

THE EXPERIENCE OF ADULT WOMEN WITH SCHIZOPHRENIA  
WHO TAKE SECOND GENERATION ANTIPSYCHOTICS

by

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## ABSTRACT

A gap in the scientific literature exists regarding the concerns of adult women about taking second generation antipsychotics (SGA). No research existed that represented the exclusive experience of women who take SGA. A qualitative study of the experience of adult women between the ages of 19-44 with the diagnosis of schizophrenia was conducted. Participants were recruited through the distribution of flyers by physicians at two mental health centers in the Northwest. One participant contacted the interviewer by phone and an interview was completed in a private setting. The interview was transcribed and analyzed using Luborsky's method for thematic analysis (1994). Topics and patterns were identified and then subsequently compared with the Health Promotion Model (Pender, Murdaugh & Parsons, 2011). Topics included: a) getting to know the illness, b) experiencing the effects of medications, c) appreciating the therapeutic effects of medications, d) feeling irritated with the illness, and e) learning how to manage the illness. Difficulties with recruitment indicate a need for further study to determine the best way to access this unique population.

## CHAPTER 1

## INTRODUCTION

Background and Significance

Schizophrenia is a serious mental illness with a lifetime prevalence rate between 0.5% and 1.5% of the population (Kim, Ann, & Kim, 2011). The total cost for schizophrenia in the U.S. has been estimated to be around \$62.7 billion in 2002 (Kim et al., 2010). Increased relapse rates, suicide attempts, hospitalizations, emergency room use and cost to society can result due to poor adherence to medication in patients with schizophrenia (Bagalman et al., 2010; Fujikawa et al., 2008; Lang et al., 2012; Liu-Seifert, Osuntokun & Feldman, 2012; Rascati et al., 2011). Although differences in response to second generation antipsychotics (SGA) have been noted between men and women, no research currently exists representing the experience of women who take SGA.

Xiang et al. (2011) encouraged prescribers to develop and use antipsychotic treatment guidelines that consider gender. Variation in tolerability, behavior, adherence patterns, pharmacokinetic and pharmacodynamics are recommended areas of focus when considering the differences between women versus men when using SGA therapies (Xiang et al., 2011). Callan and Howland (2009) identified a female patient who was resistant to taking SGA due to the side effect of weight gain. The young woman admitted that she would be non-adherent to her SGA medication regimen if she began to gain

weight (Callan & Howland, 2009). This study provided representation of an under represented population: women who take SGA.

The study places emphasis on the perspectives of women in regards to SGA treatment, with the purpose of providing information that does not currently exist in the literature. Understanding the barriers and facilitators to adherence and how women respond to SGA which are revealed in this study provide numerous benefits to the field of mental health. Gaining insight into the participants' experiences can provide a sense of contribution for other women who take SGA. The development of tools to aid health care providers in the identification of non-adherence patterns and the development of SGA treatment guidelines may improve outcomes for patients who use SGA (Xiang et al. 2011). In order for a patient to adhere to a prescribed medication regimen, it is essential to develop an understanding of the factors that promote and deter adherence (Gutierrez-Casares et al., 2010; Voruganti, Baker & Awad, 2008).

Although there is research that describes adherence, side effects, contributors to quality of life and costs associated with SGA, no research specifically addresses women's experience of taking SGA and how the experience affects adherence. Only one article in the literature review conducted for this study discussed the patient experience of both men and women taking SGA (Vanelli, Coca-Perraillon, & Troxell-Dorgan, 2007). The remaining literature reviewed provided insight into: a) SGA adherence (Gutierrez-Casares, Canas, Roderiguez-Morales, Hidalgo-Borrajo, & Alonso-Excolano, 2010; Kim et al., 2010; Lang et al., 2010; Liu-Seifert et al., 2012; Perkins et al., 2006; Rascati et al., 2011; Voruganti et al., 2008; West et al., 2008) b) the side effects of SGA (Bell,

McKenna & Roscoe, 2009; Callan & Howland, 2009; Hood, Orr & Nutt, 2007; Xiang et al., 2011), c) different routes of SGA administration (Lee et al., 2010; Thyssen et al., 2007; West et al., 2008); d) efficacy of different types of SGA (Josiassen et al., 2010; Kahn et al., 2008; Popovic et al., 2011; Volavka & Citrome, 2009), e) cost of non-adherence (Bagalman et al., 2010) and f) quality of life while taking SGA (Fujikawa et al., 2008; Kim et al., 2011; Mortimer & Al-Agib, 2007).

### Statement of the Problem

Exploration of the experience of women taking SGA may provide valuable information for health care providers in promoting medication adherence. An understanding of the predominate concerns of women who are prescribed SGA and discovering what contributes to, or aids in SGA adherence, is important for health care providers to provide optimal care to adult women who take SGA. Non-adherence to SGA treatment results in an increase in emergency room visits, hospitalization, relapse, suicide attempts and an increased cost to society (Bagalman et al., 2010; Fujikawa et al., 2008; Lang et al., 2012; Liu-Seifert, Osuntokun & Feldman, 2012; Rascati et al., 2011). This study considers the issues that are forefront for women to resolve in order to achieve long-term medication adherence. This study provides information for health care providers regarding the patient experience to support optimal patient outcomes for the needs unique to women taking SGA.

### Purpose of the Study

The purpose of this study is to elicit a description of the experience of women who take SGA. The second purpose of this study is to provide valuable information for health care providers in regards to the female response to SGA including adherence, side effects and non-adherence; to in turn improve overall patient outcomes.

### Research Questions

The following research questions will be addressed to determine characteristics that are specific to the female population taking SGA:

1. What is the experience of women ages 19 to 44 years old who are taking SGA for the treatment of schizophrenia?
2. What unique qualities contribute to women's adherence to a SGA treatment regimen?
3. What factors contribute to women's non-adherence to a SGA treatment regimen?

### Definition of Terms

Clarification will be provided below regarding the terms used frequently throughout this study. These include: adherence, first generation antipsychotic, second generation antipsychotic and tolerability.

- *Adherence:*  
“...adherence is a dynamic process influenced by the patient's beliefs about need for the treatment and the benefits of treatment weighed against the negative aspects of treatments (e.g. medication side effects, inconvenience, stigma, financial burden” (Perkins et al., 2006).

- *First Generation Antipsychotic (FGA)*: First generation is synonymous with typical or traditional antipsychotic. A first generation antipsychotic is  
 “an antipsychotic medication with a mechanism of action thought to be primarily caused by the blockade of dopamine-2 (D2) receptors. D2 blockade is associated with hyperprolactemia and extrapyramidal side effects” (Dipiro et al., 2011).
- *Second Generation Antipsychotic (SGA)*: Second generation antipsychotic or atypical antipsychotic, is  
 “an antipsychotic medication that has pharmacodynamics and clinical properties different than the first generation antipsychotics that act primarily by having high levels of binding to dopamine-2 (D2) receptors. Although definitions of atypicality vary, all second-generation antipsychotics share the property of causing a much lower incidence of extrapyramidal side effects” (Dipiro et al., 2011).

Second generation antipsychotics were developed to provide a more tolerable side effect profile, in comparison to the first generation antipsychotics which posed the risk of neurological adverse events, including tardive dyskinesia and extrapyramidal symptoms (Kasper, 2008).

- *Tolerability*:  
 “Tolerability is specifically the perceived effects a compound has on patients” (Vieta, 2004).

Common side effects, for example, such as intention tremors, thirst, increased urination, nausea and headache are examples of side effects that one patient may tolerate well, while another patient may absolutely not tolerate these side effects; thus refusing to continue the prescribed medication. Another example would be patients who have never experienced akathisia, while there are others who are highly sensitive and unable to tolerate akathisia associated with FGA.

## Theoretical Framework

The Health Promotion Model (HPM), developed by Nola Pender (Pender et al., 2011), is a holistic nursing model which is used to explain the cognitive processes involved in changing behavior in order to assist clients in entering into health promotion practices across the lifespan. The model recognizes that each individual has unique characteristics and experiences that influence their subsequent actions (Pender et al., 2011). The table below provides a concise representation of the HPM (Pender et al., 2011, p. 45):

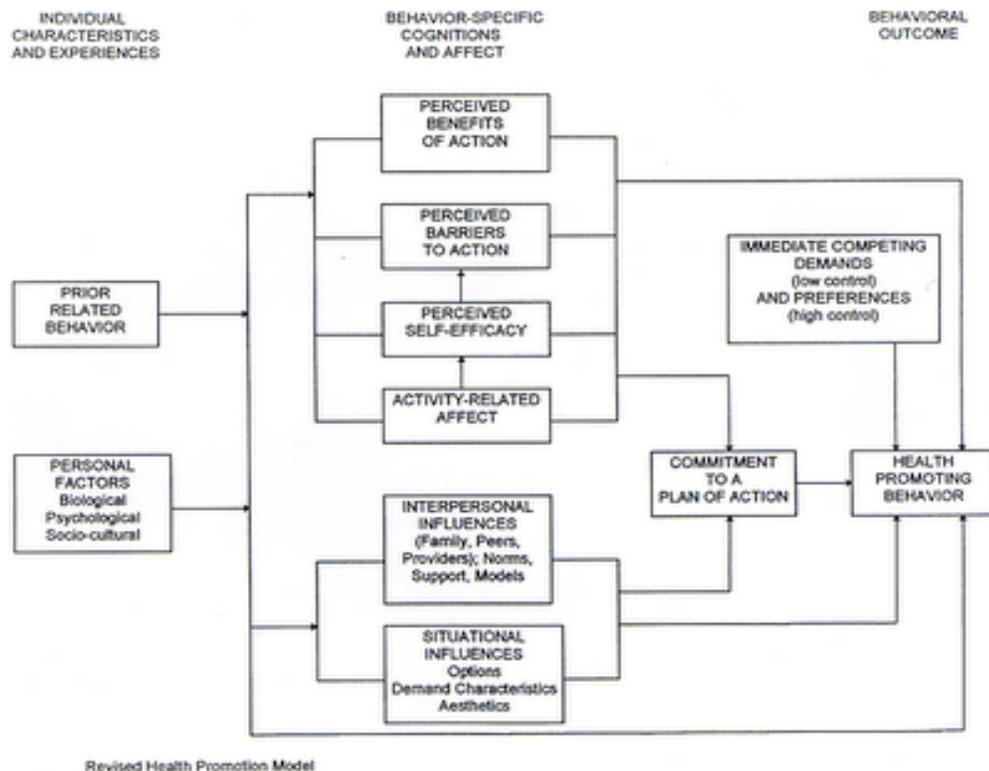


Figure 1. The Health Promotion Model. (Pender et al., 2011, p.45)

The following section will describe each of the variables that compose the HPM:

### Individual Characteristics and Experiences

Prior Related Behavior: Research indicates that the best predictor of future behavior is the frequency of the behavior in the past (Pender et al., 2011). Health promoting behavior is thought to influence behavior in correlation with one's "self-efficacy, benefits, barriers and activity related affect" (Pender et al., 2011, p.46). Habit, giving minimal attention to behavior and the frequency in which the behavior occurs have a direct effect on the formation of behavior (Pender et al., 2011). The anticipated benefit of a behavior is known as an "outcome expectation" (Pender et al., 2011). Barriers to a behavior are referred to as "hurdles" (Pender et al., 2011). Nurses can assist in health promotion by completing a thorough assessment of behaviors, to assist in the identification of benefits, hurdles, promotion of self-efficacy and providing positive feedback.

Personal Factors: Personal factors are shaped by the nature of the target behavior being considered (Pender et al., 2011). Some examples of personal factors that could be considered include age, length of schizophrenia diagnosis, perceived health status and weight (Pender et al., 2011).

Biological factors include the following examples: "age, body mass index, pubertal status, menopause status, aerobic capacity, strength, agility and balance" (Pender et al., 2011, p.46). Psychological factors include the following examples: "self-esteem, self-motivation and perceived health status" (Pender et al., 2011, p.46).

