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The relationship between variations of physical activity and psychological well-being in a clinical population

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The relationship between variations of physical activity and psychological well-being in a clinical population

Abstract
The aim of the present study was to investigate the relationship between engagement in physical activity in the domains of work and/or recreation, and self-reported well-being in a clinical population. The study was correlational in nature and utilized a Spearman rank order correlation to analyze the data of the eleven participants recruited at a therapeutic group private practice in a northern New England town. All eleven participants were females ranging in age from 23 to 43. It was hypothesized that all types of physical activity would correlate positively with reported well-being. The results of the data analysis were not significant; the research hypotheses were therefore not supported. Trends in the present study suggest that increased physical activity is related to poorer feelings of well-being. This trend refutes prior research which suggests that physical activity can be beneficial to both physical and psychological health.

Keywords
Education, Guidance and Counseling
THE RELATIONSHIP BETWEEN VARIATIONS OF
PHYSICAL ACTIVITY AND
PSYCHOLOGICAL WELL-BEING IN A CLINICAL POPULATION

BY

Jennifer L. Lijoi
B.A., University of New Hampshire, 2005

THESIS

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# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................. iii  

ABSTRACT ...................................................................................... vi  

CHAPTER PAGE  

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I INTRODUCTION .......................... 1</td>
<td></td>
</tr>
<tr>
<td>Purpose of the Study .................. 1</td>
<td></td>
</tr>
<tr>
<td>Problem and Subproblems .............. 2</td>
<td></td>
</tr>
<tr>
<td>Hypotheses ............................. 3</td>
<td></td>
</tr>
<tr>
<td>Potential Limitations .................. 3</td>
<td></td>
</tr>
<tr>
<td>Definition of Terms and Concepts .... 4</td>
<td></td>
</tr>
<tr>
<td>Assumptions ............................. 5</td>
<td></td>
</tr>
<tr>
<td>II REVIEW OF THE LITERATURE ........ 6</td>
<td></td>
</tr>
<tr>
<td>Physical and Psychological Implications of Exercise .......... 6</td>
<td></td>
</tr>
<tr>
<td>Goals of Exercise Therapy ............ 9</td>
<td></td>
</tr>
<tr>
<td>Physical Activity in the Workplace .... 10</td>
<td></td>
</tr>
<tr>
<td>Utilizing Exercise as a Counseling Intervention .......... 14</td>
<td></td>
</tr>
<tr>
<td>Rate of Prescription and Adherence to Exercise Therapy .... 21</td>
<td></td>
</tr>
<tr>
<td>Summary .................................. 28</td>
<td></td>
</tr>
<tr>
<td>III PROCEDURES OF THE STUDY ........ 29</td>
<td></td>
</tr>
<tr>
<td>Introduction ............................ 29</td>
<td></td>
</tr>
<tr>
<td>Research Design ........................ 29</td>
<td></td>
</tr>
<tr>
<td>Participants ............................ 29</td>
<td></td>
</tr>
<tr>
<td>Instrumentation ........................ 30</td>
<td></td>
</tr>
<tr>
<td>Procedures ............................. 34</td>
<td></td>
</tr>
<tr>
<td>Statement of Hypotheses .............. 35</td>
<td></td>
</tr>
<tr>
<td>Procedures for Analyzing the Data .... 36</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV RESULTS</td>
<td>37</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>37</td>
</tr>
<tr>
<td>V CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>39</td>
</tr>
<tr>
<td>Limitations</td>
<td>39</td>
</tr>
<tr>
<td>Supplemental Findings</td>
<td>40</td>
</tr>
<tr>
<td>Implications</td>
<td>42</td>
</tr>
<tr>
<td>Recommendations for Future Study</td>
<td>43</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>45</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>49</td>
</tr>
<tr>
<td>Appendix A: IRB Approval Letter</td>
<td>50</td>
</tr>
<tr>
<td>Appendix B: Demographic Survey</td>
<td>51</td>
</tr>
<tr>
<td>Appendix C: General Health Questionnaire</td>
<td>52</td>
</tr>
<tr>
<td>Appendix D: Global Physical Activity Questionnaire</td>
<td></td>
</tr>
<tr>
<td>Appendix E: Informed Consent</td>
<td></td>
</tr>
<tr>
<td>Appendix F: Debrief Form</td>
<td></td>
</tr>
</tbody>
</table>

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ABSTRACT

THE RELATIONSHIP BETWEEN VARIATIONS OF PHYSICAL ACTIVITY AND THE PSYCHOLOGICAL WELL-BEING IN A CLINICAL POPULATION

By

Jennifer L. Lijoi

University of New Hampshire, May, 2007

The aim of the present study was to investigate the relationship between engagement in physical activity in the domains of work and/or recreation, and self-reported well-being in a clinical population. The study was correlational in nature and utilized a Spearman rank order correlation to analyze the data of the eleven participants recruited at a therapeutic group private practice in a northern New England town. All eleven participants were females ranging in age from 23 to 43. It was hypothesized that all types of physical activity would correlate positively with reported well-being. The results of the data analysis were not significant; the research hypotheses were therefore not supported. Trends in the present study suggest that increased physical activity is related to poorer feelings of well-being. This trend refutes prior research which suggests that physical activity can be beneficial to both physical and psychological health.
CHAPTER I

INTRODUCTION

In today’s society there is a great deal of emphasis on the necessity of exercise and physical activity in order to live healthier lives. Decreased risk of cancer, heart attacks, and adult-onset diabetes are just a few of the many proposed physical benefits of incorporating exercise and physical activity into our daily lives. With the physical benefits well documented and displayed, one might wonder if there are psychological benefits to be attained through exercise and physical activity as well. As it turns out, there are. Chung and Baird (1999) report that “the psychological benefits of physical activity include reduced levels of state anxiety, neuroticism, and stress as well as improvement from depression of mild-to-moderate levels” (p. 124). This study proposes not only to further evaluate the link between physical exercise and mental health but, more specifically, to investigate the relationship of counseling combined with exercise with regard to self-reported overall well-being.

Purpose of the Study

The purpose of this study is to contribute to the growing body of research addressing the positive relationship between the implementation of regular exercise and feelings of personal well-being. This study also looks to investigate the relationship between types of physical activity (work related and recreational) and overall well-being in a population of individuals currently participating in mental health counseling. Does counseling alone result in self-reports of increased well-being? What is the perceived
impact on well-being when a person is involved in counseling and physical exercise, either as a part of work, recreation or both work and recreation?

While many studies illustrate the positive effects of regular physical exercise, relatively few studies look specifically at types of physical activity in combination with mental health counseling. Discovering a positive relationship between exercise combined with counseling and increased feelings of well-being could present other possible treatment interventions for counselors to utilize. Another additional benefit of exercise is that it presents a cost efficient tool for those who cannot afford (or whose HMO won’t cover) the cost of professional help. Counselors could work with their clients to develop skills, in both the mental and physical arenas, that they can rely on in the future. This project has the potential to contribute to a growing focus on holistic healing within the mental health field.

**Problem and Subproblems**

**Problem** – Mental health counseling combined with which type and degree of physical activity (work-related, recreational) correlates with the greatest overall feelings of well-being.

The subproblems that will also be evaluated in this study include:

**Subproblem 1** – What is the relationship between frequency and intensity of physical activity (vigorous, moderate, low) and reported feelings of well-being?

**Subproblem 2** – Does the frequency and length of involvement in mental health counseling correlate with reports of psychological well-being?
Subproblem 3 – Do people who seek out purposeful exercise differ in their reported feelings of well-being from those who engage in regular physical activity at work?

**Hypotheses**

In relation to this study the following research hypotheses are proposed:

**Hypothesis 1** – There is a positive correlation between amount of time spent engaging in recreational physical activity and overall well-being.

**Hypothesis 2** – There is a positive correlation between amount of time spent engaging in work related physical activity and overall well-being.

**Hypothesis 3** – There is a positive correlation between total amount of time spent engaging in physical activity (recreational and work related) and overall well-being. This relationship will be of stronger significance than either work related or recreational physical activity and well-being, independently.

**Hypothesis 4** – There is a positive correlation between amount of time (total hours) engaged in mental health counseling and overall feelings of well-being.

**Hypothesis 5** – There is no significant difference between the correlation of intensity level and well-being and the correlation of total amount of physical exercise and well-being.

**Potential Limitations**

The potential limitations of this study are as follows:

**Limitation 1** – The data will be correlational in nature and thus cannot imply causation.
Limitation 2 – The population for this study is drawn from residents in a northern New England suburban area. Therefore, the sample is likely to be homogenous in nature and not representative of more diverse populations.

Limitation 3 – Due to the fact that this study relies on measures of self-report, there is a possibility that participants may not be entirely honest or have the ability to self-reflect.

Definition of Terms and Concepts

For the purpose of this study the following are operational definitions of the terms and concepts that are used in this study:

Personal Well-being: In this study, personal well-being is measured in terms of degree of anxiety, depression, happiness, stress, and self-worth according to the General Health Questionnaire (Goldberg, 1972).

