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Educational Intervention on Metabolic Syndrome for Psychiatric Providers

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,

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2019

Abstract

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MS, University of Kansas, 2007

BS, University of Kansas, 1998

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Statistics show a high prevalence of metabolic syndrome (MetS) in patients with mental illness receiving second-generation antipsychotic medications. MetS is associated with elevation of obesity, truncal obesity, blood pressure, cholesterol, and fasting glucose. The purpose of this project was to educate psychiatric providers about the importance of MetS screening, early detection, management, and referral for better treatment and management. The project was guided by Lewin's theory of change model. The project inquired if educational intervention on MetS improved providers' knowledge and intent to adopt MetS guidelines. A literature review and established guidelines of the American Psychiatric Association and American Diabetic Association about MetS in psychiatric patients directed the educational content. Five expert panelists with over 10 years of experience in psychiatric mental health reviewed the educational content using a Likert-type questionnaire. Findings resulted in the acceptance of the educational content without further recommendation. Twelve staff attended the educational session presented on MetS. Comparison of the pretest and posttest questionnaires that has 5 multiple choice questions indicated some positive effects. The good knowledge of MetS, how to screen for MetS, health promotion activities with consumers, metabolic profile of different neuroleptic medications, providers' roles in MetS. The participants' overall knowledge about MetS screening improved from 8.3% pretest to 83.3% after receiving the educational program. The educational project for MetS screening might foster positive social change by improving continuity and quality of care, which will lead to better patient outcomes, reduce healthcare cost, and impact positive patient outcomes.

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Dedication

I dedicate this project to the almighty God for his favors and kindness in my life and for career advancement; to my husband, Paulinus Okafor, who has always been supportive of my academic pursuits; and my children, Amarachi, Chima, Uzoaku, Chidera, and Chidi, just like you always hear me say, “Nothing good comes easy,” but it will worth the struggle at the end.

To my parents and siblings who have always believed in me and to my close friends for their encouragement and support throughout this program. Thank you for reminding me to take a break when I spent countless hours on the computer in one sitting, forgetting to eat at times. Thank you for all the understanding, love, support, and encouragement when I wanted to give up. I hope I have made you all proud. I love you all.

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I cannot thank God enough for granting me the strength to complete this journey. I will like to use this opportunity to thank Dr. Gross for her guidance and encouragement and Dr. Garner for her patience, guidance, and scholarly feedback.

Finally, to my precious family. I would like to acknowledge my parents, Nze Raphael and Lolo Emelda Obi, who have always pushed and inspired me to further my education, who taught me the importance of education from a young age. To my husband Paulinus Okafor, who believed in me, you have always been instrumental to my educational achievements. Your unconditional love and support, despite all the challenges I experienced throughout this journey, are immeasurable. I am blessed to have you by my side as my husband and cheerleader.

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Section 1: Nature of the Project

Introduction

Patients with chronic mental illness are treated with both first-generation antipsychotic medications (FGAs) and second-generation antipsychotic medications (SGAs). The use of psychotropic medications illustrates an essential part of psychiatric practice. Antipsychotic medications are used in the treatment of mental disorders other than psychosis, such as bipolar, depression, and anxiety. The use of these antipsychotic medications has increased the ability of psychiatric providers to treat psychiatric ailments with tolerable side effects but has given rise to metabolic syndrome (MetS) among patients with mental illness. The World Health Organization (WHO) has recognized MetS as a global epidemic and a major public health problem (Ho, Zhang, Mak, & Ho, 2014). Its associated complications are affecting a large number of people. According to Moore et al. (2017), with the definition of MetS by the International Diabetes Federation (IDF) and the National Cholesterol Education program, the prevalence of MetS is estimated at more than 30% in the United States.

Patients with mental illness have an increased risk of developing MetS compared to the general population (Arms, Bostic, & Cunningham, 2014). MetS is a complication related to antipsychotic medications used in this vulnerable population. It is considered to be underdiagnosed and undertreated in psychiatric patients. MetS is associated with chronic mild inflammation; elevation of obesity, truncal obesity, blood pressure, cholesterol, and fasting glucose; and increased risk for obesity and truncal obesity, all of which lead to cardiovascular disease and/or diabetes (Cunningham, Riano, & Mangurian,

2018; Kioko, Williams, & Newhouse, 2016). Any three of the five components are necessary for diagnosis (Saloojeel, Burns, & Motala, 2014). According to the American Heart Association, the rate of MetS in the general population is 34% compared to 55%–60% in mentally ill patients taking antipsychotic medications (Arms, Bostic, & Cunningham, 2014). MetS can lead to chronic diseases, such as heart disease and diabetes, which are responsible for seven out of 10 deaths among Americans each year and account for 75% of the nation's healthcare spending (CDC, 2017).

The purpose of this scholarly project is to educate nursing staff and psychiatric providers about the importance of metabolic monitoring, screening, early detection, management, and referral of patients to primary care providers for appropriate treatment and management. Educating nursing staff about MetS and associated complications will lead to nurses communicating these physical health challenges to patients and encouraging them to keep medical appointments in order to manage the ailments properly. The educational intervention will foster social changes through education of psychiatric providers in order to make a positive impact both physically and mentally on this vulnerable population.

Problem Statement

MetS is a clustering of cardiovascular risk factors including dyslipidemia, abdominal obesity, hypertension, and hyperglycemia (Penninx & Lange, 2018). MetS is a complex, noncommunicable, multiple systems disorder (Cotes et al., 2015). It has become a serious comorbidity among patients with mental illness. Cotes et al. (2015) noted that in November 2003, the North American Association for the Study of Obesity,

American Psychiatric Association (APA), American Diabetes Association (ADA), and American Association of Clinical Endocrinologists held a conference on antipsychotic medications and diabetes.

Based on the conference outcome, a class warning was implemented by the APA, the ADA, and the U.S. Food and Drug Administration related to the risk for diabetics and recommendations were issued for glucose and lipid monitoring with SGA medications (Morrato et al., 2016). Because of the increased morbidity in this population, psychiatric patients taking antipsychotic medications should be screened with the same rate or even more frequently than patients in the general population. Saloojeel et al. (2014) noted that these agencies developed a general agreement that established a MetS baseline screening and monitoring for patients taking antipsychotic medications, mainly SGAs.

I conducted a needs assessment in an in-patient psychiatric center located in the Midwestern United States to determine the adherence of practice guidelines for MetS screening by psychiatric providers. The assessment analysis indicated that the gap in practice was lack of metabolic monitoring and screening among patients taking antipsychotic medications. Regardless of the global consensus for MetS screening, the rate of testing remains poor despite the relationship between MetS and antipsychotic medications (Happell, Platania-Phung, Gaskin, & Stanton, 2016; Kioko et al., 2016; Munshi, Patel, Mazhar, Hassan, & Siddiqui, 2015). In spite of best practice recommendations, psychiatrists practicing in this setting were not screening for MetS in their patients taking antipsychotic medications.

To address the healthcare gap in practice, providers' adherence to MetS guidelines can lead to early identification of treatable metabolic risk conditions, management, referrals for treatment, improvement in patient quality of life, and reduction in healthcare costs. I believe that nursing staff are in the position to lead the way in metabolic control by educating identified patients about behavior changes and healthy life choices to enhance physical health and associated complications. The guideline recommends baseline monitoring at the initiation of an SGA, 3 months later, and annually thereafter. This scholarly project on educating psychiatric physicians and nurses has the ability to implement the recommended guidelines and to improve the care provided to people with mental illness taking SGAs.

Purpose

Antipsychotic medications are used in the treatment of mental disorders other than psychosis, such as bipolar, depression, and anxiety, because of fewer side effects associated with atypical antipsychotics. There is a long history of using antipsychotic medications in the treatment of other health problems with or without psychosis. MetS is one of the undesirable side effects associated with antipsychotic medications. Despite the benefits of an established protocol and screening tool to monitor MetS, there are healthcare disparities in screening and treatment of MetS among patients with mental illness. It should be a realistic expectation for psychiatric providers who prescribe antipsychotic medications to collaborate with family practice providers to facilitate appropriate monitoring and treatment for better patient health outcomes.

The focus of this project is to improve the knowledge of healthcare providers on the metabolic guidelines for screening, early intervention, and treatment among psychiatric patients. The goal is to improve patient care by increasing the knowledge of providers to adopt the best clinical practice guidelines for early detection and treatment of MetS in this vulnerable population.

The practice focused question is: Does an educational intervention for psychiatric providers prescribing psychiatric medications improve their knowledge and intent to adopt and implement metabolic screening guidelines in practice?

Nature of the Doctoral Project

I used several databases for the literature review for this project: MEDLINE, Pub Med, CINAHL, Google Scholar, and ProQuest. The keywords included in the search were *metabolic syndrome, antipsychotic medications, metabolic screening*, and *mental illness*. To meet inclusion criteria, the articles chosen were published in the English language in scholarly, peer-reviewed publications within the past 5 years. I reviewed guidelines from the ADA, APA, NACE, and North American Association for the Study of Obesity as well.

The setting for the scholarly project is a stand-alone local psychiatric in-patient center in the Midwest. The psychiatric center offers comprehensive inpatient psychiatric services for adolescents, adults, and seniors. The center is staffed by registered nurses (RNs), three advanced psychiatric nurse practitioners, and three psychiatrists. This scholarly project was implemented as in-service education for psychiatric providers, including the RNs, nurse practitioners, psychiatrists, the chief nursing officer, and the

medical director. I developed the educational materials and then presented to an expert panel to evaluate the appropriateness of the materials for the staff. The chief nursing officer and quality assurance manager gave approval to design and implement a 1-hour educational session with the healthcare team about the ADA recommendations for MetS screening in patients taking SGAs.

