.
- If any of these conditions are identified, appropriate treatment should be initiated. Psychiatrists should not hesitate to refer the patient to the appropriate health care professional or specialist knowledgeable about these disorders.

Baseline for metabolic syndrome monitoring

- The ADA, APA, AACE, and NAASO panel of experts recommends that nutrition and physical activity counseling be provided for all patients who are overweight or obese, particularly if they are starting treatment with an SGA that is associated with significant weight gain.
- Referral to a health care professional or program with expertise in weight management may also be appropriate.

Baseline for metabolic syndrome monitoring

- Health professionals, patients, family members, and caregivers should be aware of the signs and symptoms of diabetes and especially those associated with the acute decompensation of diabetes such as diabetic ketoacidosis (DKA). Patients, family members, and caregivers also need to know that treatment with some SGAs may be associated with significant weight gain and a heightened risk of developing diabetes and dyslipidemia.
- Potential for weight gain should also be considered in the choice of other psychiatric and non-psychiatric medications (ADA, APA, AACE, and NAASO, 2004).

Intervention for monitoring metabolic syndrome

- Richardson et al. (2016), outlined metabolic measures per most recent American Psychiatric Association/American Diabetes Association Guidelines as follows:
- Baseline: Personal/family history, blood pressure, weight, BMI, waist circumference, fasting blood glucose, lipid profile, HgA1c.
- 4-Week follow-up: Weight, BMI
- 8-Week follow-up: Weight, BMI
- 12-Week follow-up: Blood pressure, weight, BMI, waist circumference, fasting blood glucose, lipid profile, HgA1c.

Intervention for monitoring metabolic syndrome

- Elevation in the fasting blood glucose level, lipid profile, and HgA1c should be an indication of MetS and an early referral and collaboration with the patient's primary care provider should be initiated.

References

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Appendix C: Pre and Posttests on staff education on Metabolic Syndrome (MetS)

Please circle the specialty that most identifies you professionally

Psychiatrist Clinical Registered Nurse Practitioner (CRNP) Registered Nurse (RN)

Licensed Practical Nurse (LPN) Medical Assistance (MA)

Please circle the correct answer from the following questions

1. Metabolic syndrome is defined as a combination of symptoms of:

A. Elevated body temperature, blood glucose, heart rate and blood pressure

B. Elevated blood pressure, cholesterol, blood glucose, and truncal obesity

C. Elevated blood plasma, cholesterol, increased weight gain, and blood glucose

D. Elevated blood glucose, blood pressure, respiratory rate, and cholesterol

2. Major side effect of Second-Generation Antipsychotic (SGAS) is:

A. Extrapyramidal symptoms (EPS)

B. Tardive Dyskinesia (TD)

C. Metabolic Syndrome (MetS)

D. Bradykinesia

3. Major complications of Metabolic syndrome are:

A. Congestive heart failure

B. Lung disease

C. Gastrointestinal disease

D. Cardiovascular disease or type two diabetes

4. The prevalence of Metabolic syndrome in patients with mental illness is:

A. 1-2 times higher than general population

B. 2-3 times higher than the general population

C. 3-4 times higher than general population

D. 4-5 times higher than general population

5. Baseline measurement for metabolic syndrome include the following except:

A. Weight, height, and blood pressure

B. Fasting glucose level and lipid level

C. Comprehensive metabolic panel

D. Waist circumference

6. Early detection of metabolic syndrome will help to prevent:

A. Increased mortality and morbidity

B. Hospitalization

C. Side effects of antipsychotic drugs

D. Increase or decrease in psychotropic dosing

7. It is important to monitor severe mental ill patients (SMI) for metabolic syndrome by using the practice guideline as recommended by:

A. American Psychiatric Association (APA) and Diabetic Association (ADA)

B. American College of Obstetricians and Gynecologists (ACOG)

C. American Family Physicians (AFP)

D. American college of cardiology (ACC)

8. Why is it important to refer severe mental ill patient with metabolic syndrome to their primary care physicians (PCP)?

A. Prevention of complications

B. Early treatment and management

C. Routine office visit

D. Delay of treatment

9. The most important labs to order at the initiation of treatment with antipsychotic drugs are:

A. Basic metabolic profile and comprehensive metabolic profile

B. Thyroid profile and lipid profile

C. Complete blood count with differential

D. Fasting blood glucose and Lipid profile

10. Why is important for mental health providers to collaborate with severe mental ill patients' primary care providers?

A. Promote optimum health among SMI patients

B. Decrease hospitalization among SMI patients

C. Decreased preventive health care among SMI patients

D. None of the above