Physical Activity: This term is broken down into two sections: recreational exercise and work-related exercise. It is assessed at three levels of intensity developed by the Global Physical Activity Questionnaire (World Health Organization, 2007): low/sedentary, moderate, and vigorous. Low/sedentary is defined as time spent sitting or reclining. Moderate-intensity activities are defined as causing small increases in breathing or heart rate. Finally, vigorous intensity activity is defined as requiring hard physical effort and causing large increases in breathing or heart rate. The Global Physical Activity Questionnaire also assesses physical activity in terms of number of minutes spent engaging in the activity per day over the period of one week.
Purposeful/Recreational Physical Activity: Exercise that is sought out by an individual and does not include exercise that is a part of the individual’s job. Examples include: going to the gym, swimming, running, gardening, walking, etc.

Physical Activity at Work: This is the level of physical activity that the individual feels his or her job requires. Examples of intensity include low—desk jobs which are primarily sedentary; moderate—teachers who move around within their classrooms; and vigorous—restaurant servers, mail carriers, aerobics instructors who are very physically active at work.

Exercise Therapy/Intervention: Techniques that are suggested by a mental health clinician to incorporate physical activity in a client’s treatment plan. An example can include suggesting that a client with chronic depression begin taking a 20 minute walk three days per week to help alleviate mental health symptoms.

**Assumptions**

Assumption one is that the quantitative design of this study will accurately depict the relationships between well-being, type and duration of physical activity, and counseling. Assumption two is that the participants have the ability to rate accurately their feelings and will report honestly. A final assumption of this study is that the General Health Questionnaire (Goldberg, 1972) and the Global Physical Activity Questionnaire (World Health Organization, 2007) provide valid and reliable data to be analyzed.
CHAPTER II

REVIEW OF LITERATURE

Over time, research has continued to discover connections between physical exercise and both physical and mental health. This review of the literature will examine the following main areas: (a) exercise as it relates to physical and mental health; (b) goals to be achieved by exercise treatment in counseling; (c) physical activity in the workplace; (d) exercise as a counseling intervention; (e) issues regarding the adherence to and prescription of exercise routines; and (f) variations of physical activity (i.e., work related or recreational).

Physical and Psychological Implications of Exercise

The use of physical exercise to maintain healthy well-being dates back to early human history. Carlson (1990) explains that, “The ancient Greeks stated, “mens sana incorpore sano, ‘a healthy mind in a healthy body’” (p. 298). Physical exercise has been found to help in many aspects of development, including the physical, emotional and cognitive arenas.

Physical Implications

Fitness enthusiasts have been illustrating the seemingly countless physical benefits of incorporating a regular exercise routine into one’s daily life. In his evaluation of counseling through physical fitness and exercise, Carlson (1990) listed many of the benefits of physical exercise and activity including:
- Aid blood circulation and increase the number of red corpuscles
- Aid digestion and elimination
- Improve muscle tone, firmness, and strength
- Strengthen the heart and reduce coronary heart disease
- Improve the body's regulatory mechanisms
- Help redistribute body weight for a more balanced shape
- Combat obesity
- Increase physical endurance
- Increase resistance to illness
- Improve the threshold and tolerance of pain (pp. 299-300)

In their discussion of exercise as a preventative physical therapy, Warburton, Nicol and Bredin (2006) describe physical fitness as a, "physiologic state of well-being that allows one to meet the demands of daily living or that provides that basis for sport performance or both" (p. 961). One of the key points that these researchers stress is that even low-intensity exercise may result in an improvement in health status without necessarily having a large impact on overall physical fitness (Warburton, et al., 2006). A common misconception among the general population may be that, without committing to an intense fitness regime, their efforts will be useless. Research such as this helps refute this misconception by outlining the benefits of a variety of physical activities and intensity levels, such as gardening and bowling to running and hiking.

**Psychological Implications**

Emotional, cognitive, interpersonal, and behavioral effects of exercise all tend to fall into the psychological category. Many theories have been proposed to explain why it
is that exercise and physical activity tend to help people feel better about themselves. One such theory is that individuals feel as though they are able to do something about their life, which gives them a greater sense of self-control (Carlson, 1990).

In a qualitative study exploring the physical activity level of people diagnosed with a serious and persistent mental illness (SPMI) who were receiving treatment on an out-patient basis, researchers McDevitt, Snyder, Miller, and Wilbur (2006) observed the intertwined relationship of physical activity and psychological health. Their discussions with participants in small focus groups left the researchers with many observations. One of these observations was that if people of this population were able to overcome the barriers to physical exercise, they experienced both physical and psychological benefits, with mental health benefits predominating (McDevitt et al., 2006). Examples include feeling less stressed, more energetic and sleeping better on days when exercise was included. McDevitt et al. (2006) included the comments of some participants. One woman stated, “Certain days I wake up and when I start walking, I get that spirit in me and it's a happy feeling. When I go to sleep at night, I can have a real nice rest. I feel good about myself” (p. 53).

Obesity in America has become an increasingly widespread problem and has begun to receive a great deal of attention. In their article which reviewed factors leading to childhood obesity and methods to overcome these barriers to health, Ward-Begnoche and Speaker (2006) address some of the psychologically damaging affects of being obese as a child. One such finding that they discuss is that overweight and obese children are more likely to be both the victims and the perpetrators of bullying than normal weight
peers (p. 959). The affects of being bullied or becoming a bully oneself indicates the possibility of underlying psychological issues, such as low self-esteem and self-worth.

Most times it is found that psychological and physical implications of exercise are intertwined. While exercising may help alleviate negative symptoms, those same symptoms may serve as barriers to committing to exercise in the first place. This circular notion serves to further complicate the understanding of exercise and its implications.

**Goals of Exercise Therapy**

Incorporating regular physical activity into daily life can be beneficial for mental and physical health. Due to this finding, exercise is now being looked at as a technique that psychotherapists can use as a clinical intervention and/or an addition to traditional talk-therapy.

Depression is one of the most common reasons for people to seek mental health counseling. Feelings of worthlessness, sadness, and a general dissatisfaction with self and life are just a few of the symptoms a depressed person may face. While categorizing data acquired from their study regarding the beliefs and practices of psychotherapists pertaining to exercise and nutritional therapy, Burks and Keeley (1989) found that, “Depression (21.2%) and anxiety and depression (18.1%) were by far the most frequently indicated type of client problems most often treated” (p. 63).

Increased attention has been placed on the growing prevalence of depression, and it continues to be associated with other mental and/or physical problems. As depression has been linked to other health issues, it may be possible that depressed people might be more likely than the non-depressed to utilize health care.
Wang and Brown (2004) suggest, “an intervention that can diminish suffering from depressive symptomatology in the population at large may lead to reduced use of the health care system, including fewer doctor visits, hospitalizations, medical procedures, and medications, and thus reduce medical expenditures” (p. 209). They conducted a study examining the “association between physical activity, down-hearted-and-blue status, and annual direct medical expenditures broadly related to health-seeking behavior and health care use” (Wang & Brown, 2004, p. 210). Through the use of self-report measures, Wang and Brown investigated these relationships. Their results indicate that, among people who were depressed, those who were inactive accumulated higher medical expenses than those who were active (Wang & Brown, 2004). They concluded that physical activity interventions can provide cost-effective strategies that alleviate both depressive symptoms and economic burden (Wang & Brown, 2004). It is important to recognize that the study conducted by Wang and Brown is unique and has not yet been replicated. This lack of replication is a common issue for much of the literature that addresses the potential results of instituting an exercise plan in the treatment of mental health problems.

Physical Activity in the Workplace

Much of the focus on integrating physical activity into one’s lifestyle is placed on purposeful or planned exercise: i.e., going to the gym or on a hike. However, when evaluating an individual’s involvement in physical activity, particularly as it relates to their overall sense of physical and mental well-being, we must not overlook the physical activity that is a part of one’s occupation. If an average work day is eight hours, how much of that time is spent sitting at a desk, walking around a neighborhood delivering
mail, teaching fitness classes, or driving a delivery truck? The amount of physical exertion included in an individual’s occupation may in fact have an impact on the choice to engage in additional physical activities.

Parkes (2006) conducted a longitudinal study investigating the correlation between occupational physical activity, leisure physical activity and self-reported health over a five year period. The participants were all males and were evaluated on their education, body mass index, smoking tendencies, job activity level, physical activity level, negative affectivity, and self-rated health to determine a baseline and then again in five years. The aspect of this study most strongly related to the present study was the researcher’s comparison of job activity levels—sedentary, active, strenuous; and leisure physical activity—none, moderate, frequent. These variables were compared to self-reported health of the participants. Among the results that Parkes (2006) found was that the combination of low job activity levels and frequent leisure activity yielded the highest levels of self-reported health after five years when all other variables were adjusted. Those who reported the most strenuous physical activity at work also reported engaging in the lowest amount of leisure physical activity and had the lowest reported self-rated health (Parkes, 2006, p. 541). This study also discovered a link between age and self-rated health as related to physical activity level. Parkes (2006) explains that a bivariate analysis showed a significant inverse relationship between age and job activity level as well as age and leisure activity level, with younger people more likely to be in strenuous jobs and making greater use of leisure activity facilities (p. 538). Future studies similar in design will be necessary to strengthen the reliability of these findings.
Thogersen-Ntoumani and Fox (2005) presented a study looking at well-being in the workplace from a different perspective. They proposed the benefits of utilizing physical and mental well-being typologies to aid in the development of appropriate wellness programs for corporate employees. The researchers point out that while some corporations have programs designed to increase well-being through physical activity, they may be attracting those who are already motivated for wellness and seem unattractive to poorly motivated or inactive employees, due to the fact that they may not be designed to meet their needs (Thogersen-Ntumani & Fox, 2005).

