Maintaining Weight in People Taking Antipsychotic Medications by
Providing a Support Group
by
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A thesis submitted to the School of Community Services
in partial fulfillment of the requirements for the Degree of
Bachelor of Applied Arts in Behavioural Psychology

St Lawrence College
Kingston, Ontario
Canada
September 2009
Abstract

This study does a review of the methods used to teach people with mental illnesses to live a healthier lifestyle, and the importance of changing their habits in order to improve their quality of life. The issues people with mental illness face include an increase in weight gain due to antipsychotic medications, increased chance of diabetes, and lack of knowledge on how to navigate the medical system. The study then combined the use of a support group meeting weekly with daily exercise to maintain the participants’ weight before treatment. Several measures were used to determine success including a Quality of Life Survey, weekly weigh ins, and attendance at the exercise sessions. The treatment ran for six weeks and showed small positive changes in each participant’s weight and quality of life rating.
Acknowledgements

I would like to not only acknowledge and thank everyone who was involved in the completion of this thesis. The organization especially who took me in for the three months of my placement and making me feel so welcome. I would lastly like to thank the participants who all agreed to take part.
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Chapter I: Introduction

Individuals living with mental illness are more at risk than the general population to be suffering from obesity, dyslipidemia, glucose deregulation, cardiovascular disease, as well as type two diabetes. Many of these disorders can be caused by abdominal weight gain, one of the many side effects of antipsychotic medications. It has been proven that people taking antipsychotic medication usually see a 20% increase in their weight when compared to before they began taking the prescribed medication (Humphrey Beebe, 2008). The side effects of medication often leads to a decrease in activity which can be detrimental to the individual’s quality of life, therefore this issue deserves immediate attention.

The lifestyle of those with mental illness often includes isolating themselves, living unhealthily, and a decrease in activity. These issues can be caused by a number of factors. The factors that influence an unhealthy lifestyle can include the illness itself, lack of money due to being unable to work, addiction issues used to cope with the illness, or having never learned how to care for themselves properly. Any one of these behaviours can prevent a person from seeking the help they need and changing their life for the better.

Many people with mental illnesses isolate themselves from others. Isolating may be caused by the side effects of their medications. Aside from weight gain, effects could include, a different gait, word salad, drowsiness, low energy, and flat affect. A person with mental illness may not feel comfortable getting involved in the community or an organization because of a fear they will be mocked or judged by others. When a person is isolated from society they rarely engage in activities that are physically demanding which can affect not only their physical health but also their mental health.

People with mental illnesses often do not engage in as much physical activity as other members of their community for various reasons. The person may not feel well enough to get out of bed, they may feel judged by others, may not be working, or may not have a peer group to socialize with. A lot of the daily activities people take part in keep us healthy, even though they may not seem as though they are exercising, every bit helps. A person with a mental illness must deal with the side effect of increased weight due to their medication as well as often not having a well established daily routine. Weight gain is a natural side effect of inactivity, therefore, it is especially important for people with mental illness to maintain an active lifestyle to not only be physically healthy but mentally as well. Not making changes to their life may lead to increased obesity, shortened life span, and other serious health problems.

Rationale

In the past, many forms of treatment have been attempted to address weight issues in those individuals with mental illnesses. They are usually provided on an individual basis with a focus on the client’s specific needs. Support groups like weight watchers and overeaters anonymous have opened their doors, but individuals with mental illnesses do not always feel comfortable in those environments. These groups can include elements such as religious components (overeaters anonymous). One draw back is that people with mental illness may be unprepared to deal with issues specific to those with a mental illness, such as eating due to depression or changes in their schedule due to habits caused by the depression, and the potential increase in weight due to medication side effects. Each person with mental illness has their own unique combination of symptoms making it considerably difficult to create any sort of generalized treatment plan with this population.

This study will combine the support provided by the agency, which is on an individual basis, with the forming of a small support group in which the members will have the opportunity
to talk to each other about their healthy lifestyle and exercise. It is hypothesized that individuals with a mental illness, taking antipsychotic medications, will maintain their weight when being provided with individual treatment plans, participating in a support group to address healthy habits, and taking part in daily exercise (Guzik & Wirshing, 2007).

In the following document, you will find an outline of a study done on the effectiveness of both exercise and a support group for those with mental illness to helping them maintain their weight. The literature review includes information on several studies about weight loss classes run with a mentally ill population, studies done on the effects of antipsychotic medications on people taking them, and the importance of regular screening for health problems. The method section describes in detail what took place in the study itself, including the materials, location, participants, and tools used to measure change. The results section presents the overall effect of the study and the discussion talks about any changes that could be made to make the study more effective in the future.
Chapter II: Literature Review

**Obesity and Mental Illness**

Mental illness can shorten a person’s life by up to ten years, and many of those years are lost or at least hindered as a result of increased weight gain (Hellerstien, Almeida, Devlin, Mnedelshon, Kelso, & Capitelli, 2007). A study by Hellerstien et al. (2007) assessed the obesity related problems of people involved in a community mental health program. The study took place over a five year span and the authors collected information from participants on nutritional habits, medical care, blood pressure, weight, body mass index, girth, glucose, and lipid levels. Participants in this study varied in age from 25 to 64 with 86% being prescribed antipsychotic medications, which had already been identified as a cause of weight gain. The results of the study indicated that patients were dying prematurely but also that only 41% of males and 11% of females were at a normal weight for their particular height and age. Of the 22 participants enrolled in the study, 18 succumbed to unnaturally early deaths thus illustrating just how great an impact obesity can have on those with mental illness.

While existing research shows obesity is a major concern amongst people with various mental illnesses, those diagnosed with schizophrenia seem to be significantly more at risk (Humphrey Beebe, 2008). Numerous physical health problems plague this group including obesity, dyslipidemia, glucose deregulation, cardiovascular disease, and type two diabetes. Diabetes has long been shown to be linked to schizophrenia. The chances of those with mental illness developing diabetes are two to three times more likely when compared to the general population (Holt, Pevelert, & Byrne, 2004). The subsequent question being: why are these individuals at such a greater risk of contracting so many life-threatening disorders than the general public? Possible explanations could include the person being genetically predisposed to the disorder even before any diagnosis of mental illness, as up to 30% of people with schizophrenia have a family history of diabetes. For others, the presence of either symptoms of metabolic syndrome or full metabolic syndrome itself may lead to the development of diabetes. Many disorders such as glucose deregulation, diabetes, and insulin resistance can all be affected by visceral fat, as it builds up around the abdominal area applying pressure to the liver and making it work extra hard (Holt et al., 2004). This visceral fat around the abdominal area has been proven to be a side effect of antipsychotic medication and can lead to obesity, a contributing factor to the development of diabetes. With many possible factors leading to such high rates of diabetes among those taking antipsychotic medications, the one issue we can and must address is obesity.

