EXPERIENCES OF INDIVIDUALS WITH MOOD DISORDERS IN GROUP MEDICAL VISITS FOCUSED ON PHYSICAL ACTIVITY

by

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, a thesis/dissertation entitled:

Experiences of Individuals with Mood Disorders in Group Medical Visits focused on Physical Activity

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Abstract

Background: Despite numerous proven health benefits of physical activity, there is a physical inactivity pandemic. This is particularly true in individuals with mood disorders. Although research has shown the therapeutic and preventative effects of physical activity in people with mental illnesses, the levels of physical activity in this population remains lower than the general population. Considering the overwhelming evidence, the question is not whether physical activity is beneficial, but how can we better engage persons with mental illness in physical activity. In this study, I explored facilitators and barriers to being physical active in these individuals. The primary aim was to understand the experiences of individuals who took part in a 14-week long Group Medical Visit with a focus on physical activity. The secondary aim was to better understand the key features of such a program.

Methods: I interviewed 24 participants clinically diagnosed with mood disorders - Major Depressive Disorder or Bipolar II Disorder. Participants were aged 32-64 years. I evaluated qualitative data from participants with a mood disorder who participated in an exercise program. The interviews were transcribed and managed using NVivo 10™. Thematic analysis was used to analyze the data.

Results: The results of this study detail participants’ preferred content and method of delivery of a physical activity program and identify facilitators and barriers to being physically active. The main facilitators are social support, building a routine in daily life, and exposure to nature. The barriers include the mood disorder itself, finances, and fear from stigmatization. The preferred exercise program comprises a variety of light-to-moderate activities, offers the opportunity to connect with other participants with a mood disorder, and being in nature.
Conclusion: The individuals in this study felt that key features of a physical activity program for individuals with a mood disorder must utilize a social network approach, take into account preferences of potential participants, and incorporate nature (both green and blue spaces) as a health promotion resource. Green spaces are places such as parks and forests, while blue spaces are attributed to places close to a body of water such as the sea, lake, etc.
Lay Summary

Despite the known benefits, most people do not meet the minimum daily required levels of physical activity. This is especially true for people who suffer from specific illnesses, such as mood disorders (depression and anxiety). Several research studies have shown that physical activity can prevent and even help in treatment of mood disorders. So, the question remains how can we help people with mood disorders to engage in physical activity? In this study, I with the help of other researchers, designed a 14-week Group Medical Visits focused on physical activity specifically for individuals with mood disorders. I interviewed the participants before and after the program to understand the key factors that help/impede their engagement in physically activity. I also tried to understand what the key elements of a supportive program are. It is my hope that the recommendations will increase levels of physical activity among people with mood disorders.
Preface

The work presented is a collective effort of UBC Centre for Hip Health and Mobility, Robert Lee YMCA and MDABC and was funded by the Vancouver Foundation. It received ethics and operational approval from the University of British Columbia Behavioural Research Ethics Board (H14-00973) under the project title “Jump Step - A participatory approach to physical activity & mental wellness”. Dr. Karim Khan, Dr. Joanie Sims-Gould, and Dr. Alan Bates were my supervisors on the work presented in this dissertation and were involved throughout project conception and writing of this thesis. Dr. Alan Bates and Dr. Ron Remick from Mood Disorder Association of BC were the lead psychiatrists during the Group Medical Visits (GMVs). Ms. Elizabeth Sabin and her colleagues oversaw the administration of the program in YMCA.

Sections of chapter 5 and 6 of this thesis have been published in the journal of BMC Psychiatry in 2017 before the writing of this dissertation was complete [Sims-Gould, J., Vazirian, S., Li, N., Remick, R., & Khan, K. (2017). Jump step - a community based participatory approach to physical activity & mental wellness. BMC psychiatry, 17(1), 319.https://doi.org/10.1186/s12888-017-1476-y]. I am the second author on this article. I was responsible for all major areas of patient recruitment, data collection and analysis, interpretation of the data and writing of manuscripts. Other authors listed in the manuscripts have provided valuable input on study design and data interpretation and were involved throughout the project and manuscript edits.
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List of Abbreviations

CHHM  Centre for Hip Health and Mobility
CMHA  Canadian Mental Health Association
CSEP  Canadian Society for Exercise Physiology
GAD   Generalized Anxiety Disorder
GAD7  Generalized Anxiety Disorder Questionnaire – 7 items
GBD   Global Burden of Disease
GMV   Group Medical Visit
MD    Mood Disorders
MDABC Mood Disorders Association of BC
MDD   Major Depressive Disorder
MOA   Medical Office Assistant
PA    Physical Activity
PHQ-9 Physical Health Questionnaire –9 items
SBS   Step by Step
UBC   University of British Columbia
WHO   World Health Organization
YLD   Years Lived with Disability
YMCA  Young Men’s Christian Association
Glossary

**Bipolar II:** the DSM-5 diagnosis of bipolar II requires at least one episode of current or past hypomania and at least one episode of current or past major depression, with no history of an episode of mania (2).

**Major Depressive Disorder:** Primarily defined as having depressed mood most of the day, nearly every day for two weeks, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful) with markedly diminished interest or pleasure in all, or almost all, activities most of the day for at least two weeks.(2)
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Chapter 1: Introduction

1.1 An overview of the purpose of this research

“In order for man to succeed in life, God provided him with two means, education and physical activity. Not separately, one for the soul and the other for the body, but for the two together. With these means, man can attain perfection.” (Plato, 4th century BC)

The World Health Organization defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (3). The connection between physical and mental health is a generally accepted fact; it is also a well-established that physical activity is one of the most natural and inevitable means of staying physically and mentally fit. Physical activity can be seen as both a preventative measure as well as a cure for several physical and mental ailments (4,5). Despite several studies showing the positive effects of physical activity on mood disorders (6–11), individuals with mental health issues are less physically active than the general population (12,13). While there is a plethora of research conducted to quantify the effect of physical activity on mental health, there is very little done to explore practical means and methods to address the problem. The question the current research study is aiming to answer, is not whether individuals with mood disorders will benefit from physical activity, but how to best engage them in physical activity.
There is a need for novel strategies that promote physical activity and self-management which are physically, financially, and psychologically accessible (14,15). Group Medical Visits (GMVs) are a promising approach to management of chronic health conditions including mental health problems (16–19). At a local level, an evaluation of GMVs conducted by the Mood Disorders Association of BC in 2014, revealed that not only were patients and physicians very satisfied with this model of care, but also the model was significantly more cost effective as compared to traditional one-on-one visits (19). Considering these positive findings, GMVs seemed to be the ideal platform to engage people with mood disorders in physical activity.

As the first step, a pilot study was conducted in 2013 which showed the effectiveness of GMVs in increasing the level of physical activity in people with mood disorders as indicated by an increase in their daily step counts and a decrease in their PHQ-9 and GAD-7 levels (20). Then, the graduates from the pilot study were interviewed to design a physical activity program to best suit the specific needs of this population (1). The new program was named “Jump Step”. Jump Step involves a series of 14 GMV sessions and embeds physical activity within patient visits in a community setting for those diagnosed with mood disorders. It also focuses on the importance of social relationships in encouraging participants to become physically active by embracing the GMV model.

The current qualitative research study was conducted with the primary aim of understanding the experiences of participants enrolled in the Jump Step program. The secondary aim was to explore the factors that facilitated or hindered participation in the program and highlight
participants’ perceptions of valuable components (content and method of delivery) of the Jump Step program.

1.2 Context of the study

This study was part of the Jump Step project funded by the Vancouver Foundation. The first pilot study called *Step by Step* was conducted with the collaboration of CHHM and MDABC in October 2013. Sixteen participants were enrolled in a 14-week program. Participants attended a 2-hour GMV every week. Each GMV combined specific medical advice, physical activity, patient discussions and a targeted educational component. Fourteen of fifteen participants (93.3%) completed the 14-week program. Over 3 months (as measured post intervention), median depression score (PHQ-9) decreased 38% from 16 to 10; and median anxiety score (GAD-7) decreased 50% from 13 to 6.5. Median daily steps per day increased 71% from 3366 to 5746 (20).

Considering the success of *Step by Step*, the large number of people who had shown interest in participating in the program, and the positive feedback received from the *Step by Step* participants, it was decided to continue the program with the aim of finding feasible and sustainable ways of rolling it into community mental health services.
In order to best formulate a program focused on the actual needs of the target group, the research team applied to the Vancouver Foundation in 2014 and received a grant to undertake a needs assessment with three interconnected activities:

1- Peer-interviews: 20 peer-interviewers were trained to interview people dealing with mood disorders (both interviewers and interviewees were selected with a similar set of criteria. More information on the selection criteria is provided in Methods section). The purpose of these interviews was to get an in-depth understanding of the factors facilitating and hindering these individuals from engaging in physical activity. The decision to train individuals with mood disorders to conduct the interviews was done for two reasons, (1) to have a more open and honest conversation on the topic and, (2) in order to facilitate community building and empowerment of these individuals. Two participants reported using the experience in their resume and ended up finding permanent jobs.

2- Online Survey: A provincial needs assessment online survey was conducted in order to cover a greater number of respondents as well as to quantify the findings.

3- Interviews with Health Professionals/Health Service Providers: Eighteen health professionals/health service providers treating or providing services to people with mental health conditions (including mood disorders), were interviewed using a questionnaire designed by researchers from UBC – CHHM. The health professionals came from a variety of backgrounds including family physicians, psychiatrists, social
workers, and yoga therapists. The purpose of these interviews was to understand the perspective of health professionals on individuals with mood disorders engagement in PA. I thought it is also important to know the challenges faced by health care professionals in encouraging individuals with mood disorders to engage in regular physical activity.