The research approach was both quantitative and qualitative as the researchers used cluster analysis to identify typologies for the 1,592 corporate employee participants as well as structured interviews with ten of the participants asking about their involvement in well-being activities in the workplace (Thogersen-Ntumani & Fox, 2005). The typologies were created based on participant reports of demographic variables, physical activity levels, and indicators of mental well-being. Thogersen-Ntumani and Fox (2005) utilized Baecke’s Habitual Physical Activity Questionnaire, which measures physical activity in the same three domains addressed in this study; occupational, exercise and sport, and leisure time. This questionnaire is similar to the Global Physical Activity Questionnaire (WHO, 2007) that is utilized in the current study.

The four developed typologies of employees in this study consisted of the “self-assured” employee, the “unhappy” employee, the “exercising happy” employee, and the “physically unhappy” employee (Thogersen-Ntumani & Fox, 2005, p. 58). Through statistical analysis using a one-way MANOVA, the researchers found that the “unhappy employee” was the most maladaptive in terms of well-being (Thogersen-Ntumani & Fox,
The data analysis in this study serves as an indicator to corporations as to which employee group ought to be targeted for need-based wellness programs. It is these employees who are at greater psychological and physical health risks. Thogersen-Ntumani and Fox (2005) urge employers to recognize the differences in their employees' needs and motivational levels when thinking about designing wellness opportunities in the workplace.

In their discussion of healthy workplaces, Kelloway and Day (2005) emphasize the need for a holistic approach to health in the workplace that includes physical, psychological, and social factors. The authors suggest important steps for increasing well-being in the workplace, including assessment of current functioning and needs, interventions, and education and training for employees and leaders (Kelloway & Day, 2005, p. 309). Similar to the notion of Parkes (2006), these authors suggest longitudinal studies to gain more comprehensive knowledge of the factors that lead to unhealthy or stressful workplaces and what types of motivation and interventions could be utilized to increase well-being in the workplace. In addition to potential psychological and physical health benefits of their employees, employers have potential for occupational gain by potentially enhancing motivation, performance, decreasing absenteeism and ultimately increasing performance (Kelloway & Day, 2005, p. 310).

With the potential for many benefits to both employees and employers, it is likely that increasing well-being in the workplace will become a larger priority for business owners as time goes by and more research is conducted.
Utilizing Exercise as a Counseling Intervention

With the potential psychological benefits of incorporating physical activity into daily life, one might begin to wonder how mental health professionals can integrate exercise interventions into their work with clients. The tendency for counselors to utilize exercise as a treatment is beginning to grow. The question now is, what is the best way to incorporate these interventions in a clinical setting?

In their discussion of exercise as a counseling intervention, Chung and Baird (1999) describe a few steps that mental health counselors can use to implement exercise interventions in their work with clients. The steps include collaboration with health professionals to be sure that the client is physically able to participate, developing an individualized plan that will meet their level appropriately and, finally, deciding how the plan will be monitored (Chung & Baird, 1999). The researchers also suggest working with clients to educate them on the benefits of involvement, to set goals and discuss motivators. Evaluation of the exercise intervention is crucial. Chung and Baird (1999) emphasize that the “evaluations and monitoring need to assess the relationship between physical and psychological changes and outcomes to provide a clearer understanding of the change mechanism” (p. 131).

Chung and Baird also discuss a few of the potential reasons why mental health counselors have not been readily accepting exercise as a viable intervention. One such reason given is that counselors may have a lack of knowledge or misconception about exercise, because exercise interventions are not typically taught in counselor training programs. Another possible reason holding counselors back from utilizing exercise interventions may be that they themselves do not engage in exercise (Chung & Baird,
The style of exercise intervention that Chung and Baird discuss is more intensive than others.

Another study that illustrates the potential benefits of utilizing exercise as an adjunct to talk therapy centers on a case study of a woman who has depression and is engaged in counseling. The researcher and counselor, Reynolds (1996), works with clients from a Gestalt theory perspective and believes that physical movement can foster a “here-and-now” experience which may lead to the development of rich metaphors. Upon exploration of these metaphors clients are able to “deepen self-insight and self-acceptance” (p. 384).

This therapist’s usage of exercise as a counseling intervention was much less structured. Reynolds (1996) felt that his client, who was “inhibited, over-conscientious, and analytical,” could benefit from more active techniques of eliciting feelings (p. 385). After weeks of therapy he encouraged this client to spend some time riding her bike, an activity she mentioned that she used to enjoy, and to take that time to be present with herself and to notice her sensations and thoughts. This technique is similar to meditation and is designed to create the experience of being in the moment, the here and now. After some practice doing this and working with her reactions in therapy, the client began to express feeling “more alive, grounded, and centered” and was able to talk more freely about and explore her emotions (Reynolds, 1999). Reynolds and his client began to work more intensely on articulating self-images, which he notes gradually began to become more positive and healthy. Although he discusses the positive effects of this intervention with this client, Reynolds (1999) does acknowledge that this was a single case study and that there are many questions that could be asked of his findings. One of his suggestions
for future professionals/researchers is that perhaps the fact that this client enjoyed bicycling as a child had an impact on her success, and thus a link between choosing the appropriate activity and success could be explored (Reynolds, 1999).

Reynolds (1996) also commented on a potential reason for the lack of extensive research completed in the area of exercise as an adjunct intervention for therapy. He hypothesized that since research has tended to focus on long-term physical exercise programs which elevate fitness, improved psychological well-being is often attributed to changing physique. He suggests that more research be done to evaluate the effectiveness of exercise in the short-term.

Williams and Strean (2006) are among a growing number of mental health professionals advocating for the inclusion of more physical activity in clinical treatment. These social workers insist that clinicians must “align with other professionals and organizations to encourage physical activity, fitness, and health if they are to fully promote that total well-being of their clients” (Williams & Strean, 2006, p. 180). In addition to advocating for the use of physical activity as an intervention for total well-being of the client, Williams and Strean (2006) also suggest that clinicians should look for opportunities to encourage family members to engage in fun activities to promote “active living and social cohesion” (p. 181), with the theory that this approach may help encourage healthier lifestyles of individuals and families. Williams and Strean (2006) state that “physical activity may be beneficial in helping to address specific clinical conditions, such as alleviating anxiety, stress, or depression or improving a sense of overall well-being” (p. 182) A method described that may be helpful in encouraging clients to participate would be to explore times when the client has been physically active.
and the implications of the activity in their lives. It is the aim of the present study to further investigate the link between physical activity and overall well-being as these researchers suggest.

**Exercise Interventions for Youth**

Doucette (2004) conducted a qualitative study of an intervention entitled the Walk and Talk Intervention. Participants in the study were youth who had documented behavioral issues such as delinquency. This intervention was designed to combine “the benefits of a strong therapeutic alliance based on the Rogerian technique of unconditional positive regard, integrated with mild aerobic exercise that occurs outdoors in a place of natural beauty” (Doucette, 2004, p. 376). The Walk and Talk Intervention worked to combine counseling skills with the added benefits of exercise in order to promote positive change in the youth. Through her interviews with the participants, Doucette developed the belief that they benefited from the combination of counseling and the added boost from physical activity. While the results of this study were interesting in that Doucette was able to find a greater presence of prosocial behaviors in the participating youth, we must keep in mind that her study was phenomenological in nature and was subject to personal bias.

Another popular method for introducing physical activity as an intervention for youth is through outdoor or adventure-based programs. These programs fall under a variety of titles and companies such as the original project, Outward Bound, outdoor adventure, and wilderness therapy. In this type of intervention participants, typically youth, spend time engaging in a series of mental and physical activities that aim to help
teach self-confidence and trust in others, just to name just a couple of the physical and psychological implications.

Russell and Phillips-Miller (2002) describe the appeal of such programs as being due to the fact that they offer an alternative to outpatient and inpatient treatment approaches, and work well for resistant adolescents who are often unwilling to commit to treatment for a variety of reasons including stigma. In their study, Russell and Phillips-Miller (2002) observed a series of wilderness therapy adventures and interviewed participants about their experiences. Among their findings was the suggestion that these integrated clinical models of treatment through physical challenge, in conjunction with other process factors such as an intense peer dynamic, can create a “powerful medium to effect change in adolescent’s lives” (p. 434). It is suggested that the physical effort exerted by existing in nature throughout the duration of the program coupled with the psychological challenges of the self and group has the capability to reach individuals who may not benefit as readily from traditional talk therapy.