The project question helped to organize the more useful literature search results and contributed clear guidance in the process of planning, implementing, and evaluating a practice change in a clinical setting (Curtis, Fry, Shaban, & Considine, 2016). The goal of staff education is to improve patient care outcomes and achieve a standard of practice. A 30-minutes presentation along with a basic educational pamphlet (see Appendix A) about MetS, educational intervention objective (see Appendix B), and the ADA/APA consensus guidelines (see Appendix C) were provided to the team. The M-BACK (pretest and posttest) questionnaire (see Appendix D) assessed improvement in knowledge. The M-BACK is a reliable measure used to assess the effectiveness of interventions aimed at increasing uptake of metabolic monitoring (Watkins et al., 2017). An additional question was added to the posttest to ascertain respondents' likelihood of implementing MetS screening. Before the educational intervention, the participants completed an anonymous knowledge pretest. At the end of the educational intervention, the participants completed the posttest survey (see Appendix E) anonymously.

Significance

The goal of the scholarly project is to improve the knowledge of healthcare providers on the metabolic guidelines for screening, early intervention, and treatment

among psychiatric providers prescribing antipsychotic medications. The identified stakeholders in this project are the mentally ill patients on antipsychotic medications, the psychiatric providers, the nursing staff, and finally the leadership and policymakers that influence change in the hospital. The scholarly project will affect different stakeholders directly and indirectly. The identified stakeholders affected by the scholarly project were the psychiatric providers with prescriptive authority, the nursing staff, and the policymakers. The scholar believes that involving the stakeholders is crucial to the designing and implementation of a successful project. In the case of MetS screening and monitoring, involving the front-line nurses who will be the ones completing the vital signs and lab work is imperative. Empowering the frontline nurses to take ownership of the program is vital for the success of the project. The long-term benefit of monitoring MetS is for improved health outcomes, wellness, and, reduction in mortality and morbidity among psychiatric patients taking antipsychotic medications.

Significance to Nursing Practice

Mental illness is not only viewed per severity of the symptoms that are presented by the individual, it is also how the symptoms lead to impairment in the individual's functional ability. Antipsychotic medications noted as the FGAs developed in the 1950s are the first generation of drugs proven to be effective in treating psychiatric symptoms and are also used to treat other comorbid psychotic illnesses while SGAs emerged in the 1980s (AHRQ, 2015). Each class of antipsychotic medications has considerable overlap between them even though they have distinct side-effects profile. According to the Agency for Healthcare Research and Quality (2015), FGAs are effective in treating

psychosis but do not adequately improve symptoms of diminished emotional expression, such as avolition, alogia, and asociality. The FGA medications also produce significant extrapyramidal side effects such as akathisia, tardive dyskinesia, and neuroleptic malignant syndrome hyperprolactinemia, avolition, alogia, and anhedonia (AHRQ, 2015). Avolition which means a decrease in motivation. Alogia is diminished speech an output. Anhedonia is a decrease in the ability to experience a pleasure. Neuroleptic malignant syndrome (NMS), is a rare but life-threatening side effect of antipsychotic medication with symptoms of high fever, confusion, rigid muscles, variable blood pressure, sweating and increased heart rate (Hosseini & Elyasi, 2017).

The atypical antipsychotic medications known as SGAs have a significant advantage over FGAs and are more efficacious in treating psychiatric symptoms with more tolerable side effect profiles, improves negative symptoms, and causes less extrapyramidal symptoms (Xiang, Ungvari, Correll, Chiu, & Shinfuku, 2016). Even though the medications are known for their efficaciousness, they trigger weight gain, affect blood glucose and lipid levels, and eventually lead to MetS.

MetS increases among psychiatric patients taking second- generation antipsychotic (SGAs) medications and increases their risks for physical health issues including cardiovascular disease, leading to premature morbidity and mortality. The high mortality rate observed in psychiatric patients is due to comorbid health problems related to diabetes, stroke, and obesity and all point to MetS. Both atypical and typical antipsychotic medications have significant risks for MetS in people taking these medications. However, this monitoring is often neglected, putting these individuals at risk

for life-threatening complications. Yet, metabolic screening and monitoring remain low among psychiatric patients on antipsychotic medications putting these individuals at risk for life-threatening complications. As psychiatric providers prescribe antipsychotic medications known to have a connection with negative physical health outcomes, there is a need for them to be proactive and incorporate physical health treatment into their daily routine.

In today's healthcare delivery, there is a push to make 90% of clinical decisions based on best available evidence by 2020 (Warren, et al, 2016). To improve patient safety and quality of care, it is imperative for nurses to create a culture of evidence-based practice and base clinical decisions on evidence. Implementation of metabolic monitoring will improve patient outcomes by closing the gap between evidence and implementation in a clinical setting. Nurses are the frontline staff and have the potential to influence and shape healthcare systems in the country. Studies have shown that MetS is associated with an increased rate of deaths, decreased health outcomes and reduced lifespans among patients with chronic mental illness. Nurses should take the lead in educating psychiatric patients about healthy lifestyles that could reduce the risk of development of MetS, and improve their overall health. Nursing should understand that long-term effects of lack of metabolic monitoring include increased cost of healthcare spending, morbidity, mortality rate, chronic illnesses and decreased productivity of the workforce. With the evidence about MetS more common among psychiatric patients, there is a need to consider diagnosis and treatment of Mets concurrently with the management of psychiatric conditions (Penninx & Lange, 2018).

Implications for Social Change

Studies have shown that MetS is prevalent among psychiatric patients. As a result, there is a need to consider diagnosis and treatment of MetS simultaneously with the treatment of psychiatric condition in this population. Cunningham and colleagues (2018) found that metabolic monitoring aims to address these health disparities by screening for metabolic parameters and identifying abnormalities so that appropriate interventions will be implemented. Screening and monitoring of MetS among patients on antipsychotic medications will not only hinder complexity but will also prevent complications associated with the illness, improve patient outcome, quality of care and promote positive social change. Adherence to metabolic monitoring guidelines treatment will improve continuity and quality of care, which will lead to better patient outcomes, increased healthcare productivity, and cost effective for United State healthcare system and finally impact positive patient outcomes in the field of psychiatry. This is alignment with Walden University's mission of applying research to solve the programs in the world (Walden Report, 2017).

Summary

MetS is an emerging problem in healthcare among psychiatric patients taking antipsychotic medications. MetS is a major and escalating public health challenges worldwide. The combination of symptoms of high blood pressure, high cholesterol, high fasting glucose, and truncal obesity that lead to cardiovascular disease and/or a type of diabetes are associated with Mets. The major contributors to MetS are diabetes mellitus and hypertension, which are worldwide healthcare problems that affect millions of

people. The American Diabetic Association (ADA, 2018) reports $327 billion in annual costs for diabetes costs, which include $237 billion in direct medical costs and $90 billion in reduced productivity. It is estimated that the number of Americans with prediabetes will climb from 90.6 million in 2015 to 107.7 million in 2030 (Rowley, Bezold, Arikan, Byrne, & Krohe, 2017). It is estimated that the global prevalence of diabetes is high, 382 million people with diabetes in 2013, expected to rise to 592 million by 2035 (Forouhi & Wareham, 2014).

The long-term benefit of monitoring MetS is for improved health outcomes, wellness, reduction in mortality and morbidity among psychiatric patients taking antipsychotic medications. Screening for MetS in patients with severe mental illness will signify an improvement in inequality in healthcare for people with mental illness (Happell et al., 2016). To decrease morbidity and mortality, early detection, management and referrals are the long-term benefits of monitoring and screening MetS in this vulnerable population. Section 2 will address the background and context of this scholarly educational project.

Section 2: Background and Context

Introduction

Antipsychotic medications are used in the treatment of mental disorders other than psychosis, such as bipolar, depression and anxiety, because of the fewer side effects associated with atypical antipsychotics. MetS is one of the undesirable side effects associated with SGAs. Regardless of the global consensus for screening and monitoring MetS, the rate of testing remains poor, despite the clear relationship between MetS and SGAs (Happell et al., 2016; Kioko et al., 2016; Munshi et al., 2015). In spite of best practice recommendations, psychiatrists practicing in this setting are not screening for MetS in their patients who are on antipsychotics.

The focus of the project is to improve the knowledge of healthcare providers on the metabolic guidelines for screening, early intervention, and treatment among psychiatric providers prescribing antipsychotic medications. The goal is to improve patient care by increasing the knowledge of providers and their adoption of best clinical practice guidelines for early detection and treatment of MetS in this vulnerable population. The practice focused question was: Does an educational intervention for psychiatric providers prescribing psychiatric medications improve their knowledge and intent to adopt and implement metabolic screening guidelines in practice? Use of best practice guidelines should improve the screening rates and diagnosis/referral for MetS. Knowledgeable psychiatric nursing care will contribute to the adherence of patients in addressing self-care.

In the next section, I will further discuss the concepts, models, and theories; the relevance to nursing practice; the local background, and the role of the DNP student.