Sociocultural factors include the following examples: “race, ethnicity, acculturation, education and socioeconomic status” (Pender et al., 2011, p.46).

### Behavior Specific Cognitions and Affect

Perceived Benefits of Action: Behavior is reinforced by the positive consequences of behavior (Pender et al., 2011). Intrinsic benefits of positive health behaviors include increased alertness, energy and possible attractiveness (Pender et al., 2011). Possible extrinsic results of a health behavior include monetary or social awards (Pender et al., 2011). Both intrinsic and extrinsic behaviors can be powerful motivators for behavior change (Pender et al., 2011).

Perceived Barriers to Action: Perceptions about the barriers to a behavior include “unavailability, inconvenience, expense, difficulty, or time consuming nature of a particular action” (Pender et al., 2011, p.47). Loss of satisfaction as a result of giving up smoking is an example of a barrier to behavior change (Pender et al., 2011).

Perceived Self-efficacy: Self- efficacy is one’s belief in their ability to organize and the capability to carry out a particular task (Pender et al., 2011). Feelings of being skilled and competent are more likely to contribute to an individual engaging in a target behavior, versus feeling inept or unskilled (Pender et al., 2011).

Activity-Related Affect: Three components compose activity related affect: “1) emotional arousal to the act itself, 2) the self-acting, 3) the environment in which the action takes place” (Pender et al., 2011, p. 47). Behaviors can be associated with a

positive effect, such as fun, delight or joy (Pender et al., 2011). Behaviors can also be associated with a negative effects, such as disgust or discomfort (Pender et al., 2011). Behaviors that are associated with a positive affect are more likely to be repeated than those that are associated with a negative affect (Pender et al., 2011).

Interpersonal Influences: Three primary influences of health-promoting behaviors include: 1) norms, 2) support and 3) models. Social norms are performance standards that can either be accepted or rejected by individuals (Pender et al., 2011). Resources that are offered and maintained by others constitute social support (Pender et al., 2011). Models are individuals in which one learns through observing others engaging in certain behaviors (Pender et al., 2011).

Situational Influences: Health promoting behavior is influenced by three primary influences including: “1) perceptions of options available, 2) demand characteristics and 3) aesthetic features of the environment in which a behavior is proposed to take place” (Pender et al., 2011, p.49). The likelihood of a health promotion behavior occurring is increased when the individual feels “comfortable, related, safe and reassured,” and vice versa (Pender et al., 2011, p.49).

### Behavioral Outcome

Immediate Competing Demands and Preferences: Immediate competing demands and preferences are defined by Pender et al. (2011, p.49) as “alternate behaviors that intrude into consciousness as possible courses of action immediately prior to the intended occurrence of a planned health-promoting behavior.” Competing demands are frequently

demands in which individuals have little control over, for example family or work demands (Pender et al., 2011). Thus if an individual fails to respond to competing demands, adverse effects may result in response to one's failure to respond. Conversely, competing preferences provide positive reinforcement and the individual has a high level of control. For example, giving into eating high fat fast food, despite knowing the ill health implications it may have, rather than cooking a healthy meal (Pender et al., 2011).

Commitment to a Plan of Action: In the HPM, making a commitment to a plan of action constitutes the initiation of a behavioral event (Pender et al., 2011). Two of the cognitive processes involved in this step include: "1) commitment to carry out a specific action at a given time and place and with specified persons or alone, irrespective of competing preferences" and "2) identification of definitive strategies for eliciting, carrying out, and reinforcing behavior" (Pender et al., 2011, p.49).

Health Promoting Behavior: The HPM's end result is the development of health promoting behavior (Pender et al., 2011). The adoption of health promoting behaviors provide the individual with a "healthy lifestyle, improved health, enhanced functional ability, and better quality of life at all stages of development" (Pender et al., 2011, p.50).

### Summary

Though literature exists regarding the experience of individuals with schizophrenia, no research currently exists representing adult women with schizophrenia who take SGA. The HPM was chosen, so it could be used to understand and compare

information elicited during interviews to identify unique personal characteristics and experiences that contribute to health promoting behaviors of the target population. This study provides information regarding the experience of adult women with schizophrenia who take SGA and provides an interpretation of the barriers and facilitators that contribute to SGA adherence.

## CHAPTER 2

## LITERATURE REVIEW

Introduction

The purpose of this chapter is to provide a review of the literature guided by the research question: What is the experience of women ages 19 to 44 years old treated with second generation antipsychotics (SGA)? Although side effects, adherence and clinical outcomes are topics that will be considered when exploring the experience as a women receiving SGA treatment, the purpose of the study is to identify what the participants identify as key elements that contribute to adherence to their prescribed SGA regimen. Below, the factors that have been recognized as contributors to SGA adherence will be expanded upon including: cost, route of administration, assessment of medication adherence, the type of SGA, tolerability, satisfaction with treatment and the patient's circumstances. Concise explanation of the side effects associated with the use of SGA will be provided including: metabolic disturbances, QT prolongation, medication effectiveness, and tolerability. These side effects must be assessed to gain insight into the patient's experience with SGA treatment. The significant clinical outcomes related to non-adherence to SGA including: emergency room use, hospitalization, attempted suicide, relapse, and an increased cost to society, will be described (Bagalman et al., 2010; Fujikawa et al., 2008; Lang et al., 2012; Liu-Seifert, Osuntokun & Feldman, 2012; Rascati et al., 2011). This chapter will begin by describing the literature that exists

pertaining to SGA, and provide a brief overview of the target symptoms addressed when using SGA in the treatment of schizophrenia.

Much of the literature pertains to the use of SGA for the treatment of schizophrenia. The use of SGA to treat a variety of mental illnesses is important to mention, although it should be noted that the use of SGA in the treatment of schizophrenia is the focus of this study. SGA are used “as mood stabilizers for the manic, depressed, and maintenance phases of bipolar disorder in both adults and in children” (Stahl, 2008, p. 328). SGA are also used for augmentation of the following medications: antidepressants in treatment resistant depression; anxiolytics in treatment resistant anxiety disorders; and psychosis and behavioral disturbances related to dementia (Stahl, 2008). This is noted with the intention of increasing the readers’ awareness that SGA can be used in the treatment of other mental illness diagnoses and their symptoms. However this paper will maintain a focus on the use of SGA to treat schizophrenia in women between the ages of 19 and 44 years old.

SGA play a unique role in the treatment of schizophrenia. Positive, negative and cognitive symptoms each can contribute to a diagnosis of schizophrenia, though negative symptoms may be the most debilitating of the three. Please see Table 1, found below, for a clear delineation as to what composes each set of symptoms. The unique role SGA plays in the treatment of schizophrenia relates directly to the treatment of negative symptoms. With the development of SGA came an increase in their use to address the negative symptoms (Stahl, 2008). Subsequently, the use of first generation antipsychotics (FGA) decreased due to the increased likelihood of the development of

extrapyramidal side effects (EPSE) in comparison to the decreased likelihood of EPSE with the use of SGA (Stahl, 2008).

Table 1. Symptoms of Schizophrenia (Beebe, 2012, p.472).

Positive	Negative	Cognitive
“Additions” to normal experiences	“Absent” affects, behaviors, or both	Memory deficits
Delusions	Flat or blunted affect	Inattention
Hallucinations	Thought blocking	
	Poverty of speech	
	Avolition	
	Social withdrawal	

The literature review will begin with an explanation of the specific methods used to identify current literature pertinent to the research question. The remainder of the chapter is organized with the following headings: (a) literature search methodology; (b) a brief history of second generation antipsychotics; (c) side effects of second generation antipsychotics; (d) adherence; (e) non-adherence; (f) gaps in the literature; and (g) summary.

### Literature Search Methodology

Search terms used to conduct this literature review and rationale for choosing articles to address the research question will be explained in the following paragraphs. An inductive approach was used in identifying key terms used in the literature search. Key terms and search limitations were also derived from the research question.

### Search Criteria and Search Limitations

Three databases were chosen from which searches were conducted. These included the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Medical Literature Analysis and Retrieval System Online (U.S. National Library of Medicine's life science database also known as MEDLINE) and PubMed. These databases were chosen because they are nursing and medicine oriented and allow for the entry of limits. For CINAHL searches, the following limitations were used: adult 19 to 44 year olds, women, peer reviewed, January 2007 through January 2012. The Boolean operator "AND" was used for each search. For PubMed searches the following limitations were used: English language, women, adult 19 to 44 years old and published in the last 5 years. For Medline searches the following limitations were used: English language, adult 19 to 44 years old, humans, women, latest five years and Boolean operators. These limits were identified to tailor the search to 1) women ages 19-44, 2) to provide articles that can be read in English, and to 3) obtain the most recent research from credible sources.

### Key Terms and Searches

Five search terms were selected including: a) adherence; b) second generation antipsychotic; c) side effects; d) compliance; and e) atypical antipsychotic. The results of single key terms were not reviewed by the researcher due to the extensive results and minimal probability that these articles would be specific to the research question. From the searches of combined terms, duplicate articles were identified and twenty-eight total articles were selected for this literature review.

A Brief History of Second Generation Antipsychotics

A brief history regarding the development of SGA is provided. Drugs that were pivotal in the development of SGA will be discussed. Debate exists regarding the use of the terminology FGA and SGA (Volavka & Citrome, 2009). Some feel it is no longer appropriate to classify antipsychotics according to first or second generation, but rather to select treatment based on the antipsychotic that is most suitable for the patient (Volavka & Citrome, 2009). A breakdown of the FGA and SGA by drug name is provided below:

Table 2. First Generation Antipsychotics and Second Generation Antipsychotics. (Stahl, 2008, p. 599)

<b>FGA</b>	<b>SGA</b>
Chlorpromazine	Aripiprazole
Cymemazine	Asenapine
Flupenthixol	Clozapine
Fluphenazine	Iloperidone
Haloperidol	Lurasidone
Loxapine	Olanzapine
Mesoridazine	Paliperidone
Molindone	Quetiapine
Perphenazine	Risperidone
Pimozide	Ziprasidone
Pipothiazine	
Sulpiride	
Thioridazine	
Trifluoperazine	
Zuclopenthixol	

The discovery of antipsychotic agents dates back to 1947 when promethazine, an anti-histamine, was developed to treat topical infections (Hood et al., 2007). The antidepressant and antipsychotic properties of promethazine were recognized in individuals using promethazine to treat topical infections (Hood et al, 2007).

Chlorpromazine, was developed in 1951, providing anticholinergic and antiemetic effects

(Hood et al, 2007). Then, the antipsychotic effects of chlorpromazine were appreciated. Haloperidol was developed in 1958, in a continued effort to refine the newly developed antipsychotic medications (Hood et al, 2007).

The term “classic antipsychotic” is synonymous with “first generation antipsychotic” and “typical antipsychotic.” Typical antipsychotics are known for extreme sedation and causing severe extrapyramidal symptoms (Hood et al, 2007). Side effects can include: “acute and chronic movement disorders, increased prolactin levels, neuroleptic malignant syndrome, anticholinergic symptoms, weight gain, sedation, postural hypotension and reduced seizure threshold” (Hood et al, 2007, p.296). Due to increases in prolactin levels, EPSE and worsening of negative symptoms, it became evident that the typical antipsychotics effects were limited to treating the positive symptoms of schizophrenia (Hood et al, 2007).

In an effort to find a medication with less severe side-effects, clozapine was developed. This was the first “atypical” antipsychotic or “second generation antipsychotic”, and was found to be highly effective for treatment resistant schizophrenia. However, it posed the risk of agranulocytosis (Hood et al, 2007). Agranulocytosis is a granulocyte count less than 500/mm<sup>3</sup> in which the individual presents with signs and symptoms of infection (Beebe, 2012).