Another such program called Teen Adventure was developed and evaluated by Marx (1988), and was designed to create a therapeutic environment for children in a welfare system. Many of the adolescents were males between the ages of thirteen and fifteen who suffered from childhood abuse and/or neglect. In this type of program, “therapeutic goals are attained primarily through exciting and challenging group activities” (p. 518) which can foster growth in areas of self-image, communications skills, self-control, and appropriate relationships. While this program was evaluated after just one year, Marx (1988) remained optimistic for growth in the program. In its first year Teen Adventure received 155% more referrals than they could accept, which led
them to believe that such programs would become more vital as a treatment option for teens (Marx, 1988). With the number of such programs growing over the years since Teen Adventure was developed, one might assume that they were correct in this assumption.

Exercise Interventions for Clients with Major Mental Illness

A study by Pelham, Campagna, Ritvo, and Birnie (1993) examines “three studies of exercise therapy with clients carrying diagnoses of schizophrenia or major affective disorder who are involved in psychiatric rehabilitation” (p. 75). The studies relied on self-report measures of depression in these clinically diagnosed patients. While each study introduced a different exercise prescription, Pelham and colleagues (1993) were able to conclude that, “the overall evaluation of exercise therapy indicated the feasibility of establishing such programs in a wide variety of psychiatric settings with significant client benefits” (p. 75). Similar to other evaluative studies, Pelham et al. utilized the Beck Depression Inventory to record self-reported feelings of depression and anxiety before, during, and after the experimental treatment plan.

In their review of theoretical and methodological issues regarding the incorporation of physical activity in psychiatric rehabilitation, Faulkner and Carless (2006) point out the conundrum: to what extent does physical activity participation improve mental health, and to what extent does improved mental health lead to physical activity participation? This is a popular question when working to establish exercise regimes for patients diagnosed with major mental illness. Faulkner and Carless (2006) carefully analyzed theories of physical activity and mental health, and concluded that due to the lack of specific causation for change many theories remain inconclusive. Faulkner
and Carless (2006) concluded that one cannot assume, exclusively, that increased exercise decreases negative mental health symptoms. In turn this would mean that exercise cannot be ruled out as being one among many variables that have a tendency to decrease negative mental health symptoms. The researchers advocate for mental health professionals and other researchers to take a broad theoretical stance in order to, “advance the case for physical activity within psychiatric rehabilitation by bringing to light how, why, for whom, and under what conditions physical activity is beneficial” (Faulkner & Carless, 2006, p. 264).

The fact that the literature surrounding this topic is varied and widespread over many different populations suggests the need for further research to be conducted. Studies conducted over the past few decades have begun to identify some of the positive results of exercise therapy on psychological symptoms such as depression and anxiety. As attention focused on these emerging trends in mental health care continues to grow, research will need to become more specific and replicable.

**Limitations of Existing Research**

Burbach (1997) presented a thorough evaluation of research studies that have been conducted with the goal of evaluating prescribed exercise interventions and mental health. He concluded that the vast majority of the research was biased in some way and that the results must be interpreted carefully. Populations which are utilized is an area of concern in all research studies. Studies are typically compiled from a biased subset of the larger population who meet the criteria and volunteer for the study. While this sample can find powerful relationships for that particular population, data is not easily generalized to the broader public. Burbach (1997) explains: “Having reviewed the
studies investigating physical activity as a treatment for people actually referred to mental health services, it is clear that the evidence is encouraging but by no means conclusive" (p. 561). He recommends that further research be conducted in a more detailed fashion, thus controlling for confounding variables and potentially drawing more conclusive and representative results.

Another limitation to the research on exercise therapy is the inability to rule out other potential causes for alleviation of symptoms. Pollock (2001) explains that while the goal of an exercise regimen is to produce symptom relief, “connecting symptom relief to exercise is difficult because the patient may very well be taking antidepressants and be in conventional talk therapy at the same time” (p. 1,294).

**Rate of Prescription and Adherence to Exercise Therapy**

There are many factors that effect the success of exercise therapy as a counseling intervention. One is whether or not the plan is well suited for the client. Another is the client’s personal readiness and motivation to participate. Also playing a large role is the degree of knowledge both the client and counselor hold about the value of exercise interventions. A fourth factor is the counselor’s belief in the intervention and level of support he or she gives to the client.

**Therapist Likelihood to Utilize Exercise as a Counseling Intervention**

In his assessment of exercise as a treatment of depression, Pollock (2001) explains that, “exercise promotion as an explicit and central component of treatment essentially is nonexistent in most therapists’ practice” (p. 1,290). While many therapists do not prescribe exercise as a treatment regimen, they “will help the patient explore why he might have stopped exercising” (Pollock, 2001, p. 1,290).
Burks and Keeley (1989) conducted a survey of psychotherapists aimed at gaining a better understanding of their perspectives on prescribing exercise and/or diet treatments to their clients. Similar to a previous study conducted by Royak-Schaler and Feldman (1984), this study found that exercise and diet were not frequently recommended to the clients of this sample of psychotherapists. The therapists were more likely to prescribe an exercise regimen and refer the client to a physician for nutritional recommendations. This was “consistent with the hypothesis that psychotherapists lack knowledge of nutrition; about two thirds of those giving a reason cited lack of expertise” (Burks & Keeley, 1989, p. 63).

Another potential reason that therapists are not always quick to prescribe a diet or exercise treatment is their level of belief that the treatment will work. While most of Burks and Keeley’s (1989) participants were willing to evaluate the perceived efficacy of exercise or diet treatment for disorders such as major depression and anxiety, they were less inclined to evaluate the perceived efficacy for the majority of other psychological disorders. Burks and Keeley (1989) point out that this data suggests psychotherapists’ positive beliefs about the efficacy of exercise therapy rely strongly in reported research findings of positive responses for specific disorders. A lack of training, and therefore knowledge, as well as the therapist’s own personal value of exercise and diet, also were found to influence their likelihood to incorporate them into their practice. With the limited amount of research that has been conducted regarding the efficacy of exercise or diet therapy, some would argue that it is not ready to be taught as a therapeutic tool to clinical therapists.
Pollock (2001) cited reasons similar to those of Burks and Keeley as to why therapists are not readily prescribing exercise treatments in their practice. For example, he states, “Exercise promotion and maintenance as a clinical skill typically is not included as a part of most therapists’ training” (Pollock, 2001, p. 1,290). Pollock (2001) also describes the lack of a widely-held belief that exercise therapy is beneficial, primarily due to the lack of significant evidence. In addition, the sheer difficulty involved in encouraging adherence to such a treatment plan can be viewed as overwhelming and logistically challenging by some therapists. However, with more research continually being conducted, it is likely that the viewpoint of clinicians may begin to shift toward more integrative and holistic methods of working with clients.

Client’s Adherence to Prescribed Exercise Routines

While the potential benefits of incorporating a regular exercise routine into one’s daily life have been widely examined, many people do not adhere to their personal exercise routines. According to Pollock (2001), “despite generally widespread acceptance of exercise as a healthy activity . . . relatively few depressed patients begin and maintain exercise” (p. 1.290). Pollock gives the example that, “compliance with an exercise recommendation is dramatically less than that for antidepressant medication” (p. 1,290). If logic and science have shown us that exercise can be beneficial, we are then forced to look at the reasons that discourage people from adhering to exercise regimens. There are many potential barriers to adherence, including fear of relapse into unhealthy behavior, low self-efficacy, lack of knowledge, and lack of support.

Often people fall into the trap that exercise therapy is a “one size fits all” prescription. This alone can be cause for a client’s failure to adhere. Pollock (2001)
explains that exercise prescriptions should “be based closely on a careful and collaborative assessment of the patient’s own preferences, as well as his predictions for success” (p. 1,297). Custom-building an exercise therapy regimen will presumably increase a client’s likelihood to adhere to it.

**Predictors of Adherence**

Adherence to an exercise routine often depends on a person’s willingness to change. Feinstein and Feinstein (2001) reviewed four models of change. These models include the Transtheoretical Model; Brief Motivational Interviewing; Prevention Oriented Primary Care; and the Emotion, Cognition, Behavioral, Interpersonal, and System (ECBIS) Psychotherapy Model. They based their work on the notion that, “The process of facilitating a health or lifestyle change is difficult, requiring significant effort and time, and is fraught with many relapses to the unhealthy behavior” (p. 1,263). Feinstein and Feinstein (2001) continue, “Without a clear understanding of the change process, the therapist and patient may feel frustrated, defeated, or even hopeless over their apparent lack of success in fostering a lifestyle change” (p. 1,263). The Transtheoretical Model uses psychotherapeutic techniques including the discovery and challenging of unhealthy behaviors that are to be replaced. The focus is mainly on emotions, thoughts, and behaviors as they relate to the goal the client is working to achieve. It is within this Transtheoretical Model that counselors and therapists can work to support their clients in a lifestyle change. While this article included a wide range of unhealthy behaviors and identified techniques to foster change, it clearly portrayed just how difficult it is for clients to make a change in their lifestyle.
Consistent with Feinstein and Feinstein’s (2001) findings is the idea of behavioral activation. As Feinstein and Feinstein describe the models of change they discuss readiness as a primary motivator. Pollock (2001) explains that, “the minimal limiting-case outcome for some patients may simply be that doing exercise helps keep hope alive” (p. 1,294). In other words, as a ready and willing participant in an exercise regimen, a person has direct and tangible control over what is bothering him or her. Medication tends to be something clients do not believe they have a large amount of control over, due to the fact that one can never be certain how it may affect the body. It is possible that exercise can give more immediate feedback to participants.