In light of the needs assessment, as well as regular meetings with the “Wellness Committee”, a 14-week physical activity program was developed. The Wellness Committee comprised of graduates from the pilot program (Step by Step), psychiatrists, UBC researchers, and other health professionals including yoga therapists, physiotherapists, personal trainers. Thirty-eight participants initially signed up for the Jump Step program and they were coached to understand their expectations from the GMVs prior to the start of the program. Twenty-three participants successfully finished the program and were interviewed in the beginning and the end of the program. The focus of this dissertation is to document the experiences of those participants who finished the Jump Step program.

1.3 Objectives of Jump Step program

The objectives of the Jump Step program can be summarized as follows:

- Address the medical needs of individuals dealing with depression and/or anxiety
- Teach techniques to these individuals to become physically active and maintain physical activity without the need to go to special classes
- Provide the opportunity for participants to try a variety of physical activities in order for each to find the best fit for them
- Provide an opportunity for participants to form positive social connections and benefit from peer support
- Discuss other important healthy habits important to the management of mental health such as psychotherapy, healthy eating, sleep hygiene, etc.
- Teach techniques and support the participants in making SMART physical activity goals

1.4 Context of the researcher

Our perspectives and interests as researchers cannot escape us. Therefore as a qualitative researcher I must be reflective of how my background may influence my research choices and interpretations (21). I give a brief overview of my background below in order to honestly outline how I came to study this area and how my background played a role in the questions I chose to ask and likely in my interpretation of the responses.

An important consideration is my personal identity as a physician and my background in Public Health. Even though I am not practicing medicine in Canada at the moment, being a physician plays a key role in my research interests. By ensuring rigorous data collection and analysis strategies I was able to make sure that the participants’ voices were heard, and their true opinions reflected. It is possible that the participants respected my expertise and knowledge of their problem as a physician who also has a public health background, thus creating trust.
My passion for Public Health (and social determinants of health in particular) as an essential component of the health care system was created early on in my life. I am a third-generation medical doctor, surrounded by many more physicians in my family. My father is a medical doctor and a Public Health Scientist who has served in many underprivileged corners of the world. From early on, I was inspired by his passion for holistic medicine and brought up in an environment where I learnt the overarching importance of social determinants of health in healthcare. Immediately after my graduation from medical school, I joined the World Health Organization where I served for about 6 years as a technical officer in the field of Development of Health Systems, while also working as a physician in a teaching hospital in my home country - Iran. One of the biggest focus of my work in WHO was primary health care and social determinants of health. It was through the privilege of serving in WHO that I was introduced to the concept of Community Based Initiatives (a slightly different terminology used for Community Based Participatory approaches), something that has highly influenced my work in this research in addition to the invaluable guidance I have received from my supervisors in UBC.

After moving to Canada, I joined the *Exercise is Medicine Group* at UBC as a research coordinator, where I got involved in a number of projects focused on GMVs for individuals with different health conditions, including Mood Disorders (Vancouver), Falls Prevention (Sooke) and Diabetes (Abbotsford). It was the first time I was introduced to the concept of GMVs. Although I was skeptical about its effectiveness in the beginning, I soon developed interest in this model as I witnessed the positive changes in the participants and received their positive and
constructive feedback as their main contact person. I now believe that GMVs are a model worth further exploration and solidification not just to overcome the shortage of health care professionals in Canada, but also as a means to provide quality care to individuals suffering from chronic health conditions, considering their particular needs, including peer-support.

This study reflects the experiences of participants who attended Jump Step – a 14-week GMV focused on engaging individuals with mood disorders in physical activity. Through this research and under the guidance of my supervisors, Dr. Joanie Sims-Gould and Dr. Karim Khan, I hope to have taken a small step in helping many individuals suffering from mood disorders by understanding their perspectives about an ideal physical activity program designed for them, by them.
Chapter 2: Literature review

2.1 Global burden of disease including mental illnesses

By several measures, mental disorders, including anxiety and depression, contribute more than either cardiovascular disease or cancer to the burden of disease worldwide (22). Individuals with chronic diseases and major depression use more health resources, have higher degrees of functional disability, and experience higher productivity losses, compared to their counterparts without major depression (23). Within Canada, 6.7M people live with a mental illness and when family and caregivers are included almost everyone is affected (24).

Since the discovery of vaccines and antibiotics, the global prevalence of diseases has shifted from infectious diseases to non-communicable diseases. Mental health disorders constitute a significant portion of the non-communicable diseases. WHO World Mental Health (WMH) surveys provide valuable information on the prevalence, distribution, burden, and unmet need for treatment of common mental disorders around the world. The completed WMH surveys indicate that mental disorders are quite common in all countries studied, with an inter-quartile range (IQR; 25th-75th percentiles across countries) of lifetime prevalence of 18.1-36.1%. Among mental disorders, mood disorders are the second most prevalent type of mental disorders as found in community epidemiological surveys, with lifetime prevalence estimates of any mood disorder averaging approximately 12% and 12-month prevalence estimates averaging approximately 6% (25). Murray et al. conducted a systematic analysis to calculate Disability-Adjusted Life Years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010. This study
concluded that among the studied diseases, the DALYs attributed to Major Depressive Disorder had a growth of 37% during these years (26).

A number of research studies have concluded that the true burden of psychiatric illnesses has been seriously underestimated by only taking into account the number of deaths and not disability, “while psychiatric conditions are responsible for little more than one per cent of deaths, they account for almost 11 per cent of disease burden worldwide. Unipolar depression alone is responsible for more than one in every ten years of life lived with a disability worldwide” (27). Individuals with chronic diseases and major depression use more health resources, have higher degrees of functional disability, and experience higher productivity losses, compared to their counterparts without major depression (23).

Another important consideration is the age of onset of psychiatric conditions. The age of onset of mental disorders is found to be earlier than many other illnesses with onset of treatment often occurring a number of years later (28). Mood disorders are more common in adolescence with up to a 25% lifetime prevalence by the end of this age cut off. This early onset is associated with poor long term outcomes in terms of academic achievements, teenage childbearing, unemployment, and chronic mental conditions (29,30) causing indirect economic burden not calculated in the traditional Global Burden of Disease (GBD) calculations. In Canada, the total burden incurred due to psychiatric illnesses was calculated to be about $51 billion CDN for 2003, with close to 30% of the cost incurred by a patient population without an official diagnosis (31).
A systematic review conducted to calculate the negative economic consequences of mental illness at an international level concluded that the actual costs imposed by this category of illnesses far exceed the direct costs of treatment, thus making it very important to treat these illnesses (32).

2.2 Paradigm shift from illness to wellness – The role of physical activity in mood disorders

There are two views of medicine, a “pathogenic” or “illness” view which focuses on disease and underlying factors causing illness and an “holistic” or “wellness” view which focuses on factors that promote human health and well-being. The “holistic” or “wellness” view does not focus on illness, but focuses on factors that cause disease (33)(34). Physical activity is an important part of holistic approach and considered to be one of the modifiable risk factors affecting the prevalence of many illnesses (35–38).

It is recommended that adults aged 18 – 65 years of age engage in regular physical activity for a minimum of 150 minutes (moderate intensity) per week or 60 minutes of vigorous physical activity or a combination of both intensities (39,40). There is tremendous evidence to support the therapeutic as well as preventive effects of physical activity on different physical or non-psychiatric illnesses (41–44). Similarly, physical activity is shown to be an effective tool for the treatment (7,20,35) and prevention (8,9,35) of psychiatric diseases including mood disorders.
A Cochrane Review examined the effectiveness of exercise in treating depression (10) and the results of 39 trials and over 2,300 participants confirmed a moderate effect for exercise when compared to no treatment or a control group. A smaller number of studies found no differences in efficacy between exercise and Cognitive Behavioural Therapy (CBT) and/or antidepressant therapies (36,45–52), the current “gold standards” for depression care. A systematic review (2014) concluded that physical activity has a significant potential for reducing depressive symptoms in people with a mental health challenge (45). Unlike other approaches, physical activity is a “polypill”(53), a single treatment with at least 13 health benefits: it can reduce depression and improve overall health and wellbeing, including several possible co-morbidities.

Despite all the proven benefits of physical activity, physical inactivity is a global epidemic. (54) Globally around 31% of adults aged 15 and over were reported to be insufficiently active in 2008 (men 28% and women 34%) with approximately 3.2 million deaths each year linked with insufficient physical activity (55). This rate is even higher in individuals with mood disorders (as compared to the general population) putting them at a higher risk of cardiovascular events (56). Nearly two thirds of people suffering from Major Depressive Disorder (MDD) do not meet the physical activity recommendations (57).

2.3 **Barriers to being physically active-- And how can we motivate these individuals?**

There is no question that physical activity can be an effective treatment, but still the majority of individuals suffering from mood disorders do not meet the minimum daily physical activity
requirements. The question is not whether or not these individuals will benefit from physical activity, the question is how can we support people dealing with depression to become more physically active?

The majority of medical care for anxiety and mood disorders is conventionally delivered through one-to-one consultations between a patient and psychiatrist or family physician. Treatment plans rarely include physical activity despite evidence for its effectiveness. In fact, efforts to promote physical activity within traditional clinical settings are fraught with challenges such as a lack of practitioner resources, reimbursement, time, confidence, and poor patient retention (58–62). While medications are effective and have their place, other methods of treatment or treatment aids are not prescribed as often as they should be.

