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**SMOKING CESSATION IN THOSE LIVING WITH SCHIZOPHRENIA**

by

**Angela Bradbury**

**A Thesis**

**Submitted in partial fulfillment of the requirements of the  
Master of Arts Degree  
of  
The Graduate School  
at  
Rowan University  
May 4, 2010**

**Thesis Chairs: John Klanderman, Ph.D. and Roberta Dihoff, Ph.D.**

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## ABSTRACT

Angela Bradbury  
SMOKING CESSATION IN THOSE LIVING WITH SCHIZOPHRENIA  
2009/10

John Klanderman, Ph.D. and Roberta Dihoff, Ph.D.  
Master of Arts in School Psychology

The study was conducted at a group home located in Salem County where 6 people with severe mental illness reside. 4 of the 6 people are smokers and diagnosed with schizophrenia. The 4 people in the study all showed interest in quitting smoking. The subjects were given questionnaires weekly and were monitored daily to record the amount of cigarettes smoked. The questionnaires that were administered are the Intention to Quit/ Interest in Quitting, Withdrawal Symptoms, Relief of Craving, and a Smoking Related Symptoms Score. The scores and answers were measured to see the likelihood and the motivation of the participants to quit.

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## CHAPTER I

### Need for the study

Schizophrenia is a mental illness that is not understood by many, but what has been found is that most of these individuals smoke more frequently than the normal population. In one group home in particular, 4 out of 6 residents are heavy smokers. For those living with schizophrenia there are many positive and negative effects that occur throughout their lives. Smoking cigarettes is thought to relieve some of these symptoms for those with this illness. Although some believe that since they enjoy smoking, don't take their pleasure away, mental health professionals have an obligation to bring the best quality of life to these individuals, and smoking cigarettes does not fit in that standard. It is necessary to aid those with severe mental illnesses such as schizophrenia in smoking cessation in order to help them live a better life. It is important to understand the rate at which those with schizophrenia smoke, and to determine whether they are able to utilize the same smoking cessation aids available or if there needs to be something else developed to aid those with this illness in quitting smoking.

### Purpose of the study

The purpose of this study is to examine whether it is possible for individuals living with schizophrenia to quit smoking, and if so, do the same smoking cessation patches work for these individuals as they do for the normal population. This study's goal

is to improve the quality of life in which individuals with schizophrenia are living. It is thought that this study will encourage a healthier lifestyle for those involved. The subjects of the study will take with them positive choices to make rather than choosing cigarettes and other harmful carcinogens and other harmful substances.

### Hypothesis

Those with schizophrenia will be able to quit smoking with the aid of psychological and physiological aids. Those with schizophrenia will need more than just nicotine patches to be able to quit smoking. Those with schizophrenia will be able to reduce their smoking but will have difficulty quitting altogether.

### Theory

Just fewer than 20% of Americans are smokers, yet the percentage within the mental health population is much higher. About half of all cigarettes sold in America are sold to people with mental disorders. More specifically, schizophrenic patients smoke cigarettes at a much higher rate than the general population and spend a disproportionate amount of their income on this addiction. Rates of cigarette smoking among people with psychiatric disorders are 2- 4-fold higher than in the general population (Lising-Enriquez 2009). Schizophrenia has one of the highest rates of smoking. Data from some studies indicate that 80% or more people with schizophrenia smoke (Keltner 2006).

Schizophrenics not only smoke more, they smoke “harder,” with significantly higher plasma nicotine levels achieved than in non schizophrenic smokers. Smoking behaviors include more puffs per cigarette, shorter puff intervals, and larger puff volumes (Keltner 2006). The dangers for those with schizophrenia are the same as those who do not have



this illness, yet most illnesses are more prevalent within the schizophrenic population who smoke.

Those who smoke with schizophrenia smoke not only for the reasons that everyone else does such as stress, but also to relieve severe positive and negative symptoms, self-medicating. Smoking can provide structure to unstructured parts of a day (Keltner 2006). Nicotine causes an increase in synaptic dopamine and it is thought that people with schizophrenia may smoke to compensate for downregulated dopamine expression and receptor binding in some brain areas (Keltner 2006). Dopaminergic stimulation causes improved mood, sharpened cognition, and decreases appetite- all desirable effects. Conversely, smoking cessation is linked to an irritable mood, mental dulling, and a soaring appetite (Keltner 2006).