Pollock (2001) references the Feinsteins’ work regarding healthy lifestyles as he explains some potential barriers to adherence in terms of education (understanding what will be helped by the change), traditional physician roles (which do not empower the patient), psychological resistance (fear and vulnerability), and the lack of financial resources as a social barrier. What is to be taken from this discussion is that there are many individual variables which contribute to the rate of compliance with a prescribed exercise regimen.

Jones, Harris, Waller, and Coggins (2004) reported on the growing trend of exercise referral schemes in the United Kingdom. Their study evaluated the adherence rates of these exercise prescriptions with the realization in mind that, “unless adherence can be increased, these schemes are likely to have minimal impact” (Jones et al., 2004, p. 360). At the time that this study was conducted, very few researchers had looked at potential reasons for the low adherence rates. Similar to the work by Feinstein and Feinstein (2001), Jones et al. (2004) focused on change theories and issues of self-
efficacy as factors predicting adherence. They also noted low initial activity rates and false hopes as additional predictors of exercise prescription adherence. Interestingly, Jones et al. (2004) explained that, “while it was anticipated that individuals with minor stress, anxiety, and depression problems would benefit from the scheme, it is also likely that poor psychological well-being might influence people’s ability to adhere to the scheme” (p. 363). This study is one of few that address this complex issue. If achieving potential alleviation of stress and depression is prevented by the stress and depression itself, what is the client to do? Jones et al. utilized the General Health Questionnaire (GHQ) as a validated self-report measure of psychological well-being to assess participants at different stages of their participation. The combination of Goldberg’s General Health Questionnaire (Goldberg, 1972) and the Beck Depression Inventory (Beck, 1961) are the most popular assessments used in studies of this nature.

Jones et al. measured participants’ self-expectations as well as their psychological and physical well-being at various points during the study, and compared the data to drop-out rates. The biggest drawback of this study was that the researchers were unable to collect enough data from the “drop-outs” to make generalizations as to the influence of different variables on their decision to quit the exercise program. However, Jones et al. (2004) were able to conclude that, “self-efficacy did not differentiate completers from drop-outs” (p. 372).

This conclusion is contradictory to what one might predict. There are many possible reasons for these findings. For example, drop-outs might have had unrealistically high perceived self-efficacy and quit when they weren’t achieving their goals, while the completers had equally high perceived self-efficacy but (due to any
number of other variables) were able to achieve success and therefore stayed with the program. Jones et al. (2004) suggest that, "Despite, or perhaps because of, their poor self-ratings, those with high GHQ scores also expected to achieve greater changes than participants with higher psychological well-being" (p. 372). The researchers concluded that variables such as readiness to change and perceived self-efficacy may be less influential than anticipated in patients, while "expectations and psychological well-being may be more important" (Jones et al., 2004, p. 374). This study introduces an interesting dilemma in the research on exercise treatment and adherence. To find the true predictors of adherence to a prescribed exercise routine, studies that display greater control over confounding variables must be developed.

Relapse is often linked to barriers of adherence. This idea stems from the assumption that falling back into old ways (of not exercising) will lead to feelings of failure, shame, and guilt. Pollock (2001) presents the possibility that if the therapist is tuned in to his or her client and responds encouragingly, relapse can become a facilitator of change. He explains that relapse with an exercise regimen is not treated nearly as seriously as a relapse with other issues such as anorexia or alcoholism. Therefore, it can be concluded that, "exercise relapse is unique from other kinds of relapse in that usually it is ‘invisible’ and does not attract much attention" (Pollock, 2001, p. 1,293). If the therapist does not actively seek updates and information about the client’s adherence, the client may not report the relapse. A large concern with reporting relapse, on the part of the client, is the possibility of harming the relationship with his or her therapist. The client does not want to displease his or her therapist, and may internalize feelings of shame and guilt. Conversely, an attentive therapist might be able to recognize the
struggle and work through it with the client through use of encouragement rather than shame.

**Summary**

Current research findings linking counseling and physical exercise consistently fail to yield one clear-cut conclusion. Each study reviewed here has evaluated different aspects of exercise therapy as a counseling intervention. The populations that have been evaluated also vary greatly: some conducted with children, others with adults and the elderly, some with healthy populations and some with those diagnosed with a mental illness. Without consistency and replication, it is difficult to make a case for implementing exercise therapy in the treatment and prevention of mental health problems such as depression, anxiety and poor well-being.
CHAPTER III

PROCEDURES OF THE STUDY

Introduction

This chapter presents the research methodology and procedures used to investigate the given hypotheses. A description of the process of selecting participants as well as the research instruments utilized is provided. Also included is a statement of the hypotheses tested and the procedures used for analyzing the data.

Research Design

The research design for the present study was quantitative in nature and utilized correlational data analysis. The primary aim of this study was to investigate the potential relationship between types of physical exercise, recreational or work related, and reported feelings of overall well-being in a clinical population. The participants were all patients receiving mental health counseling services at a group private practice in a northern New England town. Eleven participants completed a demographic questionnaire, an assessment of physical activity, and an assessment of general well-being.

Participants

The population recruited for this study consisted of clients of mental health professionals in a northern New England suburban town. The age of participants varied, with age eighteen being the minimal age sampled. Participants were recruited at a mental health counseling group private practice. These participants were selected based on the fact that they are engaging in some form of mental health counseling. The participants
were briefly introduced to the project by their mental health professional and able to participate anonymously before or after a counseling session so as not to interfere with clinical time.

Instrumentation

Demographic Survey

The researcher developed a short survey to gather basic data from the participants (see Appendix B). This survey was designed to gather demographics such as age, gender and ethnicity. This survey also gathered information about the participant's current involvement in mental health counseling. Participants were not asked to disclose their symptoms or diagnosis.

General Health Questionnaire

The second measure utilized in this project is the General Health Questionnaire (GHQ), developed by David Goldberg (1972). The GHQ has been used in studies addressing psychological well-being and "was designed to detect non-psychotic psychiatric morbidity in the general population (e.g., anxiety, depression, and self-confidence)" (Niemz, Griffiths, & Banyard, 2005, p. 564). In its original form the GHQ consisted of 60 different items designed to evaluate a person’s overall well-being. The GHQ is now available in 12, 20, 28, 30, 60 and the full 140-item version. Due to its popularity and demonstrated reliability and validity on measures of well-being, the GHQ-60 was used in the present study (see Appendix C).

The GHQ is most usually scored using the “GHQ method” of 0-0-1-1 which is known as a “modified Likert” scale, and is designed to help avoid errors caused by people who are “middle users” on scaled analyses (Goldberg & Williams, 2006, p. 19).
The highest (indicates poor well-being) possible score a person could get on the GHQ-60 using this scoring method is 60. There have been many validity studies conducted to evaluate the GHQ. Of 72 studies, the threshold score for the GHQ-60 appears fairly stable at a score of 12 (Goldberg & Williams, 2006). According to Goldberg (1972), “a respondent’s score can be thought of as providing a quantitative estimate of his degree of psychiatric disturbance” (p. 87). Therefore, a score above 12, using the GHQ method of scoring, indicates that a person has a higher degree of psychiatric disturbance. A second way that Goldberg (1972) describes the interpretation of scores on his instrument is that the score can yield a “probability estimate of the individual being a psychiatric case” (p. 88) or, in other words, developing the need for mental health services.

While the General Health Questionnaire was developed to assess levels of psychiatric well-being, one must keep in mind that it does have limitations. It may be especially useful as a primary screen test with its findings supported by additional testing of identified individuals. The primary limitation of this questionnaire is that it has a tendency to miss the symptoms of individuals who are defensive or untruthful, who have dementia, chronic schizophrenia or hypomania, and those who have longstanding disorders, particularly if the individual views him/herself as in a good phase of their illness (Goldberg, 1972). With this limitation in mind, this questionnaire was developed to measure well-being as it is related to “affective neuroses- minor depressions and anxiety states” (Goldberg, 1972 p. 100) rather than severe psychiatric illnesses.

Due to the GHQ’s reputation as a screening test for clinicians, a number of studies have evaluated the GHQ’s diagnosis-specific sensitivity validity coefficients. For Major Depressive Disorder, as defined in the DSM-III, studies by Hoeper et al. (1979), Simpson...
Newman, Bland and Orn (1987), Goldberg and Bridges (1987), and Von Korff et al (1987) found diagnosis specific sensitivity percentages ranging from 78.5% to 100%. Similar evaluations of diagnosis-specific sensitivity validity coefficients were conducted for Generalized Anxiety Disorder, Panic Disorder, Obsessive-Compulsive Disorder, and Dysthymic Disorder, with sensitivity percentages ranging from 66.5% to 100% when compared with DSM-III diagnoses (Goldberg & Williams, 2006).