**Antipsychotic Medication Side Effects**

The most effective form of treatment for the symptoms exhibited by people dealing with mental illness is pharmacology; however one of the many side effects of the medication is a possible weight increase of over 20%. Medication compliance is an integral element of a successful treatment yet some clients may resist treatment due to concerns regarding weight gain as well as other negative side effects (McIntyr et al., 2001). Weight gain, drowsiness, hypersalivation, delirium, hypotension, agitation, and sexual dysfunction are all side effects of antipsychotic medication and can lead to obesity, a contributing factor to the development of diabetes. Many people may wish to make a change but are simply unable due to their lack of energy. Other side effects such as hypotension or hypersalivation
may appear less socially acceptable and therefore make the person feel isolated (Guzik & Wrishing, 2007).

McIntyre, McCann, and Kennedy (2001) compiled data from numerous groups about the side effects of antipsychotic medications. These groups include medication manufacturers, Eli Lilly and Janssen-Ortho, to determine how much was really known about the side effects. It was determined that not enough is known; very few controlled studies have been done with specific interest in weight gain. The weight increase in people taking antipsychotic medication has been seen as a problem but not researched in detail. There are many potential causes for obesity in people with mental illness, one of the causes may be the overall increase in obesity among the general population. Weight gain is a serious problem our entire society is facing and, therefore, it can be difficult to distinguish whether or not the increase in weight has been caused by medication or an increase in people living an unhealthy lifestyle. It is important to determine which issue preceded the other; weight gain or a diagnosis of mental illness. Once we determine which came first we can work on addressing whether we need to alter the medication or change the lifestyle of people with mental illness. In addition, it is considered normal for those with mental illness to see an increase in body mass by as much as 20% when taking antipsychotic medication, which makes a person two to three times more likely to develop diabetes (McIntyr et al., 2001).

Weight Gain Treatment

The traditional treatment for clients experiencing weight gain issues can include medication, counselling and assessments, monitoring of blood glucose, as well as nutritional and exercise advice from a professional (Tardiue et al., 2003). One theory as to why these traditional means of treatment have proven ineffective discussed by Muir-Cochrane (2006) is that people with mental illness are not accessing the appropriate resources necessary to deal with their weight gain. This lack of access is partially attributed to some side effects of clients prescribed medication, as they may not have the motivation to seek assistance, or fear they could be treated different because of a natural bias or pre-existing stigma against people with mental illness. Additional issues that could deter individuals with severe mental illnesses from contacting a health professional can include involuntary movements, feeling sedated, decreased mobility, and lack of ability to recognize health problems. Avoidance of the medical system can also be attributed to the health care professionals themselves as people may not feel comfortable discussing their issues pertaining to their mental illness with their doctor or may be wary of potentially being referred to a psychiatrist unnecessarily. Due to this uncomfortability with family doctors, mental health issues need to be more freely talked about. The professional should make the clients feel they can share anything and it will remain confidential. When dealing with clients who have a mental illness, the focus tends to be on improving the mental health of the person. In this effort to improve that important aspect, often the clients’ physical well being is not seen as a primary concern; therefore many physical problems are going undiagnosed because of this heavy focus on the mental health issues.

Bernedette, Gunning, and Leiser (2008) discussed the vast array of disorders going undetected by doctors including cardiovascular disease, metabolic disorders, chronic pulmonary disease, and gastrointestinal disorder. All of these diseases in conjunction with obesity can have fatal consequences if clients are left to their own devices in combating the problems. At risk clients would be best suited to see their doctors regularly thus heightening the chance of early detection of such disorders. By doing this, doctors could sooner implement treatment options thereby hopefully improving the individual’s quality of life.
Many acute disorders can also go undiagnosed. Although these illnesses may have a more minor effect it is still important to address them so they do not get worse. According to Muir-Cochrane (2006), doctors underestimate the amount of disease and therefore are less likely to screen for it. Health professionals can only address physical health problems if they see their patients on a regular basis. Screening routinely for physical health problems, ensuring those with mental illness have a general practitioner, and ensuring the health system is easily navigated or they receive assistance doing so, is just as important as getting their mental health back on track (Muir-Cochrane).

Another barrier to living a healthy lifestyle for those dealing with mental illness is access to help with weight loss. Those with mental illness often are not able to access or are uncomfortable enrolling in the various programs offered to the general public. Whether it be high costs of a gym membership or the person feeling uneasy discussing their particular weight concerns in front of a group, the result remains the same; people with mental illness are not always receiving the help they need with weight loss. The importance of providing these types of resources to those with mental illness has been established in several articles. Bernedette et al. (2008) suggested putting people on an exercise program immediately after they are diagnosed with the mental illness and they start their medication. This would help decrease the initial weight gain rather then waiting for the side effects to appear. With the side effects of antipsychotic medications illustrated amongst the population with mental illness, pre-emptive measures to combat weight gain should be considered before the problem continues to worsen. There are many forms of treatment available each with their own benefits but the key to solving this problem is prevention and using the resources we have such as exercise classes, community mental health agencies, subsidized gym memberships, and specialists trained in working with mental illness, to prevent the problem from getting out of control (Bernedette et al., 2008).

Many different forms of weight loss treatments are available to people with mental illness. These groups however tend to be community focused, and are therefore often not tailored to combat the specific problems those with mental illness may encounter. People may not feel comfortable being involved in a group setting where they are the only participants with a mental illness (Guzik & Wirshing, 2007). Another issue for people with mental illness is that they may have issues understanding the material, or participating in certain activities and therefore maybe excluded because of these cognitive problems. Weight loss classes are often limited to people without mental illness. In contrast, the following three studies included people with severe mental illness and showed high success rates.

Guzik and Wirshing (2007) adapted a behavioural weight loss program used with a diabetes prevention group and applied it to teaching individuals with serious mental illness. The treatment administered by this team included individual case management, keeping a food journal, weekly classes on diet, encouragement to exercise daily, and once weekly walking as a group. Information was taught in 16 sessions twice weekly, and then monthly follow-up sessions were ran for 12 months afterwards. This treatment showed to be very effective with an overall decrease in weight by 7%.

Littrel, Hilligoss, Kirshner, Petty, and Johnson (2003) showed the effectiveness of support groups by comparing two groups of 35 participants all having taken antipsychotic medications for at least three months before starting the study. One group was provided with weekly psychoeducational classes that looked at dietary guidelines, portion sizes, and the importance of a healthy diet over a four-month period. The second group received only treatment as usual. The results showed a much larger weight loss in the treatment condition.
All participants were high school graduates so they were higher functioning than the group in the last study mentioned (Littrel et al., 2003). Clients were randomly assigned and the treatment group received weekly classes lasting one hour. The classes ran for 16 weeks and focused on nutrition, wellness, healthy lifestyle, exercise, and fitness. After the classes ended participants were given photocopies of the information taught to take home and review. A great deal of emphasis was put on group participation, getting people to read aloud, discussing topics, doing written exercises, and playing games. The results of this study showed a steady increase of weight over the six months after the study began for those in the control group (Littrell et al.). Those taking part in the treatment group showed no significant increase in weight gain however showing that though it may be difficult to successfully accommodate weight loss, it is possible to avoid any major increase.