A number of studies have focused on identifying the barriers to being physically active in this population. The mood disorder itself, medication side effects, fear of stigma and discrimination, and lack of social support have been the main barriers described by these studies (63,64)

2.4 Incorporating exercise into treatment regimens for anxiety and depression

We need novel strategies for promoting physical activity and self-management that are physically, financially, and psychologically accessible. GMVs are a promising approach to mental health care. GMVs are organized around a group of people living with a specific condition (65). The structure and formats of GMVs vary. Typically, in lieu of a short individual
visit, a patient will participate in a longer (60-120 minutes) group visit with six to fourteen other individuals, led by a physician and/or other healthcare practitioner. GMVs have been scientifically tested in an array of primary care settings (16,17,66–72) over the last 10 to 15 years, including mental health (67,73,74). However, no studies to date have focused exclusively on promotion of physical activity. Briefly, the theoretical rationale for this study is to design and study the experiences of individuals attending a GMV with a multifactorial interdisciplinary model, including medication/treatment monitoring, patient education, social support, goal setting, and motivation for improving person’s self-perception to uptake physical activity. This approach is beneficial to the people as it can serve as a “one stop shop” for the particular needs of this population and is not just prescribing but actually incorporates physical activity into treatment in real time. This model can also offer a cost-effective and sustainable solution to the particular problem of health care human resources shortage in Canada by decreasing the wait time for a psychiatric assessment significantly. Within BC, the Mood Disorders Association of BC has taken a leadership role in integrating GMVs into psychiatric care within the province. As follow-up care is group based, the wait time for an adult psychiatric assessment at MDABC is typically less than four weeks compared to the community norm of six months. Based on the success of MDABC’s adult GMVs, UBC researchers including myself collaborated with MDABC to design and prototype “Step-by-Step (SBS).” SBS was a series of 14 weekly GMVs designed to help individuals with anxiety and/or depression incorporate physical activity as part of their treatment plan. After three months post-SBS intervention, median depression score (PHQ-9) decreased 38% from 16 to 10 (p<0.01; IQR: 8/12); and, median anxiety score (GAD-7)
decreased 50% from 13 to 6.5 (p<0.05; IQR: 8.5/9). Median daily “steps” increased 71% from 3,366 to 5,746 (IQR: 2,610/6,237), though this was not statistically significant (p>0.10). These data compared favorably with other interventions such as psychotherapy and medications. Exit interviews with our participants suggested a number of factors might have led to program retention and the improvements in physical activity, depression, and anxiety, but could not say definitively which components of the program had impact, only that as a whole there were improvements.

2.5 Research questions

In light of the above evidence regarding physical activity’s impact on wellbeing as well as the benefits of GMVs, one could reasonably offer physical activity in a group setting as an important component and successful model of treatment for mood disorders. The question remains “how can we motivate people dealing with depression to become more physically active?” and “what are the most helpful pieces of such a model from participants’ perspective?” Therefore, the Jump Step program and research study were designed. Jump Step was a 14-week series of GMVs consisting of one hour with a psychiatrist followed by one hour of physical activity led by an exercise professional. The program was designed by active input from mood disorders patients who were members of an advisory committee and chose to name it the “Wellness Committee”. Jump Step was designed by taking into account the wishes and expertise of individuals dealing with mood disorders some of which were SBS study graduates. The committee also consisted of psychiatrists, exercise professionals and UBC researchers. New participants were then recruited
to take part in the program who also took part in the research study where they were interviewed before and after taking part in the program to better understand their experiences as facilitators and barriers of engaging in physical activity from their perspective.
Chapter 3: Methodology

3.1 Aim of the study

To understand the experiences of individuals with mood disorders who took part in Jump Step.

3.2 Ethical considerations

As in any qualitative study, human beings were my main research tools and I made sure that the principles of autonomy, beneficence, justice and human dignity were respected by giving them the choice to terminate their participation in the study whenever they wanted. The participants were asked to complete the interview in one session, but they were given breaks if requested and they had liberty to choose the dates and times of their interview. An ethics application was submitted to the UBC BREB and ethics permission was obtained under number H14-00973.

3.3 Research milestones

The choice of conducting interviews in order to answer our research question was based on the fact that the patients themselves are the best experts in the matter. After completion of the pilot program in 2013 (explained in further detail in section 1.2), a series of meetings with the participants were held, as well as with the health care providers involved in that program. This was done to expand our knowledge and understanding of the factors influencing the effectiveness of a physical activity program for patients with mood disorders. In 2014, we applied to the Vancouver Foundation to get funds for a thorough Needs Assessment. As the first
step of the Needs Assessment, we trained the Step by Step graduates (called peer-researchers) to interview their peers who had a similar diagnosis of mood disorders but had not attended the Step by Step program. Twenty peer-researchers were trained for this purpose through a number of workshops in which I was one of the facilitators. An online survey was also conducted with the same aim. In addition, I interviewed 18 health care professionals to get the perspective of the health care providers on physical activity programs for persons with mental illness. While this is not the focus of this thesis, it is relevant background information. The questions we asked in these interviews, helped in the development of Jump Step and the interviews conducted for my thesis.

The Jump Step program was finally launched in September 2015 and my thesis focuses on understanding the experiences of the individuals that took part in Jump Step. The first interview guide was drafted by me based on experiences with earlier formative interviews (mentioned above). The interview guide was then edited and enriched through a series of meetings with my supervisors.

3.4 Participant selection

Individuals with a primary diagnosis of a mood disorder were recruited to take part in the study. Participants had to be 18 years or older, have a confirmed diagnosis as assessed by a psychiatrist and be able to provide informed consent. In addition, participants had to be community dwelling and have a good understanding of English. Individuals with active psychotic symptoms and/or primary active substance abuse were excluded from the study.
Inclusion criteria:

| Adults (≥18yrs); |
| Confirmed psychiatric assessment of Major Depressive Disorder (MDD) and/or Bipolar II, depressive; |
| Community-dwelling and able to attend GMVs in the Lower Mainland; |
| Able to comply with scheduled visits, treatment plan, and other procedures; |
| Able to read, write, and speak English with acceptable auditory and visual acuity; |
| Able to provide signed/dated informed consent; and |
| Able to walk independently. |

Exclusion criteria:

| Active psychotic symptoms; |
| A primary active diagnosis of substance abuse. |

Table 3-1: Inclusion and exclusion criteria

3.5 Recruitment

Participants were recruited via placing posters at the Mood Disorders Association of BC (MDABC); the psychiatric services area of major hospitals in the Lower Mainland; areas visible to potential volunteers within related services organizations such as the CMHA; coffee shops, community centers, YMCAs, and other such venues. Permission from the appropriate authorities was obtained to display advertisements.
Postings were also placed on the websites/list-serves of related service organizations such as the MDABC, the BC Psychiatric Association, BC Mental Health & Addiction Services, Health Authority Mental Health Services, and the CMHA. Permission was obtained from the appropriate authorities to display advertisements. A number of participants were recruited through word-of-mouth at MDABC and other service agencies and any resulting 'snowball sampling'. Advertisements were also placed on social media such as Facebook and Twitter.

In addition to the above-mentioned approaches, MDABC psychiatrists and staff verbally informed clients of the opportunity to participate with the understanding that participation or non-participation would not affect a client's access to or quality of psychiatric care and/or MDABC services.

All volunteers who completed the program were then invited for the interviews. They were provided with a blank consent form via email or through the MDABC office and were asked to email the signed consent form or bring it with them on the day of the interview. Participants were given up to one-week to review the consent form, ask questions, and/or discuss the consent with family members, friends, etc.

3.6 Participants

Initially, 38 participants who met the criteria expressed interest in taking part in the program and were interviewed to get baseline measurements of expectations prior to the program, socio-
cultural variables, and physical measurements to assess physiological changes (T1). Three out of 38 participants dropped out before the start of the program for personal reasons. Twenty-three participants completed the program and took part in the post study assessments after completing the 14-week program (T2).

Among the 38 pre-assessment interviewees who were either diagnosed with major depressive disorder (MDD) or bipolar II disorder (BP II), the gender distribution was 12 male and 26 female participants. The mean age of the group was 52.8. Among the 23 post-assessment interviewees, diagnoses did not change over the course of the study. The gender distribution was 8 male and 15 female participants, and the mean age was 52.5.

3.7 Data collection and interviews

The Jump Step program was implemented from September 2015 to January 2016. Thirty-eight individuals were interviewed prior to the beginning of the program (T1) using the same interview guide provided in appendix B. Out of the above mentioned 38 participants, three dropped out before the start of the program for personal reasons. Twenty-three participants completed the program and took part in our post study assessments who were interviewed one more time to find out any changes in their perspectives after completing the 14-week program (T2). For both the pre-assessment (T1) and post-assessment (T2), a semi-structured interview guide was used. The interview guide was designed by me, other UBC investigators, and peer researchers (individuals
with mood disorders). The interview guide focused on participants’ history with physical activity, perceived facilitators and barriers to being physically active, coping strategies for mood disorders, and feedback and suggestions for the Jump Step program. A semi-structured interview guide allowed us to probe for relevant topics not written in the interview guide.

I conducted one-on-one interviews in a private room at the Centre for Hip Health and Mobility (CHHM). The interviews were tape-recorded, transcribed verbatim, and inputted into NVivo 10™ for analysis. The analysis includes all 38 pre-assessment and 23 post-assessment interview transcripts. This enabled me to compare and contrast the perspectives from the participants from T1 to T2 and to gain a deeper understanding of which elements of the program led to its success and which areas needed improvement.

The interview guides were comprised of open-ended questions, allowing for free discussion by the participants. However, the interviewer directed the interview back to the topic wherever necessary. Probing questions were used to elicit comments on specific topics if the topics did not naturally arise. The researcher used lay language that was easily understood and avoided scientific or medical terminology.
Following is a number of selected of questions used during the interview. The complete interview guide is provided in Appendix B.

