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AN INVESTIGATION OF RELATIONSHIP CHARACTERISTICS, EXERCISE  
AND PHYSICAL ACTIVITY, COUPLE AND LIFE SATISFACTION

by

Mark W. St. Martin

A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Doctor of Philosophy  
Department of Counselor Education and Counseling Psychology  
Patrick H. Munley, Advisor

Western Michigan University  
Kalamazoo, Michigan  
December 2007

# AN INVESTIGATION OF RELATIONSHIP CHARACTERISTICS, EXERCISE AND PHYSICAL ACTIVITY, COUPLE AND LIFE SATISFACTION

Mark W. St. Martin, Ph.D.

Western Michigan University

Exercise has been shown to be positively related to many different variables including sexual satisfaction, mental health, and physical health. These variables, in turn, have been linked to increased life satisfaction and couple satisfaction. The primary purpose of this study was to examine the relationships between exercise and couple satisfaction as well as exercise and life satisfaction. A secondary purpose was to replicate previous findings on the relationships between communication, love, sexual satisfaction, self-esteem, and physical health and couple satisfaction.

A total of 229 undergraduate and graduate students from a large Midwestern university in the United States participated in this study. These participants were found to generally be young, healthy, and satisfied individuals. Participants were asked to complete the following measures: ENRICH Couple Satisfaction Scale, Sexual Satisfaction Scale, and Communication Scale (Olson, 1996), Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), a health status assessment (Cox, Spiro, & Sullivan, 1988), Rosenberg Self-Esteem Scale (Rosenberg, 1989), a demographic

sheet, and the International Physical Activity Questionnaire (IPAQ) (Craig, et al., 2003).

Correlational analysis, hierarchical multiple regression, and path analysis were employed to investigate the relationships between the variables of communication, love, sexual satisfaction, self-esteem, physical health, life satisfaction, couple satisfaction, and exercise. Results indicated that communication, love, sexual satisfaction, self-esteem, and physical health were significantly correlated with couple satisfaction. These same variables, with the exception of physical health, were also significant predictors of couple satisfaction. Findings indicated that communication, love, sexual satisfaction, and self-esteem, are important variables in relation to couple satisfaction and these findings are consistent with prior research. Exercise was not found to significantly correlate with couple or life satisfaction and was not a significant predictor of couple satisfaction or life satisfaction in the regression analysis. An exploratory path analysis model in which exercise's effects were hypothesized to all be indirect and through the variable of health was found to be plausible. Findings are discussed and suggestions made for future research.

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## ACKNOWLEDGMENTS

Although it is impossible to fully show my appreciation and gratitude to everyone who has assisted or inspired me during this process, I did want to make an effort to bring some recognition to those who stood out in helping me to complete this dissertation.

First, I would like to thank God for giving me the strength and perseverance to complete this project.

A special thanks goes to my doctoral committee, with whose guidance this project and its completion was made possible. To Dr. Munley, I cannot express how grateful I am for the immense amount of time, energy, wisdom, and foresight (especially about possible pitfalls!) you put in to help me with this project. Thank you! To Dr. Croteau and Dr. Brylinsky, I want to thank you for all of your guidance, knowledge, support, and the many opportunities outside of the dissertation process you both provided me.

I would also like to thank my wonderful family. My beautiful partner, Kim and children, Logan and Gavin all of whom had to endure countless hours of me being away and doing the 'dissertation'. Their patience, love, and comedic relief were exactly what I needed to help me through this process. Thank you, also to my parents, Jane and Lee St. Martin who inspired and supported my education throughout the years.

encouragement along the way. I want to especially express my gratitude to Melissa Lidderdale for all the debriefings, support, exercise breaks, and 'wing nights'. I also want express my appreciation to Sharon Carney, Emily Nisley, Coleen Barry, and Monica Thiagarajan for all of their support and friendship while at Western Michigan University.

I am also very grateful for the assistance Carolyn Cardwell and Tammie Klinger provided in helping me to manage the incoming data as well as for their wonderful support during the ups and downs of the data collection phase. I am also appreciative of the time and knowledge Dr. Mary Anderson provided to me during this process and the wonderful support of my colleagues at the University Counseling and Testing Center.

Finally, I would like to thank two groups of people, who without their help this research would have been truly impossible. First, thank you to all of the professors who gave classroom time and support for my research. Also, I want to thank the participants of this research for their time, questions, and participation.

Mark W. St. Martin



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## CHAPTER I

### INTRODUCTION

Exercise has been gaining more and more attention in recent years as the overall population of the United States gets older and begins experiencing more health problems. It also coincides with alarms being raised over childhood obesity and other health complaints in the general population. This increased attention, has led to numerous studies and journal articles that have increased our understanding of the benefits of regular exercise. Researchers, however, are not the only ones recognizing the positive effects of exercise as numerous businesses advertise various products related to maintaining or increasing one's health and appearance through exercise. Indeed, it would probably be the rare person who has not heard the proverbial "Eat right and exercise regularly" from either their doctor or their television. However, that same person may not be familiar with the full spectrum of exercise's benefits or for that matter its limits.

In 1996 the Surgeon General issued a report on physical activity and health (United States Department of Health and Human Services (USDHHS), 1996). In it was information linking regular exercise's ability to help to reduce a person's chance of death from coronary disease, as well as reduce one's risk for diabetes, stroke, high blood pressure, colon cancer, and



falls in older adults. Regular exercise was also reported to assist in gaining and maintaining healthy bones, muscles, and joints, achieving and maintaining a healthy body weight, relieving arthritis pain, reducing hospitalizations, doctor's visits, and amounts of medication needed to alleviate various ailments, as well as helping with a number of other health related concerns.

The Surgeon General's report (USDHHS, 1996) also states that exercise has a positive effect on mental health. Literally thousands of articles have been written on the association between exercise and psychological well-being. It is no surprise then that there have been plenty of review articles written to summarize these findings. For instance, Taylor (2000) assesses the findings associated with exercise and anxiety and stress. Taylor found that across all studies reviewed, there was a low to moderate reduction in anxiety associated with exercise. However, some of the more rigorous individual studies indicated a stronger effect. It was also found that state anxiety can be reduced by just one episode of exercise. Other literature reviews have also found positive associations between exercise and mental health. Brosse, Sheets, Lett, and Blumenthal (2002) and Mutrie (2000) found exercise had a positive effect in preventing as well as treating individuals with depressive symptoms. Biddle (2000), Berger and Motl (2000), and Brosse, et al. (2002) found exercise was often correlated to more positive affect and the increasing of positive moods. Still further, Fox (2000) and

Spence, McGannon, and Poon (2005) found exercise was associated with increases in physical self-esteem and to a lesser extent general self-esteem. Tkachuk and Martin (1999) found exercise was linked to reductions in symptoms associated with pain disorder and schizophrenia. Exercise has also been associated with helping those involved with substance abuse. Read and Brown (2003) found regular exercise helped to decrease the use of alcohol as well as to assist some in the cessation of alcohol abuse. Ussher, Taylor, West, and McEwen (2000) found exercise was moderately helpful in reducing nicotine abuse. Finally, beyond traditional mental health variables, Bortz and Wallace (1999) found exercise to be positively correlated with sexual satisfaction.

Although it may appear that exercising can only have positive effects, a very small part of the exercising population actually engages in it to an excess. Indeed, over-exercising can lead to a number of problems including, dehydration, fatigue, depression, insomnia, skeletal and muscle injuries, as well as amenorrhea in women (Office of Health Education, 2006). Szabo (2000) indicates over-exercising is usually a result of other psychological dysfunction such as an eating disorder. Besides this somewhat rare exception, numerous research studies have backed the aforementioned and other results regarding exercise's positive effect on physical and mental health. Indeed, the consistency of these findings may be to the point that one

may be hard pressed to find someone in the United States who doesn't recognize the benefit of regular exercise.

Unfortunately, it appears that, although most people recognize that regular physical activity in the form of exercise or other daily activities is beneficial, the majority of Americans do not engage in the recommended amount. This recommended amount is defined as moderately-intensive activities resulting in small increases in heart rate and breathing performed at least 5 days a week for approximately 30 minutes or vigorous-intensive activities resulting in large increases in heart rate and breathing performed at least 3 days a week for 20 minutes (USDHHS, 2003). Indeed, the Centers for Disease Control (CDC) report that only 45.9% of Americans meet these criteria in their weekly lifestyle routines, which includes other activities (e.g. housecleaning) besides exercise (USDHHS, 2003). The CDC goes on to report that almost 25% of Americans engage in no physical activity in their leisure time. Furthermore, it was reported that physical activity decreases as one gets older, is less prevalent in those coming from a lower income socioeconomic status, those having less education, and that women exercise less when compared to men.

Falling victim to a disease, injury, or a mental health problem that possibly might have otherwise been prevented or alleviated through regular exercise, can have a negative effect on one's overall satisfaction with their life. Life satisfaction, which is part of the broader term--subjective well-

being, refers to one's cognitive assessment of the overall quality of their life (Diener, Emmons, Larsen, and Griffin, 1985). Early research on this topic was usually focused on either personality factors or social cognitive factors. However, starting with Brief, Butcher, George, and Link (1993) there has been more research and theoretical speculation integrating these two divergent research approaches. This integration has made it clearer that life satisfaction is somewhat constant across a lifetime due to the stability of a person's personality. However, various events (e.g. taking a vacation) can cause shifts in one's life satisfaction, which are related to social cognitive factors (e.g. goals, outcome expectations, etc.). Thus, researchers now have a theory that explains why some of their research shows great stability while other research shows great instability in life satisfaction scores. Life domain satisfaction, which is a cognitive assessment of the quality of various life domains (e.g. family life), has become a third variable in the understanding of overall life satisfaction. However, life domain satisfaction, which is also influenced by personality and social cognitive factors, appears to both influence and be influenced by life satisfaction. In other words, if someone is very satisfied with their life as a whole that general satisfaction can positively influence more specific areas of their life (i.e. life domains) in a sort of trickle down effect. For example, a person might be generally satisfied and therefore be more apt to overlook minor problems at work, thus increasing their satisfaction with their work. Similarly, if someone is satisfied in a

number of different life domains it can positively influence one's overall life satisfaction.

Recently the General Social Survey, which has been conducted since 1972, found that only 38.2% of people responding to the survey indicated that they were, in general, very happy with their life (Davis, Smith, and Marsden, 2004). While 9% of respondents indicated that they were generally not very happy or not at all happy with their life. Interest in findings like this is understandable. What makes people happy or satisfied with their life? If one were able to answer this question they would seemingly unlock the key to happiness. Unfortunately, it isn't that simple, but this question has still generated many research studies hoping to find the answer to improving people's lives. This is especially true since it is now accepted that the somewhat unchangeable personality variable is not the only variable influencing life satisfaction. It is noteworthy that interest in this topic does not just seem to be culturally bound to western societies either. Diener (2000) points out that students from such diverse countries as Tanzania, India, Bahrain, Argentina, China, etc. report that they often think about life satisfaction and happiness and believe both are very important.

As already mentioned, exercise appears to positively influence a number of areas in a person's life. Could it directly or through indirect means also influence life satisfaction? A few researchers have attempted to find out. Studies have shown that in general, exercise can positively affect

older adult's life satisfaction (e.g. Morgan and Bath, 1998). However, there has been mixed findings across the age spectrum. Melin, Fugl-Meyer, & Fugl-Meyer, (2003) found positive associations between people who are physically active and higher life satisfaction scores. Whereas, Gauvin (1989), Nieman, Custer, Butterworth, Utter, & Henson, (2000), and Ornes, Ransdell, Robertson, Trunnell, and Moyer-Mileur (2005) all found little to no evidence of a direct connection between exercise and life satisfaction. Thus, a strong direct link between life satisfaction and exercise has yet to be established across age groups.

Since no definitive connection has yet been made between life satisfaction and exercise, one might wonder whether exercise exerts a helpful force on a less global scale. As mentioned, overall life satisfaction is both influenced by and influences more specific life satisfaction domains. One of the specific life domains attracting attention in American society is couple satisfaction. Indeed, one need not look far to find some form of media offering tips and suggestions on how to improve one's relationships. Researchers also have been diligent in trying to discover what makes a satisfying relationship, so much so that it is the most investigated topic in the marriage and family literature (Fitzpatrick, 1988; Hicks & Platt, 1970). Through this attention, numerous variables have been linked to couple satisfaction. Some of the more prominent include personality (e.g. Kurdek, 1997), mental health (e.g. McLeod, 1994), coping strategies (e.g. Hoekstra-Weebers, Jaspers, Kamps,

and Klip, 1998), communication (e.g. Fowers, 1998), sexual satisfaction (e.g. Cupach & Comstock, 1990), love (e.g. Sprecher & Regan, 1998), leisure activities (e.g. Beals & Peplau, 2001) and demographic variables (e.g. Whyte, 1990).

Similar to findings on life satisfaction a link between couple satisfaction and exercise has not definitely been established. A few dissertations and journal articles have found mixed results. Notably, Luepnitz (1986) found when both partners in a heterosexual dyad jog they report higher satisfaction scores than when only one partner jogs or neither does. In his research, Maloy (1986) found couple satisfaction scores increased for both partners when just one partner jogged. Rudy and Estok (1990) found no significant difference in relationship satisfaction scores between runners scoring high on an exercise dependency measure and those scoring lower. However, there was a significant and negative difference in relationship satisfaction scores for the partners of those runners having high exercise dependency scores. Baldwin (1998) did not find a significant relationship between running and marital satisfaction but did find one for joggers who felt supported in their running and marital satisfaction. Richards (1986) also did not find a significant effect between exercise and heterosexual couple satisfaction. No studies were reported on exercise and satisfaction in lesbian or gay couples.

Interestingly, some of the variables such as mental health, coping strategies, sexual satisfaction, and leisure activities associated with higher couple satisfaction also seem to be variables that can be positively affected by exercise. For example, Davila, Karney, Hall, and Bradbury (2003) found that if one were able to lessen depressive symptoms one would be able to positively affect a couple's level of satisfaction. A growing body of research indicates that exercise is an effective option in alleviating depressive symptoms. Fincham and Beach (1999) found that negative affect was one of the best predictors of lower couple satisfaction. Again, exercise has been associated with positive changes in affect. Furthermore, other mental health benefits (e.g. reduced stress) and the possibility of having shared time together or maybe even a brief individual respite, make it plausible that exercise could have a helpful effect on couple satisfaction.

### Statement of the Problem

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization (WHO), 1948, p. 100). Interestingly, research on exercise has been shown to positively affect all the variables mentioned above in the WHO's definition of health. From this definition it is clear that for one to be healthy they must achieve an overall feeling of well-being. This subjective well-being is partly made up of cognitive assessments about one's life and



various domains within one's life. However, what makes a good life? This question has been pondered by many a person in both the lay and professional communities. Research has shown a number of different variables to be associated with subjective well-being. Interestingly, good health (both physical and mental) and social well-being are two of the more prominent. If, as mentioned, exercise has been positively associated with these variables should it not be also associated with one's satisfaction with life? Unfortunately, only a few studies have been conducted on this topic and have shown mixed results across the lifespan, except for the positive association found in older adults. Therefore, further research is warranted to help determine if there truly is an association between exercise, areas known to benefit from exercise, and life satisfaction. A clearer picture between exercise and life satisfaction would have important implications for those looking for ways to increase satisfaction with their life or help others in doing so (e.g. counselors).

One domain in life that seems to garner a lot of attention, and thus implies its importance in American culture, is the intimate relationship. This usually means marriage or commitment to a significant other. Unfortunately, statistics show that heterosexual marriages are dissolving at around a 41% (Hurley, 2005) rate and lesbian and gay relationships may be at or even above this rate (Kurdek, 1998). It's clear from the attention relationships get in the form of self-help books, talk shows, and everyday

discussion that they are very important to people. However, many people don't realize just how important the benefits of being in a relationship can be. Increased happiness, lower mortality, and other health advantages are just some of the benefits that might be attained through being in a healthy relationship (Anson, 1988, Waite & Gallagher 2002).

Clearly, finding what can increase satisfaction with one's relationship seems like an important endeavor. Once again it would seem conceivable that the benefits of exercise might be able to positively influence one's satisfaction with their relationship through increasing psychological well-being, increasing physical well-being, decreasing stress, improving sexual satisfaction, and possibly providing together time or, if needed, alone time. As with research looking at exercise and life satisfaction, there have been a paucity of studies done on this area. Furthermore, the studies that have been done have had mixed results and only look at running as an intervention. These studies also do not seem to be sensitive to the possibility of health benefits being gained through physical activity not considered exercise or for that matter, types of exercise besides running. Therefore, it would seem helpful to be able to discern whether any type of exercise/physical activity does indeed help to increase couple satisfaction.

## Purpose of the Study

In their 1997 article, Diener, Suh, and Oishi discuss the purpose of investigating both global satisfaction (e.g. life) and more specific satisfaction (e.g. couple). They write that studying the molar levels of well-being will help one to understand what variables can generally influence subjective well-being. This may be helpful since there are many instances where people experience similar levels of satisfaction across various life domains. Thus, understanding variables that are associated with life satisfaction might help with the understanding of the co-variations of satisfaction found in the more specific life domains. Furthermore, by studying more specific couple satisfaction one may be able to better understand the precise variables that influence it. Diener, et al. also point out that studying narrower domains can result in a higher sensitivity to causal variables. Therefore, this study will investigate exercise's global relationship to life-satisfaction and more specific relationship to couple satisfaction. This study will then contribute to the growing body of literature regarding the influence of exercise on one's overall health.

The present study's purpose is to conduct survey research on couple satisfaction as measured by the ENRICH Couple Satisfaction Scale (Olson, 1996), life satisfaction as measured by the Satisfaction with Life Scale (SWLS) (Diener, et al., 1985), physical health as measured by a health status assessment (Cox, Spiro, & Sullivan, 1988), and levels of physical activity as

measured by the International Physical Activity Questionnaire (IPAQ) (Craig, et al., 2003). In the present study, physical activity that has the potential to result in health enhancing benefits as put forth by USDHHS, (2003) will be referred to as exercise. Studies have shown (e.g. Mann, Hosman, Schaalma, & de Vries, 2004) a link between self-esteem and mental health. For the purposes of this study self-esteem will be used as an indicator of mental health and will be measured using the Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1989). Furthermore, information on variables known to be related to life and couple satisfaction will also be gathered and held constant so that it may be ascertained whether exercising has a relationship to life satisfaction and/ or couple satisfaction after controlling for these variables. Analyses will also be conducted to explore and compare two models of the possible effects of exercise on couple satisfaction and life satisfaction. In one model the effects of exercise are hypothesized to primarily be indirect effects on couple satisfaction and life satisfaction through the variables of physical health and self-esteem. In the second model exercise is hypothesized to have both direct effects and indirect effects through physical health and self-esteem on couple and life satisfaction. Thus, the study will explore which model will better account for the data. The statistical analyses that will be used to investigate the gathered data will include correlational analyses, hierarchical multiple regression, and path analyses.