Three features of SGA include: “efficacy in treating positive symptoms, low incidence of EPSE and 5-HT<sub>2</sub> serotonin receptor antagonism, as well as D<sub>2</sub> dopamine receptor antagonism” (Hood et al., 2007, p.296). The clinical features of SGA including improvement in positive symptoms and negative symptoms, “low incidence of EPSE

after acute dosing, no elevation in prolactin, improved cognitive symptoms,” and improved mood, have shown benefit in treatment resistant patients (Hood et al., 2007, p.297). The clinical features of SGA have led to the continued development of new antipsychotics with improved tolerability and efficacy profiles (Callan & Howland, 2009; Hood et al, 2007).

#### Side Effects of Second Generation Antipsychotics

SGA have been noted to improve adherence due to more tolerable side effects, in comparison to the side effects associated with FGA (Fujikawa et al., 2008). Although SGA are a new addition to the available treatments for bipolar and schizophrenia, their side effect profile has been appreciated. It is possible that the side effects of SGA may not be less serious than those of FGA. Issues that present with SGA use include metabolic disturbance, weight gain and QT prolongation (Bell et al., 2009).

Metabolic Disturbance and Weight Gain: With the use of SGA, weight gain and increased appetite are noted as prominent side effects (Stahl, 2008). As a result, obesity and an increase in BMI can result; thus, increasing an individual’s cardiometabolic risk, predisposing one to a premature death (Stahl, 2008).

The H1 histamine receptor and the 5HT2C serotonin receptor in the brain are associated with weight gain in the use of SGA (Stahl, 2008). When blocked, especially synchronously, individuals taking SGA can experience weight gain (Stahl, 2008). The hypothalamic centers are also partially responsible for enhancing appetite (Stahl, 2008).

The risks to cardiovascular health as a result of SGA treatment are equivalent to the risks of cigarette smoking (Bell et al., 2009). The American Heart Association and National Heart, Lung and Blood Institute (Grundy, Brewer, Cleeman, Smith & Lenfant, 2004) diagnostic guidelines for metabolic syndrome include the following:

1. Elevated waist circumference (men>40in; women >35in)
2. Elevated triglycerides (>150mg/dL)
3. Reduced high density lipoprotein cholesterol (men>40mg/dL; women <50mg/dL)
4. Elevated blood pressure (>130.85mmHG)
5. Elevated fasting glucose (>100mg/dL)

The weight gain and increase in body mass index (BMI) associated with SGA treatment poses health risks to the individual receiving SGA treatment (Xiang et al., 2011). Patients treated with SGA have an increased “risk of diabetes mellitus,” high blood pressure, “coronary heart disease and related conditions” (Xiang et al., 2011, p. 196). In addition, variables including “patient’s age, family history, lifestyle, smoking and exercise” play an important role in the evaluation of metabolic syndrome (Bell et al., 2009, p. 142). SGA weight gain varies according to baseline BMI. If the patient is obese, thus having a higher BMI, prior to the initiation of SGA treatment, the patient will not gain as much weight as their counterpart with a lower BMI (Josiassen et al., 2010).

Among the SGA, clozapine and olanzapine have the highest association with metabolic disturbance (Bell et al., 2009). Second generation antipsychotics have also been found to induce a preference for carbohydrate foods (Callan & Howland, 2009).

Following an initial weight gain during the first few months of therapy, an individual taking SGA can continue to gain weight even after one year of discontinuation of treatment (Bell et al., 2009). Patients on olanzapine who gain two to three kilograms within the first few weeks of treatment present a significant risk for long term weight gain (Bell et al., 2009). Clozapine, olanzapine and risperidone are three SGA that have been associated with the greatest weight gain (Callan & Howland, 2009; Josiassen, 2010). Aripiprazole and ziprasidone are considered to be weight neutral (Volavka & Citrome, 2009).

QT Prolongation: SGA are known to prolong the QT interval, with ziprasidone having the most pronounced risk and olanzapine having the least risk (Volavka & Citrome, 2009; Beebe, 2012). The QT interval is the measurement between the Q and the T wave on an electrocardiogram (ECG) (Beebe, 2012). Complications of a prolonged QT wave include “syncope, Torsades de pointes and sudden death” (Beebe, 2012). Torsades de pointes is a life threatening heart rhythm that can occur when the QT interval is greater than 500 to 700 milliseconds (Beebe, 2012). Women are at a greater risk for developing Torsades de pointes than men (Beebe, 2012). It is suggested that a baseline ECG and serum potassium concentration be obtained on individuals with cardiac risk factors before prescribing SGA including, “ heart disease-especially heart failure, recent MI, or preexisting conduction abnormalities; syncope; family history of early (before age 40) sudden cardiac death; or long QT syndrome) (Virani, Bezchlibnyk-Butler, Jeffries, & Procyshyn, p. 86, 2012).

Extrapyramidal Side Effects: The development of EPSE with the use of FGA is much more prevalent than with the use of SGA (Volavka & Citrome, 2009).

Extrapyramidal side effects can be either acute or chronic. Acute EPSE include “medication induced parkinsonism, dystonia, akathisia and neuroleptic malignant syndrome (NMS)” (Beebe, 2012). Acute EPSE are dose dependent, occur in the first few days to weeks of treatment and are reversible if the dose of the medication is decreased or stopped (Beebe, 2012). Chronic EPSE can be irreversible, even with discontinuation of the medication (Beebe, 2012). The most common chronic EPSE is tardive dyskinesia (TD) (Beebe, 2012). Table 3 below provides descriptions of each EPSE:

Table 3. Extrapyramidal Side Effects (Beebe, 2012).

Medication induced parkinsonism	Bradykinesia (slow movement), tremor, rigidity and akinesia (absence of or loss of control over voluntary movement)
Dystonia	Spastic contraction of muscles groups, especially in the neck, eyes and torso
Akathisia	Increase in motor activity that results in a feeling of restlessness, inability to stay still and pacing
Neuroleptic malignant syndrome	Fever, muscle rigidity, altered mental status and autonomic dysfunction
Tardive dyskinesia	Writhing movements, which in most cases affects the orofacial region: lip smacking, puckering of the lips, chewing and jaw clenching are associated with TD

Neuroleptic malignant syndrome can be fatal and is a result of acute depletion of dopamine in the brain (Beebe, 2012). Neuroleptic malignant syndrome has been reported with the use of three SGA including risperidone, clozapine and ziprasidone (Beebe, 2012). Neuroleptic malignant syndrome presents as “fever, muscle rigidity, altered mental status and autonomic dysfunction” (Beebe, 2012, p.490). Creatine phosphokinase

and WBC counts can become elevated as a result of NMS (Beebe, 2012). The complications that can result from NMS include “rhabdomyolysis, disseminated intravascular coagulation and renal failure” (Beebe, 2012, p. 490).

Tardive dyskinesia is a result of increased dopamine metabolism due to antipsychotic treatment that results in the formation of free radicals (Beebe, 2012). Free radicals cause the neuronal membrane to become unstable in the extrapyramidal system, an area that controls both voluntary and involuntary movement (Beebe, 2012).

Emergent EPSE can be a predictor of non-adherence (Josiassen, 2010). A study conducted to compare the response rates of FGA and SGA found no difference in response rates, but did note that there were fewer cases of treatment of EPSE for SGA (Josiassen, 2010). Thus, EPSE could contribute to non-adherence to FGA, due to the fact that EPSE are not tolerated well (Lee et al., 2008; Volavka & Citrome, 2009). Therefore, one of the advantages of SGA is the infrequent occurrence rate of EPSE (Lee et al., 2008; Volavka & Citrome, 2009). To better understand factors that contribute to the selection of the most appropriate medication for a patient, it is necessary to consider the side effect profiles of both FGA and SGA.

Cytochrome P450: The body’s effect on drugs including absorption, distribution, metabolism and excretion is referred to as pharmacokinetics (Stahl, 2008). These pharmacokinetic actions are regulated by the cytochrome CYP450 system which metabolizes drugs through the liver and the digestive system (Stahl, 2008). Over thirty CYP450 enzymes exist, and not all individuals have the same CYP450 enzymes (Stahl, 2008). Pharmacodynamics, in contrast to pharmacokinetics, describes how the

medications, in this case antipsychotic drugs, work on the brain. Four enzymes are considered with the administration of antipsychotic medications. Each is identified in accordance with its effect in the table below.

Table 4. CYP450 Enzymes Influential in the Metabolism of Antipsychotics (Stahl, 2008).

CYP450 1A2	Olanzapine, clozapine and zotepine are substrates for the 1A2 receptor. Thus, when given with an inhibitor of 1A2, such as fluvoxamine, antipsychotic drug levels may rise. Smoking cigarettes induces 1A2; thus smokers on antipsychotics may require higher doses than non-smokers.
CYP450 2D6	Risperidone, clozapine, olanzapine and aripiprazole are all substrates of 2D6 (p.404). Some antidepressants are inhibitors of 2D6, thus raising the levels of antipsychotics that are substrates of the 2D6 enzyme (p.404). This can be problematic in the case of risperidone for example, because its active metabolite paliperidone cannot be produced, thus increasing the risk of EPSE (p.404).
CYP450 3A4	Co-administration of antipsychotics with medications that are 3A4 inhibitors including fluvoxamine, nefazodone, the active metabolite of fluoxetine and norfluoxetine may require a reduction in antipsychotic dosages (p. 404).
CYP450 2C9	Bifeprunox (an SGA not approved for use in the U.S.), is a substrate of 2C9 and its levels are increased with co-administration of fluconazole (p.404).

### Adherence

Rates of medication adherence in chronic schizophrenia vary from article to article, although the overall theme is that adherence rates are suboptimal. Rates of 50% to 60% would not be a rare finding when evaluating adherence to maintenance therapy for schizophrenia (Gutierrez-Casares et al., 2010, p.329). West et al. (2008) stated that about one third of patients with schizophrenia are non-adherent to their prescribed medications. Non-adherence can lead to relapse.

The rate of relapse is increased with non-adherence to a SGA regimen. Patients experiencing their first episode of psychosis relapsed within the first five years even while receiving treatment (Josiassen et al., 2010). This rate of relapse increased five-fold if the patient discontinued their medication (Josiassen et al., 2010).

Studies have been conducted to identify variation in adherence between different SGA. Studies have found that patients who take olanzapine remain on their medication regimen longer than that of their counterparts on other SGA. Other studies have found that olanzapine is associated with a shorter period of adherence versus that of aripiprazole, quetiapine and risperidone (Rascati, 2011). Seeing SGA as the answer to non-adherence may be too hopeful (Voruganti et al., 2008). Voruganti et al. (2008, p.133) propose that the issue of medication adherence is a complex issue weighted by “personal beliefs, illness related factors, social attributes and health system variables.”

Cost: The monthly cost of SGA ranges from \$450 per month to \$690 per month without insurance (Beebe, 2012). Rascati et al. (2011), found that when comparing the prescription costs of aripiprazole, olanzapine, quetiapine, risperidone and ziprasidone, there was no significant difference in the total of mental health related cost.

Administration Routes: With the development of SGA has come the ability to administer SGA via different routes, rather than by mouth only. Table 3, found below, lists the available routes of administration for SGA:

Table 5. Available Routes of Administration for Second Generation Antipsychotics (Stahl, 2008).

Asenapine	Sublingual tablet
Clozapine	Tablet; Oral disintegrating tablet
Iloperidone	Tablet
Lurasidone	Tablet
Olanzapine	Tablet; Oral disintegrating tablet; IM injection, short acting; IM injection, extended-release suspension
Paliperidone	Tablet, extended release; IM injectable suspension prefilled syringe
Quetiapine	Tablet, immediate release; Tablet, extended release;
Risperidone	Tablet; Tablet, oral-disintegrating; Oral solution; Powder for injection
Ziprasidone	Capsules; Powder for injection; Oral suspension

Rapidly disintegrating (RD) risperidone has been used in patients with schizophrenia and schizoaffective disorder “to improve their acceptability to patients and thus improve compliance” (Thyssen, Remmerie, Eng, D’Hoore, Kushner & Mannaert, 2007, p.290). Three RD antipsychotic tablets that have been developed include clozapine, olanzapine and risperidone (Thyssen et al., 2007). Since some populations, particularly the elderly and children, find swallowing difficult, an effort was made to make RD antipsychotic tablets that are well tolerated (Thyssen et al., 2007). The development of RD tablets is intended to avoid IM injection due to the patient’s refusal to take medication due to swallowing difficulties (Thyssen et al., 2007). In a study evaluating the subjective acceptability of RD risperidone tablets revealed that the tablets were found to be acceptable by a majority of the patients (Thyssen et al., 2007).