Concepts, Models, and Theories

The Lewin's theory of change model of 1974 was chosen to guide this project. Organizational change involves the movement of an organization from its current state to a desired future state. Lewin's theory supports changing a traditional pathway of unfreezing the current provider behaviors (movement) and reinforcing changes in organizational structure (refreezing). Lewin's theory supports changing the status quo. It is used to comprehend how professional behaviors become accepted and continuous in clinical settings. The theory is a model of organizational change used to guide the design and implementation of the change process.

Unfreezing is the first stage of implementation of change in an organization. The theory indicates that involving team members and stakeholders in implementing interventions and sustaining the project is critical. The transition will face less resistance if the stakeholders are empowered in authority and responsibility right from the planning phase. This is the phase of the project where I met with the stakeholders (providers, RNs, chief nursing officer, and the medical director) to educate them about the need for change and moving away from their status quo. I was the change agent who educated staff about the gap in practice. To gain the desired results from the proposed change, leadership involvement was critical; it became imperative to get their buy-in for the project. They, as the policy makers, established a clear vision of the change process and reinforced the benefits of the change to the patients.

The change phase was the transition phase, which included providing educational information on the importance of using evidence-based practice guidelines. The educational goal was to inform the staff about the gap in practice and the importance of the educational intervention and prescribers' responsibilities to protect the cardio metabolic health of the patients and promote better patient outcomes for this population. Awareness was created about the importance of screening for MetS among patients taking SGAs. Communication with staff members was imperative at this level in order for the providers to buy into the idea. If they understood the necessity and urgency of the behavior, they would be more likely to be receptive toward the change agent. Involvement of frontline staff from planning to implementation is the most effective strategy for overcoming resistance to change.

The final phase was the refreezing stage; it is also called the reinforcement phase. At this phase, an effort was made so that employees adopted the suggested change and dis not revert to their old ways. At this phase, the staff incorporated the change into their daily routine by monitoring patients for MetS, obtaining their vital signs, measuring weight and waist circumference, and obtaining basic lab work. Once MetS were identified, the providers/nurses should implement care and collaborate with family practice providers to facilitate appropriate primary care to decrease complications of chronic illness and reduce the rate of morbidity and mortality.

Key Concepts and Definitions

Table 1 illustrates the defining criteria of MetS according to National Cholesterol Education Program Adult Treatment Panel and IDF (Sulistiowati & Sihombing, 2016).

Table 1

Defining Criteria of Metabolic Syndrome

Criteria	Defining levels
Abdominal obesity Men Women	Waist circumference Greater than or equal to 102 cm (greater than 40 inches) Greater than or equal to 88 cm (greater than 35 inches)
Triglycerides	Greater than or equal to 150 mg (1.7 mmol/L) Or on medicines for the management of abnormal triglycerides
HDL cholesterol Men Women	Greater than 40 mg/dl Greater than 50mg/dl Or on medications for the control of abnormal cholesterol
Blood pressure	Greater than or equal to 130/85 mmHg Or on medications for the management of abnormal blood pressure
Fasting blood glucose	Greater than or equal to 110mg/dl Or on medicines for the management of abnormal blood glucose

Relevance to Nursing Practice

Ward et al. (2018) noted that poor health outcomes of people with mental illness are high, which reduces life expectancy by 17 years when compared to the general population. The life expectancy of people with mental illness is 25 to 30 years less than the general population (Pena, DeJongh, Haas, & Harms, 2018). According to Liu et al. (2017), the high mortality in patients suffering from mental illness is largely caused by preventable and treatable long-term diseases, especially cardiovascular disease. The adverse metabolic effects of atypical antipsychotics induce more weight gain and metabolic abnormalities. People with mental illness were 30% less likely to have their weight, blood glucose, and lipids assessed (Happell et al., 2016). Moreover, 20%–25% of the world's adult population has MetS, with higher rates among people with mental illness (Kioko et al., 2016). Mangurian et al. (2016) suggested that the rates of glucose

monitoring (fasting blood glucose) and lipids screening are as low as 30% among patients taking SGAs. Gardner-Sood et al. (2015) studied 450 randomly selected participants in an out-patient clinic and found that a majority of patients have central obesity, half the sample had a body mass index greater than 30 kg/m^2; 57% were diagnosed with MetS, and one in five met the criteria for Type 2 diabetes.

In a global study of 311 psychiatric patients taking SGAs, only 3.9% of the participants had fasting glucose monitoring, 1.8% had a fasting lipid test, and 0% had monitoring for waist circumference (Saloojeel et al., 2014). In a study of 50 psychiatric patients treated with SGAs, none had been previously screened for MetS by their psychiatrists even though 30% were positive for diabetes, 64.4% were diagnosed with hypertension, and 88% had increased cholesterol (Munshi et al., 2015). In their meta-analysis, Saloojeel et al. (2014) found that in five high-income countries (the United States of America, the United Kingdom, Australia, Canada, and Spain), routine baseline screening was above 50% for blood pressure and lipids only, while glucose and cholesterol were less than 50%.

Regardless of the global established consensus, research shows that the rate of screening and monitoring MetS remains poor and providers continue to show inadequate knowledge about MetS (Kioko et al., 2016; Lui et al., 2016). Evidence shows there is a lack of consistency in education about MetS, which leads to lower rates of screening and monitoring poor health outcomes for psychiatric patients (Łopuszańska et al., 2014; Munshi et al., 2015).

Gaps in Practice

A survey by Munshi and colleagues (2015) showed 50 psychiatric patients taking SGAs in a Canadian psychiatric hospital did not get screened for MetS syndrome. The outcome of the survey showed that the psychiatrists fail to conduct a complete MetS screening on the patients, even though the patients were positive for MetS. The ADA consensus guideline is still in place today. It still remains the responsibilities of psychiatric providers to follow the ADA recommended guidelines for MetS screening in patients taking SGAs (Gardner-Sood et al., 2015; Lopuszanska et al., 2014). Education still remains one of the factors for improving the rate of metabolic screening (Castillo et al., 2015).

Evidenced-based practice has become the cornerstone for healthcare practice. The scope and standards of psychiatric nursing is defined as a holistic approach involving the physical, mental, psychosocial, and spiritual needs of the patients (APNA, 2014). For nurses to provide the best practice, they are challenged to search for the best evidence to support patient assessment, intervention to develop policies and to refine old ones. With evidence-based practice, doctorally prepared nurses are situated to fill the gap that has developed in the healthcare system to serve those with mental illness who are at risk of adverse health outcomes (Bolton, Knight, & Kopeski, 2016). The Institute of Medicine (IOM) noted the gap between what we know and what we do in patient care. Nurses have the responsibility to bridge the research-practice gap. Even though there exists a practice guideline for metabolic monitoring of patients with mental illness taking antipsychotic medications, the monitoring in low in this population. Health promotion, prevention of

illness, and management of chronic diseases are some of the primary functions of doctorate-prepared nurses according to American Nurses Association (ANA, 2017).

The life expectancy and quality of life for people with mental illness will not improve if metabolic effects of antipsychotic medications go undetected. Screening for MetS in patients with mental illness will signify an equality in healthcare for people with mental illness (Happell et al., 2016). According to Cunningham and colleague (2018), implementation of MetS monitoring and screening addresses the health disparities among psychiatric patients so that appropriate interventions will be implemented for effective positive and social changes to improve patient outcomes. Lack of transforming guidelines into practice as seen in the lack of utilizing the MetS screening tool among psychiatric patients on SGA will prevent early diagnosis and treatment of MetS (Kioko et al., 2016). The project established a scholarly evidence-based project that supported the significance of screening and monitoring MetS in patients taking SGAs to improve patient outcomes by closing the gap between evidence and implementation in a clinical setting.

Barriers to Screening and Monitoring

Even though the evidence-based practice has shown to improve quality of care and patient outcomes, yet, there exist some barriers to implementation of research evidence in clinical practice. The application of evidence-based is not a linear process; it comprises many steps and relationships the between researcher and the knowledge users. Human beings are resistant to change in general. Change in any setting is often faced with resistance and can be challenging in nature. Despite the benefits of using screening tools to monitor MetS, barriers to screening still exit. The lack of adequate screening and

management of MetS is an indication that there are barriers to a successful implementation of the screening and monitoring of patients taking antipsychotic medications. There are three levels of barriers identified, which include providers, patients, and hospital.

Providers' Barriers

One of the major reasons associated with providers' barriers in the implementation of MetS screening and monitoring according to the established guideline is the inadequate knowledge about the screening. It was important that the healthcare providers became conversant with about the metabolic screening and monitoring process. Munshi and colleagues (2015) noted that psychiatric providers are not trained to provide basic primary care to psychiatric patients. Pena, DeJongh, Haas, & Harms (2018) stated that psychiatric providers have inadequate knowledge and awareness about the risk of MetS associated with SGAs. According to McKenna and colleagues (2014), there exists some confusion regarding who is responsible for screening MetS. Edelsohn and colleagues (2015), found that metabolic monitoring can be affected by a lack of obvious designated responsibility for recognizing and managing physical health problems and lack of integrated services.

Some psychiatric providers believed that it is not within their scope of practice to screen and manage MetS, while PCPs stated it was the responsibility of the psychiatric providers to monitor MetS in psychiatric patients. Another vital factor identified by psychiatric providers' poor adherence to established guidelines was an insufficient provider time in performing the assessment, interpreting lab values and educating patients

(Jeffrey, 2015). Poor communication between mental healthcare providers and primary care providers can lead to negative health outcomes associated with poor laboratory monitoring (Edelsohn, Parthasarathy, Terhorst, Karpov, & Schuster, 2015).