Final areas of importance to note are the effects of demographic variables on GHQ scores. Goldberg and Williams (2006) report that of eight studies showing a difference in gender-related scores, females tend to have higher scores than males. Goldberg and Williams (2006) also state that age does not have a strong effect on score, but suggest that further studies need to be conducted to evaluate the effect of age among the elderly and their scores on the General Health Questionnaire.

Due to the fact that this instrument was developed in Europe in the 1970s, some of the language is a bit outdated. Six of the questions have been reworded to be more easily comprehended by participants for the purpose of this study.

Global Physical Activity Questionnaire

The third measure that was used in this study is the Global Physical Activity Questionnaire (GPAQ) (see Appendix D), which was developed by the World Health Organization (2002). The World Health Organization (WHO) originally developed this questionnaire as a means of surveillance of physical activity in developing countries, looking specifically at the work related, recreational and sedentary domains of physical activity (WHO, 2002). Armstrong and Bull (2003) explain that chronic diseases are important factors in the ability for individuals to function in all countries and that
participation in physical activity has an “independent, causal, and protective effect against heart disease, stroke, type 2 diabetes mellitus, colon cancer, and breast cancer” (p. 1). These authors point out that lifestyle changes, such as occupation, have an effect on physical activity level. Instruments such as the GPAQ can help researchers and health professionals understand the activity level of individuals in a given population, which can then assist in the formation of appropriate activity programs and interventions.

Armstrong and Bull (2003) mention that the GPAQ was developed to build on previous instruments such as the International Physical Activity Questionnaire (IPAQ). The IPAQ was developed in part by Dr. Michael Booth of Australia (1996), who initiated the formation of a group of physical activity research experts to develop a measure of physical activity which was later presented and accepted by the WHO (www.ipaq.ki.se).

Evaluation of validity and reliability for the IPAQ found that it, “produced repeatable data (Spearman’s rho clustered around .8) and criterion validity had a median rho of about .30 which was comparable to most other self-report validation studies” (Craig, Marshall, Sjostrom, Bauman, Booth, Ainsworth, Pratt, Ekelund, Yngve, Sallis, & Oja, 2003, p.1381). The GPAQ was developed as an addition to the IPAQ, and does not yet have published reliability and validity coefficients.

For the purposes of this study, the GPAQ was used to yield amount of time an individual spends engaging in physical activity in the domains of work and recreation. Aside from the calculation of minutes spent engaging in exercise, this questionnaire was not used to determine causes or meanings for why an individual was engaging in a certain level of physical activity in a specific domain.
Procedures

The researcher proposed the study to a therapist at the group private practice, who served as a liaison between the researcher and other therapists. This study was conducted over a three-week period and was open to all clients at the practice. The therapists were asked to mention the study to clients and, if clients were willing to participate, all materials could be gathered anonymously in the waiting area. In the waiting area participants took a numbered packet which held all written documents and directions, including an informed consent form, the demographic survey, the General Health Questionnaire, the Global Physical Activity Questionnaire, and the debriefing information. Upon completion, participants placed their packets in a sealed box to maintain confidentiality.

The first sheet in the packet was the informed consent form (see Appendix E). Packets included two copies of this form, and participants were instructed that only one copy needed to be submitted with their completed packet. Informed consent explained that participant involvement in the study would be strictly voluntary and that they were not to include any identifying information about themselves, such as name, social security number, etc. Participants were not told the hypotheses of the study. However, they were told that their involvement in this study would help to further research surrounding the fields of mental health and exercise. The informed consent form also explained that participants had the right to withdraw from the study at any point without negative consequences, and that their data would be kept confidential. Having the participant packet include the informed consent and directions for participation eliminated any potential influence of the researcher and the therapists on the results.
The next form included in the packet was the Demographic Survey, which included age, race/ethnicity, and questions about involvement in counseling. The next step for participants was to respond to the sixty questions of the General Health Questionnaire and, finally, the sixteen questions of the Global Physical Activity Questionnaire. A debriefing information sheet (see appendix F), of which there were two so that participants could take one with them for future reference, was included. This sheet thanked participants for their involvement and provided them with any additional contact information they may wish. The final step for participants was to deposit all materials into the sealed box. Total participation time was approximately 20-30 minutes to complete all instruments.

**Statement of Hypotheses**

For the purpose of this study, the following research hypotheses were developed:

**Hypothesis 1** – There is a positive correlation between amount of time spent engaging in recreational physical activity and overall well-being.

**Hypothesis 2** – There is a positive correlation between amount of time spent engaging in work related physical activity and overall well-being.

**Hypothesis 3** – There is a positive correlation between total amount of time spent engaging in physical activity (recreational and work related) and overall well-being. This relationship will be of stronger significance than either work related or recreational physical activity and well-being, independently.

**Hypothesis 4** – There is a positive correlation between amount of time (total hours) engaged in mental health counseling and overall feelings of well-being.
Hypothesis 5 – There is no significant difference between the correlation of intensity level and well-being and the correlation of total amount of physical exercise and well-being.

**Procedures for Analyzing the Data**

**Step 1** – Willing participants completed Participant Packets which included the informed consent form, demographic survey, GHQ, and GPAQ and placed the completed packets into sealed collection box.

**Step 2** – The researcher collected completed packets for data analysis.

**Step 3** – Participant responses on the Global Health Questionnaire were scored based on a 0-0-1-1 weighted measure, and a score of overall well-being was attained.

**Step 4** – Participant responses on the Global Physical Activity Questionnaire were calculated based on number of minutes of physical activity reported in the domains of recreational physical activity, work related physical activity and the combination of both domains.

**Step 5** – Number of minutes engaged in mental health counseling was calculated for each participant.

**Step 6** – Spearman rank order correlations were conducted to determine the significance of relationships according to the hypotheses stated above.
CHAPTER IV

RESULTS

The analysis of the data are presented in this chapter. A total of 11 participants returned usable participant packets. A Spearman rank order correlation analysis was utilized to determine the significance of relationships between variables according to the hypotheses tested.

**Hypotheses**

The first hypothesis was stated as follows:

**Hypothesis 1** – There is a positive correlation between amount of time spent engaging in recreational physical activity and overall well-being. To indicate a significant relationship at the .05 level with a sample of eleven people, r needed to reach .535 according to the P. Table of Critical Values (Siegel, 1956, p. 284). Rank order correlation between minutes of recreational physical activity and well-being score was -.162. This correlation was not significant.

The second hypothesis was stated as follows:

**Hypothesis 2** – There is a positive correlation between amount of time spent engaging in work related physical activity and overall well-being. The rank order correlation between minutes engaged in work-related physical activity and well-being score was not significant, with an r of -.181. This suggests that there is no significant
relationship between amount of time spent engaging in physical activity at work and their self-reported feelings of well-being.

The third hypothesis was stated as follows:

**Hypothesis 3** – There is a positive correlation between total amount of time spent engaging in physical activity (recreational and work related) and overall well-being. This relationship will be of stronger significance than either work related or recreational physical activity and well-being, independently. The correlation of total physical activity and overall well-being was -.204. This did not indicate a significant relationship.

The fourth hypothesis was stated as follows:

**Hypothesis 4** – There is a positive correlation between amount of time (total hours) engaged in mental health counseling and overall feelings of well-being. A Spearman rank-order correlation of these two variables yielded an r of .159, which is not significant. This suggests that amount of hours engaged in mental health counseling did not independently affect feelings of well-being.

The fifth hypothesis was stated as follows:

**Hypothesis 5** – There is no significant difference between the correlation of intensity level and well-being and the correlation of total amount of physical exercise and well-being. Due to the limited sample size, the researcher was unable to evaluate intensity level objectively. In addition to this limitation, the insignificant relationship between total amount of physical activity and well-being prevented this hypothesis from being investigated statistically.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

Summary

The purpose of this study was to investigate the potential relationship between variations in physical activity and self-reported feelings of well-being in a clinical population. The domains of work related and recreational exercise were measured using the Global Physical Activity Questionnaire, and well-being scores were derived from the Global Health Questionnaire. The variables were then analyzed using Spearman rank-order correlations to determine significance. Variables compared included minutes engaged in recreational physical activity, minutes engaged in work related physical activity, total minutes engaged in physical activity, amount of time spent engaged in mental health counseling, and overall feelings of well-being.

Participants in this study consisted of eleven female clients of therapists at a group private practice in a northern New England town. Participant ages ranged from 23 to 43 years old, with a mean age of 31.5. All reported Caucasian ethnicity. The limited sample size is thought to be a key contributor to the fact that no significant results were found. A supplementary findings section was added to address potential trends that may have developed given a larger sample.

Limitations

The main limitation to this study was its small sample size. It is thought that if the sample size had been larger more significant findings may have emerged. In addition
to the lack of significance, it is not possible to identify consistent trends in the reported information. Potential for trends to develop is addressed in the supplemental findings section.