Evans, Newton, and Higgins (2005) demonstrated the effectiveness of weight loss classes designed specifically for those with schizophrenia. These participants were all outpatients from Australia, who had previously taken olanzapine for 12 weeks. Olanzapine is an antipsychotic medication with weight gain as a major side effect (Holt et al., 2004). Olanzapine is a second generation antipsychotic however, since this medication is fairly new, the long-term effects have not been assessed completely yet. The drug has had one short-term effect made very clear. It has one of the highest ratings for weight gain as a side effect and therefore people taking this medication should receive weight management counselling at the onset of treatment (Tardiue et al., 2003). The intervention group received six one-hour nutritional classes over a three-month period. The two groups were made up of 29 people receiving the nutritional treatment and 22 involved only in the control group. All people chosen to take part in the study were selected based on their medication use and included both those diagnosed for a long time and those having their first episode of schizophrenia (Evans et al., 2005). Topics covered by the program instructor included diet, label reading, healthy eating, exercises, nutrition, maintenance, and changes in activity level. The results of this study showed that even with intervention, weight is likely to increase. That withstood; only 13% of the treatment group versus 64% of the control group gained more than 7% their original body weight (Evans et al.). This study showed not only that information based programming can be an effective tool for people with a mental illnesses, but also that the severity of the weight gain can be limited as a result.

**Individualized Versus Group Support**

Most organizations working with people who have mental illness provide individualized support. This form of support can be beneficial as seen in Guzik and Wirshings’ work in 2007; however its effectiveness is dependent on the areas it addresses. Most individual programs focus solely on exercise, which according to six different studies done between 1998 and 2005, exercise is not shown to have any major impact on the body mass index of people taking antipsychotic medications (Guzik & Wrishing, 2007). Exercise needs to be worked into an educational program which helps people prevent or alter their poor life style choices. An essential component in helping people prevent weight gain as a side effect of medication is allowing them a chance to connect and interact with others experiencing the same problem. Many groups exist to help people through various struggles in their life and a weight loss group can serve a similar purpose.

According to Cormac and Ferritor (2006), partnering up for exercise sessions can be very beneficial. Couples can help each other problem solve, provide motivation, and it increases social interaction making the experience more enjoyable (Guzik & Wrishing, 2007). Bernedette, Gunning, and Leiser (2008) point out that often people with mental illness limit their exercise
because they have few social contacts, leading them to feel isolated. Mental health professionals therefore need to promote connection-making between people who are likely to relate to each other.

The study done by Guzik and Wirshing (2007) adds to this theory that having people exercise as a group is beneficial and acts as encouragement for each person. In this study, once weekly the entire treatment group would walk together as a reward for clients walking on their own all week. This social outlet not only improved their quality of life, it helped prevent against isolating and made the person aware that they were not alone in dealing with their problem. Many groups such as Overeaters Anonymous and Weight Watchers allow people with mental illness to attend if they are high functioning enough, and many people get a great deal out of these programs. However, people with mental illness benefit the most from specialized programs that allow them to connect with others sharing not only their physical problems but their mental issues as well (Guzik & Wirshing).

**Treating Symptoms With Exercise**

A study undertaken in Norway was used to show how effective exercise is at not only treating the physical problems of people with mental illness but also their mental symptoms. The participants in this study were all in secure care at an institution and participation was mandatory (Tetlie et al., 2008). There were 15 participants in total who had all been diagnosed with severe mental illness, each was administered a quality of life survey and had their body mass index and fitness levels calculated before starting the intervention. There was no comparison group. Clients were made to exercise indoors three times a week for eight to twelve weeks. The exercise varied and included swimming, gymnastics, yoga, dance, team sports, and individual activities. These activities were chosen because clients viewed them as enjoyable and therefore were more likely to participate in the activities outside of the institution (Tetlie et al.). After the study was completed, quality of life surveys were administered again to see if participant’s psychological outcomes were any different. It was determined that clients’ feelings of well being and safety increased with the amount they exercised, and all other symptoms of their disorders excluding hallucinations were said to be improved. This study showed that higher activity levels can benefit patient’s mental health as well as the base goal of improving the physical well-being.

Each person is different but symptoms like depression and anxiety have been shown to decrease as the amount of exercise people do increases (Tetlie et al. 2008). Although the results of this study show no significant difference in peoples’ body mass index or weight, it does illustrate the impact exercise can have on the symptoms of patient’s mental illness itself. Exercise has been shown to reduce symptoms such as anxiety and depression making it a valuable tool for people with mental illness; however it is only part of the solution to the weight gain problem (Tetlie et al.). The other aspect to solving this problem is giving people with mental illness a support group that can encourage them to exercise and live a healthier lifestyle.

**Conclusion**

Telie, Eik-Nes, Palmeister, Callaghan, and Nottestad in 2008 demonstrated, along with many others, that peoples’ physical health impacts their mental health, therefore it is imperative we address the ever diminishing physical health of those with mental illness. People need to feel comfortable going into their doctors and openly talking about their physical health problems. Additionally, regular screening for both chronic and acute medical conditions must not be forgotten or lost in the shuffle of addressing the individual’s ongoing mental illness. If we can
prevent chronic disorders from developing, such as diabetes and heart disease, we can help maintain the client’s quality of life.

It has been shown that antipsychotic medication leads to weight gain which leads to life threatening disorders like diabetes. All of this may be prevented with programs that involve individualized treatment, education, group support, and exercise. The various studies discussed showed the benefits of group treatment, individualized counselling, and an increase in exercise for those with mental illness; thus a combination of these elements would seemingly increase the benefits. We need our doctors diagnosing the physical health problems and our mental health workers providing preventative support in order to increase this group’s quality of life. By bringing together people with mental illness who are experiencing difficulties regarding their weight, providing them with educational information, and motivating them to exercise by first working with them and then encouraging them to exercise on their own, we will be more likely to succeed at changing their habits, improving the quality of life, and decreasing their weight gain (Guzik & Wrishing, 2007). In this study, three components will be used to maintain the participants weight throughout the study. The three components used in this study will include daily exercise, a weekly support group meeting, and additional support group discussion throughout the exercise sessions.
Chapter III: Method

Participants

There were five participants in this study. Three made up the treatment group and the control group consisted of two. The treatment group consisted of two males and one female. The control group was made up of one male and one female. The first participant in the treatment group was a 51-year-old male named Jack who lived in a two bedroom apartment with a roommate. He did not work therefore received money from Ontario Disability Support Program (ODSP) each month, and maintained his own finances. A rehabilitation worker visited him at his home daily and provided services such as taking him grocery shopping, reminding him to do his chores, and ensuring there are no problems with his roommate. He was diagnosed with schizophrenia and a developmental disability. Jack had a caseworker from a community agency as well as received help from the wellness program, which got him out exercising and having a healthier lifestyle.