In a study by Mangurian and colleagues (2013), over 150 primary providers were surveyed; 100 reported that they believed it was the responsibility of the mental health provider to test for MetS in psychiatric patients taking SGAs. Education of psychiatric providers, PCPS, and frontline nurses is imperative to understand the importance of screening, monitoring, and management of MetS (Cohn, 2013).

Patients' Barriers

Failure to receive metabolic testing was most strongly associated with severity of psychiatric illness, patient characteristics such as cognitive dysfunction, lack of insight, judgment, delusions, hallucinations, paranoia and chronic mental illness (Morrato et al., 2016). Patients may not be compliant with blood work, blood pressure checks, and height, weight and waist circumference measurement due to a lack of insight, poor judgment, delusions, hallucinations, and aggressive behavior. The mental health patients may lack the insight into the relationship between their mental and physical conditions, and as a result, may be less likely to recognize their symptoms and are less likely to seek medical help.

Psychiatric Center's Barriers

Some mental health facilities are not equipped with resources needed to carry out the screening such as a weight scale, a blood pressure monitoring kit, and a tape measure. Munshi and colleagues (2015) indicated that another barrier hindering continuous

monitoring of MetS is the lack of integrated care between mental health and primary care. The patients often go from mental health provider to primary care, therefore incurring cost and at times may be lost in the healthcare system. Jeffery (2015) found out that limited access to primary PCPs and a poor referral system led to inadequate compliance by staff and patients in regard to lab work and any other recommendations. Most of the psychiatric patients are covered under Medicaid, with limited providers accepting patients with Medicaid, which increased their wait time for an appointment and thereby impeded continued monitoring.

Guidelines for Management of Metabolic Syndrome

According to Morrato and colleagues (2016), a decade ago, the American Diabetes Association (ADA), APA, American Association of Clinical Endocrinologists, and the North American Association for the Study of Obesity convened a conference on the subject of antipsychotic drugs and diabetes. The FDA established class warnings about an increased risk for hyperglycemia and diabetics with SGAs (Cotes et al., 2015). Around the same time, the ADA, APA, American Association of Clinical Endocrinologists, and North American Association for the Study of Obesity developed a consensus that recommended baseline screening and monitoring of metabolic risk for patients taking SGAs (Saloojeel et al., 2014; Cotes et al., 2015). The diagnosis of MetS included: increased waist circumference, raised blood pressure, increased triglycerides, decreased high-density lipoprotein (HDL) cholesterol and raised plasma glucose (Saloojeel et al., 2014). According to Ward and colleagues (2018), the guidelines

recommended that all patients prescribed antipsychotic medications should have metabolic screening completed every 3 months.

Guidelines for Metabolic Monitoring

According to Cotes and colleagues (2015) guidelines for the management of patients taking antipsychotic medications. The recommendations are, Baseline, assessment of personal, and family history, blood pressure, weight, waist circumference, fasting lipids, blood glucose,

Measure weight at 4 weeks and 8 weeks

Repeat labs at 12 weeks and yearly afterwards.

The guideline outlines the frequency of screening and all the necessary monitoring parameters that will guide mental health providers for screening, monitoring, diagnosing and treating of MetS in patients taking antipsychotic medications especially SGAs. Early screening of patients will help meet the Institutes of Medicine (IOM) objectives for health improvement, which are safety, timeliness, efficiency, effectiveness, equitable and patient-centered care (IOM, 2016).

The defining criteria for MetS is established by National Cholesterol Education Program Adult Treatment Panel (ATPIII) and IDF (Sulistiowati & Sihombing, 2016). The diagnosis of MetS is met when 3 of the 5 criteria; increased waist circumference, increased blood pressure, increased triglycerides, decreased high-density lipoprotein (HDL) cholesterol and raised plasma glucose are present in an individual (Saloojeel et al., 2014). Once the diagnosis or risk factor is identified, appropriate treatment modality should be initiated. Treating both psychiatric disorders and MetS is imperative to enhance

better treatment outcomes for both conditions by referring patients to appropriate providers. As prescribers of antipsychotic medications, is imperative to be aware of specific psychotropic medications that raise the MetS risk more than others do and to be able to adapt the prescription of a particular medication to the cardiovascular risk profile of patients (Penninx & Lange, 2018). It is vital for nurses to educate predisposed psychiatric patients to MetS unhealthy lifestyle such as smoking, excessive alcohol intake and their contributions to poorer cardiovascular health and an increased risk of MetS.

Follow-Up Monitoring for MetS

According to Table 2, if abnormality is noted in any of the parameters, there are different treatment options to choose from; switch to a less risky agent, decrease the dosage of the medication, discontinue the medication, recommend healthy life style changes, and make referral for diabetes, lipid and weight management. Table 1 illustrated the recommended guidelines for baseline and continues monitoring of MetS.

Local Background and Context

The setting for the scholarly project is an in-patient urban psychiatric Center located in the Midwestern part of the country. The Center has three psychiatrists, three psychiatric nurse practitioners (NP), and many RNs. The hospital has other departments such as social work, psychology, and counseling. The medical director is a psychiatrist who oversees the clinical operations of the hospital and policy development. The psychiatrists and NPs are the ones that diagnose, treat, and discharge patients in this hospital. The setting is a 60-bed acute care psychiatric Center that treat adolescents, adults and seniors. The Center has discharges and admissions on a daily basis. On a

typical day; they discharge at least five patients and admit five new patients. The RNs are responsible for taking care of the patients on the unit. Most of the patients are low income, uninsured, underinsured, and rely on Medicaid coverage. The population seen in this psychiatric Center is diverse but predominantly from minority groups.

The Center does not have any established protocol for monitoring MetS on patients that are taking antipsychotic medications. Regardless of the recommendations, metabolic disorders are still under-diagnosed and most of the time ineffectively treated in patients with mental illness (Munshi et al., 2015; Kioko et al., 2016). The prevalence of MetS among this population increased their risks of morbidity and mortality compared with the general population. According to Richardson, Lee. Kalarchian, & Ren, (2016), 31% to 34% of the mentally ill population die from cardiovascular disease as a result of MetS. In a study of 50 psychiatric patients who were treated with SGAs, none of these patients had been previously screened for MetS by their psychiatrists even though 30% were positive for diabetes, 64.4% were diagnosed with hypertension, and 88% had increased cholesterol (Munshi et al., 2015). Adequate monitoring of MetS and its associated complication is necessary among psychiatric patients taking antipsychotic medications to reduce the occurrence of MetS.

In this local psychiatric Center, a large number of patients on antipsychotic medications meet the criteria for MetS. One of the identified issues is lack of knowledge and who should monitor the MetS. The psychiatric providers are counting on the family practice to monitor for MetS. It is the providers' responsibility for prescribing SGAs along with monitoring the metabolic abnormalities associated with the medications. The

goal of the educational intervention is to educate the psychiatric providers and nursing staff about the importance of early detection and intervention to alleviate these health problems associated with MetS.

Role of the DNP Student

It is a challenging and complicated process to bring evidence-based practice to clinical practice. The best quality evidence will be of no use unless incorporated into clinical practice. Improvement in healthcare outcomes and reduce cost of healthcare spending will be achieved with patients receiving evidence-based care. The organizational and systems leadership by nursing plays an integral part in the implementation of evidence-based practice in healthcare and is vital in creating an effective team to enhance the quality care and safety of their patients. As noted in AACN (2006), the mission of Walden University is to produce doctorally-prepared nurses with

the knowledge and skills to positively lead the nursing profession in producing quality patient outcomes. The American Association of Colleges of Nursing (AACN, 2006) endorsed a need to enhance knowledge to improve nursing practices and patient outcomes; this coincides with Walden's social change, which implies that a positive social change results in the improvement of human and social conditions. Improved competencies for increasingly complex clinical, faculty, and leadership roles; advanced leadership skills, and clinical instruction by AACN (2006) coincides with Walden University visions of positive change in advancing greater global health. The scholarly project is aligned with the AACN (2006) goal and that DNP prepared nurses have the knowledge and skills to eliminate health disparities and to promote patient safety and

excellence in practice. The DNP graduates are able to assess risk and collaborate with others to manage risks ethically, based on professional standards. Adherence to mental health treatment will improve continuity and quality of care, which will lead to better patient outcomes, increased healthcare quality, and cost-effectiveness for the United States healthcare system. I hope to use the knowledge to influence positive patient outcomes in the field of psychiatry. The determination of the need for this educational intervention occurred through a needs assessment during my clinical rotation, which took place at the unit through collecting and reviewing data.

At the same time, I wanted to understand the providers' viewpoint of metabolic screening because, regardless of the agreed upon guideline. The rate of screening remains low and the long-term effects on patients' health are being ignored. It was noted that the providers did not order baseline blood work; staff nurses do not obtain vital signs, weight, height and waist circumference prior to initiation of SGAs in psychiatric patients. I approached the chief nursing officer and the medical director, who is a psychiatrist, about the identified problem of not following the established MetS monitoring guideline in the Psychiatric Center. The overall goal of the DNP student was to educate the psychiatric providers about the relevance of MetS screening and monitoring in mentally ill patients taking antipsychotic medications. Early detection is vital to lower cardiovascular risk and to improve patient health outcomes. The DNP project intervention was to present education to psychiatric providers via PowerPoint with the objective of increasing their knowledge and identification of MetS in this vulnerable population for better health outcome.