<table>
<thead>
<tr>
<th>Selected Questions in the Interview Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A - Questions regarding level of physical activity</strong></td>
</tr>
<tr>
<td>1. Describe what a typical day looks like for you? Is Physical Activity a part of your typical day?</td>
</tr>
<tr>
<td>2. How much time per week are you in nature/the outdoors?</td>
</tr>
<tr>
<td><strong>B - Questions regarding participants’ coping strategies</strong></td>
</tr>
<tr>
<td>1. What are you currently doing to deal with your mood disorder? Is physical activity a part of it?</td>
</tr>
<tr>
<td>2. What would you like to do to improve your mood but are not currently doing?</td>
</tr>
<tr>
<td><strong>C - Questions regarding Jump Step Program</strong></td>
</tr>
<tr>
<td>1. How did you think of the key features of the program in terms of time, location, duration, types of physical activity, etc.?</td>
</tr>
<tr>
<td>2. What are your suggestions for the future planning of a physical activity program for individuals with a mood disorder (e.g., advertising, contents)?</td>
</tr>
</tbody>
</table>

Table 3-2: Selected questions from the interview guide

### 3.8 Data analysis

The interviews were tape-recorded, transcribed verbatim by a professional transcription company, and the transcripts were inputted into NVivo 10™ for analysis. The analysis in this article includes all the 38 pre-assessment and 23 post-assessment interview transcripts. This enables a comparison of the participants’ perspectives from T1 to T2 and to gain a deeper understanding of participants’ expectations before the program and their experiences after the program. I tried to understand the elements of the program that led to its success and the areas that needed to be improved. The interviews were conducted by me and another research assistant. We generated a preliminary coding framework from reading the field notes and the
transcripts. Then we met twice to discuss and refine the coding framework and came up with a final coding framework. The coding framework was passed along to the principal investigator and other researchers on the team for critique and feedback. After this process, the coding framework was finalized and the entire dataset (both T1 and T2) was coded and final findings were extracted. The results were discussed with my principal investigators and the outliers were excluded. The final results were reviewed by the entire research team for feedback and corrections.

I used thematic analysis to guide the analysis of the data. I chose thematic analysis because it is widely used in qualitative healthcare research and it “offers rich and compelling insights into the real worlds, experiences, and perspectives of patients”(75). As thematic analysis is a great option for analyzing participant experiences, and because this was the main focus of my research, it seemed to be the best fit. In order to do the analysis, I used the six step method by Moira Maguire & Brid Delahunt (76). After reading the audio transcriptions, I assigned codes which would describe the contents of the data. I then searched for patterns and identified themes that were common across different interviews. I named and defined the themes which are now presented in this dissertation. The analysis process was interactive and the coding framework as well as the findings were discussed a number of times with my supervisor in order to enhance the rigor of the data analysis process.
Chapter 4: Structure of Jump Step using Group Medical Visits (GMVs)

4.1 Types of Group Medical Visits

Group Appointments (GAs), also called GMVS or Shared Medical Appointments, exist in various forms. Typically, a team of clinicians work together to care for eight to twelve individuals during a 60 to 120-minute appointment. GAs provide benefits to both clinicians and patients that are not possible in a traditional one-to-one consultation. Group Appointments combine three elements:

1. Individualized medical care

2. Disease-specific education, applicable to the group as a whole

3. Life skills development such as short-term goal setting, action planning, and problem-solving to empower individuals for behavioral change.

GMVs can be a great opportunity to provide a holistic treatment to mental health clients combining mental and physical aspects. GMVs are also a more efficient method of delivering services. A doctor can meet with up to 8 times as many patients compared to seeing people in individual follow-ups - reducing wait times. There are three different types of GMVs (65,77):

1- Cooperative Health Care Clinic (CHCC)

This model was first designed by Dr. John Scott from Kaiser Permanente and it initially focused on specific populations based on their utilization of healthcare resources (e.g. high utilizing geriatric patients), but then it was extended to other population groups. This
model focuses on educating the patients about their specific disease and helping them make informed decisions (65).

2- Drop-In Group Medical Appointments (DIGMAs)

The DIGMA model was first developed by a psychologist from Kaiser Permanente - Dr. Ed Noffsinger. In the DIGMA model, the healthcare team is comprised of a physician, nurse or MOA, and a behavioral health professional. There are three types of DIGMA, homogeneous, heterogeneous, and mixed. In the homogeneous type, all the patients have a similar diagnosis; in the heterogeneous type, patients with different diagnoses attend the GMV and in the mixed type, the physician’s practice is divided into four major groups (diabetes, cardiac problems, mental health, etc.) One GMV is conducted each week of the month (77).

3- Physicals Shared Medical Appointments (Physicals SMAs)

This type of GMVs was designed by Dr. Ed Noffsinger. The GMV starts with a one-on-one time with the physician where a complete physical exam of the patient is done. This type of GMV can be homogeneous, heterogeneous, or and mixed - similar to the DIGMAs described above.
4.2 Components of Jump Step GMVs

Jump Step was a weekly 2-hour GMV over 14 weeks for individuals with mood disorders to address their mental health needs as well as to provide education around mental and physical health along with actual incorporation of physical activity. This program was based upon the Bio-psycho-social model of mental health.

The GMVs were supplemented with additional weekly 45 min gentle hatha yoga classes for 11 weeks (weeks 3–14 due to availability of yoga therapist). The study used a pre/post (14 weeks) design. A psychiatrist and an exercise therapist co-led each GMV, which combined specific medical advice, medication management, open discussion of individual concerns, a targeted educational component to guide participants’ self-management or ‘patient activation’ around PA, as well as a PA component.

Thematic content for the 14 weekly group discussions was based on Steven Blair’s successful study, Project Active and subsequent book, *Active Living Every Day.* Blair *et al*’s book provided a tested, reliable, relevant, and accessible framework around which to structure an intervention.

The view behind our intervention was to support individuals in feeling highly responsible for their health and thus transform them from being the passive receivers of a healthcare provider's advice to proactively seeking out strategies and tools that would further their own well-being.
The 2-hour session was divided into three sections:

- Group check in/out; enter participants weekly step count into database; review and outline the day's group program—20 min;
- Group discussion, regarding selected topics including psychiatric issues—50 min;
- Physical activity component—50 min.

During the physical activity component, participants went for a group walk on alternate weeks, emphasizing 150 min weekly of moderate activity (e.g., brisk walking). On alternate weeks, participants stayed in the gym and were taught techniques and exercises that they could employ in their everyday lives. The intent was to become more physically active without having to attend special classes, set aside time, or make concerted efforts to ‘exercise’. For example, in one session, called ‘commercial exercises’, participants were given a series of brief (<5 min) upper and lower body activities they could do in their home during a television commercial in lieu of sitting still, eating a snack, etc.

We wanted to provide participants with the tools and a framework that would help sustain them through the drops in motivation, interest, and energy that accompany the low cycles of any fitness regime. Group exercises included aerobic training of cardiorespiratory functioning (e.g. circuit training with simple tasks), ergometer bicycling, resistance bands, light weightlifting, stepping, ball work, walking on a treadmill, and an introduction to high-intensity interval training. A certified yoga therapist taught the gentle hatha yoga classes. We recorded participant attendance at each group visit/yoga class.
The ideal group size for most psychotherapeutic interventions is considered 6–12 people. (79) Accordingly, we split our population into two sections each week whereby one group of 6–10 participants did the 50 min PA component while the other group did the 50 min GMV; and then the two groups were reversed during the subsequent 50 min time block. The participants were randomized each week, so that all participants interacted with each other over the 14-week program.

During the GMVs, a similar format was used:

- A reciting of our refrain about the benefits of physical activity followed by a brief interesting study in recent exercise research (e.g., How much weight will you gain over the Christmas holidays according to research studies? Is sweating important when you exercise? etc.)—5–10 min;
- Reviewing each participant's weekly short-term goals (e.g., increase from two 20 min walks to three 30 min walks per week)—15 min;
- Develop long-term goals for when step-by-step ends (e.g., 30 000 ‘steps’ on step counter per week)—10 min;
- A group activity dealing with ‘resistance’ to exercise was initiated (e.g., divide into groups of three, pick an envelope out of the hat and give counterarguments to what is written inside the envelope (e.g., I am too tired to exercise today)—15 min.

Participants were requested to commit to

- Recording their daily steps with a pedometer (Fitbit Zip);
- Completing a paper-based evaluation of each weekly session.
Subsidized parking or public transit tickets were provided to participants who requested them.

Following is an example of a day’s agenda during Jump Step.

Figure 4-1: Jump Step Agenda - Example
4.3 Jump Step GMV facilitators

The Jump Step GMV team consisted of myself, a psychiatrist, an exercise professional, and an administrative assistant from the YMCA (where the study took place). I was responsible to ensure that the research study requirements were met and participants felt supported during weekly group sessions and with their physical activity goals.

4.3.1 Graduate student

I was responsible for the recruitment and intake to create a group of participants who were physically able and committed to participating in the Jump Step Program. I supported the psychiatrist during GMVs and ensured that the participants felt understood and supported. I had a lead role in delivering specific educational topics and such as: building healthy support networks and goal setting. I was also the interviewer during the pre and post assessments, encouraged participants to attend sessions consistently, and connect them with appropriate community supports when needed.