Those with schizophrenia have a tendency to have cardiovascular and respiratory issues. There are many recorded deaths of those with schizophrenia that correlate with these diseases. Heart and respiratory disease deaths are 30% to 60% more likely among people with schizophrenia (Keltner 2006). More than two-thirds of people with schizophrenia compared to almost half of the general population die from coronary heart disease (Keltner 2006).

Smoking cessation rates are poor in heavy smokers and even lower in those with psychiatric illness. Attempts to get patients with schizophrenia to stop smoking have met with only limited success. There are many psychiatric nurses and psychiatrists who think if smoking brings pleasure, albeit briefly, into the life of a person with schizophrenia, then smoking should be permitted. Most psychiatric nurses, however, would hold to the

view that something so damaging as smoking cannot be justified, whatever the supposed short-term benefits. Visibly, smokers with schizophrenia have a severe nicotine addiction, and pharmacological and psychological support with smoking cessation needs to be addressed (Keltner 2006).

At a group home in Salem County, New Jersey, 4 out of 6 individuals with schizophrenia are heavy smokers. All of these residents have been told by numerous doctors that they are at high risk for multiple health risks, including cardiovascular, respiratory and heart issues. One of the residents in particular have been told that he needs to stop smoking immediately, as for the others, they have also been advised to quit. Smoking for these individuals helps pass the time and gives them a reason and a way to socialize with their housemates.

#### Definitions

Cessation- complete elimination of any nicotine including cigarettes, cigars and chewing tobacco.

Clozapine- An antipsychotic drug given to those with schizophrenia who do not respond to or cannot tolerate other drugs. It works by a mechanism that differs from those of other antipsychotic drugs. Clozapine is used to treat those with schizophrenia.

#### Assumptions

This study is assuming that the four individuals in this study are representative of those living with schizophrenia who smoke.

## Limitations

This study is only studying four individuals with schizophrenia who smoke cigarettes and may not be representative of the mental illness population. This study is only studying individuals age 52-70 with schizophrenia. Those being studied are all from New Jersey, and have lived there all their lives, therefore it may only represent the population of schizophrenics in New Jersey. The individuals participating have different levels of functioning and some require more staff supervision therefore possibly skewing the results because of the control the staff has over some, but not others.

## Summary

The study will be conducted at a group home in Salem County, New Jersey and will measure the amount of cigarettes each of the subjects smoke daily. After a baseline data is determined, smoking cessation devices will be used. The first smoking cessation device to try will be the nicotine patches as long as they are able to be prescribed by their doctor. If the patches do not seem to be working, other implementations will be tried including finding an alternative for those who smoke to use an aid with their strive to quit smoking, for example, having hard candy when the urge to smoke arrives. It is important to stay in contact and inform all doctors and psychiatrists of the progress of the individual in order for them to keep track of their medications and be sure that the study is not interfering with their medications, specifically the psychiatric medications.

In Chapter 2, we will explore the research that has been conducted regarding those with schizophrenia and their success or failure at quitting smoking. The research suggests that there may be a link between those who have schizophrenia and take the

drug Clozapine may have a better chance of quitting smoking than those who do not take this antipsychotic.

The research conducted with these four individuals from New Jersey was to administer numerous questionnaires each week on Saturday to determine different symptoms and other measures of smoking. These questionnaires include intent to quit, withdrawal symptoms, relief of craving, and a smoking related symptoms score. The data collected is recorded and ran through SPSS using ANOVA.

## CHAPTER II

### Introduction

Smoking Cessation is difficult for anyone to succeed. For those living with a severe mental illness like schizophrenia, it appears to be more difficult. People with schizophrenia are heavy smokers and report that smoking relieves many of their symptoms. There have been multiple studies done to determine the best approach for smoking cessation in this population. The most common ways to quit are the same as that of the general population: Nicotine Replacement Therapy and Bupropion in association with group therapy.

### Nicotine Replacement Therapy

Many studies that work on smoking cessation in the schizophrenic population utilize nicotine replacement therapy, most often, the patch. In Gallagher's study, they determined that Nicotine Replacement Therapy did not seem to help quit rates of these individuals. These individuals reported an interest in quitting smoking, but were not able to remain abstinent. Along with the patch, these researchers used many questionnaires, including a smoking history questionnaire, health questionnaire, substance use/abuse assessment, vitals, salivary cotinine, carbon monoxide, brief symptom inventory, Fagerstrom Test of Nicotine Dependence, Smoking Cessation Quality of Life, Smoking Status, Nicotine Replacement Therapy status, Intention to quit/ interest in quitting, Withdrawal Symptoms using the DSM-IV, Relief of Craving and Smoking related symptom score. These questionnaires were given throughout the study to see if the

amount of smoking changed, the health of the individual improved and so on (Gallagher 2007).