## Research Questions/ Hypothesis

### Research Question 1

The literature on couples' satisfaction indicates that the variables of communication, love, self-esteem, physical health, and sexual satisfaction are all positively related to couple satisfaction. In order to replicate these findings the question of, "To what extent do the relationship variables of communication, love, self-esteem, physical health, and sexual satisfaction relate to couple satisfaction?" will be studied.

#### Null hypothesis 1a:

Adults who participate in this study will not demonstrate a significant correlation between their overall scores on the Communication Scale, Rubin Love Scale, Rosenberg SES, a health status assessment, Sexual Relationship Scale, and scores on couple satisfaction as measured by the Couple Satisfaction Scale.

#### Null hypothesis 1b:

After controlling for age and gender, the variables of communication, love, self-esteem, physical health, and sexual satisfaction will not

contribute significant unique variance to the prediction of couple satisfaction.

### Research Question 2

To what extent does exercise relate to couple satisfaction?

Null hypothesis 2a:

Adults who participate in this study will not demonstrate a significant correlation between their overall exercise scores on the IPAQ and scores on couple satisfaction as measured by the Couple Satisfaction Scale.

Null hypothesis 2b:

After controlling for age, gender, communication, love, self-esteem, physical health, and sexual satisfaction; exercise will not contribute significant unique variance to the prediction of couple satisfaction.

### Research Question 3

To what extent does exercise relate to life satisfaction?

Null hypothesis 3a:

Adults who participate in this study will not demonstrate a significant correlation between exercise scores on the IPAQ and scores of life satisfaction as measured by the SWLS.

Null hypothesis 3b:

After controlling for age, gender, communication, love, self-esteem, physical health, and sexual satisfaction; exercise will not contribute significant unique variance to the prediction of life satisfaction.

#### Research Question 4

Are the possible effects of exercise on couple and life satisfaction primarily indirect effects through other variables known to be affected by exercise, i.e. physical health and self-esteem, or are the possible effects of exercise on couple and life satisfaction both indirect and direct?

The study will explore and compare two possible models concerning the potential effects of exercise on couple satisfaction and life satisfaction. In one model the effects of exercise are hypothesized to be primarily indirect effects on couple satisfaction and life satisfaction through the variables of physical health and self-esteem. In the alternate second model exercise is hypothesized to have both direct effects and indirect effects through physical health and self-esteem on couple and life satisfaction. The study will explore which model provides a better fit for the obtained data.

## Definitions

Aerobic exercise: Exercise that needs the body to utilize oxygen while being performed. An example of this type of exercise would be endurance training through jogging.

Anaerobic exercise: Exercise that does not immediately need the body to utilize oxygen while being performed. An example of this type of exercise would be strength building through weight lifting.

Couple: For the purpose of this paper, a couple will be defined as any two individuals in a committed romantic relationship. This includes gay, heterosexual, and lesbian dyads.

Couple Satisfaction: The definition of couple satisfaction used in the current study will be a subjective evaluation by one member of the couple based on the happiness or satisfaction derived from their intimate relationship.

Exercise: Traditionally, exercise is defined as any physical activity done above and beyond one's daily routine for the intentional purpose of improving one's health, whether that be mental or physical. In the present study any physical activity that results in the caloric expenditure equal to the minimum



exercise guidelines put forth by the USDHHS (2003), will also be referred to as exercise.

Life Satisfaction: The definition of life satisfaction that will be used in this paper was put forth by Diener, et al. (1985). They stated that life satisfaction is a cognitive judgment process. The judgments in this process are dependent on the comparison of one's situation with that of an appropriate standard, which is set by the individual and not by any outside influences (e.g. researchers, media, etc. stating what the standard should be). These judgments allow one to assess their overall quality of life based on their chosen criteria.

Metabolic Equivalents (METs): One MET is the caloric consumption (energy) used by a person who is at rest or sitting quietly. Stated differently, a single MET is the minimum amount of energy a human needs to use just to continue living. This equals about one calorie per 2.2 pounds of body weight for an adult (Harvard School of Public Health, 2006).

Physical Activity: Any non-sedentary action an individual engages in whether it is through exercise or their normal daily routine that burns extra calories beyond those being consumed while in a relaxed state.

Subjective Well-Being: Diener, et al. (1997), defined subjective well-being as a person's evaluation of their life using variables such as life satisfaction, satisfaction with various life domains (e.g. family, couple, work, etc.), a paucity or lack of negative affect, and a meaningful amount of positive emotions and moods.

### Summary of Chapter I

The purpose of Chapter I was to give a general overview of the proposed research. Chapter I began with an overview of the various findings in the fields of exercise, couple satisfaction, and life satisfaction. These findings will be expanded on in Chapter II. Next, gaps in the literature were noted to identify research that is still needed and will attempted to be addressed in this paper. The methods in which the research for this paper will be conducted were then briefly outlined. This was then followed by the research questions, which will guide this paper's investigation of the relationship between exercise and both couple satisfaction and life satisfaction. Finally, definitions were offered to assist the reader in understanding some of the terminology important to the make-up of this paper and research. The remainder of this paper will be divided as follows: Chapter II reviews in detail the literature related to the stated problem. Chapter III presents the methods by which the stated problem was examined. Chapter IV presents the research results and Chapter V discusses

the findings.

## CHAPTER II

### LITERATURE REVIEW

#### Introduction

This literature review will be divided into the following five sections: exercise, life satisfaction, couple satisfaction, the relationship between exercise and life satisfaction, the relationship between exercise and couple satisfaction, and chapter summary. The first section will look at research related to exercise. Specifically, it will first examine the information known about exercise and its effects on physical health, then the effects of exercise on mental health. The next section will review recent articles and findings around life satisfaction and how it fits into the larger field of subjective well-being. The third section will look at research in the extremely large field of couple satisfaction. This will then be followed by sections reviewing the small amount of research investigating the possible relationship between exercise and life satisfaction, and exercise and couple satisfaction. Finally, a brief summary of the chapter will conclude the literature review.

#### Effects of Exercise

Exercise has been known to have positive physical consequences and this general understanding seems to date back to the time of Herodotus in 5<sup>th</sup>

Century B.C. (Todd, 2002). In more recent times the specific benefits of exercise have been further delineated. For instance, exercise has been shown to help do the following: build and maintain healthy bones, joints, and muscles, improve flexibility, improve cholesterol levels, improve cardiovascular and cardiorespiratory function, increase immunological functioning, result in weight or body fat loss, improve weight maintenance, as well as help in many other areas (Doyle, 1997) including sexual satisfaction (Bortz & Wallace, 1999).

However, out of all of these and more, the most important benefit is the reduced risk of mortality. Blair, et al. (1995) found that males who improved from being physically unfit to moderately fit, over a mean period of 5.1 years, reduced their risk of mortality by 44%. Males, who improved from being moderately fit to physically high fit, reduced this risk by 15%. In an earlier study, Blair, et al. (1989) found that, compared to physically fit women, unfit women had a 4.7-fold increased risk of all-cause mortality. Unfit men, meanwhile, had a 3.4-fold increased risk of all-cause mortality compared to their physically fit counterparts. When just looking at cardiovascular disease, the relative risk of death went up to 8 times more likely for both unfit men and women when compared to physically fit individuals. The benefits of exercise on reducing mortality are further strengthened by the findings of Kujala, Kaprio, Sarna, and Koskenvuo (1998), whose twin cohort study found that physical activity was able to

reduce mortality even after taking into account genetic and other familial factors.

Exercise has also been associated with other physical benefits affecting one's health. In 1996 the Surgeon General (USDHHS) issued a report on health and physical activity. Besides the already mentioned reduced risk of mortality, the report found that physical activity was associated with a reduced risk of coronary heart disease, colon cancer, hypertension, osteoporosis, and diabetes mellitus. In his review of the literature, Burnham (1998) found that exercise can also have positive effects on sinus congestion, fibromyalgia, insomnia, rheumatoid and osteoarthritis, and constipation. Interestingly, Burnham also reports that exercise can also be useful as a diagnostic tool. Medical conditions such as hypothyroidism, bladder cancer, various negative gastrointestinal conditions, and many others may be initially detected through problems first associated with exercise. Of special note is the fact that both Burnham and the Surgeon General's Report (USDHHS, 1996) found that exercise was associated with improved mental health.

The finding that associates enhanced mental health with physical activity may not always be as apparent to an observer as the physical benefits one can gain from exercise. However, vast amounts of research have been done on this topic, with thousands of articles being published, which look into the psychological effects that exercise produces (Plante & Rodin,

1990). Results from these studies have shown such a consistent positive association between exercise and improved mental health that it may now be stated as common knowledge (USDHHS, 1996). Not as commonly known, however, are the specific effects that exercise has on various psychological processes and problems.

### Stress and Anxiety

Stress and anxiety have been associated with various problems including impairment of memory functions (Olton, Becker, & Handleman, 1979), strokes, coronary heart disease, diabetes mellitus, hypertension, cancer, accidents, productivity loss, suicide, and other mental health difficulties (Department of Health as cited in Taylor, 2000). On top of this approximately 28.8% of the population will suffer from a diagnosable anxiety disorder at some point(s) in their life (Kessler, Berglund, Demler, Jin, & Walters, 2005). Exercise has often been thought of when the question of how to reduce stress and anxiety arises. Following a number of smaller literature reviews (Gauvin & Spence, 1996; Landers & Petruzzello, 1994), Taylor (2000) put together a thorough assessment of studies looking at the effects of physical activity on stress and anxiety. From reviews that involved meta-analyses, Taylor found that there was a low to moderate anxiety-reducing effect associated with exercise for the various populations tested. Taylor also

found that 73% of qualitative studies reviewed indicated exercise had anxiety-reducing effects.

Crews and Landers (1987) also found that individuals who were fit, improved their fitness through exercise, or had just completed exercising for the day, recovered quicker after a stressor or did not have as extreme a reaction to that stressor as those who were less fit or who had not just exercised. Similarly, Taylor (2000) found a number of studies indicating that moderate exercising can reduce negative physiological reactions to stressors as well as to help recover from them. Surprisingly, these findings were for just a single session of exercise. Furthermore, Taylor also found that single session exercise could help in the reduction of state anxiety especially when that exercise is an aerobic or rhythmic one. Longer periods of exercise were shown to help reduce trait anxiety across a wide range of people (e.g. active/ inactive, male/ females, etc.). Taylor's review found that studies generally showed at least 10 weeks of exercise were needed for the greatest effects in reducing trait anxiety, with even better benefits at the 15 weeks and over mark. Interestingly, changes in physical fitness did not appear to be requirements for these positive outcomes.

Studies conducted after Taylor's 2000 review have also found positive results in regards to the relationship between exercise and anxiety reduction. For example, in their review, O'Connor, Smith, and Morgan (2000) found brief periods of exercise did not result in panic attacks for individuals



suffering from panic disorder, except in a few isolated cases. Those few cases might be best attributed to chance. However, since the physiological responses to exercise are many times similar to those of panic attacks (e.g. increased heart rate, sweating, etc.) it could be possible an individual might grossly misinterpret these signs as that of an oncoming panic attack or worse, thereby triggering a real panic attack. This possible scenario seems fairly remote as the authors found that in the studies they reviewed 99% of the participants with panic disorder did not experience a panic attack during laboratory exercise that reached maximal and near-maximal intensity.

### Self-Esteem

The importance of self-esteem is illustrated by Fox (2000) in his book chapter reviewing the effects exercise has on self-esteem. In it he writes that high self-esteem has been associated with “life satisfaction, positive social adjustment, independence, adaptability, leadership, resilience to stress, and high level of achievement in education and work” (p. 88). He also reports that it is associated with many healthy behaviors such as eating healthier, playing more sports, lower risk of suicide, not smoking, and exercising more. On the other hand, he states low self-esteem often “accompanies depression, trait anxiety, neuroses, suicidal ideation, sense of hopelessness, lack of assertiveness, and low perceived personal control” (p. 89). Mruk’s review of the literature (as cited in Bagley & Mallick, 2001) indicates that self-esteem

is a common covariate of mental health problems as well as a predictor of vulnerability to and recovery from mental health problems. Mann, et al. (2004) state that “self-esteem is not only seen as a basic feature of mental health, but also a protective factor that contributes to better health and positive social behavior through its role as a buffer against the impact of negative influences” (p. 358). These authors go on to say that not only is high self-esteem correlated with good mental health, but that low self-esteem might actually be a casual factor in a number of mental illnesses (e.g. depression, anxiety, eating disorders, etc.). Clearly, the importance of having and maintaining or improving one’s self-esteem is evident.

In drawing from the literature, Fox (2000) describes Shavelson, Hubner, and Stanton’s model of hierarchical self-concept (as cited in Fox, 2000) to illustrate how exercise can and does have an effect on self-esteem. He writes that self-esteem represents a general overview of one’s more specific areas of self-concept such as academic, social, emotional, and physical self-concept. Thus, since exercise can affect one’s physical self-concept, it can then also affect one’s self-esteem. Indeed, Fox writes that the strongest correlation ( $r = 0.6- 0.8$ ) throughout the lifespan with self-esteem is body image. The author also points out that exercise’s mood enhancing effects, its ability to bring people together socially, and its effects on one’s overall feelings of competence also can positively affect self-esteem.

Indeed, 28 out of the 36 studies reviewed by Fox (2000) on this topic showed exercise was associated with positive changes in participants' physical self-esteem or self concept with approximately half showing overall self-esteem improvement. The less than overwhelming finding regarding exercise's effect on overall self-esteem was explained by Fox as a product of self-esteem drawing from a wide range of life events and thus not as susceptible to significant change. Strelan, Mehaffey, and Tiggermann (2003) in their research study found the motivation for exercising might have profound effects on whether it improves self-esteem or not. When studying young women's motivation to exercise, these authors discovered that participants who were high on self-objectification and trying to meet societal standards did not report the self-esteem raising benefits of exercise that women low on self-objectification did. Strelan and Hargreaves (2005) followed this study up with one on men and women and found similar results. In fact, these authors discerned that men were just as likely as women to exercise for self-objectification related reasons and when doing so also did not reap the self-esteem enhancing properties exercise provided to those who were exercising for fitness or fun. These studies show exercise participants might be affected differently. In fact, various studies showed children and adolescents increased self-esteem through involvement with exercise, whereas other age groups were not as affected in terms of self-esteem, but did experience other positive psychological effects (e.g. improved self-perception)

(Fox, 2000). Finally, Fox (2000) reported that type of exercise might make a difference as he found resistance training was better able to improve body image and physical self-esteem than endurance training was in the various studies reviewed.

More recently, in their review of the literature Spence, et al. (2005) found that exercising brought about small change in overall self-esteem (effect size = + .23). Their findings were based on 113 published and unpublished studies and 128 effect sizes derived from those studies. They also discovered that the type of exercise program and whether there were changes in physical fitness were moderating factors. More specifically, those who were part of exercising programs or programs dealing with lifestyle change that involved exercise reported higher self-esteem than those merely doing skill building exercise. Furthermore, those participants who significantly and positively altered their physical fitness levels also reported increases in their self-esteem levels. Overall, it seems that exercise does help to increase self-esteem. However, there are certain variables that moderate these effects including, motivation for exercise, type of exercise regimen, and whether or not there was a change in physical fitness.

### Mood

In their lifetime, it is estimated 20.8% of Americans will experience a diagnosable mood disorder with 16.6% of those disorders being depression

(Kessler, et al., 2005). Thirty-three percent of adults may be affected by severe and/ or persistent symptoms of a mood disorder in their lifetime (Weissman, Bruce, Leaf, Florio, & Holzer, 1991). Of the various mood disorders (e.g. bipolar, dysthymia, etc.) depression is the most common. Interestingly, exercise and physical fitness form a unique relationship with depression. Both have been found to be inversely related to symptoms of depression (Stephens, 1983) and they even have been found to help alleviate it as well. In her 2000 review of the literature, Mutrie pointed out that the benefits of exercise to help ease depressive symptoms were clear. Indeed, she stated that both aerobic and anaerobic exercise have been found to be effective in combating depression and are especially effective when used as adjuncts to regular therapy. Mutrie (2000), and in their review of the literature Brosse, et al. (2002), even found a number of studies showing exercise to be just as effective as both individual and group therapy in reducing depressive symptoms. Furthermore, Brosse, et al. (2002) found that 2 out of 3 studies they reviewed comparing exercise to social contact indicated that exercising's healing effects went above and beyond the healing effects of social contact that many suffering from depression also find helpful. In the one study that found social contact and exercise to be equally significant in the decrease of depressive symptomology, only the exercise group also experienced a reduction in somatic symptoms of depression.

Just as impressive, Blumenthal, et al. (1999) found an aerobic exercise regimen lasting 16 weeks was just as effective as using Zoloft for that same time period or combining both Zoloft and exercise. In a follow-up study using the same participants, Babyak, et al. (2000) found those in the exercise-only group were more likely than the other two groups to be partially or fully recovered at the 6 month mark after treatment. Indeed, only 8% of the participants in the exercise-only group suffered a relapse as compared to 31% in the combination group and 38% in the Zoloft-only group. The authors attributed the surprising find that the combination group was not more effective to the idea that exercise promotes a feeling of individual mastery and positive self-regard, which might have been undermined by the addition of medication in the combination group. On the whole, however, Brosse, et al. (2002) do express some concerns over the methodology of some of studies reporting the very positive results of exercise's effect on the treatment of depression.

In his 2000 review of the literature, Biddle found that exercise was consistently correlated with positive mood and affect in non-clinical individuals. Although he discusses some reservations about a number of the research designs in the studies he reviewed, this seems to be alleviated by the consistent findings across various populations (e.g. gender, able bodiness, etc.), countries, research methods, and instruments used that all seemed to point to a positive correlation. Biddle also found that the intensity of the

exercise might have a large effect on exercise's mood changing ability. Moderate intensity seemed to enhance mood better than high intensity workouts. However, one study reviewed indicated that this effect may be due to the sensation of exertion and fatigue associated with high intensity workouts and that the mood enhancement may be delayed more so than in moderate intensity exercise. Interestingly, it was also delineated that positive mood has been positively associated with having a goal during exercise that has one work toward personal improvement, mastery, as well as focusing on effort. Finally, Biddle writes that exercise has been negatively associated with anger, fatigue, tension, and even confusion, while being positively associated with vigor.