**Supplemental Findings**

In addition to the Spearman rank-order correlations conducted to investigate the given hypotheses, the researcher explored additional possible trends. To investigate trend in physical activity levels, the researcher assigned participants to either a moderate/high group or a none/low group for physical activity in three areas—work related, recreational, and total activity. Participants who reported 250 or more minutes of exercise in any single category (regardless of intensity) were placed in the moderate to high physical activity group for that domain of physical activity. Those who reported fewer than 250 minutes of physical activity (regardless of intensity) in a given domain were placed in the none to low group. Participants who reported a combined amount of physical activity (recreational and work related) of 500 or more minutes (regardless of intensity) were placed in the moderate to high group, and those with fewer than 500 total reported minutes were assigned to the none to low group. The well-being scores for each of the participants in a given group were averaged and compared with the average score of the opposite group.

It was found that those who engaged in moderate to high physical activity at work reported an average well-being score of 24.25, while those who engaged in the none-low level of physical activity at work had an average well-being score of 10.24. With a threshold score of 12, this finding indicates that those individuals who engaged in more
physical activity at work report lower levels of well-being than those who engaged in less physical activity at work.

When the well-being averages were calculated and compared for the recreational activity group and the total activity group, they yielded exactly the same scores. Those who engaged in moderate to high physical activity had an average well-being score of 18 and those in the none to low category had an average well-being score of 12.4. As was the case in the evaluation of work and well-being, this indicates that those individuals who participated in greater amounts of physical activity, recreationally and recreational and work combined, had lower scores on personal well-being.

While these supplementary findings further refute the given hypotheses, one might wonder about the possible cause for this. One proposed reason is that, due to the small sample size, a few statistical outliers will significantly change the average. For example, individuals in the moderate/high group for work activity had GHQ scores of 50, 42, 2 and 3. These scores indicate vastly different levels of well-being for individuals maintaining similar amounts of exercise. Another reason may be that there is something about physical activity that is creating lower feelings of well-being, particularly in work related physical activity. It is also important to note that the sample utilized was a clinical population. The symptoms of the individual’s diagnosed psychological disorder may play a role in the level of engagement in physical activity. Perhaps individuals overcompensate for their depression with excessive physical activity. Perhaps individuals are only engaging in physical activity because someone told them that they need to, and therefore well-being is lower because they do not want to be active. Any
number of reasons could be the cause for these findings. This is an area that is worth investigating in a future study.

Interestingly, no significance was found between amount of time engaged in mental health counseling and well-being. The individual who reported the most amount of time in counseling (152 hours) also reported the lowest level of well-being (GHQ = 50). Two people with 24 hours of counseling both scored a 3 on the GHQ and two people with only 2 hours of counseling scored a 42 and a 35 on the GHQ. The data from the first individual suggests that the amount of time in counseling does not increase feelings of well-being, and the second set of individual findings may suggest that it does. This further illustrates the inconclusive nature of the data collected in the present study. However, when studying a clinical population, individual diagnosis may play a large role in self-reported feelings of well-being. Disclosure of diagnosis was not a part of the present study, as it was thought by the researcher and clinicians at the group practice that it could potentially compromise confidentiality and may discourage clients from participating.

**Implications**

The correlational nature of this study cannot attempt to infer causation. However, the widely scattered responses support the notion that well-being is a complex concept that may be affected by any number of variables including physical activity and involvement in mental health counseling.

Although data was not found to be significant in the present study, this design does provide a framework for conducting similar research in a clinical population. The major limitation of this study (small sample size) suggests that repeated research with a
greater response rate could provide more definitive results. Few studies have been conducted investigating the relationship between physical activity and mental well-being in an out-patient clinical facility. Future researchers will be able to utilize the design of the present study to aid in the development of others.

**Recommendations for Future Study**

The following recommendations are suggested for further study:

1. A replication of the present study should be conducted with a larger sample size to clarify the present findings. Also, a larger sample size may help adjust for statistical outliers that can skew the data.

2. Future study of this topic in a clinical population should include an investigation of more variables that may contribute to reported feelings of well-being such as psychological diagnosis, symptoms of physical health, and/or specific occupation.

3. Due to the trend in the present study that suggests those who engage in larger amounts of work-related physical activity have lower well-being, a study evaluating the relationship between job satisfaction and overall well-being should be conducted. A significant correlation between job satisfaction and well-being in active jobs could provide framework for evaluating work conditions for employees.

4. The General Health Questionnaire is often used as a screening tool for mental illness. Replication of this study could be improved by including a qualitative aspect such as interviewing willing participants who scored within a certain range on the General Health Questionnaire. A structured interview may provide clearer trends in the participant behavior.
A future study may also be improved by adding a longitudinal component to the current design. Participants could complete the instruments once to determine a baseline, participate in a given amount of mental health counseling, and then be administered the instruments again post-treatment. The scores could then be compared to better investigate the potential relationship between amount of mental health counseling and well-being.

A future study should be conducted to include a greater focus on intensity level of physical activity. The small sample size limited the present study from evaluating the intensity levels of physical activity. A study that focuses on intensity level has the potential to clarify conclusions about a relationship not only between physical activity and well-being, but the intensity level of that activity as well.


University of New Hampshire

Research Conduct and Compliance Services, Office of Sponsored Research Service Building, 51 College Road, Durham, NH 03824-3585 Fax: 603-862-3564

19-Feb-2007

Lijoi, Jennifer Education, Morrill Hall 1 Mill Street #207 Dover, NH 03820

IRB #: 3857
Study: Relationship between Variations of Physical Activity and Psychological Well-Being in a Clinical Population
Approval Date: 13-Dec-2006

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study with the following comments:

1. The researcher needs to send to the IRS a copy of the final instrument for the file.
2. The IRS suggests that the researcher does not omit any questions where the 2 different phrasings do not yield statistically distinct responses: the researcher should keep them, having shown that these phrases are as understandable as contemporary American English rephrasings, assuming the information is important.

Approval is granted to conduct your study as described in your protocol for one year from the approval date above. At the end of the approval period you will be asked to submit a report with regard to the involvement of human subjects in this study. If your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, Responsibilities of Directors of Research Studies Involving Human Subjects. (This document is also available at http://www.unh.edu/osr/compliance/lirb.html.) Please read this document carefully before commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB
Julie F. Simpson
Manager

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APPENDIX B

DEMOGRAPHIC SURVEY

*For the following survey, please fill in the most appropriate answer as it best relates to you*

AGE: ________________

ETHNICITY/RACE: ________________

GENDER: ________________

1. I have been meeting with a mental health counselor for approximately _____ months.

2. I meet with this professional approximately _____ time(s) per month.

3. I meet with this professional for _____ minutes per session.

*Please turn to the General Health Questionnaire*
APPENDIX C

GENERAL HEALTH QUESTIONNAIRE

Please read this carefully:
I would like to know if you have had any medical complaints, and how your health has been in general, over the past few weeks. Please answer ALL the questions on the following pages by circling the answer which you think most nearly applies to you. Remember that I want to know about present and recent complaints, not those you had in the past.

It is important that you try to answer ALL of the questions. Thank you very much for your cooperation.

HAVE YOU RECENTLY:

1. Been feeling perfectly well and in good health? Better than usual Same as usual Worse than usual Much worse than usual

2. Been feeling in need of a good drink? Better than usual Same as usual Worse than usual Much worse than usual

3. Been feeling tired and not yourself? Better than usual Same as usual Worse than usual

4. Felt that you are ill? Better than usual Same as usual Worse than usual Much worse than usual

5. Been getting any pains in your head? Better than usual Same as usual Worse than usual Much worse than usual

6. Been getting a feeling of tightness or pressure in your head? Better than usual Same as usual Worse than usual Much worse than usual

7. Been able to concentrate on whatever you’re doing? Better than usual Same as usual Worse than usual Much worse than usual

8. Been afraid that you were going to collapse in a public place? Better than usual Same as usual Worse than usual Much worse than usual

9. Been having hot or cold spells? Better than usual Same as usual Worse than usual Much worse than usual

10. Been perspiring (seating) a lot? Better than usual Same as usual Worse than usual Much worse than usual

11. Found yourself waking early and unable to get back to sleep? Better than usual Same as usual Worse than usual Much worse than usual
**HAVE YOU RECENTLY:**