Most studies that utilize the patch determine that the better outcomes for smoking cessation were achieved through a combination of group or individual treatments and a prescription of nicotine replacement, or a combination of 2 or more strategies, possibly including the use of atypical antipsychotic agents rather than typical psychopharmacology (Bradshaw 2005, Tidey 2008, Keltner 2006, George 2000). The use of nicotine replacement is thought to substantially reduce but not completely eliminate nicotine withdrawal symptoms. In studies that provided nicotine replacement without coexisting psychosocial treatment have only produced reductions in smoking behavior and not abstinence (McChargue 2002). In one study with high nicotine dependence, a significant number of subjects quit smoking at the end of the program, but it slowly decreased by the 3-month and 6-month follow-up periods. All but 1 of the subjects who were able to originally quit had used the nicotine patch (Kinney).

A common fear is that the individual with schizophrenia will not completely understand that it is dangerous to smoke while on the patch, there has been one study which found that smoking with an active patch did not lead to toxic side effects and had similar results to that of the general population (Dalack 1999). Nicotine withdrawal symptoms can confuse or exacerbate the symptoms of schizophrenia. The use of nicotine replacement can substantially reduce but not completely eliminate these symptoms (Ziednonis 1997).

The various forms of Nicotine Replacement Therapy presented special complications for people with schizophrenia that extra counseling from a doctor could alleviate. Meadows suggested to follow a certain set of guidelines to help with this severe population; identify smokers, assess their readiness to quit, assess the risks of smoking cessation, write an individual plan with the person, use nicotine replacement, recommend group support and monitor frequently (Meadows 2001).

### Bupropion

In many studies there was also another aid that was looked at which is Bupropion. Bupropion is traditionally an antidepressant used to reduce depression symptoms, but it has been shown to aid in quitting smoking. It is believed that this works on quitting smoking because it inhibits neurotransmitters, which aid in the pleasure process in smoking. Bupropion studies have outcomes similar to those using Nicotine Replacement Therapy. There were many studies that looked at Nicotine Replacement Therapy and Bupropion, and found that better outcomes were achieved through a mixture of group or individual treatments and either nicotine replacement or Bupropion (Bradshaw 2005, Keitner 2006). Reductions in smoking were achieved in many studies, but just as the nicotine replacement abstinence was not achieved (McChargue 2002).

In small studies, they found Bupropion have been found to be well tolerated and to improve outcomes in schizophrenia (Williams 2007). Quit rates at 6 months were 11% to 18.8% for Bupropion and psychological support which is somewhat lower than Nicotine Replacement Therapy and psychological support at 12% to 16% (Robson 2005).

A 10-week educational program plus Bupropion reduced smoking post treatment but not after 6 months in Bradshaw's study (Bradshaw 2005).

Bupropion is currently considered the best pharmacotherapy option, consistently demonstrating significantly higher quit rates than the placebo, at 6-month follow-up abstinence rates were significantly higher for the Bupropion-treated group than for the group that received placebo medication (Hitsman 2009). Recent studies suggest that Bupropion, added to treatment with atypical antipsychotic, can enhance the likelihood of smoking cessation or reduction in patients with schizophrenia (McEvoy 2002).

#### Atypical Antipsychotics vs. Typical Antipsychotics

People with schizophrenia that are prescribed atypical antipsychotics tend to have more success with quitting than those prescribed typical antipsychotics. Second-generation antipsychotics may facilitate smoking reduction and cessation when combined with standard tobacco treatment (Lising-Enriquez 2009). Participants of one study who were prescribed atypical rather than typical antipsychotic medication were more likely to quit smoking. None of the participants who stopped smoking were taking typical antipsychotic medication (Bradshaw 2005). In another study, they found that Risperidone and olanzapine to be associated with the highest quit rates (George 2000). Atypical agents may be superior to typical agents in combination with the nicotine transdermal patch for smoking cessation in schizophrenia (George 2000). The dual approach combining smoking cessation groups with nicotine replacement or Bupropion therapy is more effective than groups alone, but relapse rates remain high among these groups (Bradshaw 2005).