Brosse, et al. (2002) also found a number of studies that showed healthy, participants not diagnosed with depression were also helped by exercise to reduce any depressive symptoms that they did have. The authors do point out a few other studies did not reach this same conclusion at a significant level, but explain these contradictory results through the floor effect, which basically means those with few symptoms of depression would have less room to improve than those with more symptoms. In their review of the literature, Berger and Motl (2000) found that exercise has been associated with significant mood changes in the non-clinical population. These authors even suggested that the exercise should be rhythmic, predictable, non-competitive, moderately intense, and last between 20 and 30

minutes to maximize the mood changing benefits of the activity. In their research study on women, Milton, Lane, and Terry (2005) found that exercise helps to induce mood change regardless of one's personality. They also found that, similar to previous research, mood change occurred regardless of the type of exercise as long as the criteria put forth by Berger and Motl (2000) (above) were met. Overall, many studies have shown the positive effect exercise has on inducing mood change in both non-clinical and clinical populations.

### Substance Abuse

In a 2002 report the Substance Abuse and Mental Health Services Administration (SAMHSA) estimated that 22 million Americans had problems with substance dependence or abuse. The report further detailed that 7.7 million people or 3.3% of the total population needed treatment for a diagnosable drug problem. Another 18.6 million people or 7.9% of the population needed treatment for a serious alcohol problem. A major complication of treating people with substance use disorders is that over an estimated 94% of sufferers were not motivated to seek any assistance for their problem (SAMHSA, 2002). Making things worse, Tsukue and Shohoji (1981) pointed out that many people who abuse alcohol are in poor physical condition. Furthermore, Agne and Paolucci (1982) indicated that many people with substance use disorders seem to be unable to engage in fun



activities without their chemical of choice. Since exercise in and of itself, and when implemented as sport, can result in both the increase of physical fitness and the individual having fun, it has been put forth as a possible adjunct to substance use disorder treatment. Sinyor, Brown, Rostant, and Seraganian (1982) reported that the reorganizing of leisure time to include exercise may help people with substance use disorders remain abstinent. Smith and Meyers (1995) suggested that the development of rewarding and enjoyable social and recreational activities that do not involve substances is critical for recovery.

In their review of the literature Read and Brown (2003) pointed out that exercise can help to reduce stress reactivity and therefore possibly replace substance use as a primary coping mechanism. These authors reported that, although only two controlled studies have been conducted to investigate the effects of exercise intervention on alcohol use, physical activity remains a viable and positive possibility for treatment. In the earliest controlled study, Sinyor, et al. (1982) found that 69.3% of participants who engaged in a regular exercise program while receiving inpatient treatment remained abstinent at a 3 month follow-up. On the other hand, of those not participating in the exercise regimen, only 38% remained abstinent. Individuals who were in different treatment centers and also did not participate in an exercise program had a 36.9% abstinence rate. The second controlled study done by Murphy, Pagano, and Marlatt (1986) used

heavy drinking college students as participants. This study found that those assigned to either a running or meditation group showed significant decrease in alcohol consumption when compared to participants in the control group. In other studies, Palmer, Vacc, and Epstein (1988) found participants who regularly exercised while in an alcohol inpatient treatment program were significantly less depressed than individuals who did not participate in the physical activity. Other studies in the exercise and alcohol recovery area focused primarily on improving physical health. These studies, such as Tsukue and Shohoji (1981), Murphy (1970), and Gary and Guthrie (1972), all showed improvements in physical health for those recovering from alcohol abuse or dependence.

In reviewing the neurological processes associated with alcohol addiction, Read and Brown (2003) indicated that exercise may have similar pleasurable neurological effects as those produced through the use of alcohol or other substances being abused. Smith (1984) reported that the cardiopulmonary stimulation provided through exercise could also prove to be useful as a way to reduce drug cravings and anxiety during recovery for individuals abusing cocaine. Galanter and Kleber (1999) indicated that because many PCP abusers have a difficulty with a sense of contact with their bodies, it may be helpful to use exercise programs or athletic activities to help restore a healthy body image. In their 2000 study Ussher, et al. found exercise to be only moderately successful in aiding smoking abstinence.

However, in their review Read and Brown (2003) found a number of correlational studies that showed increased physical fitness levels were associated with decreased smoking. Furthermore, the experimental studies reviewed by Read and Brown showed that exercise was linked to the initial smoking cessation, decreased cravings, decreased nicotine withdrawal, as well as long-term abstinence. Overall, there have not been many studies on the effects of exercise in reducing substance use or abuse. However, from the ones that have been done, there have been positive findings. Still further, researchers (e.g. Read & Brown, 2003) point out that many benefits of exercise (e.g. improved self-concept, improved physical health, etc.) theoretically seem likely to be very helpful to recovery from a substance abuse disorder.

### Dysfunctional Exercise

Although the benefits of exercise can clearly be seen, there is a somewhat, albeit rare, dark side. In moderation there are few if any negative consequences to regular exercise, however, a very small part of the exercising population does take it to extremes. Szabo (2000) writes that this extreme can become dependence especially if there are mental health issues also at work. Research indicates that some individuals with eating disorders will overuse exercise to assist with weight loss or maintenance. This is referred to as secondary exercise dependence, which means a person is using exercise

as a tool to assist with something else like weight loss. In primary exercise dependence, the exercise in and of itself is the end goal. Some symptoms of exercise dependence are as follows: difficulty resisting urge to exercise, exercise greatly interferes with other life activities, social withdrawal, self-injury as well as exercising through said injury, intensity of exercise increases to attain satisfaction previously achieved with less exercise, as well as other negative consequences (Rudy & Estok, 1990; Szabo, 2000).

Szabo (2000) indicates that exercise dependence is usually the result of a coping mechanism gone awry. Indeed, she writes that over exercising is associated with low self-esteem, distorted body image, anxiety, and, as mentioned eating disorders. Spano's (2001) research also indicated that an excessive amount of exercise is associated with anxiety as well as obsessive-compulsiveness, and narcissism. Thus, exercise dependence appears to be more a symptom of psychological dysfunction, than a cause of it.

### Summary

In summary, exercise has been clearly and unequivocally shown to improve one's physical health as well as decrease the risk of various diseases and injuries. It has also been proven to be a great asset in improving one's mental health as well. Indeed, exercise has been shown to help with stress reduction and have a moderate effect on reducing anxiety. Numerous studies have shown exercise also helps prevent and alleviate depressive symptoms in

both clinical and non-clinical populations. Self-esteem also seems to be positively affected by exercise at a moderate level when increased physical fitness occurs, when part of an exercise program, or when the motivation for exercise is not solely based on improving one's appearance. Exercise also seems to be a promising approach to assisting individuals with substance abuse problems. However, it appears that more studies are needed in the substance abuse treatment area before a final conclusion can be made on exercise's effectiveness in this realm. Finally, extreme exercise to the point of dependence might be indicative of underlying psychological dysfunction.

## Life Satisfaction

### Subjective Well-Being

The key to happiness is something philosophers and lay people have pondered for centuries. Even the term *happiness* has raised some questions that need clarification. Some might say that being satisfied with one's life might be enough to be happy. However, although being satisfied with one's life appears to be a necessary aspect in being happy, *life satisfaction* is not another term for *happiness*. Indeed, the term, *subjective well-being* may be more accurately labeled or thought of as being a substitute for happiness (Diener, 2000). Life satisfaction, however, does make up one of the four main components of subjective well-being along with positive affect, negative affect, and satisfaction with important life domains (e.g., couple satisfaction,

family satisfaction, career satisfaction, leisure-time satisfaction, etc.) (Diener, et al., 1997). Subjective well-being, therefore, consists of both cognitive and affective evaluations. On the other hand, life satisfaction is defined as a cognitive assessment of the overall quality of life a person has, based on certain criteria chosen by that person. These criteria are created by the standard to which a person compares himself or herself and can only be set by them and not an external source (Diener, et al., 1985). In other words, this cognitive judgment process is based on what an individual thinks is important in assessing life in general and not what others may think is important.

Thus, to understand the more specific idea of life-satisfaction one might find it useful to first understand the more encompassing idea of subjective well-being. In their review of the findings in the field of subjective well-being Diener, et al., (1997) discuss various factors thought to affect it. One of the most accepted and dominating factors is personality or temperament. The basic premise of this theory is that subjective well-being is fairly stable due to the influence of one's personality, which is in and of itself fairly stable. The authors cited numerous studies that gave credence to the importance of genetics on both positive and negative affect. Indeed, one study reviewed claimed that heredity can explain an estimated 80% of variability in long-term negative affect. Other evidence put forth showed that individuals who go through major life changes (e.g. divorce) are no more

or less stable over the long term than people not going through these changes.

If personality or genetics were the lone reason for one's subjective well-being than searching for what makes people happy would be a moot point as happiness would be somewhat predetermined. Fortunately, for those looking to increase their sense of well-being other research has shown there are other factors at work besides personality. Indeed, Diener, et al. (1997) write that people may be able to increase their subjective well-being through the control of their thoughts. Studies showing religious people being happier than nonreligious people were used as support for that proposition. Furthermore, it has been found that thoughts can have a regulating effect on emotions, thereby limiting their intensity. Diener, et al. indicated that people with high subjective well-being interpret neutral happenings as positive. Finally, Leung, Moneta, and McBride-Chang (2005) reported that optimism about one's future can also lead to increases in subjective well-being through the fostering of self-esteem, which Diener (1984) reports is one of the strongest factors predicting subjective well-being.

Cultural influences are thought to play a role in one's subjective well-being as well (Diener, 2000; Diener, et al., 1997). The authors point out individualistic cultures tend to report higher subjective well-being than collectivistic cultures. However, people in these individualistic cultures who blame or credit themselves for external events seem to experience more

extreme patterns in levels of subjective well-being. Conversely, collectivistic cultures may have a greater proportion of the population in the middle of the well-being scale rather than at one of the extremes. In other words, they may have both fewer happier and sad people than individualistic cultures.

Diener, et al. (1997) reported that previous research has found demographic variables only slightly correlated with subjective well-being. However, some variables found to be consistent predictors were marriage as reported by both sexes and possibly income when at lower levels and affecting one's basic needs.

Finally, three context theories that also explain subjective well-being were outlined by the authors. These three theories are adaptation, social comparison, and values, goals and meaning. Adaptation theory states that people have a set baseline to which they will inevitably return (Brickman & Campbell, 1971). Thus, an extremely positive or negative event may cause an increase or decrease in subjective well-being, however, after some time the individual will return to their subjective well-being baseline. In a study by Silver (as cited in Diener, et al., 1997), individuals who had suffered a spinal cord injury initially reported feeling a lot of negative affect, but after only eight weeks these individuals were again experiencing pleasant affect at a greater rate than negative affect. However, Diener (2000) notes that some refinement of this theory has taken place and that people may actually not fully go back to neutrality, but may instead reset to a more positive set point



depending on the event.

Initially, those adhering to the social comparison theory of subjective well-being believed that individuals simply compared themselves to those around them and whether they were better off or not. This simplified approach led to lower estimates of positive subjective well-being than what was actually being found. More recently, data has indicated that people can selectively choose whom they compare themselves to, thereby improving their subjective well-being by increasing their motivation, boosting their mood, and gaining knowledge (Diener, et al., 1997).

Finally, in the theory of subjective well-being regarding values, goals, and meaning it is thought that positive well-being is achieved when goals and needs are satisfied. Indeed, even progress towards goals can have a positive effect on well-being. Conversely, slow to no progress towards goals can have a negative effect. When goals, which are related to one's values, are intrinsic in nature they better predict subjective well-being than if they were extrinsic in nature. Thus, as a person strives to fulfill their goals and meet their values they are also reaching for meaningfulness in their lives (Diener, et al., 1997).

### Life Satisfaction

Those same processes that seem to shape subjective well-being, most likely are at play as the more specific life satisfaction is formed. Research on

life satisfaction is usually divided into two major traditions that have attempted to study and understand it. These traditions are social cognition and personality (Schimmack, Diener, & Oishi, 2002).

The personality tradition has found that life satisfaction judgments can be stable and that they might be linked to the long-term influence of an individual's personality. For instance, research in this area indicates factors such as extroversion and neuroticism are very reliable predictors of life satisfaction (Diener & Lucas, 1999). The theory that helps explain these research findings is the top-down theory. It posits that a personality type such as pessimism will resonate throughout one's life and therefore influence the way the person perceives life. The personality view, therefore, does not provide much hope to finding the "key to happiness". Indeed, Lykken and Tellegen (1996) write that due to the findings on this topic one might conclude that "trying to be happier is as futile as trying to be taller" (p. 189). This view underscores the belief that genetics plays the key role in overall happiness. Thus, life satisfaction judgments are thought to be influenced and dominated by the individual's overarching personality make-up rather than the accumulation of positive or negative experiences.

On the other hand, the social cognition tradition has investigated the thought processes surrounding a judgment on life satisfaction and provides a much more optimistic view on being able to change one's satisfaction with life. Indeed, although such social cognitive factors such as goal progress, self-

efficacy, outcome expectations, and resources all are important, one hallmark of the research in this area is the antithesis of the personality perspective, the ability to make significant changes.

According to Schwarz and Strack (1999), the social cognition tradition illustrates how life satisfaction judgments can be influenced by information that is only temporarily available. For example, the authors showed respondents reporting higher life satisfaction while in the presence of a confederate with a disability than when not in the confederate's presence. At the same time, irrelevant but accessible information would be ignored when making a judgment. For example, an individual would not take into account academic performance if they were no longer in school. Thus, the authors put forth the claim that life satisfaction judgments are made on information that is readily available and relevant to the person making the decision. Since availability and relevance can change, the social cognition tradition implies, unlike the personality tradition, that life satisfaction judgment can be somewhat context dependent and variable over time. Overall, it is believed at any given time a person would be able to summarize the accessible and relevant information and make a judgment on their satisfaction with life (Schimmack, et al., 2002). In other words, the judgment would be based on a summation of a variety of experiences and moments that have happened over the course of one's life. This is also commonly referred to as the bottom-up theory.

Veenhoven (1996) lists some contexts found to be more favorable to positive life satisfaction. Higher life satisfaction appears in nations where human rights and political freedom are practiced as well as there being more social equality and access to knowledge. As with subjective well being, income plays little role in life satisfaction unless it effects one's ability to meet basic needs. Overall, Veenhoven writes that socio-demographic variables account for less than 10% of the variance in life satisfaction. Life satisfaction has also been linked to the presence and quality of intimate ties, with intimate partners being more important than ties with friends or family. Anderson and Randlet (1993) found no significant difference between heterosexual and gay and lesbian couples on measures of life satisfaction. Partaking in volunteer work and interacting with society in other ways was reported by Veenhoven (1996) to account for another 10% of variance. Life satisfaction also was reported to be positively linked to people in good physical and mental health, who have a lot of energy. Veenhoven links another 30% of variance in life satisfaction scores to variables related to personality. This was especially true for those who feel an internal locus of control and are socially extroverted and those open to new experiences. Finally, another 25% of variance was reported to be explained by life events and the balance between the positive and negative of those events.

### Integrative Model

Brief, et al. (1993) developed a model that integrated the seemingly divergent approaches of personality and social cognition. In it, the authors suggested that individuals interpret life circumstances through the use of previous objective life circumstances as well as their personality. This combined view of a particular circumstance then goes on to influence the satisfaction with one's life. For example, a person's health satisfaction is influenced by their actual health history, their perception of that history, as well as by their personality. The domain of health satisfaction then has an influence on one's overall satisfaction with life. Furthermore, Brief, et al. indicated that personality traits prevent interpretations about life circumstances from fluctuating too much since they provide some stability in how those particular events are interpreted.

Schimmack, et al. attempted to build on these ideas in their 2002 studies of life satisfaction of university students in which the SWLS was the primary instrument used. They found that individuals draw upon various sources to make life satisfaction judgments and these sources differ from individual to individual. Hence, varying levels of importance are placed on particular experiences, which can be influenced by one's culture, family, personal experiences, etc. They also found that life satisfaction judgments were made through the compilation of past experiences, which the individual was able to draw on to make life satisfaction judgments. However, these

sources proved to be stable and reliably accessible due to one's personality. The authors also reported that due to the multiple sources used in making life satisfaction judgments, it is possible to have temporary changes in life satisfaction due to particular events (e.g. Spring Break), but other sources will provide more stability (e.g. family satisfaction). Thus, this can help explain both the instability and stability in life satisfaction found in previous research.

Similarly, Fujita and Diener (2005) found that over long periods of time there is stability in life satisfaction that fluctuates around a consistent set point. However, about 25% of the participants in their study did have significant shifts in life satisfaction despite stabilizing personality characteristics. The authors write, "because life satisfaction is influenced by personality and yet is less stable than personality, the influence of changeable environmental factors appears to substantially influence well-being, again pointing to the fact that the set point for life satisfaction is not set in concrete" (p. 163). However, they do report that having either a less reactive personality or stable life events can increase the likelihood of long-term and somewhat more stable life satisfaction.

Lent (2004) proposed a model that showed social cognitive and personality factors not only influence life satisfaction, but also domain satisfaction. He also put forth the belief that domain satisfaction and life satisfaction actually influence each other in a bidirectional manner. Thus, if

a person is, for example, in a satisfying intimate relationship he or she might be more likely to have elevated life satisfaction. Likewise, if they already had high life satisfaction they might then be more likely to be satisfied with their intimate relationship. Lent, et al. (2005) found that satisfaction in life domains that were particularly valued, were able to explain unique variance in life satisfaction after controlling for personality factors. In fact, the authors found life domain satisfaction to be the most consistent predictor of life satisfaction especially when multiple life domains were included. However, like previous studies the authors also found a major link between personality and social cognitive factors both influencing overall life satisfaction. These theories, like Brief, et al. (1993) reinforce that an integrated approach to understanding life satisfaction may be more appropriate than the distinct and seemingly disparate approaches of social cognition or personality.

### Summary

Subjective well-being is an encompassing term that seems to approximate happiness. It is influenced by life satisfaction, life domain satisfaction, positive affect and negative affect. Life satisfaction is a cognitive judgment that is influenced by both one's personality as well as by social cognitive factors like goal progress. The combination of these factors results in both stable scores, usually over the long term, and unstable scores, usually

over the short term. It is also important to note that life satisfaction appears to both influence and be influenced by life domain satisfaction. This is especially true when a number of life domains are combined and they are particularly valued.