<table>
<thead>
<tr>
<th></th>
<th>Better than usual</th>
<th>Same as usual</th>
<th>Worse than usual</th>
<th>Much worse usual</th>
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</thead>
<tbody>
<tr>
<td>12. Been getting up feeling your sleep hasn’t refreshed you?</td>
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<td>13. Been feeling too tired and exhausted even to eat?</td>
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<td>14. Lost much sleep over worry?</td>
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<tr>
<td>15. Been feeling mentally alert and wide awake?</td>
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<td>16. Been feeling full of energy?</td>
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<tr>
<td>17. Had difficulty in getting off to sleep?</td>
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<tr>
<td>18. Had difficulty staying asleep once you fall asleep?</td>
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<tr>
<td>19. Been having frightening or unpleasant dreams?</td>
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<tr>
<td>20. Been having restless, disturbed nights?</td>
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<tr>
<td>21. Been managing to keep yourself busy and occupied?</td>
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<td>22. Been taking longer to complete normal tasks?</td>
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<tr>
<td>23. Tended to lose interest in your ordinary activities?</td>
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<tr>
<td>24. Been losing interest in your personal appearance?</td>
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<tr>
<td>25. Been taking less trouble with your clothes?</td>
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<tr>
<td>26. Been getting out of the house as much as usual?</td>
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<tr>
<td>27. Been managing as well as most people would in your shoes?</td>
<td>Better than usual</td>
<td>Same as usual</td>
<td>Much worse usual</td>
<td></td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
<th>HAVE YOU RECENTLY:</th>
<th></th>
<th>APPENDIX C (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.</td>
<td>Felt on the whole you were doing things well?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>29.</td>
<td>Been late getting to work, or getting started on your homework?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>30.</td>
<td>Been satisfied with the way you’ve carried out your task?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>31.</td>
<td>Been able to feel warmth and affection for those near to you?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>32.</td>
<td>Been finding it easy to get along with others?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>33.</td>
<td>Spent much time chatting with people?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>34.</td>
<td>Kept feeling afraid to say anything to people in case you made a fool of yourself?</td>
<td>Better than usual</td>
<td>Same as usual</td>
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<tr>
<td>35.</td>
<td>Felt that you are playing a useful part in things?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>36.</td>
<td>Felt capable of making decisions about things?</td>
<td>Better than usual</td>
<td>Same as usual</td>
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<tr>
<td>37.</td>
<td>Felt you’re just not able to make a start on anything?</td>
<td>Better than usual</td>
<td>Same as usual</td>
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<tr>
<td>38.</td>
<td>Felt yourself dreading everything that you have to do?</td>
<td>Better than usual</td>
<td>Same as usual</td>
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<tr>
<td>39.</td>
<td>Felt constantly under strain?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>40.</td>
<td>Felt you couldn’t overcome your difficulties?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>41.</td>
<td>Been finding life a struggle all the time?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
<tr>
<td>42.</td>
<td>Been able to enjoy your normal day-to-day activities?</td>
<td>Better than usual</td>
<td>Same as usual</td>
</tr>
</tbody>
</table>
### HAVE YOU RECENTLY:

<table>
<thead>
<tr>
<th>Question</th>
<th>Better than usual</th>
<th>Same as usual</th>
<th>Worse than usual</th>
<th>Much worse usual</th>
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</thead>
<tbody>
<tr>
<td>43. Been taking things hard?</td>
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<td>44. Been getting edgy and bad-tempered?</td>
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<td>45. Been getting scared or panicky for no good reason?</td>
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<td>46. Been able to face up to your problems?</td>
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<td>47. Found everything is weighing down on you?</td>
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<tr>
<td>48. Had the feeling that people were looking at you?</td>
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<tr>
<td>49. Been feeling unhappy and depressed</td>
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<td>50. Been losing confidence yourself?</td>
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<tr>
<td>51. Been thinking of your self as a worthless person?</td>
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<tr>
<td>52. Felt that life is entirely hopeless?</td>
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<tr>
<td>53. Been feeling hopeful about your own future?</td>
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<tr>
<td>54. Been feeling reasonably happy, all things considered?</td>
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<tr>
<td>55. Been feeling nervous/anxious all of the time?</td>
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<tr>
<td>56. Felt that life isn’t worth living?</td>
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<tr>
<td>57. Thought about committing suicide?</td>
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<tr>
<td>58. Found at times you couldn’t do anything because your nerves were too bad?</td>
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</tr>
</tbody>
</table>
HAVE YOU RECENTLY:

59. Found yourself wishing you were dead and away from it all?

   Better than usual   Same as usual   Worse than usual   Much worse usual

60. Found that the idea of taking your own life kept coming to your mind?

   Better than usual   Same as usual   Worse than usual   Much worse usual

*** Please continue on to the Global Physical Activity Questionnaire ***
APPENDIX D

GLOBAL PHYSICAL ACTIVITY QUESTIONNAIRE

Next, I am going to ask you about the time you spend doing different activities in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting, seeking employment. In answering the following questions ‘vigorous-intensity activities’ are activities that require hard physical effort and cause large increases in breathing or heart rate.

Questions

**Activity at work**

<table>
<thead>
<tr>
<th>Activity at work</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does your work involve vigorous-intensity that causes large increases in breathing or heart rate like carrying or lifting heavy loads, digging or construction work?</td>
<td>Yes</td>
</tr>
<tr>
<td>2. In a typical week, on how many days do you do vigorous-intensity activities as part of your work?</td>
<td></td>
</tr>
<tr>
<td>3. How much time do you spend doing vigorous-intensity activities at work on a typical day?</td>
<td>Hours : minutes</td>
</tr>
<tr>
<td>4. Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking or carrying light loads for at least 10 minutes continuously?</td>
<td>Yes</td>
</tr>
<tr>
<td>5. In a typical week, on how many days do you do moderate-intensity activities as part of your work?</td>
<td></td>
</tr>
<tr>
<td>6. How much time do you spend doing moderate-intensity activities at work on a typical day?</td>
<td>Hours : minutes</td>
</tr>
</tbody>
</table>

**Travel to and from places**

The next questions exclude the physical activities at work that you have already mentioned. Now, I would like to ask about the usual way you travel to and from places. For example, to work, for shopping, to market, to place of worship.

<table>
<thead>
<tr>
<th>Travel to and from places</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Do you walk or ride a bike for at least ten minutes continuously to and from places?</td>
<td>Yes</td>
</tr>
<tr>
<td>8. In a typical week, on how many days do you walk or bike for at least 10 minutes continuously to get to and from places?</td>
<td>No If No, got to #10</td>
</tr>
</tbody>
</table>
APPENDIX D (continued)

9. How much time do you spend walking or biking for travel on a typical day?  
   Hours : minutes
   __________ : __________

Recreational activities
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities.

10. Do you do any vigorous-intensity sports, fitness, or recreational activities that cause large increases in breathing or heart rate like running or basketball for 10 minutes continuously?  
    Yes
    No  If No, go to #13

11. In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational activities?  
    __________

12. How much time do you spend doing vigorous-intensity sports, fitness, or recreational activities on a typical day?  
    Hours : minutes
    __________ : __________

13. Do you do any moderate-intensity sports, fitness or recreational activities that cause a small increase in breathing or heart rate such as brisk walking, cycling, or swimming for at least 10 minutes continuously?  
    Yes
    No  If No, go to #16

14. In a typical week, on how many days do you do moderate-intensity sports, fitness, or recreational activities?  
    __________

15. How much time do you spend doing moderate-intensity sports, fitness, or recreational activities on a typical day?  
    Hours : minutes
    __________ : __________

Sedentary behavior
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent with friends, traveling in a car, bus, train, reading, playing cards, or watching television, but do not include time spent sleeping.

16. How much time do you usually spend sitting or reclining on a typical day?  
    Hours : minutes
    __________ : __________
APPENDIX E

INFORMED CONSENT

You are being asked to fill out a short survey about your involvement in mental health counseling as well as two questionnaires. Your participation in this research study will potentially help enhance treatment practices in the field of behavioral health. Please read the following details regarding this study carefully and respond as to whether or not you are willing to participate.

• You will be asked to fill out a short survey about your involvement in mental health counseling as well as two questionnaires addressing your physical activity level and feelings of well-being.
• The results of this study will be used in a master’s level thesis for the Graduate Program in Counseling at the University of New Hampshire.
• Your responses will be kept confidential and your responses will not be linked to any identifying information.
• Participation in this study is completely voluntary and you have the ability to withdraw at any time without penalty.
• It should take approximately 20-30 minutes for you to complete participation.
• If you have any questions regarding your rights as research subjects in this study you can discuss them in confidence with the principal investigator Jennifer Lijoi, University of New Hampshire graduate student, (603) 969-1620 and/or Julie Simpson at the office of Sponsored Research at (603) 862-2003.
• This study does ask that you address personal behaviors and feelings, and should you experience any negative effects as a result of your participation in this study you should contact your counselor at Mill House.
• The University of New Hampshire’s Institutional Review Board for the Protection of Human Subjects in Research has approved the use of human subjects in this study.

PLEASE CHECK WHICH STATEMENT REFLECTS YOUR CHOICE AFTER READING THE ABOVE DETAILS. REMOVE THIS SHEET TO BE SUBMITTED SEPARATE FROM YOUR RESPONSES.

_____ I CONSENT / AGREE to participate in this research project.

_____ I REFUSE / DO NOT AGREE to participate in this research project.

Signature ___________________________ Date ____________

59
APPENDIX F

DEBRIEFING FORM

Thank you for your participation in this research study. This study was designed to investigate the relationship between involvement in counseling, exercise, and general feelings of well-being. The findings have the potential to encourage the development of new practices and interventions in the field of counseling. If you have any questions about your rights as a research subject, please contact Julie Simpson in the UNH Office of Sponsored Research as (603) 862-2003 or Julie.simpson@unh.edu to discuss them. Please be aware that this study is in no way connected to your treatment plan at Mill House. Neither the researcher nor your therapist at Mill House will be following up on any issues that you may have disclosed during this study. You are urged to seek help from your therapist or another professional should you be experiencing any negative thoughts or reactions. With any other questions regarding this research study feel free to contact the researcher, Jennifer Lijoi, at (603) 969-1620. Thank you again for your participation.