Cigarette smoking affects clinical care by lowering the blood levels of antipsychotic medication. Clozapine-treated schizophrenia patients who are smokers have lower clozapine and norclozapine plasma levels than nonsmokers. Accordingly, smoking may reduce side effects related to antipsychotic drug administration (Ziednonis 1997). Another study found that patients treated with atypical antipsychotics such as clozapine, their negative symptoms tend to improve and they smoke significantly less (McChargue 2002, Barnes 2006). The results of a particular study indicated that participants who were taking typical antipsychotic medications responded to abstinence with a larger increase in nicotine withdrawal symptoms (Tidey 2003).

The overall quit rates determined in one study were 12 percent, yet, 16.7 percent for patients taking atypical antipsychotics. The percentage for conventional antipsychotics was 7.4 percent (El-Guebaly 2002). It was determined that switching patients from typical to atypical antipsychotics may help assist patients with schizophrenia to quit smoking altogether (Barnes 2006). This is believed to occur particularly with clozapine by increasing acetylcholine release, particularly in the hippocampus, activating nicotinic receptors, which could thereby reduce the desire to smoke (Williams 2007).

### Self-Medicating

It is known that the proportion of those subjects who successfully quit smoking is smaller among the schizophrenic population than among the general population (Roick 2007). In the presence of chronic nicotine, neurochemical adaptations occur to mediate the symptoms of nicotine withdrawal. Cigarette smokers report that smoking produces

arousal, particularly with the first cigarette of the day, and relaxation under stress (Watkins 2000). Some professionals have suggested that persons with schizophrenia use cigarettes as a means of self-medication of psychiatric symptoms (Laser 2000).

#### Given Choice: Fixed Ratio and Activities

In the case of using a token economy to improve smoking cessation, one study gave individuals the opportunity to smoke under a fixed ratio schedule of reinforcement, but were given options to choose money over smoking. The availability of monetary reinforcement significantly decreased smoking in these individuals. The results support the idea that the high rate of smoking among the schizophrenic population may be due in part to environmental factors that promote or condone smoking (Tidey 1999).

A study similar to that of the token economy, posed a decision where the schizophrenic individual could choose between smoking or engaging in other pleasant activities. Most schizophrenic participants chose smoking as their preferred activity more often than those who were in the general population. This population tends to account for more advantages than disadvantages than those of the general population (Spring 2003).

#### Relationship between Smoking and Schizophrenia

Psychological and behavioral models have been used in an attempt to find a reason for the relationship between smoking and schizophrenia but have failed to arrive at decisive conclusions. It has been hypothesized that there must be reasons for smoking that are unique or at least common to individuals with schizophrenia (McCloughen 2003). It has been discovered that nicotine directly affects dopamine neurotransmission. Individuals with schizophrenia derive more pleasure from nicotine than the average

individual (Wood 2003). The increase of dopamine induced by smoking may assist in alleviating some schizophrenic symptoms, particularly negative symptoms (McCloughen 2003). The nicotine receptors are predominately in the reward pathway of the brain. This is associated with the release of dopamine. The person with schizophrenia experiences a reward from smoking and the tendency to dysphoria when smoking is not available, and also able to overcome anhedonia (Keltner 2009, Spring 2003).

Individuals with schizophrenia commonly experience reduced attention compounded by or perhaps caused by the inability to filter out non-meaningful stimuli technically referred to as auditory gating deficit. Most schizophrenics' symptoms, particularly their auditory gating deficit, may be partially normalized by nicotine treatment (Delack 1998). Nicotine shows to improve attention and memory as well as the ability to block out extraneous sights and sounds which aid in better learning (Keltner 2009). Individuals were significantly higher in sensation seeking. Nicotine use is associated with impulsivity/sensation behaviors (Levander 2007). In patients who respond well to clozapine, this drug has been shown to normalize auditory gating (Leonard 1998).

Dixon's study is the first to document a clear connection between increased smoking severity and poorer overall self-reported subjective quality of life, as well as lower satisfaction with leisure activities, social relationships, finances and health among persons with severe mental illness. Data shows that increased smoking severity does not significantly improve problems with leisure and social activities among this population (Dixon 2007). One of the issues among this population is that individuals with schizophrenia who have a problem with nicotine or other substances and may actually see

themselves as doing better than they truly are in terms of their readiness to change (Addinton 1999). Subjects in a specific study reported that they smoked primarily for the sedative effects and the control of negative symptoms (Forcjuik 2002).