### Couple Satisfaction

One of those life domains that may be important to the makeup of subjective well-being and life satisfaction is relationship satisfaction. In terms of relationships in today's culture, the intimate committed couple is usually considered the pinnacle to which individuals strive. This makes it likely that it will be highly valued by individuals. Indeed, from a very early age, many Americans are taught that they should be searching for their "soul mate," or "true love." This is the person with whom a monogamous commitment is to be made and the rest of one's life is to be shared. Even many of the fairy tales that we heard as children inevitably ended with the couple living the proverbial "happily ever after." Unfortunately, Hurley (2005) writes that demographers believe divorce rates are around 41%. The majority of these marriages ending in divorce will have ended within their first four years (Fisher, 1992). For lesbian and gay couples the percentage of committed relationship dissolution has not been as thoroughly tracked—partly due to the somewhat invisible nature and marginalization of this community. However, Kurdek (1998) did find that lesbians and gay men



reported more relationship break-ups when compared with heterosexuals. It is, therefore, probably safe to say that relationship disintegration is a common and important issue for people regardless of sexual orientation.

The physical and mental well-being of a person is part of the importance that can be associated with maintaining an intimate relationship. Indeed, in their research Anson (1988) and Lund et al. (2002) discovered that having a partner to cohabit with results in lower mortality rates. Waite and Gallagher (2002) write that married people live healthier (both physically and mentally), happier, and more sexually satisfied lives than their single or divorced counterparts. Bloom, Asher, and White (1978) state that one of life's most traumatic events is a divorce and that divorce is associated with a number of physical and psychological problems. In the face of such evidence, the issue that needs to be addressed then is why couples don't stay together.

Exchange theory offers one perspective, as it would suggest that individuals are weighing the rewards and costs of the relationship. In their discussion of Thibaut and Kelley's (1959) work, Sabatelli and Shehan (1993) point out that when the outcomes of these rewards and costs are evaluated, the individual is likely to be either satisfied and stay, or unsatisfied and possibly leave. However, they also note that a person can be satisfied with a relationship, but feel there are better alternatives outside of the relationship and possibly still leave. In a similar manner, individuals who are not

satisfied with a relationship might feel that there are no good alternatives outside of the current relationship and therefore remain in the unsatisfying dyad. Sabatelli and Shehan go on to explain that satisfaction is not merely a rewards versus costs equation. Instead, experience and expectations must also be considered when thinking about what one person feels is satisfying or not. In sum, although being satisfied with one's relationship does not automatically mean a couple will choose to stay together, it certainly can be a positive influence for them to do so. The question that then seems to follow this concept is, "What makes a relationship satisfying?" This is a question that a great number of researchers have been trying answer. In fact, couple satisfaction in the heterosexual marriage/ couple literature is the most researched topic area (Fitzpatrick, 1988; Hicks & Platt, 1970). On the other hand, the marginalization and stigmatization of the gay and lesbian community has resulted in a paucity of research on gay and lesbian couples' satisfaction. Consequently, the majority of the research that is cited in this paper on couples' satisfaction was based on heterosexual couples.

When attempting to look at the findings in the couple satisfaction literature, it becomes clear that a large amount of research and a wide range of definitions dominate this topic area. Indeed, there are several difficulties that arise for the field when it comes to defining what is meant by *couple satisfaction*. For instance, Erbert and Duck (1997) found that *satisfaction* was used synonymously with such terms as quality, adjustment, functioning,

well-being, and success. Adding to what Erbert and Duck call definitional and conceptual problems, is the fact one needs to take into account the word preceding satisfaction—*couple*—can also be interchanged with other terms in the literature. These include: relationship, partner, dyadic, and the more exclusive term-marital. With the various combinations, it can be a complicated task delineating exactly what is intended by the author(s) of a research study. In their attempt to add some clarity to what is meant by couple satisfaction, Erbert and Duck (1997) defined it as “a subjective evaluation by each relational partner of the quality, or happiness level, within an intimate relationship” (p.194). This definition was the criterion that the various terms (e.g. dyadic adjustment, etc.) found throughout the literature were compared to ensure that the variable being researched was indeed couple satisfaction. Satisfaction will be the term preferred over others for use in this paper to maintain clarity. However, the term, couple, will be interchanged with various terms (e.g. relationship) with the stipulation that these terms refer only to intimate couples and not other types of dyads.

The extensive amount of research in the area of heterosexual couple satisfaction has found that a great number of variables are positively correlated with a couple's satisfaction. These include but are not limited to; a lack of depression and certain attribution styles (e.g. making positive attributions for partners behavior)(Finchman & Bradbury, 1993); lack of children (e.g. Cowan & Cowan, 1992); certain conflict resolution styles (e.g.

mutually acceptable resolutions)(e.g. Cramer, 2000; Kurdek, 1995); certain personality characteristics (e.g. low neuroticism) (e.g. Kelly & Conley, 1987; Lester, Haig, & Monello, 1989); certain demographic and relational characteristics, (e.g. age at marriage)(e.g. Whyte, 1990); gender (e.g. being male)(e.g. Acitelli & Antonucci, 1994; Fowers, 1991); love (e.g. Barnes & Sternberg, 1997; Contreras, Hendrick, & Hendrick, 1996); equality and reciprocity (e.g. Ray, 1990); relational expectations (e.g. Kelley & Burgoon, 1991); satisfaction with dual career lifestyle (Perrone & Worthington, 2001); self-disclosure (e.g. Derlega, 1984; Hendrick, 1981); sexual satisfaction (e.g. Haavio-Mannila & Kontula, 1997); and social support (e.g. Allgood, Crane, & Agee, 1997; Bryant & Conger, 1999). Although gay male and lesbian couple satisfaction studies have been much fewer, a number of factors have been identified that positively correlate with relationship satisfaction for them as well. These include, but are not limited to: social support, high expressiveness, problem solving, low self-consciousness (Kurdek, 1988, 1991a); certain personality characteristics (e.g. low neuroticism)(e.g. Kurdek, 1997); a greater number of years of cohabitation (Kurdek, 1988); children (lesbian couples) (Koepke, Hare, & Moran, 1992); equality and partner similarity (e.g. Peplau, 1983); feeling in power, dyadic attachment, (e.g. Eldridge & Gilbert, 1990); and intimacy (e.g. Eldridge & Gilbert, 1990; Scheurs & Buunk, 1996).

These and many more correlates have resulted in literally thousands of articles being published on the subject. Therefore, this chapter will look at important areas within the recent relationship satisfaction literature that seem to best predict satisfaction. Findings for heterosexual, gay, and lesbian couples will be included. The literature, however,—with a few exceptions (e.g. Kurdek, 1997, 1998)—usually keeps these two communities separate when looking at relationship satisfaction. Cabaj (1988), nevertheless, states that a great amount of similarities exist between gay, lesbian, and heterosexual relationships, due to the fact they share core features common in any intimate relationship regardless of sexual orientation. “The major differences are that homosexual relationships are between two people of the same sex, and that these partnerships are not sanctioned by most of society” (p. 21). It is unfortunate then, that not all the variables reviewed within this paper have research studies for couples regardless of sexual orientation. Consequently, certain sections do not include findings for both heterosexual and gay and lesbian couples. For this reason and for the sake of brevity and clarity, future terminology referring to couples will be in reference to heterosexual couples unless otherwise indicated.

Whisman (1997) states that satisfaction and its determinants can reciprocally influence one another. Therefore, he has proposed a heuristic model that breaks down the correlates of couples’ satisfaction into three categories. These three categories are personal or individual factors,

interpersonal factors, and social or environment factors. Within this model, characteristics in each of the three categories can influence other characteristics within their own category or that of other categories. Trying to place research studies neatly into categories can be difficult. However, it will be the three aforementioned Whisman (1997) categories that this paper will use when reviewing the factors that are related to couple satisfaction. Under each of the category headings, the foundation for what is known about particular variables will be briefly reviewed. A short review of pertinent articles from the recent literature and a brief summary of the articles' findings and significance will then follow. This section on couple satisfaction will then culminate with an overall summary.

## Personal/ Individual Factors

### Personality/ Temperament

What one partner brings to a relationship can be very important in determining a couple's satisfaction. For instance, self-esteem has been positively associated with marital satisfaction (Luteijn, 1994; Roberts & Donahue, 1994), whereas neuroticism exhibited by either partner has been consistently linked with lower dyadic satisfaction for both lesbian and gay couples (Kurdek, 1997) as well as heterosexual couples (Kelly & Conley, 1987; Kurdek, 1997; Lester, Haig, & Monello, 1989; Szopinski, 1980). Similarly,

Caughlin, Huston, and Houts (2000) found that a partner's satisfaction was detrimentally influenced by the negativity of their spouse. These authors identified that having individuals with high trait anxiety in a relationship predicted both early and late marital dissatisfaction—as measured by the Marital Opinion Questionnaire—for their husband or wife. Similarly, there was a correlation between individuals exhibiting low trait anxiety and higher marital satisfaction along those same dimensions. Significantly, this study found that trait anxiety affects couple satisfaction through interpersonal processes—specifically communication—and not through an intrapersonal process where an individual's trait anxiety would predict just their own satisfaction. That is, trait anxiety and the negativity associated with it, seemed to decrease the partner's satisfaction through communication channels. In fact, it predicted the decline of husbands' satisfaction over the first 13 years of being married and was directly related to wives' satisfaction as well.

Interestingly, Blum and Mehrabian (1999)—while using the Marital Satisfaction Scale—seemed to find that interpersonal processes had mixed results on relationship satisfaction when looking at individuals' temperament. For instance, they found people who had more pleasant temperaments were more likely to be satisfied regardless of their mate's temperament. However, they discovered that having a mate with a pleasant temperament also resulted in higher satisfaction scores. Another intriguing

finding was that husbands' happiness depended more on their own psychological adjustment-maladjustment, while wives' satisfaction depended more equally on the adjustment-maladjustment of both partners. The authors explained this finding in terms of women possibly having greater empathy and therefore being more susceptible to changes in their own satisfaction due to others. Finally, the authors also discovered that individuals who dominate more than they are dominated reported higher relationship satisfaction, whereas females who were submissive reported lower levels of satisfaction. These and Caughlin et al.'s (2000) findings give further proof that what an individual brings to the relationship in terms of personal characteristics can have significant effects on couple satisfaction. It is also interesting that in the Caughlin et al. study, the researchers found problems in interpersonal processes (i.e. communication) served to erode away satisfaction in the relationship, while in Blum and Mehrabian's (1999) study certain individuals seemed impervious to an unpleasant partner. It's possible, however, that an overall negative personality, as pointed to in Caughlin et al.'s (2000) study, can wear down the satisfaction even in an individual with a most pleasant temperament.

### Physical and Mental Health

Both physical health and mental health have been associated with marital satisfaction. In terms of physical health, findings such as reduced



severity in symptoms of rheumatoid arthritis (Roth-Roemer & Robinson Kurpius, 1996) and menopause (Robinson Kurpius, Foley Nicpon, & Maresh, 2001) have been linked to positive marital satisfaction. Women in satisfying marriages were also found to have less atherosclerosis than women in low-satisfying marriages (Gallo, et al., 2003). Hawkins and Booth (2005) found that people in dissatisfying marriages reported lower levels of health than those who have divorced and remain unmarried. In there 1993 study Levenson, Carstensen, and Gottman found that in dissatisfied marriages wives reported having more physical and psychological health problems than did their husbands. Overall, satisfied married couples reported having better physical health and psychological health than did dissatisfied couples. Indeed, a much greater amount of research has been done on the psychological benefits and associations of couples' satisfaction. Horwitz, McLaughlin, & White (1998) state, "The relationship between marriage and positive mental health is one of the most established findings in the stress literature" (p. 124). However, being in an intimate and committed relationship takes work in order to reap some of those well established mental health benefits. Unfortunately, Fincham and Beach (1998) found that both the exchange of and rate of negative affect were some of the best predictors of marital satisfaction. Furthermore, poor mental health can also reduce positive mental health benefits by affecting couple satisfaction. Indeed, numerous studies have found a reciprocal relationship between a

spouse diagnosed with depression and marital *maladjustment* (e.g. Basco, Prager, Pita, Tamir, & Stephens, 1992). Dehle and Weiss (2002) found that husbands' state anxiety (past 7 days) was able to predict relationship satisfaction for themselves as well as their wives, with more anxiety being associated with less satisfaction. Until more recently, however, questions still abounded as to the causal relationship between marital satisfaction and mental health. McLeod (1994) discovered that anxiety disorders such as phobias, panic disorder, and generalized anxiety were all associated with poor satisfaction in the marriage, but causality was unable to be definitively determined. Other studies had indicated causality in one direction or the other. For example, Rankin, Haut, and Keefover (2001), Beach and O'Leary (1993b), and Fincham and Bradbury (1993) all reported in their longitudinal studies that marital dissatisfaction predicted future depressive symptoms. However, Dew and Bromet (1991), Beach and O'Leary (1993a), and Ulrich-Jakubowski, Russell, and O'Hara (1988) found just the opposite in their longitudinal studies. And in a very intriguing find, Fincham, Beach, Harold, and Osborne (1997) determined that symptoms of depression predicted dissatisfaction for husbands, but that marital dissatisfaction predicted depressive symptoms for wives. These contradictory findings clearly indicated that further research was needed to determine causality.

Indeed, researchers continued in their attempt to better understand the relationship between mental health and marital satisfaction. Using a

large sample of married individuals ( $N = 904$ ), Whisman and Bruce (1999) investigated the effect of marital satisfaction on the occurrence of major depressive episode over a 12-month period. None of the participants were diagnosed with a depressive disorder at baseline. The authors discovered that maritally dissatisfied husbands and wives were approximately 2.7 times more likely to be diagnosed with a major depressive episode than were satisfied spouses. These findings remained significant even when risk factors associated with major depressive episode (e.g. gender and history of depression) were controlled. However, it should be noted that the marital satisfaction variable was measured only by a single Likert-type question.

Using an even larger sample ( $N = 4933$ ) of married individuals Whisman, Sheldon, and Goering (2000) ascertained that between 2% and 15% of between-groups variability in nine different psychological disorders was accounted for by dissatisfaction in social relationships. When the researchers controlled for the other social relationships, marital dissatisfaction was found to be associated with a number of psychological disorders. These included, major depression, social phobia, simple phobia, agoraphobia, panic disorder, generalized anxiety disorder, and alcohol dependence/ abuse. Generalized anxiety disorder was the most strongly associated disorder. These authors also only measured marital satisfaction with a single Likert-type question. The causal relationship was unable to be determined due to the cross-sectional nature of the study.

Finally, in 2001 Karney attempted to directly address the question of directional causality by using a growth curve analysis along with multiwave longitudinal data. The author also used the Marital Adjustment Test (MAT) to assess marital satisfaction twice a year for four years. By using more advanced analytical techniques, Karney found that depressive symptoms and marital satisfaction were most likely bi-directional in causality. This study's findings seem to be the solution that previous researchers were grasping for in terms of determining directional causality. This study might be a model that allows for the determination of causality to be investigated between couple satisfaction and other psychological disorders as well. Davila, et al. (2003) confirmed these findings and found symptoms of depression were just as likely to forecast shifts in marital satisfaction as shifts in marital satisfaction were to forecast changes in depressive symptoms. In contrast to Fincham, et al. (1997), they did not find any gender differences.

In their 1999 study, Friedman, Dixon, Brownell, Whisman, and Wilfley found a significant negative correlation ( $r = -.32, p < .0001$ ) between a person's dissatisfaction with their body and their satisfaction with their committed relationship. This survey research involved 16,377 male (46.4%) and female (53.6%) participants. Friedman, et al. also found the negative correlation between body dissatisfaction and relationship satisfaction was significant after controlling for one's Body Mass Index, self-esteem, gender, and age ( $r = -.20, p < .0001$ ). Overall, one of the main findings is that mental

health and couple satisfaction have been time and time again shown to be associated with one another. Clearly then, one must be cognizant of the reciprocal nature of these variables when investigating relationship satisfaction.

### Coping

A variety of negative events can occur in life. Tesser and Beach (1998) claim as the number of these negative events increase, satisfaction with one's relationship first decreases, then increases as the couple rallies together, before finally decreasing again as the negative events wear on the couple. The way a couple copes with these negative events can be very important for their relationship. Not surprisingly, coping strategies have, indeed, been related to couple satisfaction. Bouchard, Sabourin, Lussier, Wright, and Richer (1998) point out that the literature before 1998 shows coping strategies such as optimistic comparisons, negotiation, and positive approach to be positively related to marital satisfaction. Whereas, confrontational, escape/ avoidance, disengaging, self-interest, resignation, conflict, and selective ignoring strategies were all negatively related to marital satisfaction. Using the Dyadic Adjustment Scale to measure marital satisfaction, Bouchard, et al. looked more specifically at how gender differences play a role in coping strategies. They found that men use denial more and that it is associated with poor satisfaction. Women's use of denial

was curvilinear in that at first it was related to higher marital satisfaction, but later with negative satisfaction. Problem-focused strategies were used equally, which the authors claim, challenges the prevailing belief that women use more passive strategies. The level to which a coping strategy was used (e.g. high or low) also related to marital satisfaction outcomes.

Bouchard et al. (1998) also found partners' coping strategies affected themselves as well as their spouse. Hoekstra-Weebers, et al. (1998) found similar results, although for only one partner. Husbands' coping preferences were predictive of decreased marital satisfaction, not only for themselves, but for their wives, as well. These researchers also found chronic psychological distress was related to poorer marital satisfaction. Still further, they found that the use of emotion-focused coping resulted in more dissatisfaction for the couple. The results of these and previous studies on coping indicate that assessing a couple's coping strategies can be beneficial to the understanding of dyadic satisfaction. However, it is clear that each partner's style and strategy and its effects on the other partner, must also be examined to fully understand the consequences.

### Couple Interpersonal Processes

"Interest in understanding interpersonal processes in marriage remains strong, yet research reported in the 1990's indicated that, despite some advances, these processes are not easily studied, and a comprehensive

understanding of them is not yet at hand” (Bradbury, Fincham, & Beach, 2000, p. 965).

### Communication

Communication problems are the most cited reason for couples entering therapy (Whisman, Dixon, & Johnson, 1997). In his 1994 study, Gottman reported that communication is a primary factor in couples' satisfaction. Rogge and Bradbury (1999) found that communication predicted whether a couple was satisfied or unsatisfied with their relationship after 4 years of marriage. In their 1987 article, Boland and Follingstad reviewed the literature on the relationship between communication and marital satisfaction. These authors found that both content and process communication was related to marital satisfaction. For content communication the authors found couples who self-disclosed more frequently, more deeply, and more broadly and who expressed more love, support, and affection had higher satisfaction. On the negative side, the greater the frequency and intensity of problems and the less conflict resolution ability the poorer the satisfaction. In terms of process communication the authors found that laughter, positive voice tone, the touching of the spouse, and open body position were positively related to couple satisfaction. Also positively related to couple satisfaction were accurate communication encoding and decoding skills, validating and caring behavior, and mutual agreement.