Long acting antipsychotic injection (LAI) therapy has shown to increase adherence (Gutierrez-Casares et al., 2010). Even partial non-adherence to oral antipsychotic medication can result in an increase in relapse, hospitalization and

psychiatric emergencies (Gutierrez-Casares et al., 2010). The administration of LAAI medication ensures that patients are receiving their medication (Gutierrez-Casares et al., 2010). An evaluation of oral medication adherence revealed that 29% of patients of patients reported taking their medication, as compared with 79% for patients receiving injectable medication (Gutierrez-Casares et al., 2010).

West et al. (2008) recognized that the use of LAAI is recommended in patients with a history of non-adherence. Noting this fact, only 1 in 5 patients recognized as being non-adherent were placed on a long acting injectable antipsychotic regimen (West et al., 2008).

Health Insurance: Copayment burden in schizophrenia is associated with a decrease in adherence and poor outcomes (Kim et al., 2010). When asked “Is a co-pay for antipsychotic medication a burden for you?,” 39% of participants stated “yes” (Kim et al., 2010, p.186). The rates of “emergency room visits, hospitalizations, and suicide attempts” were higher in those patients with copayment burden (Kim et al., 2010, p.189). The experience of economic burden was not associated with the insurance payer type (Kim et al., 2010).

In most settings, patients with private insurance versus public insurance were more likely to receive evidence based treatments (West et al., 2008). Patients who receive LAAI are more likely to be covered under public insurance versus private insurance (West et al., 2008). The reasoning behind this may be a reflection of greater access to LAAI in organized treatment settings (West et al., 2008). With the introduction of long acting risperidone, and increasing knowledge regarding LAAI, the rate in use

between publicly and privately insured patients receive LAAI, may begin to close (West et al., 2008). West et al. (2008) recommends targeting psychiatrist groups with low rates of use with the intention of providing education on the benefits of using LAAI to increase adherence and improve patient outcomes.

Health Care Provider: It is important to consider the patient/provider relationship when identifying the influences of SGA adherence (Gutierrez-Casares et al., 2010). The failure of the patient to develop a therapeutic relationship with the health care provider (HCP) is one of the most significant indicators for non-adherence (Gutierrez-Casares et al., 2010). The ability of the provider to assess adherence is overall poor. Clinicians demonstrate inconsistency in their ability to identify patients who are non-adherent to their treatment prescribed regimen (Gutierrez-Casares et al., 2010). When estimating adherence, family members, the psychiatrist, and patients all had the tendency to overestimate medication adherence (Gutierrez-Casares et al., 2010). A low rate of detecting antipsychotic non-adherence may also contribute to a decrease in the use of the most beneficial therapies for the patient, including the use of injectable antipsychotics (West et al., 2008).

The likelihood of receiving a long acting injectable antipsychotic is increased when the provider is non-white and has higher levels of optimism (West et al., 2008). It is speculated that some practitioners may have higher levels of optimism due to experiencing positive results with the use of long acting injectable antipsychotics to improve adherence (West et al., 2008). On the other hand, lack of use may reflect a knowledge deficit in the use of LAAI, thus creating a low rate of use (West et al., 2008).

Treatment regarding medication should be a collaborative effort between the physician and the patient (Fujikawa, 2008). Shared decision making between the patient and provider has been shown to increase the patient's satisfaction with their medication regimen, therefore increasing adherence (Fujikawa, 2008).

Psychotherapeutic Factors: Psychotherapeutic intervention for relapse prevention (PIRP) has been found to be an effective method to aid in medication adherence (Lee et al., 2008). When used in combination with antipsychotic medication therapy, “cognitive behavioral therapy, social skills training, psychoeducation, and crisis intervention in the case of relapse” can be more effective than medication alone in the prevention of relapse (Lee et al., 2008).

Tolerability: Tolerability, when used in the discussion of antipsychotics, refers to the recipient of the antipsychotic and his/her ability to tolerate the side effects associated with antipsychotic treatment. Subjective ratings by patients revealed a 50% increase in the rating of tolerability of SGA versus FGA therapy (Mortimer & Al-Agib, 2007).

SGA present a better tolerability profile, with the exception of the metabolic side effects, than that of FGA (Gutierrez-Casares et al., 2010; Popovic, Ravanix, Popovic, Vladjic, Stanojevic & Stojanovic, 2011). In a retrospective analysis of Florida Medicaid data, it was found that the rates of medication adherence were highest in those patients receiving long acting SGA therapy by mouth (Lang et al., 2010). In an evaluation comparing SGA to FGA among patients with chronic schizophrenia, SGA were found to

be more tolerable when using EPSE as the benchmark for tolerability in schizophrenia (Popovic, 2011).

Satisfaction or Quality of Life and SGA Treatment: SGA have been found to have higher satisfaction ratings, than that of FGA for the treatment of schizophrenia (Fujikawa et al., 2008). In fact, along with the National Board of Health, Popovic (2011), recommended risperidone as first line therapy for schizophrenia due to its low intensity EPSE and because it increases the quality of life of patients who live with chronic schizophrenia.

Mortimer and Al-Agib (2007) conducted a comparative cross sectional study to examine the quality of life in schizophrenia on FGA versus SGA. Quality of life was evaluated using subjective measures including the Drug Attitude Inventory (DAI); Sickness Impact Profile (SIP); and Schizophrenia Quality of Life Scale (SQLS). One hundred twenty six individuals participated in the study. Each participant was seen on a routine basis and was identified as stable for at least six months. The results of Mortimer and Al-Agib's (2007) research concluded that quality of life is superior on atypical treatment.

Voruganti et al. (2008, p. 133) puts it simply: "In a free market system, consumers return to buy a product if they like it; in a clinical setting patients adhere to treatment if they perceive it as particularly helpful." Evidence to support whether or not SGA are associated with long term adherence to therapy is equivocal, but it is suggested that the focus move towards the consideration of patient reported outcomes, tolerability of the prescribed therapy, and evaluation of the patient's quality of life (Voruganti et al., 2008).

A patient's short term report of satisfaction with SGA may not be a predictor of the long term outcomes. Long term outcomes are a reflection of "attitudes, personal beliefs, affordability, life events etc." (Voruganti et al., 2008, p. 138).

SGA have been noted for their more desirable side effect panel. Fujikawa et al. (2008) stated that during the subjective review of clients who were receiving FGA and those who were receiving SGA, there was no significant difference in the responses between the groups regarding adherence or non-adherence to their medication regimen.

It has been noted in other studies that the subjective responses of patients who receive SGA give more positive responses regarding their medication regimen, versus those receiving FGA (Fujikawa et al., 2008). Noteworthy, is that subjective wellbeing of the patient may be a determinant that is strongly associated with medication adherence (Fujikawa et al., 2008).

Severity of Illness: Patients with an increased severity of illness were less likely to be prescribed SGA therapy versus FGA therapy (Mortimer & Al-Agib, 2007). The Global Assessment Scale (GAS) can be used to assess severity of symptoms and a patient's ability to function (Mortimer & Al-Agib, 2007). Patients on SGA have been found to have a higher functional level according to the GAS (Mortimer & Al-Agib, 2007).

The superiority of clozapine in cases of schizophrenia that are deemed treatment resistant has been demonstrated repeatedly (Valvoka & Citrome, 2009). Clozapine is recognized as the most effective medication for patients who present with suicidal behavior and severe symptoms (Bell et al., 2009). Clozapine acts on many receptors in

the brain including serotonergic, dopaminergic, histaminic and muscarinic receptors (Valvoka & Citrome, 2009). The diversity of receptors in the brain on which clozapine works, makes clozapine desirable for the treatment of the positive and negative symptoms in chronic schizophrenia.

Substance Use: Gutierrez-Casares et al., 2010 recognize that alcohol intake, cigarette smoking, cannabis, and cocaine use are associated with a lack of adherence. Non-adherence to SGA therapy contributes to a lack of insight which can lead to adverse events (Gutierrez-Casares et al., 2010).

Mortimer and Al-Agib (2007) noticed in their study when comparing individuals receiving FGA to individuals receiving SGA, the group of patients on FGA were much older and more experienced with their illness. Mortimer and Al-Agib (2007) that the younger counterpart, much less experienced with their illness in which SGA were prescribed, were more likely to abuse substances. This difference in substance abuse is linked to being young and having less familiarity with one's schizophrenia (Mortimer & Al-Agib, 2007).

Demographics: Patients with schizophrenia on SGA therapy have been found to be much younger than patients treated with FGA (Mortimer & Al-Agib, 2007), even though there is no scientific reasoning to reserve SGA treatment for younger, less acutely ill patients (Mortimer & Al-Agib, 2007). For younger people, the illness often is of lower severity and shorter duration (Mortimer & Al-Agib, 2007), yet they seem to be less adherent their medication regimens.

Lower rates of SGA use have been reported in non-Caucasian patients with schizophrenia (Mortimer & Al-Agib, 2007). In a prison population, 90% of patients were prescribed FGA treatment (Mortimer & Al-Agib, 2007). This finding may suggest that patients who have a chronic, severe mental illness have found older drugs, such as FGA, satisfactory (Mortimer & Al-Agib, 2007). Although Mortimer and Al-Agib (2007) found that personal and demographic features have created differential prescribing, they recognize that both personal and demographic characteristics should not guide drug selection.

Family Involvement: A lack of family support is a predictor of non-adherence (Gutierrez-Casares et al., 2010, p.329). Evidence shows that in families with low support, the adherence rate was 31.9% (Gutierrez-Casares et al., 2010). On the other hand, in families with high support, the adherence rate was 58.9% (Gutierrez-Casares et al., 2010). The use of family to family intervention has been shown to increase the likelihood of medication adherence in schizophrenia (Fujikawa et al., 2008). The family to family intervention is designed to strengthen bonds that connect families and strengthen functioning within families (Fullilove, Green & Fullilove, 2000).

Treatment adherence can be improved with the incorporation of the family into treatment (Volavka & Citrome, 2009). Exploring beliefs about treatment, asking about preferences, making treatment decisions and making recommendations should be a collaborative effort between the patients and families (Volavka & Citrome, 2009).

Gender: Gender is a variable that deserves consideration when prescribing psychotropic medications and accounting for their side effects (Xiang et al., 2011). Xiang et al. (2011) examined the gender differences in the use of psychotropic drugs and drug-induced side effects in patients with schizophrenia. Evidence suggested that men require larger doses of antipsychotics. Women were found to be at an increased risk for taking multiple medications (Xiang et al. 2011). Xiang et al. (2011) discovered that once stability was reached in women, dosing intervals were increased for women after a steady clinical state had been achieved. Xiang et al. (2011) also noted that women reported more side effects than their men counterpart.

Women's tolerability of psychotropic medication side effects differs from that of men in many ways. The ability for women to tolerate EPSE and anticholinergic side effects is lower than that of men (Xiang et al., 2011). Since SGA are known to produce less severe EPSE, SGA therapy has been found to be more tolerable for women (Xiang et al., 2011). Thus, Xiang et al. (2011) found that SGA were used more frequently in women. The presentation of mood symptoms is more common in women, although it has been found that treatment with mood stabilizers is the same between genders (Xiang et al., 2011). Women's sensitivity to weight gain associated with SGA treatment was greater than that of their men counterparts (Xiang et al., 2011). Xiang et al. (2011) state that women display better adherence to their treatment than men. The use of long acting injectable antipsychotics is more common in men, which Xiang et al. (2011) explains is due to women demonstrating better adherence to treatment regimens. Thus, Xiang et al. (2011) recommended the construction of prescription guidelines that are reflective of the

evidence supporting differences between the pharmacokinetic and pharmacodynamic profiles of men versus women.