### Benefits and Risks

These individuals are able to report that the benefits of them quitting smoking include reducing the risk of long term health problems (cancer, pulmonary, and cardiac problems), financial savings, reduced home fire risk, and less stigma in public places (Ziedonis 1997). These individuals need help with the motivational portion of getting going. In most cases, it is unclear whether these patients have access to the necessary supportive environmental that is necessary to promote sustained abstinence. Despite evidence to the contrary, many healthcare professionals express concerns that restricting smoking among patients may substantially increase their aggressive behaviors or exacerbate their psychotic symptoms. Therefore, healthcare professionals tend to be reluctant to enforce smoking control actively and/or encouraging smoking cessation (McChargue 2002). When staff members themselves quit smoking, it may provide positive role modeling for patients and increase the staff willingness to provide smoking cessation support and intervention. This suggests that conventional attitudes about persons with mental illness being unable to quit smoking need to be modified (El-Guebaly 2002). As behavioral health treatment moves from symptom-reduction approaches toward wellness and recovery models that address helping the whole person, there is a greater emphasis on improving physical health and healthy lifestyles. Tobacco dependence is an important addiction that should be addressed as part of recovery-based mental health treatment (Williams 2007.)

## Predict Schizophrenia through Smoking?

There were two similar, yet contradictory studies that were found in the area of predicting schizophrenia among those who smoke cigarettes. In the one study, it was determined that the heaviest smokers had the least risk at developing schizophrenia. There was also a positive association between smoking and scalability. The study determined that it was possible that smoking may act as an independent protective factor for schizophrenia (2003).

The opposing study found that there was a significant association between the number of cigarettes smoked and the risk for developing schizophrenia, with heavier smoking being associated with the greater risk. The higher rate of smoking before the onset of illness might imply that smoking is an intrinsic, disease-related phenomenon, which might explain the particularly low rates of smoking cessation among patients with schizophrenia. It was considered that since schizophrenia patients might smoke in order to self-medicate cognitive deficits, future schizophrenic patients might smoke more in an attempt to use nicotine to self-medicate the pre-morbid cognitive dysfunction (Weiser 2004).

## Conclusion

There is a lot that is still unknown regarding schizophrenia and smoking cessation. There are many different approaches for one to take if aiding an individual with schizophrenia to quit smoking. The research tends to say that utilizing more than one approach is most beneficial. The use of Nicotine Replacement Therapy or Bupropion seems to be the most popular in conjunction with group therapy. Individuals with schizophrenia have many positive and negative symptoms that according to research tend

to improve with the use of tobacco products. Those who smoke report fewer symptoms than those who do not smoke. It is startling that antipsychotic levels in the blood are affected by smoking- this is an area more research is needed. It has been found that the ratio of smoking observed in schizophrenia and bipolar patients was similar may support the opinion that heavy smoking is an aspect of severe psychiatric illnesses in general rather than only of schizophrenia.

## CHAPTER III

### Introduction

Individuals with Schizophrenia have a very high incidence of cigarette dependence. In order to evaluate how to help those addicted to nicotine, this study measures the likelihood and the motivation of each participant to quit smoking. The study consisted of two groups, the control group, and a group who received nicotine replacement therapy. Four questionnaires were used to measure the likelihood and the progress of the participants in achieving smoking cessation. Each of the questionnaires was given to the four participants every Saturday for ten weeks, two of which were the collection of baseline data.

### Participants

The sample of participants was selected at a group home in which I am employed in Salem County, New Jersey. There are 6 individuals that live at this group home, 4 of whom smoke. This population has a diagnosis of Schizophrenia which was determined by a psychiatrist based on the criterion in the DSM-IV-TR. The DSM-IV-TR identifies schizophrenia as having 2 or more of the following for a significant portion of time during a one month period; delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, and negative symptoms. They also must exhibit social/occupational dysfunction, and have persistent disturbances for at least 6 months. All of the participants were admitted into Ancora Psychiatric Hospital, and later

transferred to the group home after an extended stay at the hospital. The population is all male who smoke 1-2 packs of cigarettes per day, and are aged 52-69. Three out of four of the individuals who smoke are taking the medication Clozapine, which has been thought to aid in smoking cessation.

## Design

Participants were assigned to one of two groups, use of nicotine replacement therapy (specifically the nicotine patch), and a control group who did not receive nicotine replacement therapy. The subjects were given questionnaires weekly and were monitored daily to record the amount of cigarettes smoked. The questionnaires that were administered are the Intention to Quit/ Interest in Quitting, Withdrawal Symptoms, Relief of Craving, and a Smoking Related Symptoms Score. The scores and answers were measured to see the likelihood and the motivation of the participants to quit.