Conversely, repeating one's own position, exchanging complaints, criticizing, and the escalating of conflicts were all associated with lowered satisfaction in the relationship.

Although communication has clearly been established as a factor in couples' satisfaction (Fowers, 1998), many researchers are still trying to uncover the role that the various processes of communication play. For instance, some recent studies have focused on how conflict styles are related to relationship satisfaction (Cramer, 1998, 2000; Kurdek, 1994, 1995; Russell-Chapin, Chapin, & Sattler, 2001). Russell-Chapin et al. (2001) investigated conflict resolution styles using a small ( $N = 60$ ) homogeneous sample and the Marital Satisfaction Inventory. In contradiction to many previous findings (e.g. Kurdek, 1994, 1995), they found that most conflict resolution styles, except assertive/ directing, generally don't affect overall couple satisfaction. However, in a study around the same period, Cramer (2000) found results more in line with the previous findings that conflict resolution styles do in fact affect relationship satisfaction. Cramer assessed how negative conflict style, the frequency of conflict, and unresolved conflicts were related to relationship satisfaction. Couple satisfaction was measured with the Relationship Assessment Scale (RAS). The author found that when frequency of conflict was controlled for, relationship satisfaction was still significantly and negatively correlated with negative conflict style and unresolved conflict. That is, satisfaction was less related to the frequency of



conflict than it was to negative conflict style and to conflict that wasn't resolved satisfactorily. Couples, therefore, might not need to be as concerned about the number of disagreements they have, but rather whether they resolve these disagreements in an acceptable manner for both partners. These findings were in contrast to previous results (see Boland & Follingstad, 1987), which focused on frequency of conflict as the predictor of relationship satisfaction.

Cramer (2002) continued to attempt to build on the research surrounding conflict and couple satisfaction. In his 2002 study the author looked at the romantic relationships of 64 female and 29 male undergraduates to determine whether minor or major conflict issues were equally related to relationship satisfaction. As in his 2000 research the RAS was used to measure relationship satisfaction. Cramer found that both minor and major conflict issues were significantly and negatively correlated with relationship satisfaction. Also, minor and major conflicts were correlated to one another, thereby indicating that a couple's conflict resolution style was consistent. These findings indicate that regardless of the size of the conflict, satisfaction might be reliably predicted by looking at couples' conflict resolution style.

The importance of the Cramer (2000, 2002) and Kurdek (1995) articles is the possibility that satisfaction may be more related to how conflicts are handled rather than to the type or frequency of them. Also, researchers may

be better able to predict a couple's satisfaction by observing what type of conflict resolution style was used to resolve minor conflicts rather than having to try and observe or gather data on more major conflicts (Cramer, 2002). This appears to be an exciting advance in the realm of relationship satisfaction and communication, since it may indicate the need to revise the belief that frequency and, to some extent, intensity of conflict are some of the best predictors of couple satisfaction (Boland & Follingstad, 1987). However, further replication is needed.

### Sexual Satisfaction

Sexual frequency is another factor that has been found to be positively associated with marital satisfaction (Call, Sprecher, & Schwartz, 1995). However, Greeley (1991) states that sexual satisfaction is a much better predictor of marital satisfaction than is sexual frequency. In fact, numerous studies have found sexual satisfaction to be an important aspect of marital satisfaction (Cupach & Comstock, 1990; Farley & Davis, 1980; Haavio-Mannila & Kontula, 1997). Kurdek (1991b) found that there was no difference in sexual satisfaction between heterosexual married couples, heterosexual cohabiting couples, gay couples, and lesbian couples. He also found that sexual satisfaction was related to relationship satisfaction for all four types of couples. More recent studies have also shown the importance of sexual satisfaction. Young, Denny, Luquis, and Young (1998) investigated a

number of variables (e.g. satisfaction with non-sexual aspects of the relationship, etc.) to determine correlates of sexual satisfaction in marriages. From their 797 male and female married participants of various ages, they found that overall satisfaction with the marriage had the highest correlation to sexual satisfaction of any variable tested ( $r = .622$ ). The authors hypothesized that, although causality could not be determined, it was most likely bidirectional in nature. Furthermore, they found that males and females showed no differences in their levels of sexual satisfaction and that including gender in their analysis did not help in the explanation of variance.

Davies, Katz, and Jackson (1999) looked at the effect of spouses having discrepant sexual desires and its impact on marital satisfaction as measured with RAS. They found that when women have a lower level of desire in comparison to their partner, they report lower dyadic satisfaction as well. However, the researchers found that when they brought sexual satisfaction into the equation, it mediated the impact on relationship satisfaction. This indicates that desire discrepancy only affects relationship satisfaction to the extent that it affects sexual satisfaction. Litzinger and Gordon (2005) investigated the relationship between communication, sexual satisfaction, and marital satisfaction in 387 married couples. These researchers found that both communication and sexual satisfaction were both independently related to marital satisfaction. Interestingly, they also found that when a couple had good communication, sexual satisfaction did not seem to

significantly contribute to marital satisfaction. However, for couples with poor communication marital satisfaction was greater for those who were sexually satisfied than for those who were not. This seemed to indicate that sexual satisfaction compensated for the lack of communication in helping to maintain overall marital satisfaction. Finally, Perrone and Worthington (2001), using path analysis, looked at 107 men and women in dual-career marriages in order to determine correlates to marital and career satisfaction. They found that sexual satisfaction was significantly correlated ( $r = .54$ ) to satisfaction with the marital relationship. Not surprisingly, these researchers also found love to be significantly correlated to marital satisfaction ( $r = .56$ ).

### Love

In his 1970 research on romantic love, Rubin wrote, “that love is an attitude held by a person toward a particular other person, involving predispositions to think, feel, and behave in certain ways toward that other person” (p. 265). To help further delineate love from other attitudes such as liking, Rubin developed the Rubin Love Scale. To do this, a liking scale was also developed so that the two similar attitudes could be compared and defined more clearly. The resulting love scale was only moderately correlated with the liking scale. Rubin determined that there were three major components to romantic love: affiliative and dependent need (e.g. “If I could

never be with my partner, I would feel miserable”), predisposition to help (e.g. “I would do almost anything for my partner”), and exclusiveness and absorption (e.g. “I feel that I can confide in my partner about virtually everything”).

Sprecher and Regan (1998) were interested in love’s role in couple satisfaction. In their study they investigated whether sex or friendship was more related to couple satisfaction. These authors found that both passionate (i.e., sexual) and companionate (i.e., friendship) love were related to couple satisfaction and commitment. However, they also found that companionate love was more highly associated with relationship satisfaction than was passionate love. In an earlier study, Hendrick, Hendrick, and Adler (1988) found that passionate love was a positive predictor of relationship satisfaction for both partners of 57 heterosexual college couples surveyed. This study also revealed that Ludus or love related to game playing (i.e. being sensation seeking, withholding, and sometimes being manipulative) was a negative predictor for both partners. Companionate love was also a positive relationship satisfaction predictor for women in this study. In their review of the literature, Hendrick and Hendrick (1997) also found one study that actually found love styles to be more strongly correlated with couple satisfaction than were personality characteristics. A consistent finding across studies reviewed by Hendrick and Hendrick was that passionate love was a strong and positive predictor of couple satisfaction, whereas love

related to game playing was a strong and negative predictor of couple satisfaction. Contreras, Hendrick, and Hendrick (1996) found these same results of passionate love being positively correlated with couple satisfaction and game playing love being negatively correlated, across ethnic groups when they studied relationship satisfaction in Mexican Americans and Euro-Americans.

### Leisure and Social Activities

It is a widely held belief that spending time together as a couple leads to a happier relationship. Indeed, Holman and Jacquart (1988) found leisure activities to be positively related to marital satisfaction as long as there was communication between the spouses. Similarly, a large amount of research supports the idea of a positive correlation between the amount of leisure time spent together and marital satisfaction (Crawford, Houts, Huston, & George, 2002). Indeed, Crawford et al. go on to state that the idea between a high amount of companionship and marital satisfaction being “good,” has reached the “status of a cultural truism” (p. 433). Russell-Chapin, et al. (2001) also found support that couples who spent more “quality” time together were more satisfied. Likewise, Peplau, Padesky, and Hamilton (1982) determined that putting an equal amount of time and effort into one’s partner resulted in higher couple satisfaction in lesbian relationships. However, in an interesting finding, Gager and Sanchez (2003) discovered that as wives

perceived more time being spent together as a couple the chances of divorce decreases, but for husbands a perceived greater amount of time spent together actually increased the chances of divorce. Also, contrary to previous research, Huston, McHale, & Crouter, (1986) found companionship to be unrelated to marital satisfaction.

In 2002, Crawford, et al. attempted to investigate whether spending leisure time together was a truly good thing for couples. The semantic differential scale adapted from the Life Satisfaction Questionnaire measured marital satisfaction. The authors found several interesting results. For instance, when couples pursued a large amount of mutually liked endeavors only the husband was found to be more satisfied. Furthermore, the wife was also found to be less satisfied when they engaged in pastimes that were only liked by the husband and not the wife. Also, the more a husband pursued these particular activities or mutually liked activities alone the less satisfied both spouses were. Interestingly, the authors also discovered that husbands were more likely to initially engage in separate leisure activities when a wife's satisfaction was low, thereby indicating both a cause and consequence of these pursuits. Smith, Snyder, Trull, and Monsma (1988) similarly found that leisure patterns accounted for nearly twice the variance for wives' marital dissatisfaction as for husbands.

Crawford et al. (2002) reported that a defective approach to this area of study had resulted in an overgeneralization that a couple's time together

automatically resulted in higher relationship satisfaction. The results of this study somewhat counter those previous findings by showing that wives' satisfaction is negatively related to time spent either in mutually agreeable pursuits or in activities that her husband alone likes. These findings are significant because previous research did not take into account whether the couples were engaging in leisure that one or the other did not like. Therefore, it is important to understand the nature of time spent in leisure pursuits for each individual before assuming more time together equals higher relationship satisfaction. Due to the fact that this is one of the few studies to counter such a widely held belief, further research is warranted.

Besides the already mentioned Peplau et al. (1982) study, few other research studies have investigated the impact of leisure and social activities on lesbian and gay couples' satisfaction. However, Beals and Peplau (2001) did write that lesbian couples who spend time together in the gay and lesbian community might find it beneficial going to happenings in the community without having to fear negativity and rejection. However, Schreurs and Buunk (1996) predicted that lesbian couples who are active in the lesbian subculture together might discover that such activity contributes to their relationship satisfaction or, on the other end of the spectrum, find it erodes the cohesion of the relationship. In their research on this topic, Beals and Peplau (2001) found involvement in the gay and lesbian community to be significantly related to couple satisfaction. They also determined that the



greater discrepancy in the amount one partner is socially involved and the other not, the greater the dissatisfaction. Finally, couples who were moderately involved with the community were found to be more satisfied than couples with either high or low involvement. The authors report these latter findings to be similar to the heterosexual research of Holman (1981), who also found moderate community involvement to result in the highest couple satisfaction. The Beals and Peplau (2001) study indicates that it is once again important to look at how couples spend their leisure time and not just if they spend leisure time together.

### Social Context Factors

#### Family

The experience of having or raising children can be a happy event in and of itself. Unfortunately, it is becoming common knowledge that marital satisfaction decreases with the arrival of children (e.g. Cowan & Cowan, 1992; Spanier & Lewis, 1980). In fact, Shapiro, Fearnley, Gottman, and Carrere (2000) call the evidence to this fact “overwhelming” (p. 60). Levenson, et al. (1993) found children to be a greater source of conflict for those couples still at home with their children than for those couples whose children had left the home. Paradoxically, however, Koepke, Hare, and Moran (1992) found that lesbian couples with children actually reported higher relationship satisfaction when compared to lesbian couples without

children. Unfortunately, once again a dearth of research on gay male and lesbian couples have resulted in no other studies being found that related couple satisfaction to having or raising children.

With respect to research findings on relationship satisfaction for heterosexual couples with children, there have been multiple studies attempting to shed light onto this phenomenon. One of these studies offers hope that relationship satisfaction is not lost with the coming of a child. Shapiro, et al. (2000) show that it is not true for certain couples exhibiting particular behaviors that dissatisfaction will surely follow the birth of a child. Varying from most studies that primarily focus on late pregnancy to the first few months after a child is born (e.g. Cowan & Cowan, 1988) Shapiro, et al.'s (2002) longitudinal study (4-6 years) looked at couples who were not initially pregnant, but who later did have children. Marital satisfaction was measured by using a telephone version of the MAT. The researchers found that, similar to previous research, wives who became mothers experienced a significantly steeper decline in marital satisfaction than wives without children. A decrease in satisfaction was noted in 67% of the women who became mothers. The important finding, however, was why the other 33% of the women did not experience the same reduction and either stayed stable or actually increased in their marital satisfaction. The authors found that a husband's fondness and admiration toward his wife, awareness of wife's needs, and the wife's awareness of husband's needs all predicted stability in

marital satisfaction. On the other hand, husband negativity toward the wife, disappointment in the marriage, and a feeling of chaos all predicted a lessening of marital satisfaction for the wife. These findings were related to the couple having a strong friendship. Indeed, Shapiro et al. suggest that an index of marital friendship would be the strongest predictor of couple satisfaction stability or fluctuation over time for expectant parents. This study adds important findings to the research on children and couple satisfaction. For instance, one should not believe the presence of children automatically equate to a decline in marital satisfaction. Interestingly, Levenson, et al. (1993) found that the number of children also failed to distinguish between couples who were satisfied and dissatisfied. It is, therefore, important to assess other factors, like a couple's friendship, that may actually lead to stability or an increase in satisfaction. Shapiro, et al.'s results could provide specific characteristics of couples that may be more susceptible to a decrease in satisfaction with the arrival of a child and hence possibly prevent the dissatisfaction through intervention.

#### Age and Relationship Length

In 1990, Whyte found that marrying at a young age was a strong predictor of future instability in the marriage. He also found that those individuals who dated longer before getting married reported being happier with their marriage than those who dated a shorter amount of time. Peplau,

Padesky, and Hamilton (1983) found that age was not significantly related to lesbian relationship satisfaction. However, Schreurs and Buunk (1996) found that age was significantly correlated with lesbian relationship satisfaction, with older respondents reporting higher satisfaction. In their brief review of marital satisfaction literature, Levenson, et al., (1993) pointed out that studies from the 1960's suggested a steady decline in marital satisfaction during the first ten years of marriage. Later studies indicated that a curvilinear path of satisfaction could be expected in marriages, starting high, bottoming out during their children's adolescence, and increasing again when children left home as well as during retirement. Levenson, et al., however, found mixed results in studies specifically looking at marital satisfaction and retirement with a range from clear improvement in the marriage to a slight decline in marital satisfaction. Interestingly, Gilford and Bengston (1979) also reported curvilinear pattern in terms of positive interaction between married individuals across the lifespan. These researchers found that, in their study of 1056 married individuals, positive interaction is highest amongst younger couples, lowest for couples who are middle-aged, and at an intermediate level for older couples. Levenson, et al. (1993) also conducted a study consisting of 156 couples divided into middle-aged (40-50 years old) and old-aged (60-70 years old). They found that the older couples reported less conflict and more pleasure in their marriages. In their review of the literature, Clements, Cordova, Markman, and Laurenceau (1997) found

mixed results between a steady decline in marital satisfaction over time and a curvilinear pattern. In their own research these authors found couples were happiest in the premarital and early years of their marriage. This was then followed by a decline in satisfaction for both husbands and wives, which eventually leveled off and became stable. For some couples this inevitable decline in satisfaction did not deter them from still being happy with their marriage. Interestingly, these findings were for both couples with and without children and appeared to be identical in the size and timing of the declines in satisfaction. Overall, Clements, et al. make the strong statement that “marital satisfaction clearly declines over time” (p. 341).

### Income

The ability to be able to afford luxury items or not worry about bills might lead one to think that having a high income would surely help couples be more satisfied in their relationship. However, income has been found to have mixed results when it comes to predicting couple satisfaction. For instance, Perrone and Worthington (2001) and Levenson et al. (1993) found it did not add any significant contribution to the prediction of marital satisfaction. Schreurs and Buunk (1996) also found no significant correlation between income and lesbian couple satisfaction. On the other hand, White (1990) reviewed the literature on marital discord and divorce and found that low income and other measures of socioeconomic status are clearly linked to

the dissolution of marriages. In their study of 76 Euro-American couples, Conger, et al. (1990) also found that lower income and economic pressures were indirectly related to lower satisfaction with the marriage due to increased hostility and lower amounts of loving behaviors. Finally, Tsang, Harvey, Duncan, and Sommer (2003) found that income actually mitigated the negative effect of having children had on heterosexual relationship satisfaction. From these findings it remains somewhat unclear as to the overall effect that income has on couple satisfaction.

### Summary

In summary, as Whisman's (1997) model indicates, partner satisfaction and its correlates greatly influence one another. This was evident in articles such as Caughlin, et al. (2000), which showed interpersonal characteristics worked in conjunction with individual characteristics to affect satisfaction. Likewise, many of the contradictory or confusing findings in the field might be attributed to the reciprocal nature of these variables (e.g. Karney, 2001). Research on couples' satisfaction has clearly shown that communication, sexual satisfaction, love, positive mental and physical health, coping strategies, and temperament are all related to couple satisfaction. Furthermore, numerous other variables have also been found to be related with relationship satisfaction. Whereas, poor mental health, individual characteristics like trait anxiety/ neuroticism, and the presence of children

for heterosexual couples have been found to be associated with couple satisfaction, albeit negatively. Still further, conflicting findings have been discovered in the research on leisure and social activities, relationship length, and income.

Other interesting findings were reviewed in this paper as well. For example, individual or personal factors can greatly affect one's partner and their relationship satisfaction. Another interesting theme was the apparent positive effect that friendship-like qualities have on couple satisfaction. Still further, numerous studies seemed to implicate that wives' satisfaction was much more related to both partners than was husbands'. However, one of the main notions that stands out is the importance of looking at each and every factor very carefully for nuances that can greatly effect satisfaction (e.g. spouses' like or dislike of leisure time spent together (Crawford, et al., 2002)). Also, although not as heavily researched, environmental/ social factors clearly appear to play an integral part in the satisfaction of a couple. Overall, it can be easily seen that intrapersonal, interpersonal, and environmental factors all play an important and reciprocal role in understanding couple satisfaction.