Summary

SGAs are used to manage different psychiatric conditions even though they have the tendency to cause weight gain, which predisposes patients to altered glucose and lipid metabolism leading to MetS. There is a globally recommended guideline for screening and monitoring of patients prescribed SGAs for MetS. Despite the screening and monitoring in Psychiatric Centers.

The focus of this project was to educate providers and staff on using the best practice guideline that will improve the screening of patients on SGAs for MetS and to improve health outcomes of patients who have mental illness. According to the AACN (2006), "integration of these new or refined skills improves outcomes through organizational/systems leadership, quality improvement processes, and translation of evidence into practice (pp. 10). The DNP educational intervention supports nursing scholarship by initiating a change process in the organization based on research evidence. It integrated patient outcomes and safety as the driving forces in quality and patient satisfaction was aimed at education regarding the importance of screening and monitoring for MetS in patients taking SGAs in order to improve patient outcomes by closing the gap between evidence and implementation in a clinical setting.

Section 3 will review the plan for collection and analysis of evidence.

Section 3: Collection and Analysis of Evidence

Introduction

SGAs are used in the treatment of mental disorders other than psychosis, such as bipolar, depression, and anxiety, because of fewer side effects associated with atypical antipsychotics. MetS is one of the undesirable side effects associated with antipsychotic medications. Regardless of the global consensus for screening and monitoring MetS, the rate of testing remains poor, despite the relationship between MetS and antipsychotic medications (Happell et al., 2016; Kioko et al., 2016; Munshi et al., 2015). In spite of best practice recommendations, psychiatrists practicing in this setting are not screening for MetS in their patients prescribed SGAs.

The focus of the intervention was to improve the knowledge of healthcare providers on the metabolic guidelines for screening, early intervention, and treatment among psychiatric providers prescribing antipsychotic medications. The goal was to improve patient care by increasing the knowledge of providers and their adoption of best clinical practice guidelines for early detection and treatment of MetS in this vulnerable population. The practice-focused question was: Does an educational intervention for psychiatric providers prescribing psychiatric medications improve their knowledge and intent to adopt and implement metabolic screening guidelines in practice? Use of best practice guidelines should improve the screening rates and diagnosis/referral for MetS. Knowledgeable psychiatric nursing care will contribute to the adherence of patients in addressing self-care.

The goal of the educational intervention was to increase adherence to metabolic screening by healthcare providers. According to the National Health Service, brief educational interventions are a common method to engage nurse practitioners in thinking about ways to change their practice to improve health outcomes for patients (White, Hemingway, & Stephenson, 2014). The implementation of evidence-based metabolic screening will be the cornerstone for improving future care for psychiatric patients.

Practice-Focused Question

The project will improve the care provided to mentally ill patients taking antipsychotic medications by improving screening rates, diagnosis, and referral of MetS. The practice-focused question is: Does an educational intervention for psychiatric providers prescribing psychiatric medications improve their knowledge and intent to adopt and implement metabolic screening guidelines in practice?

Program Design

The purpose of the scholarly project was to educate and improve the knowledge of healthcare providers on the metabolic guidelines for screening, early intervention, and treatment for psychiatric patients prescribed SGAs. The education included an established screening tool from the Missouri Department of Mental Health for MetS (see Appendix F). The guideline outlined the frequency of screening and all the necessary monitoring parameters that will guide mental health providers in screening, monitoring, diagnosing, and treating MetS in patients taking SGAs. The project is not connected to patients directly. It is about educating healthcare providers on the use of the tool to

implement the treatments and reduce the MetS risk and subsequent diseases among patients with severe mental illness.

The setting for the project was an in-patient acute care psychiatric center that targets an adult population. The population for this project was the psychiatric providers and registered nurses caring for mentally ill patients taking SGAs. Staff education was provided to healthcare providers that included three psychiatrists, three psychiatric nurse practitioners, and registered nurses. The staff were given the option to participate in the educational intervention (see Appendix A) and complete the pretest, posttest assessment (Appendix D) at the end of the intervention. Permission from Andrew Watkins to use the survey is shown in Appendix G. The pretest consisted of five multiple-choice questions about the content of the educational intervention and the questionnaire designed for the prescribers to solicit if they monitor their patients for metabolic abnormalities. An evaluation questionnaire was geared toward the importance of the education to their practice. At the end of the educational presentation, participants were required to complete the posttest, which was a duplication of the pretest and the post-evaluation survey (see Appendix E).

Sources of Evidence

Several databases were used for the literature review including MEDLINE, Pub Med, Psych INFO, Nursing, and Allied Health database, and CINAHL and Google Scholar. In reviewing literatures, particularly in patients taking antipsychotic medications, the keywords included, metabolic syndrome, antipsychotic medications, metabolic screening and mental illness, obesity, and diabetes. In other to meet the

inclusion criteria, the articles chosen for the project were published in English language, scholarly, peer reviewed journals within the last 5 years. For the literature review, a total of 30 articles were identified and examined. The providers and the nursing staff were taught by PowerPoint and verbal presentation about the prevalence, risk factors and implications of MetS in patients with mental illness. The education was delivered on-site to providers and nursing staff. Prior to the presentation, the educational flyer (see Appendix H) was disseminated to the healthcare staff via e-mails a week before the presentation. The educational intervention included information on the rationale for obtaining BMI, weight, height, required labs, and a referral to a PCP when patients are prescribed SGAs.

Data Collection

The data for the DNP project will be collected from the psychiatric providers using the pretest/posttest M-BACK questionnaire (Watkins et al., 2017) to evaluate the educational module for MetS risk factors, screening, monitoring, early intervention and referral for treatment. The M-BACK questionnaire is a reliable tool to measure practitioners' barriers, knowledge and confidence regarding MetS screening in patients with mental illness (Watkins et al., 2017). The panel of experts are had over 10 years of experience in caring for psychiatric patients and they included a nurse educator, a nurse manager, two nurse practitioners and a psychiatrist. A comparison was made to determine the likelihood of the providers screening and monitoring for MetS in their clinical setting after attending the educational session. The surveys were anonymous and are being kept in a locked drawer.

Descriptive statistics were used in analyzing the data. The education was presented to the nursing staff during their staff meeting as recommended by the expert panel.

Protections

The educational session was held at a local psychiatric Center in the Midwest. There is no disclosure of the participating providers or their place of practice. A consent from the chief nursing officer for project implementation was obtained by me. Patients were not part of the project and there was no risk to healthcare providers attending the educational intervention. The psychiatric providers and the registered nurses had a choice to participate and complete the pretest, posttest and evaluation survey, which implied consent. The Walden University Institutional Review Board (IRB) approved the project (IRB approval # 05-21-19-0761020) prior to project implementation. There was no compensation for attending the educational session; rather, I provided snacks to the participants to show appreciation. The completed pretest, posttest, and evaluation surveys will be stored in accordance with IRB requirements and kept confidential in a locked box. Individual responses on the surveys were anonymous.

Analysis and Synthesis

The data from the survey were analyzed using descriptive analysis. The goal of the project was to educate the healthcare providers about the implementation of metabolic screening (MetS) based on current guidelines, including referring patients to primacy care providers for treatment of Mets if needed. A pretest and posttest were administered to providers to determine knowledge of metabolic screening guidelines before and after the

educational intervention. The pretest took at least 5 minutes to complete. A MetS pamphlet (see Appendix A) along with MetS screening tool was provided to participants based on established MetS screening guidelines. After the educational intervention, a post survey, which focused on the information presented in education and handout about MetS was provided to the participants. After collecting the pretest, the PowerPoint educational intervention (see Appendix I) was provided in a 30 minutes period succeeding a 15 minutes period for questions and answers.

Summary

SGAs are widely used in the management of different psychiatric conditions because the medicines are effective in managing psychiatric symptoms with more tolerable side effects. However, antipsychotic medications have a weight gain tendency, which predisposes patient to altered glucose and lipid metabolism resulting in MetS. MetS is a combination of risk factors that put an individual at risk for cardiovascular diseases, which are the leading cause of premature death in the United States. There is a globally recommended guideline for screening and monitoring of patient on MetS. Despite the screening and monitoring guideline, there is a continued lack of screening and monitoring of patients taking antipsychotic medications in Psychiatric Center. The focus of this project was to develop recommended strategies to improve the screening of patients on antipsychotic medications for MetS and to improve health outcomes of patients who have mental illness. The educational intervention for providers about the importance of screening for MetS was cost-effectiveness as early identification and treatment of chronic diseases may avoid future complications and resulting costs. Section

4 describes the findings from the five expert panelists, and the findings and recommendations derived from the analysis of the educational project.

Section 4: Findings and Recommendations

Introduction

The local problem identified for this scholarly project was lack of adherence to practice guidelines for MetS screening and monitoring by psychiatric providers. The gap in practice was lack of metabolic monitoring and screening among psychiatric patients taking antipsychotic medications. Regardless of the global consensus for MetS screening and monitoring, and despite the relationship between MetS and SGAs, the rate of testing remains poor (Happell et al., 2016).

The association between antipsychotic medications and MetS is complex. As the literature review revealed, MetS can lead to chronic diseases, such as heart disease and diabetes, which are responsible for seven out of 10 deaths among Americans each year and account for 75% of U.S. healthcare spending (CDC, 2017). The education will improve patient care by increasing the knowledge of providers and their adoption of best clinical practice guidelines for early detection and treatment of MetS in this vulnerable population. The purpose of this DNP project was to implement an educational intervention to educate healthcare providers about the importance of MetS among patients taking SGAs.