The questionnaires were given to each of the participants and they were expected to tell the truth about each question. The reliability of the questionnaires is representative of the honesty of the participants.

The first questionnaire was the Intention to Quit/Interest in Quitting measure which asked how the participant intended to change their smoking in the next month; stay quit, start smoking again, quit smoking, reduce from current level, keep current level or increase from current level. The second questionnaire asked about Withdrawal Symptoms and ranked each of the eight symptoms on a scale from 0-4, zero being not at all and 4 being extremely so. The eight symptoms were; desire/urge to smoke, irritability/frustration/anger, restlessness, difficulty concentrating, anxiety, dysphonic or



depressed mood, insomnia and increased appetite. The third questionnaire measured Relief of Craving, which asked what best describes their experience from the last cigarette, very unpleasant, somewhat unpleasant, neutral, somewhat pleasant or very pleasant. The final questionnaire given was the Smoking Related Symptoms Score, which identified five symptoms and asked if they have changed from the last visit from 1 (much worse) to 5 (much better). The five symptoms were; cough, phlegm, sense of smell, sense of taste, and shortness of breath.

### Procedures

The research was conducted over an eight week period. Prior to the eight week research period, there was a two week period of collecting baseline data before the participants attempt to quit smoking making the data collection over a total of ten weeks. During the eight weeks, the cigarette intake of each of the participants was recorded daily. Each of the four questionnaires were administered weekly on Saturday, to rate the improvement, or lack of motivation in the participants. Each of the questionnaires and the chart of cigarettes smoked are color coded for each individual so somebody not involved in the study would not be able to identify whose data is what.

### Type of Analysis

The statistical measures that were used are the ANOVA for the amount of cigarettes smoked daily. The descriptive statistics were recorded to determine the mean, minimum and maximum amount smoked by each individual. between the number of cigarettes and the responses to the questions were recorded.

It is hypothesized that this study will show that there is a decrease in cigarette smoking, but the participants will not fully quit smoking, they will only be able to reduce their smoking. The questionnaires will correlate to the number of cigarettes the individuals smoked that week and any other outside influences such as illness. The individuals who used nicotine replacement therapy will have a better quitting or reduction of cigarette use outcome than those who tried to use only motivation is hypothesized. Those individuals on the antipsychotic medication Clozapine are also expected to have a greater success with quitting.

### Summary

All participants were monitored on the amount of cigarettes each were smoking each day by the group home staff administering and recording cigarette amounts throughout the day. The questionnaires given at the end of the week had no name on them, but were color coded to not be identified by others, only the researcher. The use of each of the questionnaires help the researcher better understand the symptoms and ideation of quitting throughout the ten week period of data collection. The questionnaires also aid in identifying withdrawal symptoms and also help wage whether the individual needs to seek psychiatric help regarding the quitting or even go to crisis based on the responses.