### Exercise and Life Satisfaction

In reviewing the vast number of benefits obtained through consistent exercise, it has become clear that "physical activity is related to psychological

well-being independent of age, gender, length of program, or study design” (McAuley, Elavsky, Jerome, Konopack, & Marquez, 2005, p. 295). However, improvements in or the association with psychological well-being does not necessarily equate to exercise automatically being associated with or improving the more specific variable of life satisfaction. Thus, it is not surprising that researchers have set out to investigate the effect of physical activity on individuals’ life satisfaction. Indeed, a number of studies have found that being physically active is often associated with higher levels of life satisfaction. For instance, a 2004 study by Valois, Zullig, Huebner, and Drane looked at 4758 adolescents attending high school in South Carolina. They found students who did not participate on a sports team (either school-related or non-school-related), did not exercise (either aerobic or anaerobic), and did not stretch for at least 20 minutes a week, were less satisfied with life than adolescents who were involved with these activities.

The majority of other studies in this area have gone to the other end of the age spectrum. Numerous research articles have been published on the association between exercise and older adults. McAuley and Rudolph (1995) reviewed 38 studies and found positive associations between exercise and various psychological benefits for older adults. Even more specifically, Eronen, Rankinen, Raurama, Sulkava, and Nissinen (1997), Peppers (1976), Morgan and Bath (1998), Kemmler, et al. (2002), McMurdo and Burnett (1992), McAuley, et al. (2000), Clark, Long, and Schiffman (1999) and others,



all found positive associations between physical activity and life satisfaction among older adults. This type of finding for older adults has been so pervasive that physical activity has been reported to be the most significant factor in continuing a positive life experience high in quality (Clark, Long, & Schiffman, 1999).

Unfortunately, there have been just a few studies looking at the association of exercise and life satisfaction across a range of ages. One such Swedish study that covered a wider age range (18 to 64), looked at various socio-demographic items and related them to life satisfaction (Melin, et al., 2003). This was part of a larger epidemiological study of health and sexuality that surveyed 2533 men and women on approximately 800 variables. The researchers found that those individuals who were physically active had higher life satisfaction scores than those who were not as physically active. These individuals were also more likely to be satisfied with their social contacts and their health.

In contrast to the positive effects found by the aforementioned studies a few researchers found limited or no associations between exercise and life satisfaction for individuals across ages. For instance, in their pilot study, Ornes, et al. (2005) investigated life satisfaction changes among three generations of women following 6 months of physical activity. A total of 36 individuals completed the study with 27 being assigned to the home-based physical activity group and 9 being assigned to the control group. Daughters

in their sample were premenarcheal, mothers were premenopausal, and grandmothers were postmenopausal. The females participating in the physical activity group were instructed to follow an exercise program specific to their age group and which included stretching, warm-ups, aerobic, strength-training activities, and a cool-down. It was reported that 73% of the prescribed exercise regimens were completed. Using the SWLS, the authors found that, although life satisfaction scores increased for the exercise group, they did not do so to a significant level. It was suggested by the researchers that a more sensitive physical activity questionnaire be used as well, as a longer time period to exercise, and a larger sample size before fully accepting these results.

An earlier study done by Gauvin (1989) also did not find a link between exercise and life satisfaction. During that study 122 Canadian participants aged 18 to 77 responded to the researcher's questionnaires on exercise, affect, and life satisfaction. Respondents were categorized into the four categories of a) autonomous exercisers b) fitness program participants c) fitness program dropouts and d) non-exercisers. They then completed various measures on affect along with the SWLS. It was found that there were no significant differences among the groups, meaning exercisers did not report more life satisfaction than non-exercisers. Interestingly, Gauvin tied these findings to the conceptualization of happiness, and therefore life satisfaction, to the particular goals a person has. Thus, regardless of activity level, one's

personal strivings and attainment of those strivings would be the key to life satisfaction.

Another study looked at the psychological effects of exercising and dieting on obese women (Nieman, et al., 2000). The authors divided the participants into one of the following four groups: control ( $n = 22$ ), exercise ( $n = 21$ ), diet ( $n = 26$ ), and exercise and diet ( $n = 22$ ). The participants in the exercise-only and exercise and diet conditions were required to walk five times per week for 45 minutes at approximately 60 to 80% of maximum heart rate for 12 weeks. The measure used to assess life satisfaction was the Satisfying and Interesting Life subscale of the General Well-Being Schedule (GWBS). The researchers found that only the exercise and diet group significantly improved their life satisfaction scores. Thus, dieting or exercise alone did not significantly increase the life satisfaction scores for participants in this study. Of interest, however, was that when compared to 30 non-obese women, the obese women had significantly lower GWBS scores prior to the study taking place.

### Summary

The research on life satisfaction and exercise has revealed that exercise seems to increase life satisfaction in older adults. However, the results for other people across the lifespan seem to be mixed. For instance, Valois, et al. (2004) found positive associations between life satisfaction and

exercise in adolescents. Melin, et al., (2003) also found a positive relationship between exercise and life satisfaction in people ages 18-64. However, a number of other studies (e.g. Nieman, et al., 2000) found little to no association between exercise and life satisfaction when looking at individuals across the lifespan. Interestingly, however, the authors of these studies did report positive associations between exercise and life satisfaction, just not to a significant level. It is, therefore, apparent that more research is needed to assist in clarifying the relationship between exercise and life satisfaction.

### Exercise and Couple Satisfaction

Although there have been numerous studies and research on couple satisfaction and exercise, few researchers have investigated these two variables in relationship to each other. Those researchers who have taken on this endeavor have all focused on participants who engage in only one form of exercise—running.

The first research to attempt to look at the effects of exercise on couple satisfaction occurred in 1983 by Rudy and Estok. Their sample was made up of 319 dedicated female runners who were participating in either a 6.2 mile or 26.2 mile running event. The researchers were looking at various physical and psychosocial variables in women and those variables' relationship to jogging intensity. One of the research questions asked, "Is a change in quality of interpersonal relationships with others (husbands/ family) related

to the intensity of jogging in female joggers?" (p. 332). To answer this, Rudy and Estok merely asked one question regarding how running had influenced those relationships. Possible responses were: no change in relationships, increased problems with relationships, or improved relationships. Results indicated that relationships were significantly affected as jogging intensity increased. A high percentage of respondents in all three intensity levels, low, moderate, and high, reported improved interpersonal relationships. However, 17% of the high intensity joggers surveyed reported that jogging had had a negative effect on their relationships. Unfortunately, statistics were sparse in this article and couple satisfaction was addressed with just one question.

In his unpublished dissertation, Hinckley (1985) looked at the effects of running and engaging in pleasant activities on heterosexual couples where one partner (the wife) was suffering from depression. Using only three couples, Hinckley selected participants based on the wife's score being 20 or higher on the Beck Depression Inventory (BDI) and 90 or below for the Locke-Wallace Marital Adjustment Test (LWMAT). Husbands needed to score within the normal range of these instruments for the couple to qualify for the study. The BDI and LWMAT were then used in the post-test and one-year follow-up. Hinckley also used the Marital Happiness Scale and the Depression Adjective Check List on a daily basis to record changes in the couples' depression and perceived happiness.

Hinckley gathered baseline measurements before having couples engage in running one 15-minute mile together eight out of ten days (couples were allowed to incrementally build up to the mile in a training period before treatment). In the next phase, couples performed the running treatment as well as engaged in mutually agreeable and pleasing activities. These phases were implemented in an A-B-A-B-BC-B-BC-BC design, with A = baseline, B = running, and BC = running and engaging in mutually agreeable and pleasing activities. Due to the small sample size and a lack of randomization involved in the selection process, no statistical procedures were carried out on the data. Instead, Hinckley looked at the general patterns of the data and found that the running treatment increased couple happiness and decreased depression, but was not as effective as the running and engaging in pleasurable activities combination treatment. Still further, scores on the LWMAT were found to be higher at the post-test as well as at the follow-up one year later. Although this study was extremely small and with no statistical procedures performed on the data, it is still interesting to note the positive patterns found between exercising and increasing couple happiness and satisfaction as well as reducing the depressive symptoms of the female partner.

In his 1986 dissertation Luepnitz explored the effects of jogging on satisfaction in heterosexual marriage. Twelve couples in which both partners jogged, seventeen couples in which only the husband jogged, eleven

couples in which only the wife jogged, and eleven couples in which neither partner jogged were recruited for the study. Volunteers needed to have been married at least one year and joggers needed to run at least ten miles per week. The participants were asked to complete The Marital Satisfaction Inventory and a background information sheet.

Luepnitz used three regression models with the wife's, the husband's, and the combined marital satisfaction scores as the criterion variables. The number of miles per week that were jogged by the wife accounted for the greatest amount of variance in both the combined and husband's score as criterion variable models. The number of miles jogged by the husband accounted for the second most variance in both of these models. For the wife's score as criterion variable, wife's age accounted for the most variance followed by the husband's number of marriages, miles per week the husband jogs, and miles per week the wife jogs. The group in which both partners jogged showed the highest combined satisfaction scores. This group also showed the least variance in its scores, whereas the group where only the wife jogs showed the most variance in its scores and the lowest marital satisfaction scores. Statistically, the husbands in this group were significantly less satisfied than in the other three groups. Still further, when compared to the group where both partners run, wives were significantly less satisfied when they were the only members of the dyad jogging. Finally, it was also found that when only husbands jogged there was a significant

difference in satisfaction between partners, with the wife being less satisfied. No other significant findings were uncovered. Unfortunately, Luepnitz did not offer any possible explanations for these findings.

In another 1986 dissertation, Maloy attempted to look at what the effects of beginning a regular jogging program had on various psychological aspects of participants. Particularly interesting was his look at the effects beginning running had on heterosexual marriages. Qualifying participants were over 18 and living together, not participating in any exercise program, and agreed to have only one spouse run during the study. The spouse who was chosen to run could not be currently engaged in any running and could not have been involved in any exercise program in the previous six months. Only 10 of the 12 volunteering couples completed the study. Within these 10 couples, 8 males and 2 females volunteered to be the runner for their respective dyad. Running took place over a 10-week period. To investigate the effect on relationships, the couples were asked to complete the Dyadic Adjustment Scale (DAS) and a daily self-checklist developed by the researcher, which contained 20 items related to various behaviors (e.g. "Complimented my spouse", "Hours spent with friends" (p. 125), etc.).

Results showed that there was no significant difference between the DAS scores of the running spouse and the non-running spouse. However, DAS scores for both partners were found to significantly increase ( $p < .05$ ) over the 10 weeks. Interestingly, at the midpoint of the running program,



both spouses reported their relationship being less well adjusted then at the beginning of the program. As mentioned, at the end of the program adjustment levels were significantly above those at the beginning and the middle of the program. The author concluded that because changes to the members of the dyad were taking place, homeostasis was upset. After adjusting to “growing pains” the couples reported an increase in dyadic adjustment. The author also claimed that homeostasis was threatened by increases in self-concept (as measured by the Tennessee Self-Concept Scale). Statistical significance ( $p < .05$ ) was found for positive changes in physical self-concept over the course of the program. It was found that the mean correlation across trials was .81 ( $p < .05$ ) for both partners. However, a closer look at each couple indicated that as self-concept increased for one partner it decreased for the other. Interestingly, both running and non-running individuals appeared susceptible to increases and decreases in self-concept. Reasons as to why the runner’s self-concept would decrease or the non-running spouse’s would increase were not explained.

On the behavioral self-checklist it was found that frequency of spoken affection and complimenting one’s spouse increased during the program for both spouses. Arguing, on the other, hand, was reported to have decreased dramatically for both spouses. For the running spouse, discussing the relationship was also shown to have gone up during the program. Non-running spouses reported kissing and hugging, physical affection, and leisure

activity increasing in frequency. Unfortunately, the author did not report whether or not these changes were found to be statistically significant. Overall, Maloy concluded that being involved with a running program increased marital adjustment for the couple, improved self-concept, and increased agreement on issues about the marriage. However, without a control group further study is needed before more weight can be given to these conclusions.

One more 1986 dissertation, this one done by Richards, investigated whether running, as a style of leisure interaction was perceived differently between members of a married heterosexual dyad and the influence this perception had on their marital satisfaction. Richards sample consisted of 167 runners and their spouses (a few spouses did not return the questionnaires), recruited from various running events. She also recruited 186 non-runners for her study to serve as a comparison group. Participants were given a demographic questionnaire, which included questions about their own and their spouse's running habits/ history, as well as questions about how they perceived their running style and interaction. Participants were also given the Commitment to Running Scale (CRS) and the Marital Satisfaction Scale—Form B (MSS-B) to complete.

Richards attempted to answer four questions with her research. The first was "Did runners differ in their perceptions of the leisure interaction style of running?" (p. 17). She did find that, contrary to the common belief

that running seems to be entirely an individual activity, 37% of those surveyed did in fact feel running was an individual style of leisure activity, another 28% of respondents felt running was a joint leisure activity. Joint leisure activities require communication and high levels of interaction. Furthermore, 35% of the respondents felt running was a parallel leisure activity, which allows the partners to run together but have reduced or no communication and interaction.

The second research question was, "Was there a significant relationship between a runner's perception of his/her leisure interaction style and marital satisfaction?" (p. 122). Using a regression analysis it was found that there was no significant relationship (adjusted  $R^2 = .00284$ ) between the individual runner's perception of leisure interaction style and marital satisfaction. Using a backward stepwise regression analysis, it was found that the regression coefficient for the entire model was just  $R = .02537$  ( $p < .05$ ). Analysis of the data also revealed that the most influential variables in explaining marital satisfaction for this model were, in order of most influential: respondent's gender, marital status, family's income, and the number of children.

Richards' third question was, "Was there a significant relationship between couples' perception of their own leisure interaction style and marital satisfaction?" (p. 122). In contrast to the individual's perception, the couple's perception of the leisure interaction style resulted in a much higher adjusted

$R^2$  of .56413. This indicated a sound relationship between marital satisfaction and a couple's perception of leisure interaction style. Further analysis revealed that couples that had similar perceptions of the different styles of leisure were more equally divided into having both high and low marital satisfaction. Couples that had different perceptions of leisure styles had nearly twice as many respondents reporting low marital satisfaction. Richards also found, through the use of a backward stepwise regression analysis ( $R^2 = .86836$ ) that the running variables of number of years running, spouse's running behavior, and the couple's perception of their running actually accounted for more of the marital satisfaction than did any demographic variables.

The final research question was "Did couples who run, couples with one runner, and non-running couples differ significantly for marital satisfaction?" (p.122). Richards found couples that ran, regardless if it was one or both, were evenly distributed in having low, medium, and high marital satisfaction scores. However, non-running couples were found to have a different distribution of marital satisfaction scores than running couples. The largest discrepancy was for a smaller than expected number of medium marital satisfaction scores. However, with less medium scores than expected, there were more non-running couples found in the high and low score areas.

Overall, Richards' study found that couples' perceptions of leisure interaction styles played a more significant role in explaining marital

satisfaction than did traditional variables. On the other hand, individuals' perceptions were not found to be significant in explaining marital satisfaction. Couples that had dissimilar views of leisure interaction styles regarding running, were unevenly distributed with nearly twice as many reporting low satisfaction scores. From this study it seems important to take into account whether couples share a congruent view of interaction during leisure activities. It might be that running could be easily exchanged for another leisure activity with perceptions, and not the activity itself, playing an important role.

In their 1990 study, Rudy and Estok investigated the effects of a running addiction on dyadic adjustment. Their study consisted of 35 (22 women and 13 men) marathon runners and their spouses. All participants were asked to complete the DAS and Running Addiction Scale (RAS). Marathoners completed the RAS on themselves, while their spouses filled the RAS out in regard to their perception of the marathoners.

In analyzing their data, Rudy and Estok found that there was no relationship between running addiction and dyadic adjustment, as reported by the marathoners. However, a significant negative relationship was found between running addiction scores and dyadic adjustment scores as recorded by the runners' spouses. These findings indicated that while runners scoring high on the RAS might not perceive a problem with their relationship, their spouses did recognize a problem. This was especially true for male spouses ( $r$

= -.67) in comparison to female spouses ( $r = -.38$ ). In fact, one male respondent reported that “his wife’s running meant she valued running for herself more than saving her energy for family activities” (p. 224).

Interestingly, the authors found that there was a significant relationship between RAS scores reported by the runners and those reported by their spouses ( $r = .47$ ). Correlations were higher for those couples where both partners ran ( $r = .66$ ) than those in which only one partner ran ( $r = .37$ ). Rudy and Estok also found that there was a significant relationship between the marathoners’ DAS scores and those reported by their spouses. The importance of these finding is that it may only be necessary to have one partner present to be able to assess either running addiction or dyadic adjustment.

More recently, Baldwin (1998) completed a dissertation focusing on heterosexual runners and their commitment to running, perceived support from spouse for running, gender, and these variables’ relationship to marital satisfaction. Eighty-five participants (35 women and 50 men) were randomly selected from 803 runners participating in a Utah marathon. Responses were also received from 75 spouses of these runners. Yair’s Commitment to Running Scale measured the runners’ commitment and congruency of commitment between partners, while a modified version of the Perceived Social Support Provided and Perceived Social Support Obtained scales were used to measure role support. Marital satisfaction was measured through

the use of the DAS. Questionnaires regarding potential difficulties running might create for the couple and the recreation styles (joint, parallel, independent, supported independent, and limited participation) used within the marriage were also administered.

Baldwin tested the hypothesis, "An interaction exists among congruence of commitment to running, role support, and gender on marital satisfaction" (p. 6). It was found that this hypothesized three-way interaction was not supported by the data. Baldwin did find, however, that as perceived role support increased, so too did marital satisfaction, regardless of the level of congruence or gender. Interestingly, Baldwin also found that the more congruent a couple was in their commitment to running the higher their role support. She also discovered that partners who had similar running abilities also had higher role support than partners with unequal running abilities. On the other hand, as running increased problems in the marriage, role support for the running activities decreased. Still further, it was determined that couples participating in joint recreation activities reported higher couple satisfaction than did those participating in parallel or fully independent activities. Those individuals who engaged in supported independent recreation activities reported higher couple satisfaction scores than did those who engaged in independent activities. These last findings are significant as they indicate that, perception of the type of recreation participation as well as support for the recreation are important factors in couple satisfaction. In

1999, Baldwin, Ellis, and Baldwin published these same results in their article in *Leisure Sciences*.