Stigma: Stigma, or a mark of shame, can affect adherence to an antipsychotic regimen. A reluctance to let others know that one is taking medication, hiding the medication, taking the medication in private, and dissatisfaction with one's personal appearance due to the medication are examples of the impact of stigma had on taking antipsychotics (Jenkins & Carpenter-Song, 2009). Chronic illness, including mental illness, can mean that an individual will have to take medication for the rest of his or her life (Jenkins & Carpenter-Song, 2009).

A survey conducted on 1824 individuals with serious mental illness revealed that 50% of the participants had experienced discrimination due to mental disability (Jenkins & Carpenter-Song, 2009). Dating, family relationships, interactions with strangers, work relationships, portrayals in pop culture, gender, friendships, acquaintances and taking medication on a continuous basis, are all areas that have been associated with one's awareness of stigma (Jenkins & Carpenter-Song, 2009).

Women are more aware and sensitive to stigma associated with personal mental illness than men (Jenkins & Carpenter-Song, 2009). When asked to explain why, one participant's reasoning was that women are more concerned with image and being attractive than men (Jenkins & Carpenter-Song, 2009).

For example, in dating, participants in the study stated that they were reluctant to reveal their illness or admit to taking medications for "fear of rejection, stereotyping, teasing, frightening others," and vulnerability in a dating situation (Jenkins & Carpenter-

Song, 2009). Pop culture conveys patients with schizophrenia as unpredictable, violent or a “danger to society” (Jenkins & Carpenter-Song, 2009, p.526).

Taking medication for chronic mental illness can be incorporated into one’s identity (Jenkins & Carpenter-Song, 2009), accepting that in order to improve or stay well, one must be adherent to their medication (Jenkins & Carpenter-Song, 2009). Yet, the participants expressed that if they do take medication, they are prone to judgment by others (Jenkins & Carpenter-Song, 2009).

Cognitive Considerations: Lack of insight has been identified as an obstacle in achieving adherence in the treatment of schizophrenia (Volavka & Citrome, 2009; Voruganti et al., 2008). Impaired memory and hostility are important factors that can lead to non-adherence (Volavka & Citrome, 2009). It is important to consider three aspects of the individual’s ability when developing an intervention for an individual with the intention of preventing relapse: 1) cognitive; 2) behavioral and 3) educational (Lee et al., 2008).

It has been found that average or above average intellectual functioning is associated with the receipt of LAAI (West et al., 2008). Cognitive impairment and non-adherence in psychotic patients may lead to an inability to take oral medication on their own (West et al., 2008). Though it would seem beneficial for patients with psychosis to receive LAAI, it has been found that patients with cognitive impairment are less likely than their counterpart with higher intellectual functioning to receive long acting injectable antipsychotic therapy (West et al., 2008). As a result, West et al. (2008) suggests that efforts be made to improve access of LAAI to patients with cognitive

impairment. The deficit in recognizing non-adherence in West's study could be attributed to the fact that the participants in the study had been under the care of the psychiatrist for less than one year. Thus, the psychiatrists' familiarity with the patients varied.

### Non-Adherence

Non-adherence increases the likelihood of relapse and repeated hospitalization (Lang et al., 2010; Volavka & Citrome, 2009; West et al., 2008). Each time a patient relapses, the probability that the patient will recover to their "normal" function decreases (Lang et al., 2010). Non-adherence is common in the population of individuals diagnosed with schizophrenic disorders due to the fact that the individual must take their medication on a daily basis in order to function (Lang et al., 2010). Reasons including forgetting, deeming the medication unnecessary or a dislike of the medication's side effects contribute to noncompliance (Lang et al., 2010). Due to the chronic nature of schizophrenia and the complexity of medication regimens leading to non-adherence make the management of medication side effects essential (Bell et al., 2009). Predictors of non-adherence to antipsychotic therapies include starting a new treatment, being young, substance abuse, "use of a mood stabilizer, antidepressant, anxiolytic or anticholinergic," and long acting FGA (Lang et al., 2010, p.1239).

The discontinuation of a long acting atypical antipsychotic has been associated with relapse in patients with schizophrenia (Lee et al., 2008). Non-adherence is known to lead to an increase in emergency room use, hospitalization, attempted suicide, increased

cost to society, an increased risk of relapse, worsening symptoms (Fujikawa et al., 2008; Gutierrez-Casares et al., 2010). Missing between one to ten days of oral antipsychotic therapy doubles the patient's risk for hospitalization (West et al., 2008).

### Gaps in the Literature

Only one article, (Xiang et al., 2011), recognized gender differences in the use of SGA. Xiang et al. (2011) considered gender an important factor when selecting the correct pharmacotherapy due to women's decreased tolerance of EPSE and weight gain. By conducting interviews on the target population, data will be provided regarding the women subjective perception of their SGA adherence patterns. In addition, Voruganti et al., (2008) promoted the use of interviews to provide a greater understanding of the attitudes, personal beliefs, cost and life events that contribute to non-adherence in women. Themes that present during the interviews may identify areas in which health care providers are in need of further education in the assessment of non-adherence patterns (Gutierrez-Casares et al., 2010).

### Summary

Insufficient literature exists on the experience of young women with schizophrenia who are treated with SGA. Xiang et al. (2011) supports giving consideration to the pharmacokinetic and pharmacogenetic variables that exist between men and women when prescribing antipsychotic medication. Consideration has been given to the route of administration, the patient's subjective wellbeing, severity of illness,

age, tolerability of the SGA prescribed and stigma in a review of the literature.

Determination of the factors that women deem important to adhere to a prescribed SGA regimen may decrease non-adherence, emergency room use, hospitalization, suicide attempts, relapse and the cost of illness to society (Bagalman et al., 2010; Fujikawa et al., 2008; Kim et al., 2010; Lang et al., 2012; Liu-Seifert, Osuntokun & Feldman, 2012; Rascati et al., 2011). This research study will explore the experience a woman who takes SGA, and gather her perceptions to create meaning from her experience. Gaining understanding from this woman will allow her voice to be heard; thus allowing for the identification of important issues related to fostering effective pharmacological treatment of women who have schizophrenia.

## CHAPTER 3

## RESEARCH DESIGN AND METHODS

Introduction

The purpose of this study is to develop an understanding of the experience of adult women who take second generation antipsychotics (SGA). This study used an exploratory, descriptive qualitative design to gain insight into the experience of the participants. Second generation antipsychotics are medications used for the management of serious mental illness. To prevent deterioration in the patient's functional status, it is essential that patients adhere to their prescribed medication regimen. Adherence to a medication regimen is influenced by tolerability, the belief by the consumer that the medication is effective, and the belief that the positives of taking the medication outweigh the negatives (Perkins et al., 2006). The literature does not represent women's experience of taking SGA; therefore an exploratory, descriptive approach was used.

Sample Recruitment

The sample was selected from a mental health clinic in the Northwest. Purposive sampling was used to recruit adult women for interviews. Inclusion criteria for this study were: a) being an adult woman between the ages of 19 and 44 years old; b) having a diagnosis of schizophrenia; c) taking SGA for at least three years; d) being Caucasian and e) having the ability to speak English.

A flyer was developed describing the study, inclusion criteria, and the study coordinator's contact information. The flyer and inclusion criteria were provided to two physicians at two mental health clinics. The physicians distributed the flyer to prospective participants who were identified as meeting the inclusion criterion. The participants who were interested in participating in the study were asked to contact the student researcher to let her know of their interest. The student researcher confirmed that the prospective participants met the inclusion criteria. If the criteria were met, then an overview of the study was explained: a) who the interviewer was, b) the purpose of the interview, c) time involved, d) privacy protections and rights, and e) what their engagement in the interview process could contribute to the field of mental health in terms of gaining insight into the experience of adult women who take SGA. If the prospective participant was still interested in the study, a convenient time to meet for the interview was arranged.

### Procedures for Data Collection

#### Discussion of Human Subject and Consent Process

Approval for this study was received from the Montana State University- Institutional Review Board (MSU- IRB). A copy of the approval memo from the MSU- IRB can be found in Appendix F and a copy of the Informed Consent can be found in Appendix B. The researcher completed the Human Subjects Research and Human Subject Protection for Social and Behavioral Responsible Conduct of Research courses

via the Collaborative Institutional Training Initiative (CITI) website (Braunschweiger, 2011).

#### Plan for the Interview Process

Interviews were to be conducted at a mental health drop in center in a private room to maintain the participants' confidentiality. When each of the participants arrived separately for their scheduled interviews, the informed consent for participation in human research would be reviewed with them (Appendix B). Once participants verbalized their understanding of consent they would be asked to sign the form and a copy would be provided to them for their personal records.

A one-on-one, individualized approach was used, as it is a "valuable method of gaining insight into people's perceptions, understandings and experiences of a given phenomenon" (Ryan, Coughlan, & Cronin, 2009, p.309). Easily answered demographic questions were used initially to establish rapport. When each participant seemed to be comfortable with the interview, the remainder of the questions were open-ended to allow them to describe their experiences when they were first diagnosed with schizophrenia; the initial treatment they received; and what it is like for them to take SGA. A copy of the interview questions can be referenced in Appendix C. Audio recording was used to record data and minimize note taking (Norwood, 2010). Following the audiotaping of the interview, each interview was transcribed verbatim, and was analyzed using Luborsky's (1994) qualitative method.

### In Field Reflection

The researcher used in-field reflective memos to link meaning to the data as it was collected (Norwood, 2010). Reflective memos captured observations that the audio recorder did not, such as the subject expressing non-verbal emotion, as well as the thoughts and insights of the researcher during data analysis (Norwood, 2010). Detailed notes regarding the setting, body language and the participant's understanding of the interview also were recorded in the notes.

### Data Management and Method of Analysis

#### Data Management Plan

The audio recordings would be transcribed verbatim using Microsoft Word software. In the data preparation phase, the researcher listened to the audio recording while following along on the transcript. This method of data management would ensure that the transcripts were verbatim and that any necessary changes were made to ensure the transcripts matched the audio recordings exactly (Norwood, 2010). Transcribing the interviews and listening to the audio recording would allow for immersion in the data, prior to analysis.

Luborsky's (1994) inductive approach was used to identify themes, patterns and topics. Luborsky's (1994) qualitative method is recognized for the ability to capture the client's lived experience, or their inside view of the world. The data were placed into three columns in the Microsoft Word document. The first column contained the verbatim transcript of the audio recording, the second column identified the verbatim themes and

the third column contained phrases that described the themes. Once the phrases had been identified for each interview, they were collected into patterns, and later into more global categories called topics. In the sections below, each level of analysis is described in greater detail.

#### First Level of Analysis: Themes

Themes are defined as “the manifest generalized statements by informants about beliefs, attitudes, values or sentiments” (Luborsky, 1994, p. 195). Themes provide a “clear orientation to work that seeks to understand and reflect the informant’s own views and words” and “uses manifest and explicit statements rather than inference and background knowledge about the person or situation” (Luborsky, 1994, p. 195). Utilization of themes in qualitative research creates “a metaphor that researchers use to unify separate elements and experiences into an overarching meaning” (Luborsky, p. 195, 1994).

Recognition of themes by the researcher provided insight into the participant’s world view that she may not have recognized when engaging in the interview. Phrases, words and statements that were repeated by the participant were highlighted as having special meaning (Luborsky, 1994).

### Second Level of Analysis: Patterns

The phrases developed in the third column, were then grouped according to common meanings. Luborsky (1994) described patterns as the organization of “findings from the researcher’s frame of reference (p. 195)” into similar categories or patterns.

### Third Level of Analysis: Topics

Once patterns were identified they were analyzed for commonalities and collected under headings called topics. Luborski (1994) defined topics as “main points” (p. 195) used “when summarizing the content of replies from many people to a question” (p. 195).