4.3.2 Psychiatrist

The psychiatrist led the first part of the GMV which consisted of the first hour of the Jump Step weekly sessions. The GMV would start with a quick round of the most significant achievement during the past week, the group then discussed the symptoms of depression and anxiety that they had experienced over the past week and whether they noticed any shifts or changes in their
mood. Participants also had the opportunity to ask any questions pertaining to medication management. In addition to that, two sessions were specifically dedicated to medication management. The psychiatrist provided individualized support to members within the group setting so that others were able to connect and hear what was being shared. He shared an educational topic about mental health, medication, and/or physical activity which typically led into a discussion or activity where the participants had the opportunity to understand the concepts at a deeper level and identify helpful coping strategies that they could use to support their mental health. One of the unique characteristics of these GMVs was that the psychiatrist was present during the exercise session and took part in the walk and other activities alongside participants. The effects of having a psychiatrist during the GMVs is further discussed in the results and discussion.

4.3.3 Exercise professional

The role of the exercise professional was to engage all participants in a variety of fun fitness activities so they could see and feel the benefits of physical activity in managing their depression and anxiety. He ensured that physical activities were flexible and adaptable based on: weather, injuries, chronic pain, and number of group members. He sent weekly emails to group participants to encourage them to stay physically active, acknowledge the hard work that participants had done and summarize any key fitness tips or instructions. The exercise professional took the lead in booking external group fitness excursions that happened over the
program. He was also present during GMVs to support the participants in understanding the role that physical activity plays in mental wellness.

4.3.4 Administrative assistant

An Administrative Assistant supported us during the recruitment phase. She ensured that the necessary paperwork for YMCA was collected during the intake process. Once the program started, she initiated the fitness memberships for all participants, and ensured that YMCA staff were aware of the Jump Step study and provided support to the participants throughout the study.

4.3.5 Volunteers

Volunteers were recruited from amongst the participants who had graduated from the first pilot of the study (Step by Step) and were open and willing to support current Jump Step participants by creating a warm and welcoming environment so they could achieve their health and fitness goals.

Volunteers assisted the exercise professional during the physical activity component to help set up and take down equipment, demonstrate activities, and encourage full participation.

4.3.6 Advisory committee

The Advisory Committee members also known as the “Wellness Committee” played a crucial role in designing the 14-week Jump Step program. All the committee members were identified an engaged in the program from the beginning of the research study. Wellness Partners
(participant peers) (15 of 29 members of the Wellness Committee) have been integral to the design and realization of Jump Step. The intervention’s design was finalized through regular meetings of the Wellness Committee. We have worked together and learned from one another.
Chapter 5: Results

5.1 Participants expectations before the study

After receiving ethics approval from the UBC Behavioral Ethics Board, I recruited participants to take part in the program. Initially, thirty-eight participants who met the criteria expressed an interest in taking part in the program and were interviewed. The participants were interviewed to get a baseline of their expectations prior to the commencement of the program. Twenty-three participants completed the program and these participants were interviewed again immediately after the end of the 14-week program.

As many of the participants were recruited through the MDABC, they already had experience with GMVs and when asked about their opinion on GMVs in general and whether or not they thought it is the right platform to introduce physical activity, the responses were mostly positive. The most common reasons for the positive responses were lower wait times to be seen by a psychiatrist as well as being able to learn and receive support from other fellow participants.

5.2 Overview of Jump Step program

The main goal of Jump Step was to help the participants reap the benefits of physical activity by engaging in a structured exercise program in a group setting designed specifically for individuals with mood disorders. The Jump Step program was offered at a fitness facility in a downtown location for 14 weeks. Each session had two components: i) an educational component to allow the participants to learn about various topics associated with mental health including the benefits
of physical activity, goal-setting and strategies for improving mental health; and ii) a physical activity component for the participants to take part in low-to-moderate intensity physical activity such as weight training, cardio workout, or sports games. There were two sessions each week and both sessions were scheduled in the early-to-mid-afternoon on a weekday. Each session lasted for approximately two hours. The professionals who led the different components of the sessions included psychiatrists, sports coaches, and exercise specialists. In two of the 14 sessions, the participants had a chance to review their medications and to ask questions to a psychiatrist in a group setting. They were also encouraged to attend an optional weekly yoga class led by a certified yoga practitioner in addition to the regular sessions they attended at the same location.

5.3 Facilitators and barriers to taking part in the GMVs.

For most participants, facilitators to positive physical and mental health included the availability and presence of social and family support, the opportunity to engage in social activities and building a routine. Barriers to engaging in physical activity included their mood disorder, finances, and stigma.

The following table shows an overview of the facilitators and barriers as identified by the participants. Further explanation of the facilitators and barriers are provided in the succeeding sections.
### Emerging Themes for Facilitators and Barriers to taking part in Group Medical Visits

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<th>Categories</th>
<th>Higher Order Theme</th>
<th>Emerging Themes</th>
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<tr>
<td><strong>Structural Perspective</strong></td>
<td>Facilitators</td>
<td>Choosing the right facilitators (Physician, Exercise Professional and Yoga Therapist)</td>
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<tr>
<td></td>
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<td>Duration</td>
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<td>Variety of activities</td>
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<td></td>
<td></td>
<td>Bus pass and parking</td>
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<tr>
<td></td>
<td>Barriers</td>
<td>Not enough financial assistance</td>
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<tr>
<td></td>
<td></td>
<td>Distance to GMV location</td>
</tr>
</tbody>
</table>

**Table 5-1: Facilitators and Barriers to taking part in Group Medical Visits**
5.3.1 Facilitators – experiential perspective

5.3.1.1 Social and family support

The vast majority of participants said that the family and friends gave them support, encouragement, and practical help around daily tasks so that they could improve their own health. Almost all participants identified social and family support as one of the most important facilitators to becoming physically active. For example,

My husband is very supportive. For a long time, he was making almost all the meals and stuff like that. But he has a really busy job, and the advantage of [for] me? I can be at my best, or close to. If I could be fully functioning and doing a bunch of stuff that makes his life better too.

Suzanne

One participant, had particularly chosen to participate in Jump Step program because of the peer support she knew they would receive.

I would probably be-- have a higher chance of success of going back onto a regular, like, yes, do this-- pretty well something every day or six days a week or something like that, if I was doing it in the context of a supportive environment like that. So those were the biggest reasons that I went.

Sarah
5.3.1.2 Social activities

Among the participants, getting involved in social activities with other people, as opposed to spending the day by oneself, was a desired way to improve their own health.

*Q:* Do you see that as a part of your treatment, the exercise?
*A:* Oh, yeah, definitely. Definitely helps. Socializing with people. It helps.

*Q:* And you see socialization as part of your treatment, right?
*A:* Yeah, I think socializing is just a part of life.

*Albert*

Having a safe and non-judgmental social environment to engage in team activities was identified as one of the main facilitators.

*Q:* What makes it nice? What helped you the most?
*A:* It’s having-- it’s a social aspect, basically. A social aspect. And being with people where you don’t feel that you stand out, that-- yeah. Yeah.

*Judy*

*I get-- it’s nice being in a, you know, playing a team sport because I’m meeting other people. I know it’s of benefit physically and mentally to me so those are the types of things that will keep me going.*

*Carol-Ann*
5.3.1.3 Building a routine

Several participants mentioned that Jump Step helped them by building a routine - which was another facilitator to staying active.

*And just overall Jump Step-- they put us into a routine. I think, you know, you need a least a couple of months of doing something to put you into a certain frame of mind and a routine. And the ability to set fitness goals and to realize that, you know, I do feel good after working out or running or-- yeah.*

*John*

5.3.2 Barriers – experiential perspective

5.3.2.1 Mood disorder

All participants identified their mood disorder diagnosis as being a threat to both their physical and mental health. The emergent theme in this regard is the mood disorder as a formidable barrier in itself; the mood disorder was considered the foremost barrier creating a vicious cycle.

*Getting out of bed is hard. I wake up and I feel almost drugged, and it’s sort of…pulling myself out of the swamp. It’s a comfortable swamp of semi-consciousness.*

*So if I can make myself get up, I’m fine.*

*Sabrina*
People with depression and anxiety, a lot of times you’re just lethargic. You know, you’re [groan, groan], your brain and your nerves, you know, it’s all too much.

Alex

5.3.2.2 Finances

In addition, participants spoke about barriers to engaging in physical activity despite the known benefits. One common barrier to engaging in activity was cost. Participants spoke about disruptions to income and lack of financial means to engaging in activity. One participant stated:

A: But-- ‘cause I was really enjoying going to yoga, but I’ve taken, like, I’ve paused my membership because I have no income right now.

Q: So finances are definitely--

A: Finances are a huge stressor at the moment.

Lucy

I can’t afford a personal trainer or, like, a fitness club or anything like that. Those are not in our options at all.

Andy

Many participants mentioned they had to (naturally) prioritize the things they could spend on, thus pushing physical activity to the end of the list.
“Yeah, we just don’t have a lot of disposable income, and I just don’t know about a lot of things, like, if there are more affordable ones. So, I just don’t do those types of things.”

Christian

5.3.2.3 Stigma

A lack of self-confidence and fear of stigma was another identified barrier. Participants found Jump Step a non-judgmental and safe environment where they could engage in physical activity without the fear of being stigmatized.

“You’ve got to consider what effect the group (had) as it was, what it did. … it was effective and it introduced a number of different types of exercise. And you could choose which one you wanted, the stigma away from going to the gym. You realize that they’re just (ordinary) people and they dress in (ordinary) clothes or shorts and there’s none of this bravado with the-- with all the fancy clothes and running shoes and everything that everybody’s got in their mind, you know.”