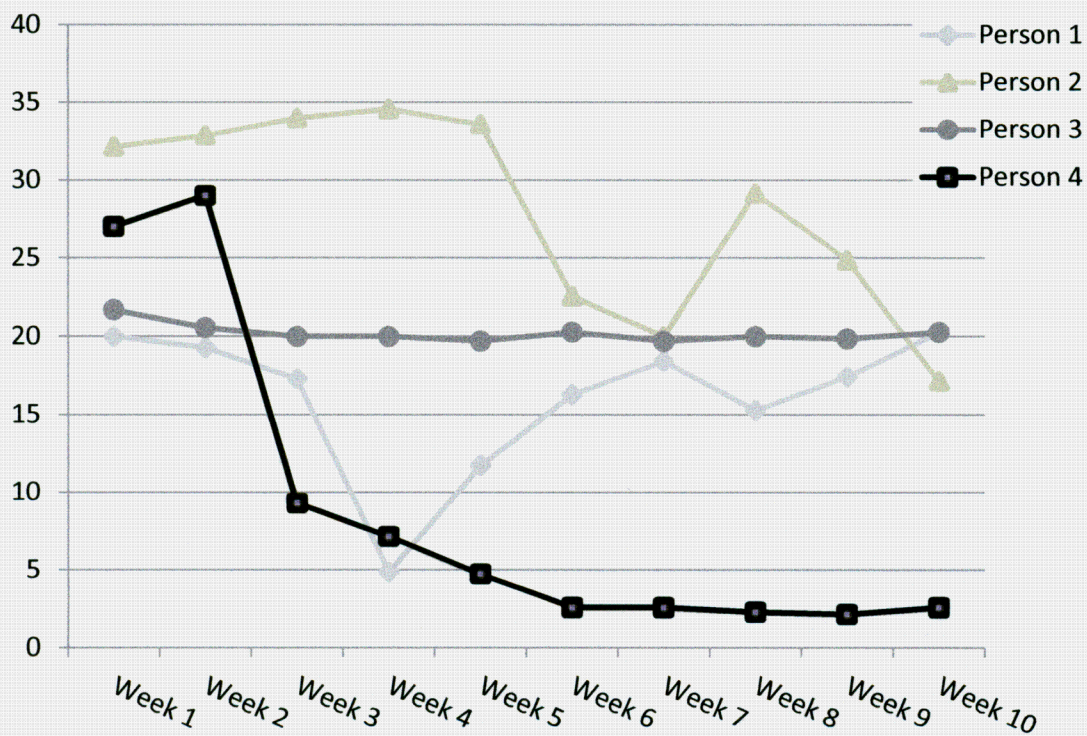
## CHAPTER IV

### Introduction

In Graph 1, the average number of cigarettes smoked each week was recorded for each of the participants. The graph shows that Person 1 had moments of reduced cigarette smoking throughout the 10 weeks, but did not reduce his smoking in the end. Person 2 reduced his cigarette smoking overall, but not drastically. Person 3 stayed around 20 cigarettes per day. Person 4 was the only one who drastically changed his smoking behavior, going from around 30 to under 5, which is significant.

### Results

Graph 4.1: Average Amount of Cigarettes Smoked each Week



## Summary

Those with Schizophrenia in this study all reported wanting to quit smoking, yet none of the participants were able to refrain entirely. One person was able to reduce drastically, at times refraining entirely from cigarettes for numerous days in a row. Person 3 did not reduce his cigarettes at all. Person 1 and Person 2 reduced overall, but not effectively.

## CHAPTER V

### Introduction

The purpose of this study was to identify the symptoms and withdrawal symptoms related to quitting smoking and to what degree do they affect those with schizophrenia who are attempting to quit. Those with schizophrenia have a harder time trying to quit smoking than that of the regular population mostly due to the relief a cigarette gives them in relation to their symptoms of schizophrenia. The research conducted found that it is very difficult for one with schizophrenia to quit smoking, but it is possible for someone to reduce their smoking drastically. 3 of 4 people in this study reduced their nicotine intake, 1 of which did so significantly.

### Interpretation of Finding

The participants in this study all took four surveys once a week throughout the 10 weeks. Trends were found with the responses of the surveys correlating with their smoking rate for the week. Person 1 reduced their cigarette smoking dramatically during weeks 4 and 5. During these weeks, he reported a high desire/urge to smoke, higher irritability/frustration/anger, higher restlessness and an increased appetite.

Person 2 had bronchitis during weeks 6 and 7 and also weeks 9 and 10. During these weeks, he reported higher restlessness and irritability/frustration/anger. He recorded his relief of craving as somewhat unpleasant when every other week he reported

somewhat or very pleasant. He also reported feeling worse with symptoms; cough, phlegm, sense of smell, sense of taste and shortness of breath.

Person 3 stayed consistent in the amount of cigarettes smoked, yet he too had reported having bronchitis. During his time with bronchitis he did not reduce his cigarettes smoked, but did report in the surveys that his cough, phlegm and shortness of breath got worse. Another trend found with Person 3 is that he reported wanting to quit smoking for the first 4 weeks, but after that he went back and forth between wanting to reduce from current level and keep current level.

Person 4 had the most positive results out of the four participants. When Person 4 reported the least amount of cigarettes smoked, he reported a high desire/urge to smoke and increase in irritability/frustration/anger. During the first 5 weeks, he wanted to quit smoking, but during weeks 5 through 10 he wanted to increase from his current level of smoking. Person 4 reported that his cough, phlegm, sense of smell, sense of taste and shortness of breath were a lot better.