### Procedures for Assessing Trustworthiness of Research

The criteria of internal validity, external validity, reliability, and objectivity must be met to ensure the rigor of quantitative studies. Parallel criteria, identified and defined by Guba and Lincoln (1989) are used for assessing the trustworthiness of qualitative research. The four criteria include credibility, transferability, dependability, and confirmability. The incorporation of the four concepts in the context of this research study is reviewed below.

#### Credibility

Credibility assured that the researcher had confidence in the accuracy of the findings (Guba & Lincoln, 1985). Procedures used for achieving credibility were prolonged engagement, persistent observation, peer debriefing, member checks, negative case analysis and progressive subjectivity (Guba & Lincoln, 1989).

Prolonged engagement was applied to the study by the researcher reading and re-reading the transcribed interviews, as well as the researcher doing her own transcription. Persistent observation was used to identify characteristics unique to the participant's situation that added to the development of an understanding of the experience of the woman taking SGA. The possibility for member checks was incorporated into the study by gaining consent from the participants to provide their contact information prior to the interviews, in order to allow for clarification, should the need arise. Negative case analysis was used during the reading and re-reading of transcripts to identify data that did not support emerging themes (Guba & Lincoln, 1989). Negative case analysis was used to identify possible revisions to identified patterns (Guba & Lincoln, 1989). Progressive subjectivity was used to allow the researcher to constantly evaluate prior assumptions and evolving assumptions regarding the study.

### Transferability

The goal of transferability is for the reader of the research report to be able to determine the applicability of the findings to the practice setting, educational settings, future research studies, or policy implications (Guba & Lincoln, 1989). The primary means by which transferability can be facilitated is through the use of thick description, by which the reader of the report may determine the applicability of the results.

The setting in which the study took place was carefully detailed including the place, context and culture in which data collection took place. Two physicians at the mental health centers were given a list of inclusion criteria to aid in identification of prospective participants (please see Appendix D). The physicians discussed the intent of

the study with patients who met the inclusion criteria. If a patient was interested in participating in the study, she was given a flyer with the researcher's contact information, and a time to conduct the interviews was arranged.

During the interview, reflective notes were taken to provide thick description. Thick description is a technique that is used to describe human behavior and the context in which it occurs, with the intention of making the information meaningful for interpretation by an outsider (Guba & Lincoln, 1989).

### Dependability

Dependability considers the stability of the analytical process over time (Guba & Lincoln, 1989). The procedure for achieving this criterion was to ensure that the process of analysis used an established, trackable, and documentable method. Care was taken to ensure that the process adhered to the methodology described above to maintain an "established, trackable and documentable process" (Guba & Lincoln, 1989, p.242). Dependability does not refer to changes related to maturing re-constructions or growth in understanding of the phenomenon (Guba & Lincoln, 1989). If the researcher began to experience boredom, exhaustion, or psychological stress (Guba & Lincoln, 1989), data analysis was stopped until it could be approached from a fresh perspective. The data analysis process was also closely monitored by the researcher's thesis advisor and as needed by the two other members of the thesis committee.

An established, trackable and documentable process was utilized to ensure dependability in this study. Dependability was assured by maintaining adherence to the outlined methodology. Themes were identified in each interview, and were then

collected and compiled into patterns. Then, those collected patterns from the interviews were arranged into topics.

### Confirmability

Confirmability describes the neutrality of the study, or the degree to which the findings are influenced by the participants, not the researcher's bias, motivation or interest (Guba & Lincoln, 1989, p. 241). The procedures used to achieve confirmability of the research included "assuring that data, interpretations, and outcomes of inquiries are rooted in contexts and persons apart from the evaluator and are not simply figments of the evaluator's imagination" (Guba & Lincoln, 1989, p. 241). "Both the raw products and processes used to compress them are available to be inspected and confirmed by outside reviewers of the study" in the event that individuals reviewing the study would like to audit the findings (Guba & Lincoln, 1989, p. 241). Data analysis papers will be saved and available for five years to allow for a confidential inspection by an outside reviewer of the study if needed.

Prior to data analysis, the researcher reflected on her "values, motives, biases, and political persuasions . . ." in an effort to set those biases aside during the process of data analysis (Guba & Lincoln, 1989, p. 243). Monitoring biases and discussion with the three members of the researcher's thesis committee identified in the informed consent, helped to diminish bias that could influence the analysis. When reporting the results, to assure confirmability, exemplars, or de-identified statements by the interviewee, were provided as examples of the findings that can be related back to the interviewee's words.

The de-identified exemplars from the interviews were then related to themes, patterns and topics that are included in the analysis chapter.

### Summary

Qualitative analysis of interviews about the experience of women who have been diagnosed with schizophrenia, who are between the ages of 19 and 44 years old, presents a “direct representation of an individual’s own point of view and descriptions of experiences, beliefs, and perceptions” (Luborsky, 1994, p, 190). Currently no research exists that takes into consideration the experience of women who take SGA. Health care providers must understand the experiences of this unique population in order to assist in improving patient outcomes. This qualitative study provides insight into the experience of women with schizophrenia who take SGA.

## CHAPTER 4

## RESULTS

Introduction

The purpose of this research was to gain an understanding of the experience of taking second generation antipsychotics as a young, adult woman. One open-ended interview was conducted to gain an understanding of the challenges faced by the target population. The data were analyzed using Luborsky's (1994), method of thematic analysis.

Sample

One participant was interviewed from a mental health center in the Northwest. She was recruited by an intermediary physician for this research. The participant is a female adult who has a diagnosis of schizophrenia. The participant is in her mid-adulthood. She was not employed at the time of the interview. She had completed two years of college. She received her diagnosis of schizophrenia one year ago. When asked if she had any medical conditions, she explained that she has seizures which started when she started taking medication to treat her schizophrenia. At the time of the interview, the participant was taking benztropine, quetiapine, venlafaxine, haloperidol, amantadine and lorazepam.

A total of five mental health centers in the Northwest were contacted and provided the option to participate in the study; each of which will be referred to as

Centers A, B, C, D and E to both decrease confusion for the reader, and to maintain confidentiality. Centers A and C of the five mental health centers elected to assist in the identification of prospective participants; Center C provided the participant for this research. Although Center A was willing to participate, it was unable to provide any participants within the defined target population. Center D and E elected not to participate in the research study. To protect the identity and privacy of the participant, she will be referred to as Ann throughout the discussion of the study results.

### Results

Data analysis included the identification of themes derived from direct quotes in response to interview questions used to explore the experience of adult women with schizophrenia who take SGA. Next, patterns and similarities were identified among the themes identified in each interview and applied to each interview. Then, the identified patterns were consolidated into topics. The five topics identified during data analysis include: 1) getting to know the illness; 2) experiencing the effects of medication; 3) appreciating the therapeutic effects of medication; 4) feeling irritated with the illness; and 5) learning how to manage the illness. Table 6 provides a summary of topics, patterns and themes. Following the table, each of the topics will be supported in a discussion of de-identified exemplars from the interview.

Table 6. Summary of Topics and Patterns.

Topics	Patterns	Number of Themes Coded
Getting to know the illness	Beginning to recognize something was wrong	6
	Feeling terrified of her diagnosis	1
	Identifying mental illness as a “handicap”	1
	Experiencing paranoia and auditory hallucinations	1
	Explaining delusions	5
	Sensing the omnipresence of her illness	4
	Experimenting with medications	4
	Noting the consequences of medication non-adherence	2
Experiencing the effects of medication	Fatigue	3
	Weight gain	9
	Seizures	9
	Grinds teeth	1
	Experiencing disordered movement	4
	Cold sweats	1
	Feeling dull	2
Appreciating the therapeutic effects of medications	Appreciating long acting injectable effectiveness	5
	Realizing medications assist with sleep	1
	Seeing that medications help her cope with her illness	1
	Feeling calm	1
Feeling irritated with the illness	Noticing the burden of medications	7
	Recognizing social challenges	3
	Feeling discouraged with a provider	2
	Finding medication ineffective	6
Learning how to manage the illness	Understanding the importance of medication adherence	9
	Demonstrating knowledge of medications consumed	5
	Identifying coping skills	9
	Engaging in the treatment process	2
Total		108

### Getting to Know the Illness

The first topic to emerge, getting to know the illness, encompassed a variety of patterns. When Ann received the diagnosis of schizophrenia, she said she was “terrified.”

Then, Ann described her feelings, prior to the diagnosis, when she began to realize that something was wrong. She noticed that she was being followed by cars in her late teenage years. When she noticed her thoughts becoming progressively more threatening, she decided to seek help. She gave an example of these threatening thoughts by stating, “people were out to kill me last year, so that’s why I went and got help.” She then described an incident when she said, “I lost control and didn’t know what was going on, and I was completely delusional.” Ann’s described an “episode,” in which she was taken to an inpatient psychiatric treatment facility by the police. Following her treatment at the inpatient psychiatric treatment facility, she stated that she was discharged to a “group home.” At one point, Ann identified the group home as “a place where people with mental handicaps go.”

Ann expanded on her experiences of schizophrenia in various ways. Ann noted her experiences of both visual and auditory hallucinations. Ann spent a great deal of time expanding on her delusions, what they mean to her, and how they influenced her life. The delusions Ann described included feeling she is being followed, believing people have alternate identities, and describing two different “lines of sight” when she is standing in a crowd.

In relation to Ann’s delusions, it became evident to the researcher that she identified a sense of omnipresence, or a feeling that her diagnosis of schizophrenia was present in all areas of her life. Although Ann voiced that her medications assisted in the management of her delusions, she noted that her delusions “never really go away.” She reiterated this point four times during the interview.

In becoming acquainted with her illness, Ann described instances in which she experimented with her medications. When off of her medications, she explained that she isolates herself, begins hearing voices calling her name and whispering in her ear. When Ann was asked what prompted the discontinuation of her medications, she stated, “You get to a point where you think you are at baseline and you think you are fixed...” She expanded on this thought by saying that when she began to feel better, was the moment when she felt as though she no longer needed her medications.

Ann was able to share her insight as to what she has noticed in regards to her experience of the consequences of medication non-adherence. Two realizations observed by Ann as complications of medication non-adherence included: 1) her knowing that she will not go outside when she does not take her medications, and 2) that she becomes increasingly paranoid when she does not take her medications.

#### Experiencing Medication Effects

Ann seemed to emphasize the seizures and weight gain more frequently than the other side effects. Ann also mentioned side effects including: fatigue, grinding her teeth, abnormal movements, feeling dull, and cold sweats. To gain a better understanding of Ann’s experience of seizures, a description will be provided below.

Ann stated that her seizures began when she started taking medications. She stated that she does not know how many seizures she has had, but acknowledged that she has had too many to count. She went to a neurologist to receive treatment for the seizures. She said that he wanted to provide more medication to treat her seizures, but she was not interested in adding another medication to her regimen. In addition to Ann’s

concern regarding her development of seizure activity, was her concern regarding the weight gain she had experienced in association with the medications she takes to treat her schizophrenia.

Ann recognized that her weight gain began when she started on quetiapine. Although Ann is no longer taking risperidone, she noticed that when she was on risperidone she experienced weight gain. She noticed that she gained thirty pounds over a two to three month period of time. She described this experience of gaining weight as, “horrible.” Despite many efforts to lose the weight, she says she is unable to lose weight. She also expressed her frustration with the weight gain associated with long acting injectable antipsychotic medications. In regards to receiving long acting injectable antipsychotics, she stated, “They all make you gain weight, that is what I heard.” Toward the completion of the interview Ann began to correlate weight gain with her psychotropic medications. Ann noted that the weight gain was difficult for her to tolerate.

The presence of additional medication issues that affected Ann were mentioned to a lesser extent. She noticed that when she takes risperidone and quetiapine, she feels tired throughout the day. She knows that she is the most tired after she takes her medications in the morning. Ann feels like she has to move all the time, and notices her need to move her tongue and grind her teeth. She has noticed that when she stops taking her quetiapine, she experiences cold sweats. When she takes her medications she starts to feel dull. In regards to feeling dull, she stated “It is hard for me to like, show a lot of emotion you know. When I need to.”