Findings and Implications

The setting for the scholarly project was an in-patient psychiatric center in the Midwest. The MetS toolkit (see Appendix F) was created to provide participants with a handout on critical information regarding MetS intervention. Five expert panelists were selected to review the educational content and provide feedback using a Likert-type

questionnaire. The selected five expert panelists chosen for the educational material review comprised of one psychiatrist, two psychiatric nurse practitioners, one nurse educator, and one charge nurse. The chosen panel of experts had over 10 years of experience in psychiatric mental health. The Likert-type questionnaire (see Appendix D) was used by the expert panelists in reviewing the educational contents. The questionnaire included five questions with the following answer options: strongly agree, agree, neutral, disagree, and strongly disagree. The sixth question was an open-ended question for comments or recommendations.

The educational material (see Appendix I) was presented to the five panelists for their appraisal and recommendations. The expert panelists were given the opportunity to review the educational content for relevance to patient care and usefulness to the psychiatric center. The findings of the panelists indicated the contents about risks associated with MetS were easy for providers to understand, and the contents met the educational objectives (see Appendix B) of the project. The findings from the intervention resulted in the acceptance of the educational content by the panel of experts. The experts did not make any further recommendations.

The educational intervention may result in improved outcomes for psychiatric patients taking SGAs. The organization may benefit by incorporating the education into annual staff training, which may lead to an increase in referrals for metabolic follow-up to other specialties of the organization if the program is successful. The major implication is the reduction in healthcare costs, prevention of chronic illnesses, and improvement in the quality of life for psychiatric patients.

Table 2

Results of the Expert Panelist Questionnaire

Questionnaire Item	Response				
	SA	A	N	D	SD
Do the planned educational materials meet the objectives of the project?	5 100%				
The educational content is simplified for providers' understanding.	5 100%				
Will the educational content improve providers' knowledge about the importance of metabolic screening among psychiatric patients taking antipsychotic medications?	5 100%				
Will it be beneficial to make the education content part of providers' annual training?	5 100%				
The measure of providers understanding of the education content will be measured by the outcomes of the posttest.	5 100%				

Note: N = 5; SA = strongly agree, A = agree, N = neutral, D = disagree, SD = strongly disagree

Implementation

A total of 12 participants attended the educational session presented to staff on MetS. The participants comprised of three psychiatrists, a psychiatric nurse practitioner, one nurse educator, six RNs, and one psychiatric technician. Both pretest and posttest questionnaires were identical and they used a 5-point Likert scale in which the participants were asked to circle the appropriate answer to indicate their chosen response to the questions. This process gave me the opportunity to determine the participants' changes in knowledge before and after participating in the educational intervention. The staff members were informed that participation in the educational project was voluntary. Before the educational presentation, a pretest M-BACK Likert-type questionnaire (see Appendix D) was given to the participants, which took about 5 minutes to complete.

After collecting the pretest from the participants, the educational intervention was presented via PowerPoint presentation (see Appendix I). The presentation lasted about 30 minutes and was followed by a period for questions and answers. The posttest questionnaire (see Appendix D) focusing on the educational information and making a change in practice, the MetS screening form (see Appendix F), and the ADA–APA consensus guidelines (see Appendix C) were provided to the participants.

Table 3

Pretest and Posttest Intervention Results about MetS, n =12, (in percentage)

Question	Pretest	Posttest
I have good knowledge of MetS.	8.3%	83.3%
I understand how to screen for MetS.	16.7%	75.0%
My work prevents me from doing any health promotion activities with consumers.	33.3%	41.7%
I understand the metabolic side effects profile of different neuroleptic medications.	25.0%	66.7%
Metabolic health screening is an important part of my role as a mental health clinician.	25.0%	75.0%

Note: $N = 12$

Descriptive Data Analysis

Upon reviewing the results of the data collected from the educational intervention of pretest and posttest. Based on the small sample size of the study, the result of the responses was entered in a table format. In observing the answers between the pretest and posttest to determine whether the answers changed after the educational program which shows a significant change. The following represents the presentation of the results and findings.

Before the educational program, question #1 statement “I have good knowledge of MetS,” the pretest answers showed 8.3% of the participants strongly agreed. After the

educational intervention, the posttest showed 83.3% of the participants strongly agreed with the statement. The result showed the effectiveness of the educational intervention. Please refer to table 3 for comparison of the pretest and posttest scores. In response question 2 statement, “I understand how to screen for MetS? 16.7% of the participants strongly agreed before the educational intervention and 75.0% of the participants strongly agreed after the educational intervention. The third prompt related to whether their work prevented them from doing any health promotion activities with consumers. The responses on the pretest and posttest were similar with 33.3% of the participants agreeing before the educational intervention and 41.7% agreeing after the educational intervention. The question may have been confusing because it did not specify physical activity. If the participants perceived physical activity to be workout exercise, it would likely influence their responses. The responses may have resulted from lack of question clarity. The fourth prompt related to understanding the metabolic side effects profile of different neuroleptic medications. Based on the analysis, the overall response of the participants indicated an improvement in knowledge about metabolic side effect profiles after the educational intervention, with 25.0% strongly agreeing on the pretest and 66.7% strongly agreeing on post education. The fifth prompt related to the role of healthcare clinicians in metabolic screening. Based on the analysis, the participants’ knowledge improved about the importance of metabolic health screening as part of their roles. The pretest number of participants who strongly agreed with the statement improved from 25.0% to 75.0% on the posttest. The overall result showed the effectiveness of the educational intervention.

Implications to Positive Social Change

According to Aselton, Joerg, and Affenito (2013), doctorate-prepared nurses (DNP) are in the position to influence health policies which will lead to a significant transformation in the healthcare system. One of the objectives of the clinical preventive services is to reduce the rate of disability, cost of healthcare, death and improve the health of the nation. The clinical preventive services are important to accomplish the "Healthy People" national the goal, which is promoting the health outcome of the nation. In alignment with the national calls for action and the need for health promotion and disease prevention, The DNP prepared nurses are in the position to utilize prevention and population health principles in inter-professional teams to effects health outcomes. The Psychiatric Center can use the project as a reference to develop providers' annual training on MetS. It will lead to a greater awareness among nursing staff about the importance of monitoring for hypertension in each patient that attends the Psychiatric Center. The longer-term implication of the educational study is that monitoring of MetS in psychiatric patients taking anti-psychotic medications will prevent complications associated with MetS, improve patient the outcome, reduce healthcare cost, and finally impact positive social change in the field of psychiatry.

Recommendations

The outcome of the questionnaires strongly suggests that the educational intervention had an effect on the providers' knowledge level and their willingness to screen for MetS on psychiatric patients taking antipsychotic medications. The registered nurses clearly understand their role and ability to help patients that may be at risk for

MetS by encouraging them to be compliant with lab draws, counseling them on physical activity and a healthy diet for weight. From the results of the DNP project, few recommendations for psychiatric providers in MetS screening and monitoring were noted. For all psychiatric providers working at the Psychiatric Center, educational programs specific to MetS screening and monitoring need to be provided annually to staff by the education department. This education needs to include not only screening and monitoring but also early intervention, collaboration, and referral to expert providers. Second, evidence-based guidelines and tools need to be adopted by the psychiatric providers to help manage MetS among these vulnerable population. This project shows that continuous education is critical for providers to be abreast with new research in healthcare for better patient outcomes. Third, the nursing staff should endeavor to obtain the necessary lab work and vital signs when ordered by the providers. Fourth, considering monotherapy once the risk factor is identified if a patient in on more than one antipsychotic medication, switching to medication with less weight gain profile.

Strengths and Limitations of the project

Strengths

There are several strengths and limitations to my DNP scholarly project. One of the major strengths of the project is that the educational project was developed based on currently available evidence and established global consensus for the management of MetS among people with mental illness. One strength for the implementation of the educational project was the support from the frontline registered nurses who worked on the unit. The frontline nurses who participated in the educational intervention acquired

some knowledge about MetS which will affect their nursing practice in a positive manner.

Limitations

There were several limitations to this educational project which include, a convenience sample of 12 participants was utilized for the educational project; as a result, the conclusion cannot be generalized. According to Faber, & Fonseca (2014), a small sample size of 12 participants might not be able to be generalized to the general population. The posttests were given immediately after the intervention as well as the post survey. The data collected after the educational intervention represent the views of a specific group and not the entire providers in the hospital. There are several parameters to be evaluated for the metabolic screening which could lead to a poor result. The psychiatric providers that prescribe medications depend on the nurses or other healthcare workers to administer the screening tool. Button, Ioannidis, Morass, and Nosek (2013), found that a convenience sample of 12 participants will affect the reliability of the study.

Summary

Overall the staff felt that the educational program increased their knowledge about the screening and monitoring of MetS prior to taking the educational intervention. Prior to initiation of the educational project, the pretest questionnaires show significant variation in knowledge level psychiatric providers. After the educational program, psychiatric providers had the basic knowledge and understanding of the importance of screening psychiatric patients on antipsychotic medications for MetS. The educational project was first presented to five expert panels for feedback using the Likert-type

questionnaire. Then the education was presented to the psychiatric providers, the pre-and posttest intervention signified improved knowledge about the importance of MetS screening and its' associated complications. Section 5 will include an analysis of self and the dissemination plan for the project outcome.