Jessica was the second participant in this treatment group. She was a 34-year-old female who lived in an apartment by herself. She had close contact with her mother and brother who lived in the same town, and had a sister who lived outside of the city. She had suffered from depression since she was 21 although she has managed to complete a degree in economics. She was working part-time for a local factory and had been living in subsidized housing for the last four years. In addition to working two days a week, she received money from ODSP. She had a caseworker and had in the past been involved with the wellness program but recently withdrew.

The third participant was a 32-year-old male named Jeffery diagnosed with schizophrenia; he was living in a three person co-op house. His living arrangement was subsidized by the agency because he had agreed to live with two other people and be involved with the programs run by the agency. He worked two days a week for a cleaning company and also received ODSP. He applied for a subsidized pass for the YMCA through the wellness program and was going to the gym a few times a week to weight lift, and also walked around town. He also had a caseworker at the agency who took him to appointments and shopping.

The control group was made up of one male James and Jennifer who both had caseworkers with the agency but received minimal amounts of support. The male had both a developmental disability and schizophrenia. He lived on his own, however got weekly visits from his sisters. He was very involved at the agency with sports, volunteering, and other social recreation activities. He was 54 years old, saw his caseworker rarely, and typically walked with the wellness program once a week.

The female participant in the control group was 53 years old and until recently had not been involved with either the casework or wellness program. She was highly motivated to lose weight and had been walking with the assistance of a walker at the YMCA at least twice a week but often more than that. She had been diagnosed with an anxiety disorder and has subsequently spent a lot of time isolating herself. Jennifer also had diabetes and, due to this, she had lost her toes on her right foot leading to limited mobility. She lived on her own and could not drive, however had began using the access bus as well as the wellness program to get her more involved with the agency.

All participants were chosen based on having been on an antipsychotic medication for at least six months previous to starting the study, having been assigned to a caseworker, and being involved with the agency’s wellness program. All participants chosen were between the ages of 20 and 60 as they would still be able to be physically active without potential risks to their health. Either the wellness worker or their caseworker referred each participant. Participation in
the program was voluntary as all participants were given full details of the study, the activities
involved, and then asked if they would like to participate.

**Design**

The study compared the weekly weights and pre- and post-ratings on a quality of life
survey of three participants involved in the support group condition with two other participants
involved only in the treatment as usual condition. All participants were assigned to a group
based on what they felt they could do and their daily schedule of activities. Of the two clients in
the control group, one has limited mobility due to the use of a walker while the other was very
busy volunteering and taking part in the agencies activities. Those in the treatment group had
fewer social contacts and therefore were more interested in joining the support group.

Three participants received specialized treatment. The components of the treatment
condition included discussing their individual issues with food intake, inactivity, sleeping
problems, mood, low income, the side effects of their medication, support provided by the
researcher, their caseworker, and the wellness worker. They were also involved in a support
group that met once a week, for a half hour, for six weeks. The support group addressed issues
the clients wished to talk about such as eating healthy on a budget, binge eating, different types
of diets, the Canada food guide and included the participants meeting once per day with the
researcher to exercise for 30 minutes.

The treatment as usual (TAU) consisted of the program currently provided by the agency,
which focuses on the individual’s diet, hydration, exercise, and medication compliance. The
wellness worker provided extra assistance with things such as discussing food intake and their
medication. They were given access to the YMCA four days a week and could book one-on-one
appointments with the wellness worker for exercise. Those in the support group condition also
received all of these services from the wellness worker. The control condition group only
received the TAU.

**Setting and Material**

The study took place at a mental health agency, where clients each had a caseworker and
specialized staff worked with them in other areas that can improve their lives. There was a
vocational worker, a wellness worker, an acute care worker, and staff dedicated to the social
recreation of clients. Additional settings may include the participant’s homes, the group homes,
outdoors, and the YMCA. Many times the 30 minutes of exercise was conducted outdoors or at
the YMCA. The support group sessions were held either at the YMCA or in an office the agency
provided.

Many materials were used to complete this study; first a pre and post quality of life
survey (QOL) was completed using a pen, the survey in paper form, and a computer to input the
answers. The Body Mass Index (BMI) was calculated using a calculator, a measuring tape, and a
bathroom scale. Each participant provided their own clothing to exercise in which included
comfortable shoes, shirt, and pants. The participants were also expected to dress appropriately if
they were walking indoors or out, which may have required a winter jacket, mittens, hat, and
boots. The researcher used a standard notebook to record attendance rates and what was
discussed in each support group meeting.

**Measures**

The Quality of Life survey found in Appendix C was provided by the agency that was
involved in the completion of the thesis. This survey was recommended because the participants
were all familiar with it and it is easily administered. The survey was important because it
showed whether the participants felt their overall quality of life was changed by their increase in
exercise and the added support. The survey assessed a number of areas pertaining to the persons life. It was determined that only three of the major areas were relevant to the study; social relations, health, and overall life satisfaction.

The quality of life survey assessed a number of areas. The areas on the survey included general life satisfaction, living situation, daily activities and functioning, family, social relations, finances, work, school, legal and safety issues, health, and religion and spirituality. Three out of the ten areas deemed important for this study included overall satisfaction, health, and social relations. The overall satisfaction was seen as important because it was an average of the ratings of each area on the survey and showed whether any major changes occurred on the pre or post test. The second area of importance was health. Because the treatment was directed at decreasing people’s chance of developing life-threatening disorders, it was important to assess whether they felt their physical and mental health was improving. The final area of importance was social relations. A large component of treatment was getting the support group together to exercise giving them a form of exterior motivation. It was hopeful that the participants in the treatment group would develop relationships with the people they exercised with. If the rating of these three areas increased between the first and second administration of the survey, a positive change had been made. The Body Mass Index and weekly measure of weight were used to assess if the exercise was making a difference by either maintaining or decreasing the participants’ previous weight. Attendance was tracked to see if the number of times participants were involved with the group affected their weight.

**Procedure**

**Informed consent.** Informed consent was gathered from each participant at different dates ranging from October 6th, 2008 to October 20th, 2008. There were two consent forms constructed, one for the treatment group and another for the control group (Appendix A and B). The treatment group was given details about what the study would entail such as, 30 minutes of exercise per day, continued involvement with the wellness program, and once a week meeting with the researcher and two other participants to discuss diet, exercise, and lifestyle changes. They were also informed about being weighed once weekly, and the need to complete two quality of life surveys. Participants in the control group were told about being weighed once weekly, filling out the quality of life survey, and continuing to be involved with the wellness program. All participants were informed of their right to withdraw from the study at anytime. All participants were provided with the consent forms, with a verbal explanation by the researcher, and then a few minutes to read them over on their own before determining whether or not to sign.