### Appreciating the Therapeutic Effects of Medications

Receiving treatment with long acting injectable haloperidol was helpful for Ann, and she did not mind receiving the injection. Ann explored her beliefs regarding the use of a long acting injectable in the following statement: "...I think that a shot really saves you...If you're going to get off your meds, you can't really do anything because you already had the shot..."

She has noticed additional positive qualities in respect to taking medications. quetiapine helps her sleep. Her medications help her cope with her illness, although she acknowledges that her delusions never go away completely. When asked what some of the main benefits of taking medications were for Ann, she stated, "They keep me calm."

### Feeling Irritated with the Illness

Although Ann has noticed her increased ability to remain calm by taking her medications, moments of irritation with her illness were also revealed. The burden of medications was reflected in statements such as, "I'm on enough medications as it is," "Adding one more, I just don't want to," and "I get sick of being medicated." However, she noticed that she is "a bit irresponsible about it," in regards to taking her medications. Ann does not like the responsibility of going into the mental health center on a weekly basis to obtain her medications and remarks that, "I mean, I take quite a few."

Medications including risperidone and cogentin were found to be ineffective for Ann. Both oral and long acting intramuscular preparations of risperidone did not help Ann per her report. Benztropine was added to her medication regimen with the intention

of limiting abnormal movements; however, that had no effect on her abnormal movements.

Ann reflected on her discouraged feelings toward a healthcare provider. Upon evaluation for her seizures she did not receive medication to treat her seizures. Thus, she decided not to go back to see this provider a second time. In addition to feeling irritated with this health care provider, Ann described patterns lending themselves to the creation of social challenges.

Two patterns arose from statements identifying a topic of social challenges. Ann was able to note that she becomes “paranoid” when meeting new people, and does not like being in large groups of people.

#### Learning How to Manage the Illness

In learning how to manage her diagnosis of schizophrenia, Ann has come to understand the importance of medication adherence. Ann remarked a couple times that she has learned that if she discontinues her medications, she will go “downhill.” Meanwhile, she also recognizes that if she goes back on her medications, she does “a little better.” During the interview, Ann was asked what would be really important for others to know about taking medications. Her response was: “Once you’re on them, you gotta stay on them. [Laughs] because if you go off them, you go downhill fast.” When asked about the things that helped Ann stay on her medications, she responded, “Just knowing that.”

Knowledge of medications consumed was evidenced by Ann’s descriptions of various medications she has taken. She stated that she has taken hydroxyzine, both the

oral and intramuscular form of risperidone and currently takes haloperidol in a long acting injectable formulation. Ann was able to provide a list of all the medications she is currently taking. She engages in the treatment process by participating in medication management. She picks up her medications from the mental health center and uses organizers to ensure she does not miss a dose. Ann takes the opportunity to learn as much about her medications as possible. This allows her to be an active participant in the treatment of her schizophrenia. This allows Ann the ability to become aware of issues and problems with her medications and begin to propose a means to correct any issues with her medications. Knowing what medications she takes and noting the effects each medication has on her symptoms of schizophrenia allows her to be an active participant in her care.

Ann identified skills, in addition to the use of medications that she has obtained along her journey to help her cope with her illness. Ann noted that her dog is her main coping mechanism by increasing her ability to calm effectively and providing a sense of safety. It should be noted that Ann did not mention any interpersonal relationships in which she relied on as a support system. Other than mentioning her dog, she did not identify additional coping skills.

### Summary

This study explored the experience of one adult woman participant with schizophrenia who takes SGA. This study identified topics that revealed both barriers and strengths related to the management of schizophrenia via SGA. Following her

receipt of the diagnosis of schizophrenia, Ann started to get to know her illness. Her treatment with medications yielded both experiences of the negative effects of the medication, as well as a development of an appreciation for the therapeutic effects of her medications. At times Ann revealed her irritations in dealing with the illness, although she also demonstrated how much she has learned over the past year regarding the management of her illness.

## CHAPTER 5

## CONCLUSION

Introduction

This qualitative study explored the experience of an adult woman with schizophrenia who takes SGA to manage her illness. Luborsky's method (1994) was used to analyze the data, resulting in the identification of the five topics identified in Chapter 4. In Chapter 5 the relationship between the results, Pender's Health Promotion Model (HPM) (Pender et al., 2011), and the literature will be discussed. Study limitations and the implications for nursing practice, nursing education, nursing research, and nursing policy and programs will be presented.

Results Relevant in the Literature

The Health Promotion Model, developed by Nola Pender (Pender et al., 2011), is a holistic nursing model which is used to explain the cognitive processes involved in changing behavior in order to assist clients in developing health promotion practices across the lifespan. The model recognizes that each individual has unique characteristics and experiences that influence their subsequent actions (Pender et al., 2011). Relevant variables that compose the HPM will be used to organize the discussion of the results of this study that were pertinent to the literature reviewed.

Prior Related Behavior: Pender (2011, p. 45) explained that "often the best predictor of behavior is the frequency of the same or a similar behavior in the past." The

literature recognized that the experience of extrapyramidal side effects (EPSE) can be a predictor of non-adherence to one's medication regimen (Josiassen, 2010). Ann's non-adherence to her medication regimen was not outside the normal limits in comparison to other individuals identified in the literature. Josiassen (2010) explained that patients experiencing their first episode of psychosis relapsed within the first five years even while receiving treatment. Gutierrez-Casares et al. (2010) noted that even partial non-adherence to an oral antipsychotic medication can result in an increase in relapse, hospitalization and psychiatric emergencies.

As Ann described her interaction with her medications, it became evident that her past behavior with medications had an impact on her current behavior with medications. As supported in the literature, Ann experimented with discontinuing her medications, because she believed that when she was feeling well, she did not need her medications. Further in the interview, Ann revealed her conviction of the importance of being adherent to one's medication regimen in order to prevent the individual from going "downhill," meaning deteriorating.

Personal Factors: In the HPM Pender et al. (2011) recognized biologic, psychological, and sociocultural as factors that have the ability to impact a target behavior. Ann's self-esteem, self-motivation, and perceived health status are factors that have the ability to affect her behaviors. Ann was motivated to adhere to her treatment regimen due to negative past experiences as a result of non-adherence to her medication regimen. Ann's completion of two years of college may have assisted in her ability to manage her illness more effectively, provided that she has an education in which she can

apply to coping with her diagnosis of schizophrenia. However, Ann's current state of unemployment may have impacted her finances in such a manner that she could not pay for treatment of her schizophrenia, including but not limited to psychotherapy, medication management, and medication. Financial constraints created a barrier for Ann in handling her illness to create the best possible outcomes.

Behavior Specific Cognitions and Affect: In the HPM Pender et al. (2011) discussed the importance of activity-related affect for behavior change. Acknowledging affective responses of an action are associated with subsequent thoughts regarding the behavior. For example, Ann associated the side effects of fatigue, weight gain, seizures, grinding her teeth, experiencing disordered movement, cold sweats, and feeling dull with her medications. These may influence her feelings and behavior regarding taking medication in the future.

Ann noted that some perceived benefits of adhering to her medication regimen included being able to go outdoors. Ann perceived the inconvenience of having to go to the mental health center every week to get her medications as a barrier. Ann did not identify expense as an issue regarding obtaining her medications. However, Ann was engaged in a mental health program which assisted in decreasing the number of barriers she faces in regards to the treatment of her schizophrenia including a case manager to manage her care financial assistance, and medications that are provided to her on a weekly basis. Significant barriers which may have deferred Ann from engaging in health promoting behaviors were minimized by the mental health program in which she was enrolled.

Barriers that are innate to the nature of schizophrenia include the positive, negative, and cognitive symptoms outlined in chapter two. The negative symptoms are more debilitating, which include the display of an absent, blunted or flat affect; thought blocking; poverty of speech; avolition; and/or social withdrawal. Thought blocking refers to intermittent silence that occurs when one is speaking. Questioning or topics that are intimate to an individual can trigger thought blocking. When the individual begins to speak again, he or she will start talking about a subject that is completely unrelated to the topic being discussed prior to the thought block occurring. Avolition refers to a lack of drive or motivation to complete goals or tasks.

The mental health program provides Ann with individualized care that helps her cope with these barriers. She has access to an entire treatment team dedicated to meeting her needs around the clock. This treatment team consists of a psychiatrist who manages her medications, case management, nursing staff, substance abuse counseling, and vocational rehabilitation. These are all services she would not receive if she was not enrolled in the mental health program. Ann's access to this combination of resources significantly decreases her risk for relapse and increases her access to services to which she may not otherwise have access (Lee et al., 2008).

Interpersonal Influences: The interpersonal influences described by Pender et al. (2011) reflect the behaviors, beliefs, or attitudes of others. Ann expressed a sense of "paranoia" when meeting new people. Standards set in the form of social norms were not a prominent interpersonal influence for Ann. Ann did not reference the importance of the expectations of others, a social support system upon which she relies, or individuals who

serve as models for positive behavior (Pender, 2011). Social skills training can be more effective than medication in the prevention of relapse (Lee et al., 2008). Engaging in social skills training could help Ann improve her interpersonal communication skills, gain independence and increase her ability to function in the community (Kopelowicz, Liberman, & Zarate. 2006).

Voruganti et al. (2008, p.133) described the complexity of medication adherence composed of a combination of “personal beliefs, illness related factors, social attributes and health system variables.” This study revealed Ann’s lack of interpersonal influences, which then caused an imbalance in the delicate formula defined by Vorugani et al. (2008) that contributes to medication adherence. In an effort to enhance Ann’s interpersonal influences, she may benefit from social skills training with the intention of preventing relapse (Lee et al., 2008).

### Limitations

One limitation in this research relates to the inability to recruit prospective participants. Five facilities were contacted, two of which agreed to engage in subject recruitment. However, only one participant volunteered. It could be that once prospective participants were identified, the negative symptoms associated with schizophrenia, feeling a necessity to provide only social acceptable information and stigma associated with mental illness were related in some manner to the low number of participants willing to attend an interview with an unknown person.

The vulnerability of the population may have posed a challenge for subject recruitment, decreasing the mental health facilities willingness to engage in research. It was evident during the process of contacting organizations regarding the possibility of recruiting research participants from their facilities that the mental health centers were not familiar with the process of research. Additionally, none of the five agencies contacted had their own institutional review board.

It is possible that the mental health centers that were contacted to participate in this study are understaffed, employees are overworked, and the centers are underfunded. Adding an additional obligation to an already demanding workload may have been too overwhelming. Considering the high demands at these mental health centers, participation in research may not have been a priority. The lack of incentive to participate in the study may have been another factor deterring participation in the subject recruitment process. Perhaps finding a meaningful incentive such as providing in-service education for the staff would enhance the researcher/agency relationship. It also is possible that having an individual who works within the mental health center serve as a liaison between researcher and agency would be beneficial in the identification of prospective subjects.

### Implications

Nursing Practice: The impact of this research on the practice of nursing could be far reaching. When working with patients with a diagnosis of schizophrenia, it is imperative to investigate the patient's perspective and experience of their illness and

develop a thorough understanding of any treatment side effects experienced by the patient. Developing a systematic method, or tracking system, in which to investigate medication adherence can assist in the prevention of relapse or expose the need for a new medication regimen. Nurses can process with patients in an effort to effectively identify barriers that impede health promoting behavior. Nurses can facilitate the dissemination of psychoeducation on the experience of schizophrenia in women.

Nursing Education: Nursing education can improve understanding of the diagnosis and treatment of schizophrenia in women. Ensuring that nursing students review the neurobiological processes that occur in schizophrenia, will facilitate an understanding of the disease manifestations. Discussion of the negative, positive, and cognitive symptoms and their impact on the individuals' ability to function in their activities of daily living is essential for students to understand the potential resources an individual with a diagnosis of schizophrenia may require. Examples of resources include psychotropic medication management, individual and group therapy, case management, and vocational rehabilitation. Once the individual's needs are identified, the nursing student can be educated how to act as a patient advocate to ensure their patient's needs are met with the intention of achieving the best possible outcome for the patient.