### Limitations

In this study there was a very small sample size that were all male and all from the state of New Jersey with very similar backgrounds. The differences among the individual's availability to their money could have made an impact on the amount of cigarettes smoked due to the fact that without money they could not acquire a lot of cigarettes. Person 1 has an allowance with his money, but lost privileges to carry his money therefore staff hands it out to him in small amounts. There were few times that he did not have enough money to purchase cigarettes, therefore he did not smoke, which

skewed the results. Person 4 does not hold his money due to legal reasoning. He at times is allotted very small amounts while at the store where he is being supervised and needs to hand in his receipts. He would occasionally bum a cigarette off a friend or even a stranger. Person 4 was caught numerous times picking up cigarette butts off the ground and smoking what was left. Person 4 was monitored more than the others due to his health concerns and numerous doctors telling him he must quit smoking. Persons 2 and 3 both had bronchitis during the study which may have affected the way they answered the questionnaires and also the amount of cigarettes smoked. Person 1 started out on the nicotine replacement the patch, but it was requested by a doctor to remove it due to his inability to decrease his smoking significantly enough. The doctor determined that it was not helping and could possibly have a negative reaction with his medications.

## Conclusions

The study was conducted at a group home located in Salem County where 6 people with severe mental illness reside. 4 of the 6 people are smokers and diagnosed with schizophrenia. The 4 people in the study all showed interest in quitting smoking, all for different reasons.

It was easy to monitor these individuals of their cigarette smoking due to the fact that staff at the group home hands out the cigarettes daily and was able to keep track. The participants were helpful and took the questionnaires weekly like the researcher had requested. The study had a very small sample size which limited the amount of data that could be collected and compared.

The data found that it is very difficult for someone to quit smoking, especially with a severe mental illness such as schizophrenia. There seems to be a relationship between a person taking the antipsychotic Clozapine and the ability to report less negative symptoms while quitting. The use of nicotine replacement therapy helped minimally, since both individuals still attempted to smoke while on the patch, one of which was taken off the patch because of this. There was some correlation between the symptoms and withdrawal symptoms questionnaires that were asked and the amount of cigarettes smoked. When someone was sick the questionnaires tended to show more negative symptoms.

#### Implications for Further Study

In the future there needs to be a more in depth study which follows individuals with schizophrenia over a much longer period of time to track their progress of quitting smoking. There should be a group that is on nicotine replacement, such as the patch, and also the antipsychotic Clozapine, a group that is only on Clozapine and no nicotine replacement, a group that is only on the patch, and a group with neither the patch nor taking Clozapine. This is suggested to see if there is a strong relation between the Clozapine and the ability to quit smoking and also if nicotine replacement helps individuals with schizophrenia quit smoking. The study should be of a much bigger population size and include women, since there are women who have schizophrenia and smoke. What, if anything, makes it more difficult for someone with schizophrenia to quit smoking? Is there a difference among men and women? Do certain antipsychotics aid in the quitting of smoking?



There are many questions that could be asked and very limited research on any of them. It is important to find out what makes it difficult for this population because with cigarette smoking comes a lot of health related issues that having such an illness already increases. In order for individuals to stay as healthy as possible, it is necessary to discover what helps them quit smoking, and how effective it is.

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## APPENDIX A

### Intention to Quit/ Interest in Quitting

How do you intend to change your smoking in the next month?

- 1- Stay quit
- 2- Start smoking again
- 3- Quit smoking
- 4- Reduce from current level
- 5- Keep current level
- 6- Increase from current level

## APPENDIX B

### Withdrawal Symptoms

Rate each symptom on a scale from 0-4, (0) not at all, (1) somewhat, (2) moderately so, (3) very much so, or (4) extremely so

1- Desire/Urge to Smoke	0	1	2	3	4
2- Irritability/Frustration/Anger	0	1	2	3	4
3- Restlessness	0	1	2	3	4
4- Difficulty Concentrating	0	1	2	3	4
5- Anxiety	0	1	2	3	4
6- Dysphonic or Depressed Mood	0	1	2	3	4
7- Insomnia	0	1	2	3	4
8- Increased Appetite	0	1	2	3	4



## APPENDIX C

### Relief of Craving

What best describes your experience from your latest cigarette?

- 1- Very unpleasant
- 2- Somewhat unpleasant
- 3- Neutral
- 4- Somewhat pleasant
- 5- Very pleasant

## APPENDIX D

### Smoking Related Symptoms Score

How have the following symptoms changed since your last visit?

Possible answers: (1) much worse, (2) worse, (3) no change, (4) better, or (5) much better.

Cough	1	2	3	4	5
Phlegm	1	2	3	4	5
Sense of Smell	1	2	3	4	5
Sense of taste	1	2	3	4	5
Shortness of breath	1	2	3	4	5