**Quality of Life Survey.** All participants were administered the quality of life survey before October 2008. This was done in an office with only the participant and the researcher present. This survey was computer based and scores were calculated for each person. The surveys were presented verbally and each participant’s answers were written down, afterwards the answers were inputted into the computer. This survey was re-administered to all participants between November 24th, and November 28th, 2008.

**Body Mass Index.** The other measure used was the Body Mass Index (BMI). BMI’s were calculated by dividing the height of each participant before treatment began by their weekly weights. Participants were weighed on the same day each week for the entire six weeks of treatment. Members of the treatment group met once daily and walked for 30 minutes. The amount of walking time sometimes increased but on average was stable at 30 minutes.
**Group Treatment Session 1.** For the first meeting, the three participants and the researcher met in a boardroom within the agency. This meeting focused on introducing the members, explaining the purpose of the group, and what topics were covered over the six weeks. This session was also intended to gather information about the participants and what they would like to get out of the group. After the basic group structure was discussed, the participants were given information about Canada’s food guide, the food groups, portion sizes, and eating habits.

**Session 2.** The second meeting took place in the boardroom and focused on eating healthy on a budget. All of the participants commented on their lack of money affecting their eating habits prior to treatment. The researcher presented an article full of helpful tips on how to eat healthy with a budget, as well as information about eating vegetarian. The participants were also given food charts so they could track their daily intake of food to be discussed in the following session. How to use the food charts was explained by the researcher so the participants could correctly fill them out.

**Sessions 3 to 6.** Session three was planned to involve discussing the food records participants were asked to keep and any changes they had made based on the suggested ideas from the previous week. Jeffery wanted to work on a meal plan, and his grocery shopping skills. The weekly flyers for each grocery store were brought in and discussed.

The sessions were planned weekly based on information the researcher gained from the participants on what they would like to learn more about and discuss. All the sessions after this point were planned based on progress the group made, topics discussed, and specific interests of the group members. The control group were not included in any of these sessions and were asked to be weighed once a week.
Chapter IV: Results

The first two figures represent the weight of all the participants over the six weeks of treatment. The weights were fairly stable over the six weeks. Each participant had a period between the second and fourth week of treatment where their weight was stable, however all of their weights fluctuated outside of this small time frame.

Weight

It was important to have a baseline measurement for the weights of all participants before beginning treatment. All participants were weighed one week before treatment began the treatment group was made up of Jack, Jeffery, and Jessica. Jeffery (who had lived in a group home for many years before moving into his present living situation) was weighed once a week so his baseline measurement was taken from six months previous to the study his weight at this point was 293 pounds and the week before he was 370 pounds. Jessica had kept a close watch on her weight over the years herself so her measurement was used as baseline in combination with her being weighed before treatment began. Jessica’s past weight three years earlier was 180 pounds and her weight before starting the study was 241 pounds. Each participant was then weighed weekly for six weeks to see if any changes were occurring (these results can be seen in Appendix M throw Q). The results of the two participants from the treatment group showed their weight had increased greatly over the number of years that they had been medicated and in or out of hospital. Jeffery was the best example as his weight in less then a year had gone from 293 to 370 pounds.

The treatment groups weight fluctuated over the six weeks. The most successful was Jack as he managed to lose four pounds over the course of the six weeks. However Jack’s weight did fluctuate. He started at 262 pounds and increased in week four to 264 pounds and then finally decreased and stayed at 260 pounds for the last two weeks of treatment. Jeffery also managed to lose weight. He was stable for the baseline and the first three weeks of treatment and then in week four he lost four pounds. His weight increased again in weeks five and six however but he stayed below his original weight of 370 pounds. The final participant Jessica was only in the treatment group for the first three weeks, however she put on ten pounds between the baseline assessment and the end of week three. Jessica’s weight increased from 241 to 251 pounds in that three week span.

The control group was made up of Jennifer who was 364 and James who weighed 255 pounds, a week before treatment began. As stated above, each participant was weighed as a baseline measurement and then weighed weekly for the following six weeks. All participants’ weights were fairly stable over the six weeks. Of the two participants in the control group Jennifer’s weight fluctuated the most; she started low with 364 pounds and then in week one her weight increased to 368 and in week two went back down to 363. Jennifer’s weight however never went below 363 or above 368 for the entire six weeks of treatment. The other control group member James had very stable weight before treatment and during week one he weighed 255 pounds, followed by a three pound increase, only decreasing his weight from 258 to 257 in the final week.

The net change in the weight over the course of treatment was six for the treatment group and one for the control group. it can be seen by the results that the treatment group were more successful then the control group.
Attendance was recorded for those involved with the walking group. There was an opportunity for the participants to walk together five times per week and data was collected on how many times each participant actually participated. Jessica, on average, was involved four times per week. Jack, who stayed in the program for the entire six weeks walked with the group on average 3 times per week, and Jeffery usually attended 4 sessions per week. There were only two support group sessions held and all three members showed up to the first and only Jack and Jeffery made it to the second session. The attendance data can be found in Appendix U and Figure 3.
Figure 3: Attendance of Exercise Group

This figure is showing the attendance of the participants in the treatment group. The figure shows a steep decline in attendance for Jessica and a more gradual decline for the other two members. For the first three weeks of treatment the attendance was fairly stable and then at the half waypoint the participants began cancelling more often.

Qualitative information

Session 1. For the first meeting, the three participants and the researcher met in a boardroom with several large tables and chairs. The researcher explained what the meetings would be about, in general. There was no formal introduction needed for the first meeting since the three participants have known each other for a number of years. The researcher outlined the purpose of the group and that she was to present information. The group could then ask questions or give ideas about what should be focused on in the following weeks. All participants were assured that what they said within the group would remain confidential and could speak when they felt comfortable. The group did require some prompting to express their opinions on the topic.

The researcher presented information about the food groups, Canada’s food guide, and portion sizes since many people with mental illness struggle to control portion size despite eating healthy foods. All participants agreed that they struggled with their diet and would like some help. The group then discussed what they were eating, if they ate regular meals, and the size of the portions they consumed in. Each client reported eating regularly but with snacks in between; they were not following the food guide and could have used an increase in vegetables and fruits. An issue that arose during discussion concerned the amount of money the participants have to spend on food. One participant wished he could be vegetarian and another pointed out that her eating habits were better when she was working. At the end of the session, the group discussed what could possibly be talked about in the following week, which included how to shop on a budget, and how to get information about different types of cooking.
Session 2. The second meeting took place in an office at the YMCA with only two members. The third member Jessica did not feel well enough to come to the session. The topics for this session were how to eat healthy on a budget and different types of cooking. The researcher provided paper copies of tips from an article on healthy eating on a budget and reviewed all of the tips in the article. The participants discussed which tips they were already doing and which suggestions they knew they would be able and willing to do. The researcher also provided specific information to the participant interested in vegetarian cooking. This information included tips on how to cook vegetarian dishes inexpensively. Lastly, the group was given food records, they were asked to fill out what they ate every hour for a week. If they did not eat anything in one particular hour, they were told to leave that section of the food record blank, and to do their best to be accurate. Participants agreed to fill out the forms and return them the following week.