An understanding of the second generation antipsychotics would assist nursing students in better serving this unique population. A comprehensive overview of the mechanisms of action, pharmacokinetics, and side effects could prevent a patient from experiencing uncomfortable, and possibly life threatening side effects.

Developing a systematic manner in which to assess medication adherence will decrease the patient's likelihood of relapse. Additionally, learning to assess the patient's tolerability of SGA therapy can facilitate adherence.

Nursing Research: Additional research is needed to improve clinical outcomes for adult women with schizophrenia. Gaining a comprehensive understanding of how SGA affect women specifically can assist providers in giving care that is sensitive to the needs of women. Eliciting study participants between the ages of 19 and 44 with schizophrenia is extremely difficult, thus they are under-represented in the literature. It is proposed that research related to identifying effective methods of outreach to women between the ages of 19-44 years old with a diagnosis of schizophrenia is needed if this gap in the literature is to be closed.

This study also revealed a deficit in the knowledge of mental health centers in the northwest regarding the research process. Gaining a better understanding of agency barriers to research is important so these barriers can be minimized, thus improving the possibility of conducting research at such facilities in the future. Addressing deficits in knowledge of the research process allows for the advancement in treatment for individuals with mental illness who reside in this northwest region. Providing incentives may increase the desirability for agencies to engage in future research.

Nursing Policy and Programs: Nurses can act as advocates to develop policy that can increase research opportunities in mental health centers. The intent would be to gain

access to various aspects of the mental health community in order to improve patient outcomes.

Programs discussing the challenges women with schizophrenia experience could be implemented. Programs would include a comprehensive approach to issues specific to women with schizophrenia. Creation of a peer support group for women with schizophrenia could provide a sense of support. Addressing these barriers can enable individuals to pursue a path of health promotion and wellness, despite a diagnosis of schizophrenia.

### Summary

Ann's insight has shown that her personal experience of discontinuing medications can decrease willingness to abruptly stopping a medication regimen in the future. Ann's experience of discontinuing her medications was very uncomfortable and increased her motivation to adhere to her medication. Ann shared her appreciation of her medications and the fact that they allow her to do activities she would not be able to do otherwise due to her paranoia, such as going outdoors. Having an education, unemployment, self-esteem, self-motivation, and perceived health status are examples of personal factors that impact Ann's resiliency and outcome in relation to her diagnosis of schizophrenia. Ann experienced a multitude of side effects from her medications. These side effects have the ability to impact her feelings regarding taking medications in the future.

Barriers exist that are characteristic of the nature of schizophrenia, including positive, negative and cognitive symptoms. Without the mental health program, it is unknown where Ann would be in regards to the treatment of her illness due to how debilitating the negative and cognitive symptoms can be in schizophrenia. Ann was lacking a support system. She would benefit from a social skills training program in order to protect her independence, facilitate community involvement, and improve her communication skills.

Nurses can make a difference for adult women who are coping with a diagnosis of schizophrenia. Nurses can educate students, facilitate psychoeducation, monitor adherence, and assess tolerability of SGA. Incentives can be provided to increase the amount of available research on this vulnerable and difficult to access population.

Schizophrenia is a complex disease process. Proper management will decrease the mortality and morbidity associated with this disease process. The results of the study, review of literature relevant to the research question and the application of the HPM (Pender et al., 2011), exposed possibilities and hopes for developing an understanding of the experience of adult women who take SGA.

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APPENDICES

APPENDIX A

RECRUITMENT FLYER

## Seeking adult women who have experience managing their schizophrenia with second generation antipsychotics

Aripiprazole (Abilify)  
Asenapine (Saphris)  
Clozapine (Clozapril)  
Iloperidone (Fanapt)  
Lurasidone (Latuda)  
Olanzapine (Zyprexa)  
Paliperidone (Invega)  
Quetiapine (Seroquel)  
Quetiapine (Seroquel XR)  
Risperidone (Risperidal)  
Ziprasidone (Geodon)

Are you an adult woman between the ages of 19 and 44 years old? Do you have a diagnosis of schizophrenia? Have you been taking any of the medications listed above for at least three years? If you answered "yes" to all of these questions, you may be able to participate in the research study described below.

Allison Moon is a graduate nursing student at the Montana State University College of Nursing. She is seeking people like you to participate in a research study to better understand the experience of taking second generation antipsychotics. The research will consist of an interview that will take approximately 60 to 120 minutes of your time. Your personal information will remain confidential. If you are interested in participating in Allison's research, please call her at (XXX) XXX-XXXX, so she can make arrangements for a time and place to meet.

APPENDIX B

SUBJECT CONSENT FORM

SUBJECT CONSENT FORM  
FOR  
PARTICIPATION IN HUMAN RESEARCH  
AT MONTANA STATE UNIVERSITY

Study Title:

**The experience of adult women with schizophrenia who take second generation antipsychotics**

You are being asked to participate in a study that is attempting to understand the experience of women with schizophrenia who take one of the following second generation antipsychotics: aripiprazole (Abilify), asenapine (Saphris), clozapine (Clozaril), iloperidone (Fanapt), lurasidone (Latuda), olanzapine (Zyprexa), paliperidone (Invega), quetiapine (Seroquel), quetiapine (Seroquel XR), risperidone (Risperidal) or ziprasidone (Geodon). You have been asked to be in this study because you are an adult woman with schizophrenia who has been taking a second generation antipsychotic for at least three years.

What is the purpose of this study?

The purpose of this study is to develop an understanding of the challenges and benefits women experience when taking a second generation antipsychotic for the management of schizophrenia.

Who will participate in this study?

Women between the ages of 19 to 44 years old with a diagnosis of schizophrenia who have been taking a second generation antipsychotic for at least three years will participate in this study.

What will happen during this study?

If you agree to participate in this study, you will be asked to take part in an interview in which you will be asked to share your experiences with the use of second generation antipsychotics for the management of your schizophrenia. Interviews will be done at a time and place that is convenient for you. The interviews will be tape-recorded and transcribed on a password protected computer.

How long will the study last?

Your interview may take anywhere from 60 to 120 minutes. Following the interview, if additional questions about the content of the interview arise, the interviewer, Allison Moon, may call you to clarify any points of confusion.

What are the risks of the study?

Your participation in the study involves low risk.

What are the benefits of the study?

This study may be of no direct benefit to you. However, the study may help health care providers improve the health of women with schizophrenia by developing an understanding of their experiences of being treated with second generation antipsychotics.

Will it cost me anything to be in this study?

You will not have any financial costs for participating in this study.

Will I be paid for participating in this study?

You will not be paid for your participation in this study.

What about confidentiality?

Your personal information will remain confidential. The tape-recorded interview will be identified with a code. The key to the codes and the signed consents will be kept in two separate locked files, and destroyed after 5 years. Audio recordings will be destroyed after transcription. Transcripts will be entered into a computer with a protected password. All identifying information will be removed from transcripts. Portions of these de-identified transcripts may be shared with my thesis committee for analytical purposes. The members of my thesis committee are: Patricia Holkup, PhD, RN; Brett Hollis, RN, MN, FNP; Susanna Darr, MSN, APRN-BC. Your name will not be identified in any reports and/or publications resulting from this study.

Is being in the study voluntary?

Participation in this study is completely voluntary. You may withdraw from this study at any time. Any data gathered to that point will be destroyed.

Who is funding the study?

As a master's thesis, this is an unfunded study.

What if I have questions?

All questions are encouraged. If you have questions about the study, please contact Allison Moon, RN at (XXX) XXX-XXXX or [allison.g.moon@gmail.com](mailto:allison.g.moon@gmail.com), or my advisor, Patricia Holkup, PhD, RN at (XXX) XXX-XXXX or [pholkup@montana.edu](mailto:pholkup@montana.edu). This study has been approved by the Human Subjects Committee at Montana State University-Bozeman. If you have questions about your rights as a study participant, please contact the Chairman of this committee, Mark Quinn, at (XXX) XXX-XXXX.

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Authorization from adult participants

AUTHORIZATION: I have read the above and understand the discomforts, inconveniences, and risks of this study. I \_\_\_\_\_ (print name) agree to participate in this research. I understand that by signing this form, I have not given up any of my legal rights. I understand that I may later refuse to participate, and that I may withdraw from the study at any time. I have received a copy of this form for my own records.

Signed \_\_\_\_\_ Date \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_

Researcher \_\_\_\_\_ Date \_\_\_\_\_

APPENDIX C

INTERVIEW QUESTIONS

## Interview Questions

## Demographic questions

1. Age
2. Employment
  - a. Occupation
3. Educational level
4. Date of diagnosis
5. Additional health conditions
6. Medications you are currently taking

## Open-ended interview questions

1. What was it like for you when you were first diagnosed with schizophrenia?
2. Could you tell me how your schizophrenia was first treated?
  - a. How was that for you?
  - b. What have been the main benefits and challenges of treatment?
3. How has it been for you taking second generation antipsychotics?
  - a. What have been the main benefits and challenges of treatment with second generation antipsychotics?

APPENDIX D

INCLUSION CRITERIA FOR PHYSICIANS  
ASSISTING IN PARTICIPANT IDENTIFICATION

Inclusion Criteria for Physicians  
Assisting in Participant Identification

Inclusion criteria:

- Female
- 19 to 44 years old
- Diagnosis of schizophrenia
- Taking a second generation antipsychotic for at least three years
- Caucasian
- English speaking

APPENDIX E

LIST OF SECOND GENERATION ANTIPSYCHOTICS

List of Second Generation Antipsychotics\*

Aripiprazole (Abilify)  
Asenapine (Saphris)  
Clozapine (Clozaril)  
Iloperidone (Fanapt)  
Lurasidone (Latuda)  
Olanzapine (Zyprexa)  
Paliperidone (Invega)  
Quetiapine (Seroquel)  
Quetiapine (Seroquel XR)  
Risperidone (Risperidal)  
Ziprasidone (Geodon)

Non-U.S.

Perospirone  
Zotepine  
Sertindole

\* Pharmacists Letter. (2009). Comparison of Atypical Antipsychotics.  
*Pharmacists Letter/Prescribers Letter*, 25(25), 1-2.

\* Stephen, S. M. (2008). *Stahl's Essential Psychopharmacology: Neuroscientific Basis and Practical Applications*. New York, NY: Cambridge University Press.

APPENDIX F

APPROVAL FROM MSU-IRB



## INSTITUTIONAL REVIEW BOARD

For the Protection of Human Subjects

FWA 0000165

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### MEMORANDUM

**TO:** Allison Moon and Patricia Holkup

**FROM:** Mark Quinn *Mark Quinn*  
 Chair, Institutional Review Board for the Protection of Human Subjects

**DATE:** August 9, 2012

**SUBJECT:** "The Experience of Adult Women with Schizophrenia Who Take Second Generation Antipsychotics" [AM080912]

The above proposal was reviewed by expedited review by the Institutional Review Board. This proposal is now approved for a period of one-year.

Please keep track of the number of subjects who participate in the study and of any unexpected or adverse consequences of the research. If there are any adverse consequences, please report them to the committee as soon as possible. If there are serious adverse consequences, please suspend the research until the situation has been reviewed by the Institutional Review Board.

Any changes in the human subjects' aspects of the research should be approved by the committee before they are implemented.

It is the investigator's responsibility to inform subjects about the risks and benefits of the research. Although the subject's signing of the consent form, documents this process, you, as the investigator should be sure that the subject understands it. Please remember that subjects should receive a copy of the consent form and that you should keep a signed copy for your records.

In one year, you will be sent a questionnaire asking for information about the progress of the research. The information that you provide will be used to determine whether the committee will give continuing approval for another year. If the research is still in progress in 5 years, a complete new application will be required.