Harriet

5.3.3 Facilitators – structural perspective

Comparing the data from the pre-assessment and post-assessment interviews, participants provided valuable feedback on what they thought the essential components of a physical activity
program like Jump Step should have for individuals with a mood disorder. Three main themes with sub-themes emerged from the data: having the right people, spatial and temporal resources, and sustainability of participation. Most of the following results are derived from the T2 interview data from the 23 participants who finished the program. Occasionally, I also included ideas articulated in the T1 interviews from the 38 participants that touch on essential aspects of the program.

5.3.3.1 Having the right people

The importance of having the right healthcare professionals as well as exercise professionals and support staff was one of the main questions in this study. The results of which are discussed below.

5.3.3.2 Medical professionals

Participants generally perceived that all of the following professionals were important for a similar program to succeed, and in this order: fitness professional, yoga practitioner, psychiatrist, and general practitioner (GP). The psychiatrist was considered important because he/she possessed medical knowledge and was in a position to offer scientific medical advice about mood disorders such as Depression and Bipolar II. The GMV portions of the program were important to participants because each person still had time to talk about their medications and/or progress with a psychiatrist, albeit in a group setting in the presence of other individuals with a
mood disorder. Two out of the 14 sessions had allocated time to discuss medications. The psychiatrist instilled confidence that other parts of the program were scientifically sound to help the participants on the road to recovery and well-being.

A few participants were ambivalent about having a general practitioner (GP) run the program. The psychiatrists were thought of as authoritative figures in working with individuals with a mood disorder. On the other hand, GPs were considered the “gatekeepers” for referral to a psychiatrist for specialized consultation. However, some participants did mention that so long as the GPs had the proper knowledge and skills to work with individuals with a mood disorder, they would be suitable candidates to run a similar program like Jump Step. For instance, one participant said:

*It’s going to vary from doctor to doctor but depending on their experience with mental health and patients-- but it certainly would, you know, an ideal situation is having a psychiatrist, you know. Having a general practitioner with experience in that area would be helpful too.*

*Quinn*
5.3.3.3 Exercise specialists

The fitness professionals were deemed important because they instructed safe and effective exercise techniques so that participants would not injure themselves while exercising. The program deployed a yoga practitioner who was trained and experienced in working with people with Post Traumatic Stress Disorder (PTSD), such as people who experienced abusive relationships, were recovering from injuries from accidents, or underwent psychological distress.

The participants almost unanimously touted her style and techniques as the reasons to enjoy yoga and to stick around with the weekly sessions. The participants felt that he/she understood them and knew the proper ways to encourage and motivate individuals with a mood disorder. For example:

*I haven’t met a lot-- I mean, he/she’s the first yoga instructor I’ve met. And what’s really, really nice with him/her is he/she’s therapeutic, you know, he/she doesn’t see any other-- doesn’t do any other classes or see any other clients other than trauma, depression and anxiety. So there’s—he/she has those skills.*

*Jawairia*

*Oh, I think hugely, particularly with the background he/she has. His/her background allows him/her to, you know, understand, have a great understanding of what many people have gone through. And do the poses and things and-- to, you know, help release*
some of that trauma or worry. I certainly felt that helped me a lot.

Sandy

5.3.4 Barriers – structural perspective

For the purpose of this study, GMVs were provided free of charge in addition to public transit and parking tickets being provided for; these measures were done to reduce any financial strains on the participants. The participants were also encouraged to see me and get reimbursed for costs such as baby sitting and gas if they self-assessed they were truly in need. There were two participants who came forward with these requests. YMCA also provided free membership to all Jump Step participants. Even though financial barrier was mentioned as a general hindrance to taking part in physical activity, it was not mentioned as a barrier to taking part in Jump Step. Other specific barriers pertaining to Jump Step were identified which are further explained in the following sections.

5.3.4.1 Location

We had chosen the Robert Lee YMCA due to its central location with a good transit access and ample parking area, however a few participants coming from farther areas of the city found the location difficult to access. This implies the importance of GMV locations.
And also the fact that I live in Maple Ridge, and all of this was done in
Vancouver. So I mean, I have-- I had a friend who’s a retired nurse, who was coming
downtown with me when I was coming to the sessions.

I chose to do a yoga practice in Maple Ridge instead of working with the lady that was
hired for Jump Step because the whole point-- driving an hour and a quarter, an hour
and a half down here so I can have yoga and relax. It’s, like-- do you know what I mean?
Robert

5.3.4.2 Time

The GMVs were held from 4-6 pm on Wednesday afternoons. Some participants found the time
inconvenient and would have preferred an earlier or later time of the day due to the traffic.
Especially when choosing a central location, this is something that needs to be considered.

Not ideal, yeah. If I come out for say ten or eleven o’clock in the morning, you know, the
traffic would have been gone. I’d have been going home before the traffic.
Sonia

5.4 Personal strategies to improve health and quality of life

Despite challenges to physical and mental health and engagement in physical activity,
participants devised a number of ways to improve their own health. These strategies were highly
personal and diverse. However, there were certain common themes which included getting out of the house, building a routine, and connecting with nature.

5.4.1 Getting out of the home/house

A consensus among participants was that not being confined to the home was very important. They often mentioned being “overly-stimulated” and “overwhelmed” by the outside world because of the number of people, noise, and even daylight. Consequently, many participants stayed home most of the time. Participants recognized this as a vicious cycle that worsened their mental health, turning something as simple as going outside into a coping strategy.

“Q: What do you believe are the most important things you could be doing to improve your mental health? The most important things. So not everything. Just the most important you could do.

A: Just trying to get out. Trying to get out every day probably, trying to put some more structure in without overdoing it, like, without committing to too much.”

John
5.4.2 Building a routine/structure in daily life

Some participants mentioned that having a routine with expected activities helped them manage their health. Typically, many of these routines involve getting out of the house to see friends and buy groceries:

*Getting up every day and kind of having a little bit of a plan for what I need to accomplish. And also just, like, having a certain built-in structure of my son goes to school. I can’t let my own depression, anxiety, mental health issues affect his life. ... I need to make sure that his day is structured, but because I need to do this, it gives me a structure for my day.*

*Daniel*

5.4.3 Connecting with nature

When probed about their relationship with nature, a number of participants said that nature calmed their nerves:

*I love nature. We’ve got-- as I say, we have a mountain cabin. I love being up there. ... Breathing room, fresh air, peace and quiet. And then the types of activities outside, things like for me, chopping wood, building projects, handyman type work. Taking care of the boat, those sorts of things I enjoy.*

*Albert*
Closely related to the enjoyment and serenity that nature brings, some participants described nature as “natural” for human beings. In other words, humans ought to be outdoors in nature more to achieve a natural state of mind:

A: Yeah. And nature’s great ‘cause you get different-- It’s [nature’s] good for you. I actually happen to like broccoli and I enjoy it. But I actually really think that people need to get out of an urban environment and into nature-- ‘cause sometimes I think it’s really unnatural for everybody to live so shoulder to shoulder.

Q: So nature also includes space for everybody.

A: Yeah. And nature’s great ‘cause you get different smells. You get, like, rich organic smells and you get crisp smells and you’re not smelling toxins and diesel.

Jordan

Participants also noted that connecting with nature increased the likelihood of engaging in physical activity:

But also, because quite often when I’m in the outdoors I’m being physically active. Like, I’m not just-- I’m not being rolled to a park and sat there or something. So it’s usually connected with activity. And just-- I find it’s very serene to the point where something like a cell-phone call or something just seems to disrupt the serenity of-- yeah, of the moment.

Parker
I was definitely less active. I wasn’t getting out much at all. I really like the outdoors and the wilderness. Like, further away the better. I just-- that’s a place I feel comfortable.

Judy

5.5 A comparison of participants’ level of physical activity before and after the program

5.5.1 Objective

Following is a comparison of the level of physical activity (in terms of daily average steps) among the participants before and after taking part in the Jump Step program. The main focus of this study was to document patient experiences. I did not intend to examine the influence of Jump Step on the level of physical activity among the participants. The data below are provided for description purposes only.

The average daily steps among all participants was calculated to be 5,628 before the study, this number seemed to have increased to 6,389 after the completion of the program. In order to check for a statistically meaningful increase, I did a one tailed t-test, yielding a p-value of 0.39 which is not statistically significant. However, an appropriate quantitative analysis of the effects of Jump Step on step count would require a bigger sample size to increase statistical power. Ideally, one would also compare people with mood disorders to a sample of matched healthy participants as
well. However, an appropriately powered group comparison, or any kind of quantitative analysis, was not the aim of this study.

Please note that only the data for participants who have completed the program is included here. I used pseudonyms for all participants and quotes.

**Figure 5-1: Average daily step counts before and after the Jump Step program**
5.5.2 Subjective

Majority of the participants reported an increase in the level of their physical activity at the end of the program. They reported to be engaging in a greater variety of physical activities in addition to incorporating simple physical activity practices in their daily routine.

*That I had more, like, spells of activity through the day. So, like, to basically try to-- I pretty well don’t sit.*
*Sandy*

*It has had a very positive effect on my activity. I’ve started going back to physio more often so that I can get in better shape to get out and exercise. And so I’m making steps to try and improve because of Jump Step, it has really helped me… and I think what’s being done is very good.*
*Sabrina*

*And I have been getting out more, going for walks. I’ve been to the gym a couple of times now. I’ve been taking some aquafit classes. So, I’m definitely trying very much to get outside more and do that kind of thing.*
*Judy*
I have a regular route in the house that I walk. And I can do it faster now. I know my legs are stronger now. Yoga is one thing that I really liked and I’m still doing yoga. And it’s taught me some relaxing methods, yeah.