Session 3 to 6. All of the following sessions were cancelled due to only one participant being present. The cancellation of further sessions led to no need of planning past the third session. Although these sessions were cancelled group members decided to continue attending the daily exercise sessions. The reasons participants gave for no longer attending the formal support group included not wanting to do too much in a day, feeling it was too far to come to the office and then to the YMCA for exercise, and that the time frame did not work for them. The goal of this group meeting was to increase social support for its members. Therefore, by only one member being present, no social change would be made.

Quality of Life Survey
A quality of life survey was provided by the agency where the thesis was completed. The survey looked at a large number of areas in the person’s life to determine their overall satisfaction. Not all areas of the survey applied to the study so the focus was placed on the overall life satisfaction, health, and social relations. As stated earlier, these areas were chosen because they were able to show if changes were made in areas that the study addressed, for example, clients were given the opportunity to make new friends by joining the support group and exercise group. Although members of the group had known each other for a number of years they were no more than acquaintances at the beginning of treatment. The health component was also important. If clients overall health was decreasing as a result of increased exercise, this would not be beneficial to the participants. The final area of the QOL focused on overall satisfaction and covered all areas on the questionnaire calculating an average.

The control group results were predicted to stay the same however James quality of life increased by 5% in the health area, although his results decreased in the social relations category. The second member of the control group, Jennifer, had no significant changes in her pre and post test scores.

The treatment group showed a number of fluctuations between the pre and post administration of the quality of life survey (QOL). Jessica was not readministered the quality of life survey as the researcher was unable to contact her after the fourth week of treatment. Jack showed an increase in two of the three areas of the QOL but general life satisfaction stayed the same. Of the other two areas of the quality of life survey that were examined the only revealent change was Jack’s rating of social relations, which increased from 48% to 90%. In every category Jeffery’s satisfaction decreased except for the general life satisfaction which stayed the same at 78%. The most noticeable decrease was in social relations, which went from 81% to 24%. All of the results for the QOL can be found in Table 1.
Table 1
Pre and post test quality of life survey results

<table>
<thead>
<tr>
<th>Participants</th>
<th>Overall Life Satisfaction</th>
<th>Social Relations</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jessica</td>
<td>78%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jack</td>
<td>78%</td>
<td>78%</td>
<td>48%</td>
</tr>
<tr>
<td>Jeffery</td>
<td>78%</td>
<td>78%</td>
<td>81%</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jennifer</td>
<td>78%</td>
<td>78%</td>
<td>83%</td>
</tr>
<tr>
<td>James</td>
<td>78%</td>
<td>78%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Correlation

The data from the change in weight was compared with the attendance rates of the participants in the treatment group. The correlation for the weight and attendance showed no significant effect. The results of the correlation showed that $r = +0.069$, $n=2$, and $p>0.10$. Scores were not calculated for the control group because they did not attend any exercise sessions.

Table 2
Correlation between weight change and exercise attendance

<table>
<thead>
<tr>
<th>Weight Change</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>+0.069</td>
</tr>
<tr>
<td>Weight Change</td>
<td>+0.069</td>
</tr>
</tbody>
</table>

$n=2$
$p>0.10$
Chapter V: Discussion

Analysis and Summary

Quality of Life Survey. This measure was used to determine participants' overall satisfaction in life before and after treatment. The survey that was used included nine measures overall although it was determined that only three were relevant to this study. The areas selected were general life satisfaction, social relations, and health. When working with a mentally ill population problems can arise. In this study, one participant had a period of depression just before and during the administering of the QOL. This period of depression appeared to have greatly affected his results. All the other clients however did not have many issues with the readministration of the QOL.

By the end of the study there were only two treatment group members. Jack’s results showed a major increase in two of the three areas, the exception being his general life satisfaction, which stayed the same. This outcome showed that the treatment was successful for him. His life benefited from making friends with other members of the group, being encouraged to eat at the local charity instead of at home, getting out of his apartment more, and getting daily exercise. The second group member Jeffery’s results decreased in the health and social relations areas, however was stable in the general life part of the questionnaire. The control group had two members in it. The first member of the control group did not show any significant changes over the six weeks of treatment. She increased no more then 10% in the areas of health, family, and living situation. James however was less satisfied with work, social relations, daily activities, and his living situation after completing the six weeks.

Weight. Of the three participants assigned to the treatment group, two of them were successful in losing weight. One member dropped out before treatment was completed. In comparison, one control group member lost a pound and the other gained two pounds. Although these results do not show any significant changes they still show a difference between the two groups. The control group was exercising on a regular basis with the wellness worker but still was not as successful as the treatment group. The main difference between the two groups was that the treatment group members received daily support and prompting to exercise where as the control group got assistance only when the wellness worker could find time.

Attendance. The final measure was only used for those in the treatment group and was tracking how many of the walking sessions each member actually attended. All the members were very successful in the first two weeks attending at least four out of five possible sessions. As the weeks progressed attendance declined; one member dropped out completely after the fourth week and the other two attended sporadically. The change in attendance may be explained by the participants’ feeling of excitement at starting something new, but then the initial appeal wore off. The other issue being the difference in participants as some are early to rise while others prefer to sleep in.

This study tried to combine a support group with daily physical exercise. The support group however was not overly effective because of the participants choosing to not attend formal sessions. The discussion meant for the support group was carried on during the daily exercise. The support group was to meet once a week, participants decided that this was too often, and did not work well with their schedules. The group meetings were scheduled to take place and afterwards the exercise group would walk. This plan did not work for the participants as it meant dedicating almost two hours of their time. It was determined that enough discussion was taking place during the walking sessions.
Significance of the study

This study was conducted to determine if combining daily exercise with a support group would be more effective at decreasing weight gain than simply prompting people to exercise daily. As seen in table 2 the treatment was effective, however only slightly more effective than the original treatment as usual (TAU) design. The support group was only run for two weeks due to lack of attendance. The walking group continued to meet daily for the entire six weeks, which entailed the researcher calling each participant in the morning to determine if they would like to walk that day. Participants most often chose to walk and during these sessions an informal support group was used. The researcher and participants discussed weight, exercise, diet, and things each participant could do after the program had ended. This study overall showed that if clients were given the right kinds of support including daily prompting, someone to exercise with, educational information about changes they could make, and weekly weigh ins, they may be able to maintain their weight despite being on medications.

Limitations

There were many issues with this study. First, all the participants were at different stages in their mental illness. Some clients had just been diagnosed, others had been admitted to the hospital numerous times. The participants also came from completely different backgrounds; as the quality of life surveys show, some participants were very close with their family and others had no contact at all. All the participants had different living arrangements and different disorders also, which lead to them having different daily schedules, which caused conflict when trying to get three different people to exercise together. They also had varying levels of health; one participant had diabetes while the others were at risk but had not yet been diagnosed.