### Summary

The study of the relationship between exercise and couples' satisfaction has not garnered much attention. From these few studies, there appear to be mixed results. Positive effects have been found for many couples that have at least one partner exercising. The factors that resulted in some of the highest reports of couple satisfaction included when partners engaged in running activities jointly, had similar perceptions of exercise, and/ or perceived support for their exercising. However, it was the perception of support for exercise that seemed to provide the most influence on couple satisfaction. On the other hand, over-exercising, exercising in a parallel or independent style, receiving little or no support, and having only one's spouse exercise resulted in reports of less couple satisfaction. Lack of support for one's running by a partner and having one's wife as the only runner in a marital dyad, appears to result in the most negative influences.

Unfortunately, limitations within the studies themselves make generalization to all individuals who exercise somewhat difficult. Foremost of these problems were that only runners and heterosexual couples were used in these studies. Furthermore, it was unclear in most studies whether the group(s) being compared against the runners was physically active in other



ways (e.g. weight lifters, walkers, etc.) and thus achieving similar exercise benefits as the runners. Other sampling problems were evident as well, these included using only female runners, small sample sizes, lack of control groups, and a homogeneity amongst the participants. Furthermore, some studies lacked statistical analyses, while one study used a one-question format to gauge the effects of running on couple satisfaction.

### Summary of Chapter II

This chapter first reviewed literature on the physical and psychological effects of exercise. The chapter continued by reviewing literature associated with life satisfaction and couple satisfaction. Findings on the relationship between exercise and life satisfaction as well as the relationship between exercise and couple satisfaction were reviewed. Brief summaries were provided at the end of each section. Overall, there appears to be very limited research looking at the effects of exercise on life satisfaction and couple satisfaction even though a number of studies have shown the positive effects of exercise on a number of variables.

Specifically, exercise has been shown to reduce anxiety, depression, and substance abuse as well as positively affect self-esteem and other aspects of mental health. Furthermore, exercise has been shown to positively affect physical health, as well as correlate positively with sexual satisfaction, social interaction, and feelings of mastery and control. From these relationships

one might infer that exercise also may relate to having a more satisfying life. Indeed, there is strong evidence that for older adults this is indeed the case, however, just a few studies have been completed with younger and middle-aged adults. The studies that have been done on adults in the younger age ranges have reported mixed results in terms of significance, but do report positive associations between exercise and life satisfaction. Thus, one goal for this research is to further explore the relationship between exercise and life satisfaction in order to better understand whether a relationship between the two exists. This aspect of the study may add to the sparse literature on the relationship between exercise and life satisfaction among a broader range of adults. Furthermore, by using the IPAQ this study will attempt to take into account all physical activity and its cumulative effects in achieving recommended activity levels. This may then lead to a more clear understanding of the relationship between exercise and life satisfaction.

In terms of couple satisfaction, one can consider the positive benefits that exercise has been found to have on an individual (e.g. improved self-esteem, mental health, physical health, etc.) and deduce these individual benefits affect other aspects of a person's life including couple satisfaction. The literature clearly shows that members of a relationship who are both physically and mentally healthy report higher satisfaction with that relationship than individuals suffering from physical or mental ailments. For example, studies have shown that individuals with higher self-esteem tend to

report higher couple satisfaction as well. Furthermore, exercise has been associated with increased sexual satisfaction, which is an important variable in couple satisfaction. Exercise has also been correlated with more positive affect and an increase in positive moods. The literature has indicated that the communication of negative affect between partners is extremely detrimental to couple satisfaction. Still further, positive coping skills, of which exercise can be classified as one if done appropriately, were also found to be positively related to couple satisfaction. So one important question that may be asked is, whether or not exercise positively affects couple satisfaction primarily through its potential indirect influence on variables known to impact couple satisfaction, i.e. physical health and self-esteem, or does exercise have both direct and indirect effects on couple satisfaction?

Similar to the contribution this study will make in the life satisfaction literature, it will contribute to the couple satisfaction literature by looking at exercise in a broader view through the use of the IPAQ instrument. Since every study previously done on couple satisfaction and exercise has looked solely at running as the mode of activity, this study will take into account all activities that contribute toward reaching the caloric expenditure equal to the minimum exercise guidelines.

The review of the literature indicated that exercise has effects on variables that have been found to relate to couple satisfaction and life satisfaction. However, the findings concerning the possible direct

relationship between exercise on couple satisfaction and life satisfaction are limited and mixed. It is not clear if exercise has direct effects on couple satisfaction and life satisfaction and it is also not clear whether or not the potential effects and benefits of exercise on couple satisfaction and life satisfaction are primarily indirect and through other variables such as physical health and self-esteem or whether or not exercise may have both direct and indirect effects on couple satisfaction and life satisfaction. In addition to testing the specific hypotheses presented in Chapter I, this study will investigate and compare two possible models concerning the potential effects of exercise on couple satisfaction and life satisfaction. In one model the effects of exercise are hypothesized to be primarily indirect effects on couple satisfaction and life satisfaction through the variables of physical health and self-esteem. In the alternate second model exercise is hypothesized to have both direct effects and indirect effects through physical health and self-esteem on couple and life satisfaction. The study will explore which model provides a better fit for the obtained data.

## CHAPTER III

### METHOD

#### Introduction

This chapter will be divided into the following sections: procedure, instrumentation, data analysis, and summary. In the first section there will be a description of the research participants that were recruited for this study and the method used to recruit them. In the instrumentation section the various measures that were used to conduct this research will be described in terms of their use as well as a brief description of their psychometrics. The data analysis section will include how data were collected and analyzed through the use of hierarchical regression and path analysis. Finally, a short summary will conclude the chapter.

#### Procedure

##### Research Participants

Participants for this study were students in graduate classes at a large Midwestern university in the United States who were in a committed relationship that had lasted a minimum of one year and were cohabiting with that partner. A total of 258 participants returned survey packets. Of this 29 packets were unusable due to insufficient data. The remaining 229 students ranged in age from 20 to 57 years old (Mean = 30.59,  $SD = 7.86$ ). There were

155 (67.7%) female and 74 (32.3%) male participants. A total of 88.2% ( $n = 202$ ) reported being white, not of Hispanic origin, 4.4% ( $n = 10$ ) African-American/ black, not of Hispanic origin, 3.1% ( $n = 7$ ) bi-racial/ multi-racial, 2.2% ( $n = 5$ ) Asian or Pacific Islander, 1.3% ( $n = 3$ ) Hispanic, 0.4% ( $n = 1$ ) American Indian/ Alaskan Native and 0.4% ( $n = 1$ ) unreported. There were 167 (72.9%) participants who were living together and married and 62 (27.1%) participants living together in a committed relationship. The relationship length with their partner ranged from 1 to 37 years. A total of 222 (96.9%) participants reported their sexual orientation as heterosexual, 2 (0.9%) as bisexual, 2 (0.9%) as lesbian, 1 (0.4%) as gay, and 2 (0.9%) as unreported. The participants reported being from the following degree programs: counseling and psychology related programs ( $n = 62$ ), business programs ( $n = 43$ ), education programs ( $n = 43$ ), health programs (e.g. physician's assistant) ( $n = 23$ ), sociology and social work programs ( $n = 16$ ), exercise science programs (e.g. athletic training) ( $n = 16$ ), science programs (e.g. chemistry) ( $n = 7$ ), evaluation ( $n = 3$ ), public administration and law programs ( $n = 3$ ), engineering ( $n = 2$ ), music ( $n = 2$ ), comparative religion ( $n = 1$ ), Spanish ( $n = 1$ ), philosophy ( $n = 1$ ), communication ( $n = 1$ ), aviation ( $n = 1$ ), anthropology ( $n = 1$ ), computer science ( $n = 1$ ), graphic design ( $n = 1$ ), and unreported ( $n = 1$ ). A range of adult participants were recruited who varied on the average weekly amount of exercise they engaged in, including not engaging in any exercise at all.

The recruitment of participants consisted of the investigator arranging to present in person, information on the study to graduate classes. These classes were on the main campus of the university as well as at extended university programs off-campus. Professors and instructors of all these classes were contacted beforehand via email, telephone, or in person to obtain permission to recruit in their classrooms. A script (see Appendix B) was read or sent to these professors and instructors explaining the nature of the research and requesting permission to recruit in their classrooms. Students in these classes were informed of the study through a script (see Appendix C) that was read verbatim. This script informed potential participants of the general nature and reason for the study, the estimated time needed to complete the packet, and the need for anonymity. Flyers (see Appendix D) in public areas at the university were also used to recruit participants. Information on the flyers invited interested potential participants to call or email the investigator for information about the project. Potential participants were then provided with a research packet containing a number of materials, which included an informed consent letter (see Appendix A) along with directions on how to complete and return the battery of measures that were provided. A demographic questionnaire (see Appendix E) was also included to collect background information on the participants. Also, contained in each research packet were the following measures and questionnaires: Rubin Love Scale (Rubin, 1970), International Physical

Activity Questionnaire (IPAQ), Satisfaction With Life Scale (SWLS)(Diener, et al. 1985), Rosenberg SES (Rosenberg, 1989), a health status assessment (Cox, et al., 1988), and the ENRICH Couple Scales of Communication, Sexual Relationship, and Couple Satisfaction, (Olson, 1996). Participants were asked to return completed packets anonymously in prepaid return mailing envelopes to the investigator. Participants were instructed to not include any personal identifying information on or in the research packets. To encourage participation, potential participants were informed that a drawing would be held for four gift certificates to Meijer Retail and Grocery Supercenter. Two \$100 and two \$50 gift certificates were given away via a drawing held at the completion of the data analysis. Participants who wished to be included in this drawing had the opportunity to send a prepaid postcard back separately from their survey materials to maintain anonymity. Postcards for the drawing for the gift certificates were provided in their survey packet.

### Measurement/ Instrumentation

#### Rubin Love Scale

The Rubin Love Scale (Rubin, 1970) measures romantic love. It was constructed on three major ideas about romantic love. Those ideas were a) predisposition to help, b) affiliative and dependent need, and c) exclusiveness and absorption. The scale was based on 158 non-engaged dating couples at the University of Michigan. It consists of 13 questions that are answered on



a Likert-type scale ranging from 1 (Not at all true; disagree completely) to 9 (Definitely true; agree completely) with a midpoint of 5 (Moderately true; agree to some extent) (Rubin, 1973). Thus, overall scores can range from 13 to 117. The mean score for woman was 89.46 ( $SD = 15.54$ ) and 89.37 ( $SD = 15.16$ ) for males. Internal consistency for the scale was .84 for women and .86 for men. The scores on the love scale were only moderately correlated with scores on a liking scale that Rubin also developed ( $r = .39$  for women and  $r = .60$  for men). Rubin stated the fact that the males' scores were more highly correlated with liking than the females' might indicate that women distinguish between liking and loving more than men do. Estimates that a respondent would marry their partner were more related to one's love rather than liking of their partner. Furthermore, love for the person one was currently dating was only correlated with the love for one's friend of the same sex at  $r = .18$  for women and  $r = .15$  for men. Scores were uncorrelated with the Marlowe Crowne Social Desirability Scale  $r = .01$  for both men and women. This indicated that the love scale was in fact looking at one's attitude toward a specific person rather than a general attitude toward others or a certain socially desirable response pattern.

### International Physical Activity Questionnaire (IPAQ)- Short Form-Last 7 Days

The IPAQ- Short Form (Craig, et al., 2003) is an instrument that measures physical activity in adults ages 15-69. It was developed to allow international comparisons of adult physical activity and to offer a standardized approach to that measurement, which had thus far been lacking. The IPAQ looks at a number of domains in which physical activity might be done, including activities done in and around the home, work-related activities, and activities related to getting to and from places. From within those domains the Short Form asks about three specific types of activities. These activities are walking, moderate-intensity activities, and vigorous intensity activities. It then assesses the frequency (days per week) and duration (hours and minutes per day). Thus, the IPAQ provides separate scores on walking, moderate-intensity activities, and vigorous-intensity activities. In computing the total score each activity is weighted according to its energy requirements. These requirements are in METs, which are multiples of the resting metabolic rate. The result is a score in MET minutes. This score is obtained by multiplying the minutes a particular activity is engaged in and the MET weighting on that activity. For example, the weighting for walking at 3 mph is 3.3 METs, moderate-intensity is 4.0 METs (for example, walking at 4 mph equates to 4.5 METS), and vigorous intensity is 8.0 METs, which is equal to walking at 5 mph (Harvard School of Public

Health, 2006). These numbers would then be multiplied by the number of minutes an individual engaged in a particular activity.

The total MET minute score (i.e. total walking score + total moderate-intensity score + total vigorous intensity score) for an individual on the IPAQ is one method of scoring the IPAQ, called the continuous scoring method (IPAQC). IPAQ results may also be scored according to the HEPA scoring protocol in which IPAQ scores are placed into one of three levels. The three levels of the HEPA scoring approach are 1. Inactive- lowest level of physical activity and for individuals not meeting the requirements of categories 2 or 3. The second level, is Minimally Active- individuals meeting any of the following criteria: a) at least 20 minutes of vigorous activity 3 or more days, b) at least 30 minutes of moderate-intensity activity or walking for 5 or more days, or c) achieving at least 600 MET minutes a week through a combination of walking, moderate-intensity, or vigorous-intensity activities for 5 or more days a week. This second level is considered to be meeting the minimum recommended weekly physical activity requirements for maintaining one's health. The third level, is Health Enhancing Physical Activity (HEPA). In order to meet this criteria one would have to attain either of the following requirements: a) the accumulation of at least 1500 MET minutes per week through vigorous-intensity activity on at least 3 days, or b) accumulation of at least 3000 MET minutes per week through any combination of walking, moderate-intensity, or vigorous-intensity activities for 7 days. The HEPA

scoring procedure allows for more sensitivity in picking up health maintaining and health enhancing amounts of physical activity when compared to the continuous scoring option. That is, the continuous scoring method only provides the overall score in MET minutes and is therefore unable to differentiate between physical activity levels that are conducive to health maintenance and/ or health enhancement and those that are not. Thus, the HEPA scoring protocol was the scoring method used in this study.

Craig, et al. (2003) presented psychometric research from around the world on the various IPAQ forms developed. The findings for the short form of the IPAQ-Last 7 Days were found to be very acceptable and at least as good as or better than other self-reports already in use. Data on reliability of this form in the United States showed correlation coefficients that ranged from .66 to .88. Concurrent validity findings indicated a fair amount of agreement between the long and short forms of the IPAQ with a coefficient of .67 and a coefficient of .58 when compared with variants of the IPAQ short form. Correlation coefficients did not seem to be effected by the frame of the reference period (“usual week” or “last 7 days”), but the authors found most sites preferred the “last 7 days” form. Criterion validity coefficients were assessed against the Computer Science and Application Inc. accelerometer which objectively records actual activity and stores it in 1 minute intervals. The criterion validity coefficients were found to be .26-.27 for samples taken in the United States. In comparison Sallis and Saelens (2000) found other

self-report assessments of physical activity to have criterion validity correlations ranging from .14 to .53 and reliability correlations ranging from .34 to .89. Overall, the IPAQ showed acceptable reliability and validity properties across both developed and developing countries (Craig, et al., 2003).

#### Satisfaction With Life Scale (SWLS)

The SWLS (Diener, et al., 1985) is made up of five items that assess global judgment of life satisfaction. This global judgment refers to a cognitive process that is based on a comparison with a standard that is set individually. Respondents use a 7-point Likert type scale ranging from strongly disagree to strongly agree with neither agree nor disagree as the middle item. Thus, scores have the possibility of ranging from 5 to 35, with higher scores indicating higher satisfaction. Scoring is as follows: 5-9 = Extremely Dissatisfied, 10-14 = Dissatisfied, 15-19 = Slightly Dissatisfied, 20 = Neutral, 21-25 = Slightly Satisfied, 26-30 = Satisfied, and 31-35 = Extremely Satisfied.

An example of one of the five items is, "So far I have gotten the important things I want in life." Diener, et al. (1985) found the test-retest reliability to be  $r = .82$  and the coefficient  $\alpha$  to be .87. These authors also found the SWLS had a .02 correlation with the Marlowe-Crowne measure, which indicates the SWLS was not being answered in or provoking socially

desirable responses. Furthermore, a moderately strong ( $r = .47$  and above) correlation was found between the SWLS and nine measures of subjective well-being as well as an appropriate negative correlation of  $r = -.32$  to  $-.37$  on a negative affect scale.

### Rosenberg Self-Esteem Scale (SES)

In their reviews of the literature both Mruk's (as cited in Bagley & Mallick, 2001) and Mann, et al. (2004) found strong links between self-esteem and mental health. Mann, et al. (2004) referred to self-esteem as one of the main components to mental health. The Rosenberg SES (Rosenberg 1989) is a ten item scale that measures global self-esteem. An example of one of the scale items is "I feel that I'm a person of worth, at least on an equal plane with others." The scale is scored on a four point Likert scale, which ranges from strongly agree to strongly disagree with agree and disagree as the middle scores. Values assigned to these scores for items 1, 2, 4, 6, and 7 are as follows: strongly agree = 3, agree = 2, disagree = 1, and strongly disagree = 0. For items 3, 5, 8, 9, and 10 the values are reversed. Thus, the overall score ranges from 0 to 30 with higher scores indicating higher self-esteem and lower scores indicating lower self-esteem.

Blascovich and Tomaka (1991) reported the psychometric properties of the Rosenberg SES, which has shown good test-retest correlations typically in the range of  $r = .82$  to  $r = .88$ . Cronbach's alpha for internal consistency has

been found to be in the range of .77 to .88 for various samples. The Rosenberg SES has also been found to have a convergent validity correlation of  $r = .72$  with the Lerner Self-Esteem Scale. Blascovich and Tomaka also reported convergent validity scores of  $r = -.64$  with anxiety and  $r = -.54$  with depression. Research on discriminant validity has shown no significant correlations with gender ( $r = .10$ ), age ( $r = .13$ ), marital status ( $r = .17$ ), or birth order ( $r = .02$ ). Overall, Blascovich and Tomaka state that the Rosenberg SES is the standard against which new measures of self-esteem are compared.

#### Health Status Assessment

Cox, et al., (1988) stated that there are strong findings for the correlation of self-reported health status and actual objective health status. These authors also reported on and used a two item self-report assessment to measure health status. These two items, taken from Kviz and Flaskerud (1984), were (a) Would you say your health is excellent, good, fair, or poor? and (b) In comparison to others your age, is your health better, same, or worse? These two questions were then cross-classified to create an index. Scores can range from 1 to 6, with 1 being related to poorer health and 6 to better health. A score of 1 would result when the respondent answers 'poor' for the general health item and 'worse' for the age-related item. Scores would then increase by one for each answer that is an improvement on either item.