Alex

Several participants attributed an increase in their level of self-confidence to engage in different kinds to physical activity to their participation in Jump Step. One participant particularly stood out, she signed up for the annual Vancouver Sun Run. “The Vancouver Sun Run, sponsored by The Vancouver Sun newspaper, is a 10-kilometre road running event held in Vancouver, British Columbia, Canada, each year on the third (sometimes the fourth) Sunday in April since 1985. It is one of the largest road races in North America” (Wikipedia)

I mean, it wasn’t-- you know, it’s not the smartest thing to do, to go out and jump in to do a marathon. It was nine and a half hours of walking, and I could hardly walk for about two weeks after it. But it was something I was able to accomplish.

Had I not taken the Jump Step, I likely would not have done that.

Elizabeth
5.6 A comparison of GAD – 7 / PHQ-9 scores before and after the program

5.6.1 Objective

Below are two tables that give an overview of the participants’ GAD and PHQ-9 scores. The focus of my study was to document and understand the experiences of participants in the Jump Step program and I did not intend to do a quantitative analysis. Therefore, the data below are provided merely for descriptive purposes.

The average GAD score at Time 1 was calculated to be 10.30, which decreased to 8.65 after the completion of the study. In order to identify any statistically meaningful changes in the GAD score from time point 1 to time point 2, I conducted a one-tailed t-test. There was a significant decrease in GAD score at time point 2 as compared to time point 1 with a p-value of 0.02.

![Figure 5-2: GAD-7 scores before and after the Jump Step program](image-url)
The average PHQ-9 score before the study was calculated to be 12.4 which decreased to 12.13 after the completion of the study. In order to identify any statistically meaningful changes in the PHQ-9 score from time point 1 to time point 2, I conducted a one-tailed t-test. There was not a significant decrease in PHQ-9 score at time point 2 as compared to time point 1 with a p-value of 0.4.

![Figure 5-3: PHQ-9 scores before and after the Jump Step program](image)

5.6.2 Subjective

Majority of the participants reported taking part in Jump Step as having an important effect in improving their mental health because it gave them a “purpose” and a “routine”. The importance
of building a routine in improving mental health has also been discussed in section under personal coping strategies in section 5.4.

*I need it. I’ve had better results for my mood and my coping skills through exercise than I had with any of the 30 antidepressants I’ve been on.*

*Peter*

*Q: So do you feel that your mental health has improved? Or is it similar to before you began?*

*A: Oh, it helps. Oh, yeah, absolutely.*

*Q: How do you know? What tells you? What are the signs and symptoms that tell you that?*

*A: I look forward to it. I know that I have a place to go. Sorry, Sarah. [crying]*

*Q: No, no, it’s okay. Why don’t I pause it for a second here.*

*[recorder paused]*

*A: So I really-- it’s so helpful to have a place to go where I can-- where it’s okay to not be okay.*

*Judy*

Participants related to having better coping skills and being less moody to taking part in Jump Step.
I’m coping better at work. I’m coping better with my family. I’m reading again. I wasn’t reading when I came into the program. Let’s always a sign that things are not going as well.

Alex

Emotional health it change-- it affected it in a positive way. I’m not as irritable anymore. I let things go now. I just really-- I used to see the positive side of things, even with the depression, but this time I actually live it. I don’t just think it; I actually live it. So if something’s bothering me I just let it go if it’s not really anything I can do.

Quinn
Chapter 6: Discussion

6.1 Importance of specialized physical activity programs for individuals with mood disorder.

Despite the vast evidence that supports the effectiveness of physical activity in the management of mood disorders (10)(45)(53), physical inactivity remains a pandemic (54) with the rate of inactivity being even higher in the individuals with a mood disorder (57) who might benefit from it the most.

In recent years, physical activity has become a more accepted form of “prescription” for individuals with mood disorders in addition to medications and various forms of psychotherapy(80,81). The benefits of physical activity for these individuals has also been tested and proven in an increasing number of studies. However, knowing the benefits of exercise does not always translate into a higher participation rate and maintenance rate among these individuals. The majority of the participants were not content with their current level of physical activity. There was a general understanding of the importance of physical activity and its positive impact on their mental as well as overall health. Some participants did consider it one of the coping strategies and even regarded it as a part of their treatment.

6.2 Mood Disorder itself is the main barrier

The barriers and facilitators to being physically active were investigated in the current study through in depth interviewing of individuals who first-hand experience this issue. The Jump Step program was designed based on the needs assessment study explained earlier, and was thus
designed based on our best understanding of the needs of this population. The participants were then interviewed before and after the 14-weeks program to examine their expectations before the program and opinions once they had actually taken part in the study. It was concluded throughout the study, that this population is in need of a specialized program tailored to their specific needs. Although, some of the barriers to being physically active are common to other population groups such as financial problems (82,83), people with mood disorders face specific challenges of their own. Throughout the interviews, participants repeatedly identified the mood disorder itself (and the effects of drugs) as the main barrier to being physically active. Mood disorders cause anhedonia (diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day)(2). These disorders also cause a feeling of lack of energy, slowing down of thought, reduction of physical movement, diminished ability to think or concentrate, and indecisiveness (2) which all contribute to a person’s inability to engage in regular physical activity. In fact, a number of participants used to be physically active before they were diagnosed with a mood disorder. This is a hurdle unique to the population under study and warrants the need for a specialized program that takes into account the mental status and problems faced by this specific group.

6.3 Fear of stigma

Another common reason for not engaging in physical activity is the fear of being stigmatized. While the fear of stigma may not be specific to this population group - with other studies showing a similar problem faced by other patient populations, such as obese patients (84) - it
does necessitate the need for a specialized program where these participants can feel safe. Jump Step provided participants with a safe and non-judgmental environment. It is very important to have access to a stigma-free and non-judgmental environment in order to facilitate fear-free participation.

6.4 The role of GMVs and social/peer-support.

One of the main facilitators to being physically active, as identified by participants, was the peer support they received during the program. This was especially profound for individuals who did not have any type of social support before joining the program. The individuals that did have some form of social support, received it from different people such as their spouse, family members, or friends and they identified it as one of the main facilitators to being physically active. Even in case of these participants, the benefit of being among a group of people who faced similar challenges was expressed in terms of feeling understood and being able to share similar experiences. Half way through the program, it was observed that many of the participants had made groups of friends. They would occasionally meet in the lobby of the YMCA before or after the program where they would enjoy a coffee or a meal. Participants even made use of the free membership card provided to them and signed up for other activities offered at YMCA in groups of two or three. The contact details of the participants were shared with the group during the program based on their request (after receiving written consent).
According to Jump Step participants, GMVs, versus one-on-one appointments, also considerably reduced the wait time to see a psychiatrist. This is important as, “Although psychiatric wait times are not systematically tracked in Canada, research points to significant unmet need. Almost a third of Canadians who seek mental health care report that their needs are unmet or only partially met. The rate is even higher for children and youth. Nationally, 55 per cent of family doctors rank access to psychiatrists as fair to poor” (85)

6.5 Importance of qualified professionals.

Based on this study, a preferred physical activity program for persons with mood disorders should be run by qualified professionals. The involvement of physicians was considered as a key element. There was a general consensus on the importance of having a physician as the main person leading the group. The presence of a psychiatrist or a general physician with enough understanding and expertise in dealing with mood disorders is important.

The presence of an exercise professional was also considered as another key factor. Many of the participants suffered from different physical ailments such as arthritis, back pain, and shoulder injury that required the expertise of a person with specialized training to suggest activities that would not cause further injury and be beneficial.

The presence of having a coordinator or a contact person was also considered important. The coordinator can be responsible for answering participants’ day to day questions and following up
if a participant does not show to the sessions. The presence of a contact person can positively influence the retention rate.

### 6.6 Time and duration

Regarding temporal resources, the majority of the interviewees perceived that 13-to-14 weeks was the minimum length to form a habit to engage in regular exercise. The program could have lasted up to six months to allow them to adhere to an exercise routine even after the program had concluded. This has financial implications because as the program lasts longer, costs to pay the personnel involved (e.g., exercise specialists, psychiatrists, recreation facility staff) will increase.

We suggest that the actual program should be between 13 and 24 weeks in length. In addition, the ideal timing of the program is early to mid-afternoon on a weekday, with each session lasting 2 hours. Typically, the participants are adults who have conflicting work or home care responsibilities. They could attend the program only if they can arrange childcare or take time off work. Early to mid-afternoon is usually the window of free time in their schedules. In addition, the mood disorders might be affecting their sleep schedule and many participants voiced the concern that their low energy level in late afternoon or in the evening prevented participation in any physical activity. As such, we suggest that the program be run anytime between 10am and 3pm during a weekday to accommodate most people.
6.7 Location

The majority of participants mentioned that an exercise program for individuals with a mood disorder should be close to where they resided as this would effectively enhance the likelihood of participation. In our study, location was not a deterrent even for participants who lived afar because they felt ‘accountable to the research team’ and that they “do not want to upset the researchers.” However, they said that if the program were to be implemented in community settings such as a community centre or a local clinic, they were more likely to adhere to the program. Also, a unique feature we offered in the program was free parking at the facility or bus tickets to and from the venue. This has proven to be an essential motivator for the participants to attend our sessions and eliminated the hassles of finding expensive parking on busy streets in the downtown area. We suggest that facilities offering similar programs consider free parking or subsidized transit arrangements because of the big impact this had on our participants.