The results of the QOL may have been influenced by several factors. Both the control and treatment group’s results could have been influenced by external events in their lives unrelated to the study. All of the areas of the QOL chosen as important could have easily been affected by external sources. The best example of outside sources affecting the pre and post test results were from Jeffery. His period of depression may have influenced the change in results from the pre and post QOL. This change in mood became a problem especially in Jeffery’s case because external events may have caused the decrease in his quality of life not the study itself.

Although the QOL was provided by the agency and had been used numerous times to assess each participant, not all the areas were relevant to this study. As a result of the unnecessary elements the researcher still had to complete the entire survey and then later determine which areas were relevant. This may have been seen as a problem because clients mood generally declined as the survey progressed due to is length. Three areas were eventually chosen, general life satisfaction, social relations, and health. The whole survey was completed because the computer would not allow for only partial input.

Another limitation to this study was that all the participants were adults and could chose if they wanted to be involved. The participants all decided that the support group was not something they were interested in doing and therefore a major component of the study was changed after two weeks of treatment. Clients made the choice that the support group took up too much time combined with a daily exercise session, and that they did not want to come to the office once a week to meet solely for this purpose.

All the participants were different sizes, which resulted in a struggle to get people weighed. Two of the participants were over the 300 pounds the scales provided at both the YMCA and the office. This problem was solved by getting one participant to be weighed at her
doctors, and the other at a group home. This was a slight inconvenience for the two participants although they still maintained weekly weigh ins.

The last things, to be mentioned in this study was that all the participants were engaging in some form of physical activity during and before treatment began. Many of their weights fluctuating over the six weeks may have been due to the exercise done on their own. However the treatment group did show that exercising daily was effective. Jennifer was exercising almost as much as the treatment group. Finally, the participants were not randomly assigned.

**Multilevel Challenges to Implementation**

Challenges exist in many areas of treatment and working with people. Some of these areas include client, program, organizational, and societal. It is important to look at the problems that can occur in each of these areas in order to ensure treatment integrity and what is best for the client is done.

**Client Level.** Clients often are not motivated to change, or do not realize their behaviour is a problem. People with mental illness (especially those who are taking antipsychotic medications) often gain over 20% more then their original body weight. Unfortunately, this problem is not an easy one to solve and clients do not appear to be self-motivated to change. Many of the clients at this agency wanted one-on-one assistance with many things they could do on their own. This behaviour maybe brought on by them being institutionalized for so long or just wanting to interact with people. The organization is a community based program but many clients have gotten used to not being allowed to do anything for themselves and when asked to change are not able.

**Program Level.** Each client is unique and the staff they work with are also different. Trying to coordinate treatment with all the staff members each person sees can be very complex. Any one client may be involved with the wellness worker, caseworker, social recreational worker, vocational, and counselling as well as staff from other agencies. It can be hard to get everyone on board and informed about what is being done with the client. This is complicated further when you are working with five different participants. At this agency, they have case conferences where all staff involved meet with the client and determine what is working and what is not, which is very beneficial to the client. The only additional struggle is setting up this same system with outside agencies.

**Organizational Level.** All organizations especially those that are government funded are given a certain amount of money based on what they achieve. The organization the thesis was conducted at receives money based on how many contacts they have with clients each year. It doesn’t matter whether these contacts are long or short all that seems to matter is that they happen. It can be a challenge to ensure that you are providing the best kind of care to each client because you have such a large caseload and each client requires a different kind of help. The issue of providing service to as many people as possible came up several times while working with the participant’s caseworkers. Even though there are many resources to help caseworkers be successful not everything runs smoothly. If a client is admitted to a hospital you are going to have to put off meetings with other clients that week so you can deal with the hospitalization. The same can be said for a death, or any other deterioration in a persons mental health.

**Societal Level.** The goal of the organization the thesis was completed at was to reintegrate people with mental illness into the community and have them living on their own unassisted. Unfortunately, society often has a negative view of people with mental illness, and many of the clients had committed crimes in the past. The negative stereotypes about people with mental illness can lead to many problems in terms of them becoming independent. Clients
are less likely to get a job, housing, or be involved in community activities. At the agency there are people who specialize in all these areas and they have been very fortunate in finding places for people to live and setting up contracts for jobs. But anything outside of the agency comes with a bias that prevents people from being completely independent.

**Further research**

This study could be advanced by being reproduced with more participants, as the number of participants was very limited. It could also focus more on the support group aspect if participants were willing to take part. The support group may have shown better results if it had been run for a longer period, or had been tied in better to the walking group. Finding a method that makes the participants more likely to take part may benefit the clients more. Any future studies should include a wider variety of mental illnesses, as antipsychotic medications are used to treat a number of mental illnesses, and although this group's illnesses varied the groups could be much larger.
References


Appendix A

Dear Jack Johnson,

I am a student in the Bachelor’s Degree in Behavioural Psychology program at St. Lawrence College. This four-year degree program is based on a behavioural framework, which has been demonstrated to be effective in developing positive skills with a wide range of individuals. Currently, I am completing an Applied Thesis that involves an intervention or project that I will summarize in a written report.

My intervention/project decreasing obesity in people taking anti-psychotic medication will include using a support group to help you learn about healthy living. Everyone who chooses to be involved will be asked to complete a quality of life questionnaire before and after treatment, will fill out a satisfaction questionnaire, and will also be weighed once a week in order to see if any progress is being made. Attendance will be taken, as well as what topics are discussed during our sessions. Sessions will be planned for once a week for one hour. You will also be asked to exercise as a group once daily. This client-focused intervention/project will be developed in collaboration with you, the agency’s staff, and team members.

The benefits of participating in this project will be extra assistance provided by myself in both losing weight and creating a healthier lifestyle. You will be given support by your peers and will share in supporting them, you will have people to exercise with and we all will encourage each other. The risks of participating in this project are minimal, everyone will be asked to keep what goes on in our meeting confidential but there is no guarantee everyone will keep that commitment. The goals will be kept small however there is always a chance of you becoming frustrated if you do not meet your goals.

This project has been approved by Leeds and Grenville rehabilitation and counselling services and by casework manager Tim Mack and by the research and ethics board at St. Lawrence College. The intervention/project will be developed under the supervision of Marie-Line Jobin, my supervisor from St. Lawrence College and in collaboration with Tim Mack of Leeds and Grenville rehabilitation and counselling services.

I would like your permission to implement the intervention/procedures described above. All information collected will be kept strictly confidential. The information will be coded and stored in a locked cabinet. Upon request, we will gladly share a copy of a brief report of the intervention. Participation in this project is voluntary and you may withdraw at anytime without incurring undue biases to current or future treatment.

If you agree to participate in the project, please complete the form at the bottom of this letter and return it to me as soon as possible. A copy of this signed document will be given to you for your own records.

I sincerely appreciate your cooperation. If you would like to receive more information about the project or have additional questions or concerns, please contact my College Supervisor, Marie-Line Jobin, (613) 544-5400 ext. 1112.