Section 5: Dissemination Plan

Introduction

The results of the educational project were positive and were disseminated to the medical staff of the hospital, which comprised of nurse practitioners, psychiatrists, and nursing staff. Based on the nature of the project, the appropriate audience for education were psychiatrists, psychiatric nurse practitioners, and RNs. Dissemination to this group of people was important to educate them to apply the evidence related to MetS in clinical practice for improving patient outcomes. I will offer a presentation to the leaders of the hospital and future presentation opportunities to present may arise as a result of the leadership presentation. Educational settings, such as conferences or in-services at a healthcare organization, would be appropriate for the dissemination of the project information about clinical practice adherence to a global consensus guideline. Finally, the ProQuest database is the avenue to disseminate the educational project for the broader nursing profession.

Analysis of Self

Obtaining a terminal degree in nursing will be fulfilling for me both personally and for my professional advancement. On a personal level, the scholarly project challenged my intellectual ability and fulfilled one of my long-term goals, which was to advance my nursing knowledge. Professionally, with the educational opportunity, I have enhanced my leadership skills and gained knowledge in advancing nursing practice, quality improvement, and healthcare policy.

Nurses are the key to improving quality and providing cost-effective care to enhance population health. As a practitioner and a scholar, prior to this project, my experience in leading a healthcare team in system change was limited. The scholarly project process provided me with the knowledge and skill sets to lead in any organizational change. Engaging the stakeholders and end users early in the project was the driving force that led to acceptance, assisted in achieving buy-in, and promoted commitment to the project. Before the implementation of any change, it is imperative to understand and identify the gap between recommended practice and the status quo. The completion of the assessment assisted me in identifying the actual and potential barriers to project implementation and the key staff who could assist to bridge the gap. After the project, I consider myself an expert in assessing organizational needs, identifying system issues, facilitating organization-wide changes in practice delivery, and assuming leadership roles in every level of nursing.

Leadership

It is well known that mental health services have been an area that has received less attention in medicine as compared to other health problems like cancer and cardiovascular disease. My goals as a practitioner and leader are to continue advocating for the integration of evidence-based practice and the global consensus for screening and monitoring MetS among psychiatric patients. I planned to continue advancing my profession by supporting research and creating a culture of evidence-based practice that will support clinical decision making. I planned to continue initiating change in the organization that is based on the research evidence and to integrate patient outcomes and

safety as a driving force in quality and patient satisfaction. The scholarly project gave me the perspective on the amount of work involved in project development and change in policy, the relationship between research and practice, and the time it takes for research results to be implemented in clinical practice. I planned to extend this project beyond my doctoral education by presenting to local psychiatric nurse practitioner organizations in the Midwestern part of the United States.

The challenges I experienced with the project were time management, balancing project work, personal life, and my job. The solution I created for time management was allocating a specific time frame for school work with no interference. I feel self-discipline can be achieved by creating a schedule, managing time effectively, and developing an effective habit. Scheduling a specific time for staff education was challenging. The psychiatrists and the nursing staff were busy, the educational program took time away from patient care. The insights gained from the scholarly educational project was the amount of time and the dedication that goes into project development.

Summary

The purpose of this DNP project was to implement an educational intervention to educate healthcare providers the importance of MetS on patients taking SGAs at an In-Patient Psychiatric Center in the Midwestern part of the U.S. I conducted a needs assessment in the Psychiatric Center, which indicated the gap-in-practice and lack of metabolic monitoring and screening among patients taking SGAs. Lack of monitoring for MetS increased the risk for the population served at the Psychiatric Center to develop chronic health problems; making it imperative for psychiatrists and nursing staff to

understand how to screen for MetS, manage, and refer as necessary. After the educational intervention, nurses gained basic knowledge and an understanding of the importance of metabolic screening. The project was effective as after the educational intervention, staff indicated their willingness to screen for MetS according to the established consensus guideline. Providers learned about the importance of screening for MetS and long-term cost-effectiveness will be attained through early identification and treatment of resulting chronic diseases, and avoidance of future complications and associated costs.

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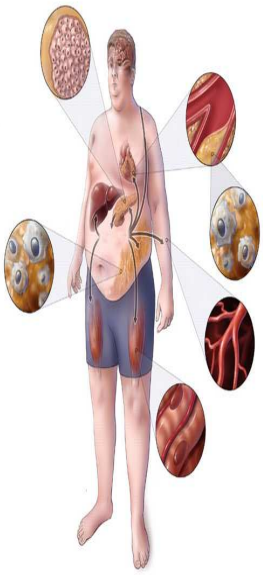
Appendix A: Metabolic Syndrome Pamphlet

SYMPTOMS OF METABOLIC SYNDROME



IF YOU HAVE ANY THREE OF THE FOLLOWING SYMPTOMS:

- BLOOD PRESSURE HIGHER THAN 130 OVER 85
- FASTING BLOOD SUGAR OVER 100
- A WAIST LARGER THAN 40 INCHES FOR MEN OR 35 INCHES FOR WOMEN
- HDL CHOLESTEROL UNDER 40 FOR MEN AND UNDER 50 FOR WOMEN
- TRIGLYCERIDES OVER 150

Marina Del Rey Hospital
A CEDARS-SINAI AFFILIATE

THE METABOLIC SYNDROME

The "Not-So-Good News"

- 50 million Americans have the syndrome
- It increases your risk of heart disease, stroke, and diabetes
- Eighty percent (80%) of people with type 2 diabetes have this problem

You have the metabolic syndrome if you have any THREE of the following:

RISK FACTOR*	PROBLEM LEVEL
Large waist (Stomach)	Waist Size
Men	40 in. (>102 cm) or more
Women	35 in. (>88 cm) or more
High Triglycerides	150 mg/dL or higher
Low HDL-C (Good Cholesterol)	
Men	Less than 40 mg/dL
Women	Less than 50 mg/dL
High Blood Pressure	130/85 or higher
Diabetes or Prediabetes	126 mg/dL or higher (fasting) 100 to 125 mg/dL (fasting)

*Also count as a risk factor if you are being treated for any of these conditions.

The "Good News"

- Modest weight loss (15 pounds or 7% of your body weight)
- Being active (30 minutes or more at least 5 days a week), and
- Eating healthy foods in the right amounts at the right time

all help to lower your waist size, blood pressure, blood sugar, and cholesterol.

Medicine can help, but it can't do it alone. To stay healthy and lower your risk for the metabolic syndrome:

1) Watch your weight, 2) Be active often, and 3) Eat healthy foods

Talk to your doctor or diabetes educator for more information.

Appendix B: Educational intervention Objectives

Goal of the project: Is to provide psychiatric clinicians with knowledge about metabolic screening and monitoring of psychiatric patients taking antipsychotic medications and the need to reduce metabolic risk. This education can lead to improvement in the rate of screening and early intervention among this population.

Target Audience: Psychiatrists, Psychiatric-Mental health NPs, psychiatric nurses, and Nurse Educators working with people with mental illness.

Learning Objectives:

1. Describe defining criteria of Metabolic syndrome and basic benefits of metabolic screening for patients taking antipsychotic medications.
2. Describe the national established practice guideline for Metabolic screening and
3. monitoring of patients taking antipsychotic medications, mainly second-generation antipsychotic (SGA) medications
4. Describe the risk factors associated with metabolic syndrome.
5. Describe gap in practice and barriers in implementation of metabolic screening
6. in psychiatric patients on antipsychotic medications.
7. Interprofessional Collaboration for improving patient and population health.

Appendix C: ADA–APA Consensus Guideline

	Baseline screening	4 weeks	8 weeks	12 weeks	Quarterly monitoring	Annual monitoring	Every 5 years monitoring
Personal/family history	X					X	
Weight and height for calculation of BMI	X	X	X	X	X		
Waist circumference at the level of the umbilicus	X					X	
Blood pressure	X			X		X	
Fasting plasma glucose	X			X		X	
Fasting lipid profile	X			X			X

Appendix D: Pretest/Posttest (M-BACK) Questionnaire

Specialty Area: Please circle one specialty that identifies your profession.

Psychiatrist Psychiatric- NP Nurse Educator Psychiatric Nurse Other _____

1. I have a good knowledge of metabolic syndrome.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I understand how to screen for metabolic syndrome.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. My workload prevents me doing any health promotion activities with consumers.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I understand the metabolic side-effect profiles of different neuroleptic medication.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. Metabolic health screening is an important part of my role as a mental health clinician.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix E: Post Survey

1. The educational materials about metabolic syndrome, do you plan to apply this in your job?
2. Will you consider adopting a structured system for monitoring metabolic syndrome among patients on antipsychotic medications?
3. Will you consider a collaborative relationship with family practice to facilitate care for patients on antipsychotic medications?
4. Was the room temperature and lighting comfortable?
5. Any other suggestion that should be included in the education of metabolic syndrome
6. Any suggestion/comment

Appendix F: Metabolic Syndrome Screening Form

Patient Name _____ Date of Visit _____

Metabolic syndrome considered positive if 3 or more risk criteria present

Measure	**Risk Criteria**	**Baseline**	_/_/_	_/_/_	_/_/_	_/_/_	_/_/_
Abdominal Obesity	Men >40 inches Women > 35 inches						
Triglycerides	≥150mg/dl						
HDL Cholesterol	Men < 40 mg/dl Women < 50mg/dl						
Blood Pressure	≥ 130/≥85 mmHg						
Fasting lipid glucose	≥ 100mg/dl						
Wt./BMI	BMI ≥ 30						

Lipid Monitoring Results

	Baseline	__/___/__	__/___/__	__/___/__	__/___/__	__/___/__
Total						
LDL						
HDL						
TG						