6.8 Content and curriculum

With respect to the content or curriculum for an ideal program, a recent study with a similar population indicated that exercise preferences were for a walking program with moderate intensity in nature or the outdoors, likely with the aid of pedometers (86). The same participants indicated that strength and resistance training should also be a part of their exercise program. These results largely match the preferences for the contents of Jump Step. As mentioned,
participants favoured light-to-moderate cardio and weight training exercises as well as yoga and stretching. Participants also indicated that they wanted some sessions to take them to the outdoors or in nature where they feel “calm, at ease” and to “get away from it all”. This is consistent with research that indicates that green (e.g., trees, parks, forests) and blue (e.g., waterfront, ponds, lakes) spaces can be “therapeutic landscapes” that elicit emotional benefits (87). Physical activity in the outdoors further offers affective and psychological advantages to individuals with depression (88). We contend that it is advantageous to incorporate nature or the outdoors into some of the sessions.

Based on this study, a preferred physical activity program for persons with mood disorders should be run by qualified professionals in an easily accessible community setting from early to mid-afternoon for two hours each session and last from 13 to 24 weeks. It should offer a variety of exercise options and include opportunities to build social connectedness among the participants. The support of a reputable mental health organization to facilitate the advertising of the program is essential.

6.9 Limitations and recommendations for future studies

A limitation of our study is that there were five participants who dropped out of the program between T1 and T2 and we were only able to interview one of them post-assessment. The reasons for this participant’s withdrawal were circumstantial because s/he became busy with work and home life. The program itself was not thought to be a cause of the withdrawal. I believe the low number of dropouts in the intervention and the repeated analysis meetings among
the research team ensure that our results have captured consensus among the participants regarding the most important components of the program. Ideally, future studies will find better ways to solicit the opinions of participants who drop out, but there are limitations as participants must be allowed to withdraw completely from studies if they wish.

Another limitation of the study was that providing adequate translation services for these elements in one or more other languages was beyond the budget for this study and may have influenced the dynamics of the GMV. International language materials and employing health and exercise professionals with particular language skills could be considered for future studies.
Chapter 7: Conclusion

In this study, I synthesized the perspectives of participants who went through Jump Step program to identify a list of recommendations for a preferred physical activity program to bridge the gap between knowledge and action. Jump Step can be a reference point for other researchers or clinicians when they design a physical activity program for individuals with mood disorders.

The majority of participants did understand the importance of physical activity and even regarded it as a key coping strategy and an important part of their treatment. However, they did not meet the minimum levels of physical activity as set by Canadian Society for Exercise Physiology as endorsed by Health Canada (89) and were not content with their levels of physical activity.

Most participants, after taking part in the Jump Step Program, had a high regard for its design. The group setting was particularly appreciated as participants could benefit from peer support and learn from each other’s experiences in addition to the coaching they received from the program facilitators. The GMV was also viewed as an ideal setting because it gave participants the opportunity to see a psychiatrist with a much shorter wait time as compared to a one-on-one consultation. Wait times are an important drawback of the Canadian health care system which participants thought could be handled through GMVs.

The presence of the selected facilitators - psychiatrists and exercise professionals - was viewed as another strong point of the Jump Step program. A general practitioner was considered an
acceptable alternative to a psychiatrist provided they had a good knowledge of mental health issues, but overall psychiatrists were preferred. Exercise professionals – personal trainers and yoga therapists - were considered as having a key role in designing safe and effective fitness programs and helping the participants reach their health and fitness goals.

Most of the participants found Jump Step a safe and non-judgmental environment and regarded this as an important facilitator to being physically active. Use of green spaces and being in nature was also viewed as a helpful factor which made the participants more connected and encouraged them to engage in physical activity.

One of the ways that the participants believed the program helped them tackle their mental health challenges, was the fact that it helped them build a routine in their life. Many of these individuals had lost their employment and sense of purpose due to their mental health condition, but the routine established through participating in Jump Step program restored their sense of purpose. This was regarded helpful in increasing their self-esteem and self-confidence which in turn increased their desire to become physically more active.

Finally, participants in this study underscored that having a mood disorder, financial barriers, and fear of stigma are the main barriers to being physically active. Social support, support from specialized professionals and use of green spaces were highlighted as the main facilitators.
In conclusion, it is my hope that the findings of this study will serve as a reference point for those who wish to support individuals with mood disorders engage in physical activity as part of a holistic approach to their treatment. I hope more health professionals are able to appreciate the importance of providing safe, accessible, group-based programs such as Jump Step to these individuals, as only then will they truly be able to secure the benefits of exercise as “medicine”.

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Appendices

Appendix A  Recruitment Poster
Appendix B Jump Step Interview Guide

A- Level of Physical Activity:

1. Describe a typical day in the past 10 days?
2. What would your ideal day look like? (How would you compare your typical day to your ideal day)?
3. Is physical activity part of your ideal day? (why/why not?)
4. How often do you go outdoors/in nature?
5. How much time per day/week do you spend sitting/lying down/in front of TV or computer?

B- Level of patient engagement in self care and treatment

1. How well are you doing in regards to your mental health?
2. How well are you doing in regards to your overall health?
3. List the most important things that you are doing to improve your overall health including mental health in order of importance.
4. Who prescribed/suggested the above mentioned treatment options?
5. Is physical activity one of them? (why/why not? perceived benefits)
6. What else should you be doing that you are not doing at this time?
C- Impact assessment:

1. How did you hear about this program?
2. Why did you decide to participate? (expectations)
3. How do you think the program will change/has changed your mental health?
4. What symptoms/signs would tell you that you are doing better/worse/not different?
5. How do you think the program will change/has changed your relationship to physical activity?
6. Do you have enough time for PA?
7. What are the types of PA you like to do? (Include those that you like even if you are not able to do them for any reason)
8. Are you able to do the types of PA that you enjoy now?
9. List the barriers you have to be PA/more PA in order of importance.
10. List the facilitators that help you in being PA/more PA in order of importance.
11. How important is a group setting in encouraging people with MH challenges to become physically more active?
12. How important is to have a ...... in this program?
   
   1- Medical doctor
   
   2- PA instructor
   
   3- Any other professional?
13. Do you feel confident that you will remain active after this program has come to an end?
D- Process Evaluation:

1. How would you prefer to be contacted for updates or appointment reminders?
2. Do you have enough notice to be able to attend the GMVs and social events?
3. How have Friday appointments been for you?
4. What do you think about the location where the GMVs are held? (The Abbotsford Recreation Center)
5. How is transportation to the GMVs?
6. What do you feel before, during and after going to a GMV?
7. Is the material covered in the GMVs applicable to your life, easy to understand, and important for your overall health?
8. Tell me about your reaction to the topics covered in the GMVs.
9. Have the handouts been helpful?
10. What did you like about the GMV?
11. What didn't you like about the GMV?
12. Tell me about your perspective on how the material is conveyed and delivered in the GMV.
13. Is there something that could be done differently at the GMVs?

Is there anything else that you would like to share?
Appendix C  Field Notes Guide

** To be completed by the interviewer within 24 hours of the interview **

Participant ID:

Prepared by:

Interview Date:

Starting Time:

Ending Time:

Location of interview:

People present:

Description/your impressions of the interview environment:

Technical Problems (e.g., timing of interview, tape recorder):

Content of Interview (e.g., use key words, topics, focus, words or phrases that stand out):

Interviewer’s impressions (e.g., discomfort of participant with certain topics, emotional responses to people, events or objects):

Nonverbal behaviour (e.g., tone of voice, posture, facial expression, eye movements, forcefulness of speech, body movements, and hand gestures):

Preliminary Analysis (e.g., interviewer’s questions, tentative hunches, trends in data and emerging patterns, insights, interpretations, beginning analysis, working hypotheses):
Appendix D  GAD-7 Questionnaire

Generalized Anxiety Disorder Scale (GAD-7)

Subject Number: ________________

Date: ________________

1. Over the past 2 weeks, how often have you been bothered by any of the following problems (circle the number in the appropriate box)?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all</th>
<th>Several Days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Feeling nervous anxious or on edge.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b. Not being able to stop or control worrying.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c. Worrying too much about different things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d. Trouble relaxing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e. Being so restless that it’s hard to sit still.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f. Becoming easily annoyed or irritable.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g. Feeling afraid as if something awful might happen.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2. If you checked off any problem on this questionnaire, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people (please circle answer below)?

Not difficult Somewhat Very Extremely
at all difficult difficult difficult

TOTAL SCORE ________________

*To compute your score, add up all the numbers you circled in Question 1 for items a-g.*
### Appendix E  PHQ9 Questionnaire

**CETRE for HIP Health and Mobility**

7/F 2635 Laurel Street Tel: 604 675 2575
Vancouver, BC Fax: 604 675 2576
Canada V5Z 1M9 www.hiphealth.ca

Patient Code: ___________________________________________ Date: _________________________

1. Over the past 2 weeks, how often have you been bothered by any of the following problems (circle the number in the appropriate box)?

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all</th>
<th>Several Days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Little interest or pleasure in doing things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b. Feeling down, depressed, or hopeless.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c. Trouble falling/staying asleep, sleeping too much.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d. Feeling tired or having little energy.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e. Poor appetite or overeating.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f. Feeling bad about yourself, or that you are a failure, or have let yourself or your family down.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g. Trouble concentrating on things, such as reading the newspaper or watching TV.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h. Moving or speaking so slowly that other people could have noticed. Or the opposite: being so fidgety or restless that you have been moving around more than usual.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i. Thoughts that you would be better off dead or of hurting yourself in some way.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2. If you checked off any problem on this questionnaire, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people (please circle answer below)?

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Not difficult at all</th>
<th>Somewhat difficult</th>
<th>Very difficult</th>
<th>Extremely difficult</th>
</tr>
</thead>
</table>

**TOTAL SCORE** _______________

*To compute your score, add up all the numbers you circled in Question 1 for Items a-i.*