Sincerely, Robin Wood
St. Lawrence College Student
I, ______________________, understand and consent to the following.

**NOTE:** all information identifying you will be removed from any reports to protect confidentiality

_____ I consent for the data collected as part of this intervention/project to be put in a report in the college library.

_____ I consent for the data collected as part of this intervention/project to be presented at a conference.

_____ I consent for the data collected as part of this intervention/project to be published in a peer reviewed journal or professional publication.

Client/Guardian Signature: ______________________
Date: ______________________
Printed Name: ______________________

Witness Signature: ______________________
Date: ______________________
Printed Name: ______________________

SLC Student Signature: ______________________
Date: ______________________
Printed Name: ______________________
Dear Jack Johnson

I am a student in the Bachelor’s Degree in Behavioural Psychology program at St. Lawrence College. This four-year degree program is based on a behavioural framework, which has been demonstrated to be effective in developing positive skills with a wide range of individuals. Currently, I am completing an Applied Thesis that involves an intervention or project that I will summarize in a written report.

My intervention/project Decreasing obesity in people taking anti psychotic medication will include filling out a questionnaire about your quality of life before and after the study, and being weighed once a week during the study. This client-focused intervention/project will be developed in collaboration with you, the agency’s staff, and team members.

The benefits of participating in this project will be weekly feedback on how successful your weight loss has been, and seeing the difference the wellness program has made on your quality of life. The risks of participating in this project are minimal, your information will be kept completely confidential, and you will be weighed in a private room with the door closed. The results will be kept confidential.

This project has been approved by Leeds and Grenville Rehabilitation and Counselling Services and by Tim Mack the Casework manager and by the Research Ethics Board at St. Lawrence College. The intervention/project will be developed under the supervision of Marie-Line Jobin, my supervisor from St. Lawrence College and in collaboration with Tim Mack of Leeds and Grenville Rehabilitation and Counselling Services.

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If you agree to participate in the project, please complete the form at the bottom of this letter and return it to me as soon as possible. A copy of this signed document will be given to you for your own records.

I sincerely appreciate your cooperation. If you would like to receive more information about the project or have additional questions or concerns, please contact my College Supervisor, Marie-Line Jobin (613) 544-5400 ext. 1112

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_____ I consent for the data collected as part of this intervention/project to be presented at a conference.

_____ I consent for the data collected as part of this intervention/project to be published in a peer reviewed journal or professional publication.

Client/Guardian Signature: __________________
Date: __________________________

Printed Name: ____________________________

Witness Signature: ________________________
Date: __________________________

Printed Name: ____________________________

SLC Student Signature: ____________________
Date: __________________________

Printed Name: ____________________________
## Appendix C

### Jessica pre and post test quality of life survey results

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre</th>
<th>Post</th>
<th>Difference</th>
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<tbody>
<tr>
<td>General life satisfaction</td>
<td>78%</td>
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<tr>
<td>Living situation</td>
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<tr>
<td>Daily Activities and functioning</td>
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<td>Legal Safety</td>
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<tr>
<td>Health</td>
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</table>


Appendix D

*Jack pre and post test quality of life survey results*

<table>
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<tr>
<th></th>
<th>Pre</th>
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<th>Difference</th>
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<tr>
<td>General life satisfaction</td>
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<td>Daily Activities and functioning</td>
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<td>68% increase</td>
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<td>52%</td>
<td>68%</td>
<td>16% increase</td>
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Appendix E

Jeffery pre and post test quality of life survey results

<table>
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<tr>
<th>Category</th>
<th>Pre</th>
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<th>Difference</th>
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<tbody>
<tr>
<td>General life satisfaction</td>
<td>78%</td>
<td>78%</td>
<td>No change</td>
</tr>
<tr>
<td>Living situation</td>
<td>88%</td>
<td>70%</td>
<td>18% decrease</td>
</tr>
<tr>
<td>Daily Activities and functioning</td>
<td>100%</td>
<td>50%</td>
<td>50% decrease</td>
</tr>
<tr>
<td>Family</td>
<td>100%</td>
<td>29%</td>
<td>71% decrease</td>
</tr>
<tr>
<td>Social relations</td>
<td>81%</td>
<td>24%</td>
<td>57% decrease</td>
</tr>
<tr>
<td>Finances</td>
<td>71%</td>
<td>54%</td>
<td>17% decrease</td>
</tr>
<tr>
<td>Work and School Legal Safety</td>
<td>100%</td>
<td>77%</td>
<td>23% decrease</td>
</tr>
<tr>
<td>Health</td>
<td>69%</td>
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<td>19% decrease</td>
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Appendix F

*Jennifer pre and post test quality of life survey results*

<table>
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<th>Difference</th>
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<tr>
<td>General life satisfaction</td>
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<td>78%</td>
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<tr>
<td>Living situation</td>
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<td>10% increase</td>
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<td>Daily Activities and functioning</td>
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</tr>
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<td>Family</td>
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<td>100%</td>
<td>7% increase</td>
</tr>
<tr>
<td>Social relations</td>
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<td>83%</td>
<td>No change</td>
</tr>
<tr>
<td>Finances</td>
<td>14%</td>
<td>14%</td>
<td>No change</td>
</tr>
<tr>
<td>Work and School</td>
<td></td>
<td></td>
<td></td>
</tr>
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Appendix G

*James pre and post test quality of life survey results*

<table>
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<td>5% decrease</td>
</tr>
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<td>Finances</td>
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<td>5% increase</td>
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### Jessica's weekly weights and Body mass index

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<th>BMI</th>
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</tr>
<tr>
<td>Week 3</td>
<td>251</td>
<td>71</td>
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<td>Week 4</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Week 6</td>
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Appendix I

*Jeffery’s weekly weights and Body mass index*

<table>
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<td>90.7</td>
</tr>
<tr>
<td>Week 2</td>
<td>370</td>
<td>90.7</td>
</tr>
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<td>Week 3</td>
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<td>90.7</td>
</tr>
<tr>
<td>Week 4</td>
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<td>368</td>
<td>90.2</td>
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<td>90.2</td>
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## Appendix J

*Jack’s weekly weights and Body mass index*

<table>
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### Appendix K

*Jennifer's weekly weights and Body mass index*

<table>
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<td>Week 4</td>
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### Appendix L

*James' weekly weights and Body mass index*

<table>
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</thead>
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Appendix M

Participants Weekly Weight in Pounds

Weight in Pounds

Legend
Jack
Jessica
Jeffery

Weeks
Appendix N

Control Groups Weekly Weight in Pounds

Legend
Jennifer
James
Appendix O

*Attendance of Walking Group*

<table>
<thead>
<tr>
<th>Participants</th>
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<td>2</td>
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<tr>
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<td>3</td>
<td>3</td>
<td>1</td>
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Appendix P

Sessions Attended vs. Weeks for Jessica, Jack, and Jeffery.