Serum Lipid Reference Range

	Optimal/desired	**Near/above desired**	**Borderline**	**High**	**Very high**
Total	< 200		200-239	≥ 240	
LDL	< 100	100-129	130-159		≥ 190
HDL	< 40 men < 50 women			≥ 60	
TG	< 150		150-199	200-499	≥ 500

www.cqaimh.org/pdf/tool_metabolic.pd

Appendix G: Approval Letter

To whom it may concern,

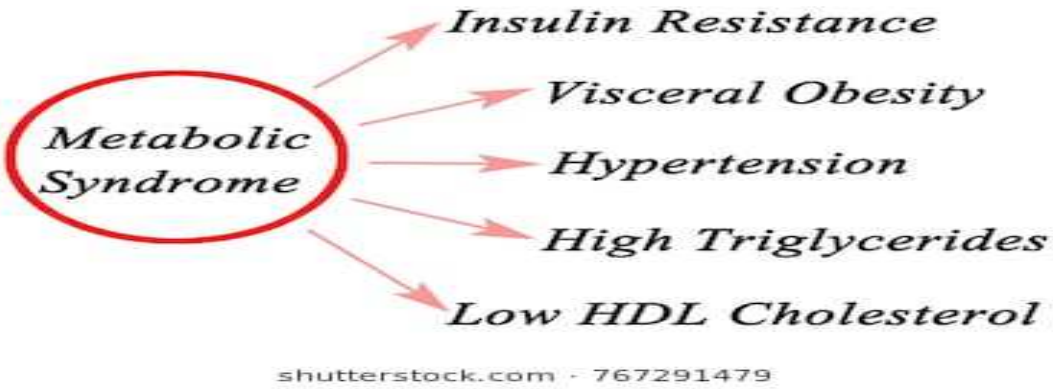
My name is Chika Okafor and I am a DNP student at Walden University, seeking permission to use your M-Back questionnaire from your article. I am only going to use 5 questions. Could you please if I t is okay to use in my graduate project on educating psychiatric providers about the importance of metabolic screening in patients taking antipsychotic medications.

Thank you in advance for your consideration

Chika Okafor, MSN, ARNP, DNP Student, Walden University.

From: Andrew Watkins (South Eastern Sydney LHD)
<Andrew.Watkins@health.nsw.gov.au>
Sent: Thursday, January 17, 2019 4:17 PM
To: Okafor, Chika <Chika.Okafor@dmh.mo.gov>
Subject: RE: The M-BACK Questionnaire
Hi Chika,
Great that you are doing some work in this area. I am happy for you to use the M-BACK, however, the M-BACK's 16 question is divided into 4 sections Barriers, Attitudes, Confidence and Knowledge each with 4 questions. Each section is validated individually, but individual questions are not. I'm not sure which 5 questions you are using but it might not be considered validated. I would consider using 1 or 2 sections if you want to ensure that you are utilising a validated questionnaire.
I hope this is helpful, Kind regards
Andrew Watkins, Clinical Nurse Consultant, Clinical lead
Keeping the Body in Mind Program
26 Llandaff St, Bondi Junction 2022
9366 8610, https://www.seslhd.health.nsw.gov.au/keeping-body-min

Appendix H: Flyer for Training



Presenter: Chika Okafor, DNP student, Walden University

Join us

Educating psychiatric providers about metabolic screening and intervention among patients on antipsychotic medications.

Date: 6/3/19 Time: 5:00PM

Venue: RPC Education Center

Wow, refreshments will be provided

For more information, contact: Chika Okafor @ 8164622218

Appendix I: Educational PowerPoint

Educational Project on Metabolic Syndrome for Psychiatric Providers prescribing antipsychotic medications.

Chika Okafor
RN, MSN, PMHNP-BC

Objectives

At the end of the education, Psychiatric providers will

- Understand metabolic syndrome (MetS) and it's associated complications related to antipsychotic medications.
- The metabolic monitoring guidelines/consensus.
- The importance of metabolic monitoring and screening of patients on antipsychotic medications.
- The significance to social change and collaboration with PCP for MetS.

Introduction

- Psychotropic medications illustrates an essential part of the psychiatric practice.
- Both first generation (FGA) and second-generation antipsychotic (SGA) medications are used to treat patients with mental illness.
- Metabolic syndrome (MetS) is an emerging problem in healthcare among psychiatric patients taking antipsychotic medications.

Problem

- Metabolic syndrome is a global epidemic
- The patients with mental illness have an increased risk of developing metabolic syndrome when compared to the general population
- Antipsychotic medications increased risk of developing (MetS) among psychiatric patients.

Problem

- Is an undesirable side effects associated with antipsychotic medications.
- MetS - undesirable side effect, non-communicable, multiple systems disorder associated with increased comorbidity among patients with mental illness (Cotes and colleagues 2015).

Problem

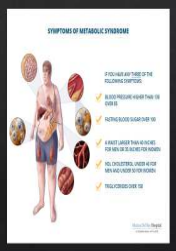
- MetS is 34% in general population compared to 55%-60% in mentally ill patients taking antipsychotic medications (Arns, Bostic, & Cunningham, 2014).
- MetS -Premature morbidity and mortality, 31%-34% of the mentally ill population die from cardiovascular disease as a result of MetS (Richardson, Lee. Kalarchian, & Ren, 2016).

Problem

- Because of the risk factors, psychiatric patients taking antipsychotic medications should be screened with the same rate or even more frequently than the patients in the general population (Sidoujeet and Colleagues 2014).
- Despite the established protocol/guideline, disparities in screening and Tx of MetS among patients with mental illness.
- The guideline recommends baseline monitoring at initiation of antipsychotic medication, three months later and annually thereafter.

Problem

- Metabolic syndrome is associated with chronic mild inflammation, diagnosis is made if any three of the five components are present: obesity, truncal obesity, blood pressure, cholesterol, and fasting glucose, and all these lead to cardiovascular disease and/or a type of diabetes.



Purpose

- Educate psychiatric providers at In-Patient Hospital in the Midwest on adoption of best clinical practice guidelines for metabolic screening of psychiatric patients taking antipsychotic medications.
- The long-term benefit of MetS screening - improved health outcomes, wellness, and reduction in mortality and morbidity.

Project Question

- The practice focused question is does an educational program for psychiatric providers prescribing psychiatric medications to adult patients about best practice guidelines improve their knowledge and intent to adopt the guidelines in practice?

MetS Guidelines/Consensus

- To understand the relationship between MetS and antipsychotic medications, the North American Association for the Study of Obesity (NAASO), American Psychiatric Association (APA), American Diabetes Association (ADA), and American Association of Clinical Endocrinologists (AACE) held a conference in 2003 (Cotes and colleagues 2015).
- Based on the conference outcome, a class warning was implemented related to the risk for diabetics and issued recommendations for glucose and lipid monitoring with second-generation antipsychotic (Morrato et al., 2016).

ADA-APA Consensus Guidelines

	Baseline screening	4 Weeks	8 Weeks	12 Weeks	Quarterly monitoring	Annual Monitoring	Every 5 years
Personal/family history	x					x	
Wt & ht for BMI calculation	x	x	x	x	x		
Waist circumference at the level of the umbilicus	x					x	
Blood pressure	x			x		x	
Fasting plasma glucose	x			x		x	
Fasting lipid profile	x			x			x

MetS Guidelines/Consensus

Measure	Risk Criteria
Abdominal Obesity	Men >40 inches Women > 35 inches
Triglycerides	≥150mg/dl
HDL Cholesterol	Men < 40 mg/dl Women < 50mg/dl
Blood Pressure	≥ 130≥85 mmHg
Fasting lipid glucose	≥ 100mg/dl
Wt./BMI	BMI ≥ 30

- Once the diagnosis or risk factor is identified, appropriate treatment modality should be initiated.
- Providers should not hesitate to refer the patient to the appropriate Primary care Provider knowledgeable about the disorder(s).

MetS Guidelines

- Given the serious health risks, patients taking antipsychotic medications should receive appropriate baseline screening and ongoing monitoring.
- Changing from polypharmacy to monotherapy if patient is on ≥ 2 antipsychotics.
- Changing antipsychotic medication to one with lower potential for causing weight gain.

MetS Guidelines

- Early referral and collaboration with the patient's primary care provider should be initiated.
- Treating both psychiatric disorders and MetS is imperative to enhance better treatment outcomes.

Importance of MetS Screening

- Improve patient care outcomes and achieve a standard of practice.
- Educate providers about gap in practice.
- Improved health outcomes, wellness, and/ a reduction in mortality and morbidity among psychiatric patients taking antipsychotic medications.
- The cardiometabolic health and promote better patient outcomes for this population.

Benefits of Referral/Collaboration

- Early education and counseling on physical activity and healthy diet for weight maintenance/loss should be promoted shortly after initiation of SGA therapy and referral to a dietitian, psychologist or weight loss program should be considered when appropriate.
- Collaborate with family practice providers to facilitate appropriate care to decrease complications of chronic illness and reduce the rate of morbidity and mortality.

Significance to nursing practice

- 90% of clinical decisions based on best available evidence by 2020 (Warren, et al, 2016)
- Create a culture of basing clinical decisions on evidence-based practice.
- Close the gap between evidence and implementation in clinical setting.

Significance to social change

- MetS screening will hinder complexity, prevent complications associated with the illness, improve patient outcome, quality of care and promote positive social change.
- Increased health care productivity, continuity and quality of care, reduce United State healthcare cost, and finally impact positive patient outcomes in the field of psychiatry.

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