For example, a respondent answering 'good' for the general health item and 'same' for the age-related item would have a score of 4. A score of 1 or 2 is equivalent to poor health, a score of 3 or 4 is equivalent to fair health, and a score of 5 or 6 is equivalent to good health status (Kviz & Flaskerud, 1984).

Cox, et al. (1988) reported a significant positive relationship ( $r = .42, p < .001$ ) between the general health and age-related items. They also reported a significant negative relationship ( $r = -.62, p < .001$ ) between the two item assessment and the number and intensity of symptoms by the elderly in a previous study. Kviz and Flaskerud (1984) documented the validity of this health status assessment and found respondents reporting poorer health status also reported more physicians visits ( $r = +.25, p < .001$ ). The health status assessment also showed a negative correlation ( $r = -.38, p < .001$ ) between symptoms experienced and perceived health status. That is, the more symptoms the lower the perceived health of the respondent. Finally, the general health and age-related items were found to have a significant positive relationship ( $r = .49, p < .001$ ).

### ENRICH Couple Scales

The ENRICH Couple Inventory (Olson, 1996) is a research and clinical tool that consists of 20 scales covering a variety of areas from leisure activities to conflict resolution, and which is designed to assist couples with their relationships. For the purpose of this study, two of those scales that



measure variables associated with couple and life satisfaction will be used. A third scale, measuring couple satisfaction itself, will also be used. Each of the three scales is made up of 10 questions that can be answered from 1 (Disagree Strongly) to 5 (Agree Strongly). The middle score of 3 is labeled Undecided. Thus, the scoring for each scale can range from 10-50. There are items in each of the scales that are reversed scored.

### Communication Scale

The ENRICH Communication Scale (Olson, 1996) is a scale designed to measure the quality of communication one has with their partner. For example, it asks such things as, whether one feels satisfied with how they and their partner talk with one another. Raw scores that fall within the 41-50 range are considered very high. Very high scores are indicative of an individual who feels positively about the quantity and quality of the communication in the relationship. Raw scores in the 35-40 range are considered high, 28-34 are moderate, 22-27 low, and 10-21 are considered very low. Very low scores are indicative of an individual who is very concerned about the quality of the communication in the relationship. Seven of the 10 items in this scale are reversed scored, with the remaining three items being scored as marked by the respondent. The mean score of 31.6 for the Communication Scale was obtained from a sample of 21,501 married couples ( $n = 43,002$  participants) (Olson, 2000). The standard deviation was

9.2 with a test/ retest reliability of  $r = .81$  and an alpha reliability of  $\alpha = .90$ . To determine discriminant validity, discriminant analysis was carried out between groups that were satisfied and dissatisfied with their marriage. It was found that the Communication Scale was a significant predictor of marital satisfaction (Fowers & Olson, 1989).

### Sexual Relationship Scale

The ENRICH Sexual Relationship Scale (Olson, 1996) is a scale designed to measure the quality and satisfaction one has with the expression and feeling of the sexuality being expressed in the dyad. For example, it asks questions like whether or not one worries about their partner having thoughts about having an affair outside of their relationship. Raw scores that fall within the 41-50 range are considered very high. Very high scores are indicative of an individual who is very satisfied with the expressions of affection in the relationship as well as the sexuality in the relationship. Raw scores in the 36-40 range are considered high, 29-35 are moderate, 23-28 low, and 10-22 are considered very low. Very low scores are indicative of an individual who is very dissatisfied with the expressions of affection and is concerned about the sexuality in the relationship. Half of the 10 items in this scale are reversed scored, with the remaining half being scored as marked by the respondent. The mean score of 33.7 for the Sexual Relationship Scale was obtained from a sample of 21,501 married couples ( $n = 43,002$

participants)(Olson, 2000). The standard deviation was 9.1 with a test/ retest reliability of  $r = .92$  and an internal consistency of  $\alpha = .88$ . To determine discriminant validity, discriminant analysis was carried out between groups that were satisfied and dissatisfied with their marriage. It was found that the Sexual Relationship Scale was a significant predictor of marital satisfaction (Fowers & Olson, 1989).

### Couple Satisfaction Scale

The ENRICH Couple Satisfaction Scale (Olson, 1996) is a scale designed to measure how satisfied a person is with the relationship they have with their partner. For example, one of the questions asked is, "I am unhappy with some of my partner's personality characteristics or personal habits." Raw scores that fall within the 41-50 range are considered very high. An individual scoring very high is very satisfied and truly enjoys most aspects of their couple relationship. Raw scores in the 36-40 range are considered high, 29-35 are moderate, 23-28 low, and 10-22 are considered very low. An individual scoring very low is very dissatisfied and is concerned about the relationship. Six of the 10 items are scored as marked by the respondent, while the remaining four items are reversed scored. The mean score of 32.2 for the Couple Satisfaction Scale was obtained from a sample of 21,501 married couples ( $n = 43,002$  participants) (Olson, 2000). The standard deviation was 8.6 with a test/ retest reliability of  $r = .86$  and an alpha

reliability of  $\alpha = .86$ . Concurrent validity scores of .73 for individual scores and .81 for couple scores were attained when compared to the Locke-Wallace Marital Adjustment Scale (Fowers & Olson, 1989).

### Demographic Variables

Participants were asked to record basic demographic and background variables on a demographic questionnaire included in the research packet. This questionnaire is presented in Appendix E. Participants were asked to anonymously report: age, level of education, major/ degree focus, income, gender, race/ ethnicity, years in current relationship, relationship status, number of children, and sexual orientation. Age and gender were used as predictor variables in the data analysis.

### Data Analysis

Descriptive statistics and Pearson  $r$  correlations were calculated for the variables investigated in this study. In addition hierarchical multiple regression analysis and path analysis was also conducted. SPSS software (SPSS, Inc., 2005) was used for the calculations for the descriptive statistics, correlations and hierarchical multiple regression analysis. AMOS software (Arbuckle, 2006) was used for the path analysis. To examine the first research question of “To what extent do the

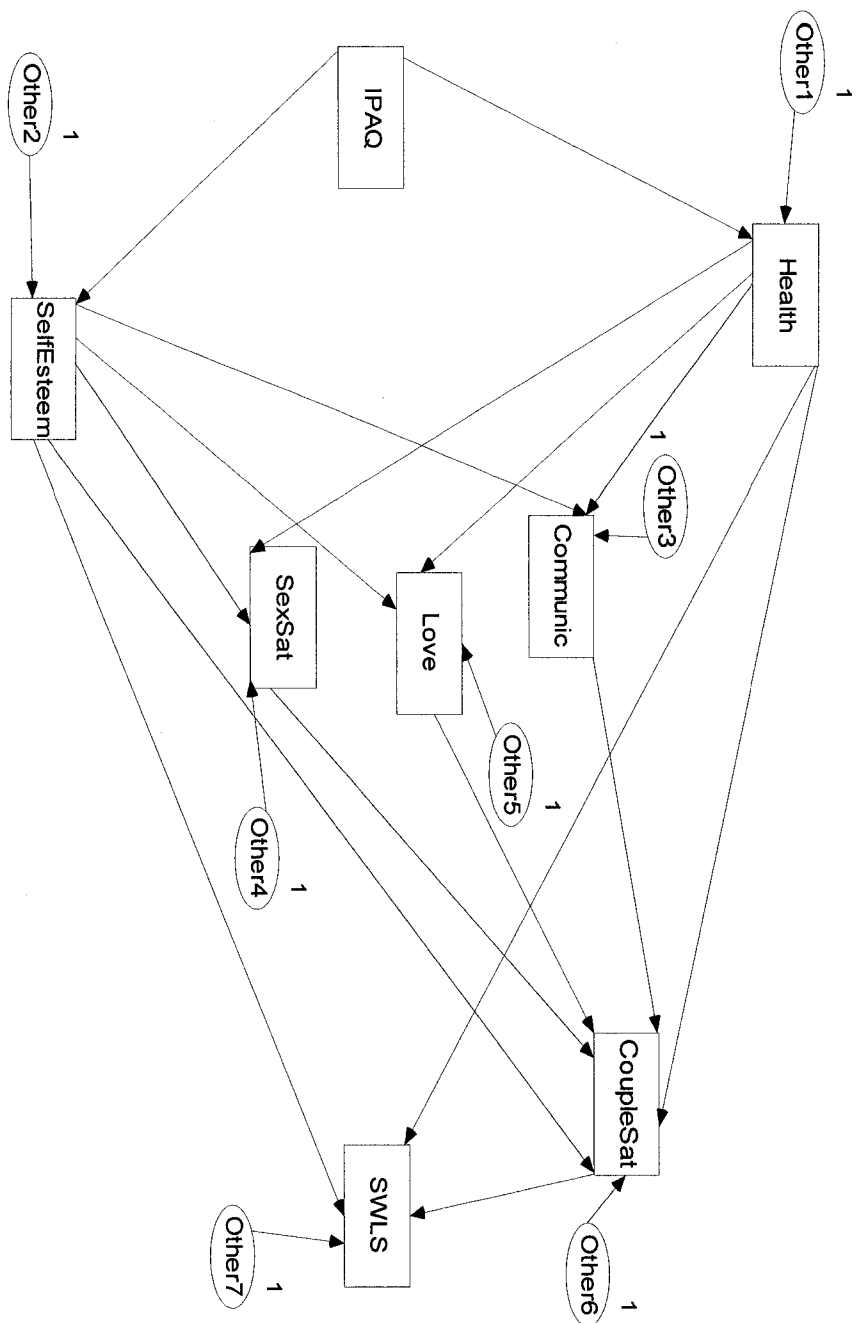
relationship variables of communication, love, self-esteem, physical health, and sexual satisfaction relate to couple satisfaction?” and to test null hypothesis 1a, a correlational analysis was performed. Pearson  $r$  correlations were calculated between the variables of communication, love, self-esteem, physical health, and sexual satisfaction with the criterion variable of couple satisfaction.

To examine the second research question “To what extent does exercise relate to couple satisfaction?” and to test the null hypotheses 1b, 2a and 2b a correlational analysis and hierarchical multiple regression analysis was performed. To test null hypothesis 2a, a Pearson  $r$  correlation was calculated for the exercise and couple satisfaction variables. To test null hypothesis 1b and 2b, a hierarchical multiple regression was performed with couple satisfaction as the criterion variable. The predictor variables of age and gender were entered together as a block for the first model of this analysis. Communication, love, self-esteem, physical health, and sexual satisfaction were entered together as the second block for the second model in this analysis, and exercise was entered as the third block for the third model in the analysis. The  $F$  test for significant difference in variance accounted for in couple satisfaction between the first and second models of this analysis was calculated and used to test null hypothesis 1b. The  $F$  test for significant difference in variance accounted for in couple satisfaction between the second and third models in the analysis was used to test the hypothesis 2b.

The third research question “To what extent does exercise relate to life satisfaction?” was investigated with correlational analysis and multiple regression. Null hypothesis 3a was first tested by calculating a Pearson  $r$  correlation for the variables of exercise and life satisfaction. Null hypothesis 3b, “After controlling for age, gender, communication, love, self-esteem, physical health, and sexual satisfaction; exercise will not contribute significant and unique variance to the prediction of life satisfaction”, was tested using a hierarchical regression model. The criterion variable was life satisfaction and the predictor variables were age, gender, communication, love, self-esteem, physical health, sexual satisfaction and exercise. The predictor variables age and gender were entered together as a block in the first model of this analysis. Communication, love, self-esteem, physical health, and sexual satisfaction were entered together as a block in the second model of this analysis, and exercise was then entered last in the third model. The  $F$  test for significant difference in variance accounted for in life satisfaction by each model was used to examine the relative contributions of each set of variables in predicting life satisfaction and testing null hypothesis 3b. Finally, due to the fact that multiple regression did not allow for the examination of indirect effects, two exploratory path analyses were performed to consider two possible models. The first model, the Indirect Model, explored whether exercise had an indirect effect on the variables of couple satisfaction and life satisfaction (See Figure 1). That is, this path

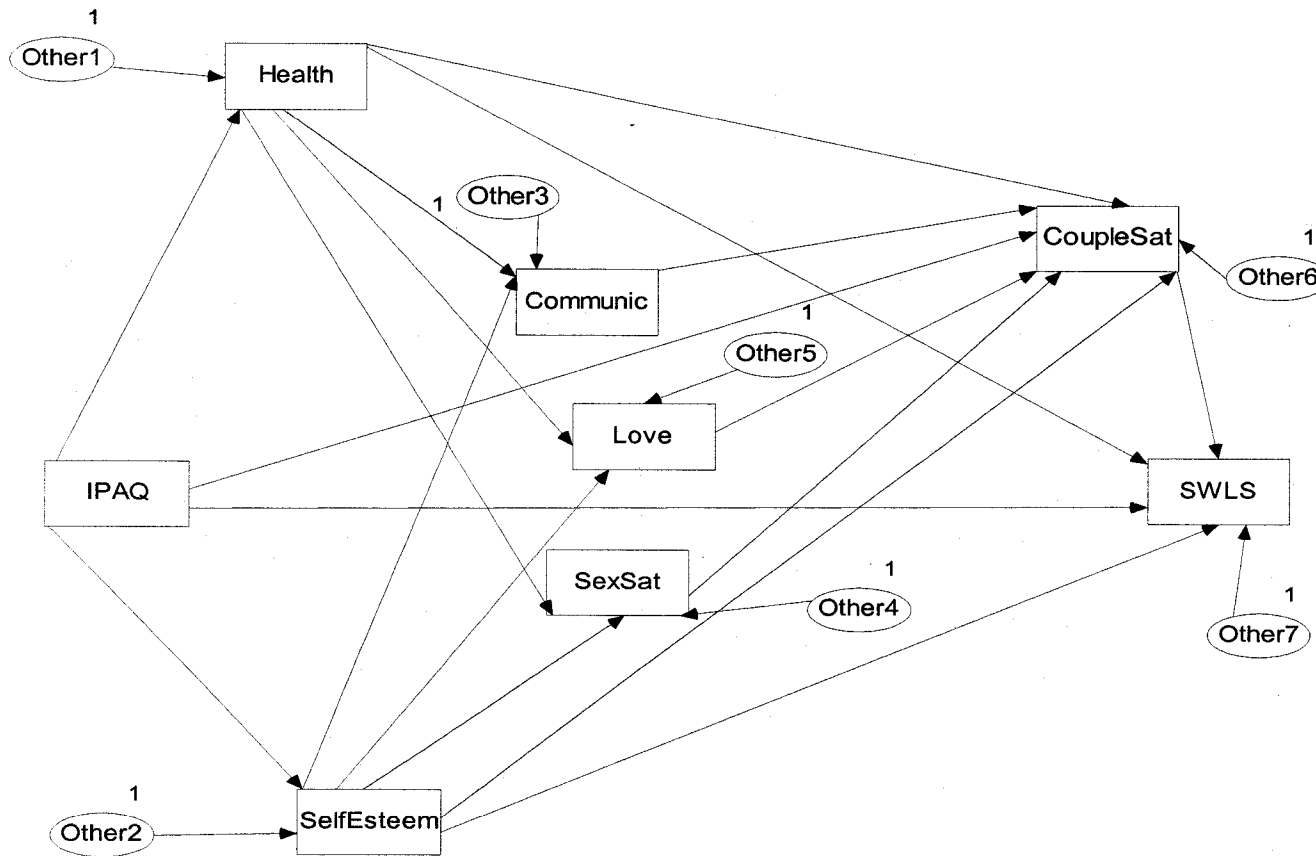
analysis investigated whether exercise affected couple satisfaction and/ or life satisfaction through its effect on physical health, self-esteem, love, communication, and/ or sexual satisfaction. The second path analysis model, the Direct & Indirect Model, (See Figure 2) investigated whether exercise had both an indirect and direct effect on couple satisfaction and/ or life satisfaction. These two models were then compared to see which was the best fit for the data.

**Figure 1**  
**Path Analysis Model 1**  
**Hypothesized Indirect Model**





**Figure 2**  
**Path Analysis Model 2**  
**Hypothesized Direct and**  
**Indirect Model**



### Summary of Chapter III

This chapter reviewed the manner in which this study was conducted. It began with a brief introduction and then followed with a section on procedure in which the participant recruitment was specified. This section was then followed by an overview of the instrumentation that was used during this study. These measures included the Rubin Love Scale, the IPAQ, the SWLS, the Rosenberg SES, three scales from the ENRICH, a health assessment, and a demographics form. Finally, the chapter was concluded with a brief summary of how the data in this study was analyzed. The main analysis was correlational analysis, hierarchical multiple regression, and path analysis.

## CHAPTER IV

### RESULTS

#### Introduction

Chapter IV reports the research findings of this study. First, descriptive statistics of the data will be presented. This will be followed by the results of the main statistical analysis for each of the research questions. A short summary will conclude this chapter.

#### Descriptive Statistics

The means, standard deviations, and Pearson  $r$  correlations for the main variables in this study were calculated using the statistical software SPSS. The means and standard deviations for the scales used in the present study for predictor variables were as follows: the Rubin Love Scale which measured love, had a mean of 89.29 ( $SD = 13.76$ ), the Rosenberg SES which measured self-esteem, had a mean of 23.81 ( $SD = 4.42$ ), the Sexual Relationship Scale which measured sexual satisfaction, had a mean of 38.05 ( $SD = 7.32$ ), the Communication Scale which measured communication, had a mean of 36.51 ( $SD = 7.02$ ), and the Health Assessment which measured health, had a mean of 4.61 ( $SD = 1.08$ ). With respect to Health Assessment Kviz and Flaskerud (1984) note a score of 1 or 2 is equivalent to poor health,

a score of 3 or 4 is equivalent to fair health, and a score of 5 or 6 is equivalent to good health status. The IPAQ which measured exercise, had a mean of 2.11 ( $SD = .750$ ) for the IPAQ scored according to the HEPA scoring protocol. The mean for the IPAQ scored continuously (IPAQC), meaning it was scored by summing the MET minute scores for walking, moderate-intensity, and vigorous-intensity activities, was 2743.02 ( $SD = 3020.77$ ). On the Couple Satisfaction Scale, one of the criterion variables in the present study, participants had a mean score of 32.99 ( $SD = 5.98$ ). This mean was in the moderate range of couple satisfaction (Olson, 1996). On the second criterion variable, life satisfaction, measured by the SWLS, participants had a mean score of 26.86 ( $SD = 5.74$ ) which was in the satisfied range (Diener, et al., 1985).

## Research Questions and Null Hypotheses

### Research Question 1

The literature on couples' satisfaction indicates that the variables of communication, love, self-esteem, physical health, and sexual satisfaction are all positively related to couple satisfaction. In order to replicate these findings the question of, "To what extent do the relationship variables of communication, love, self-esteem, physical health, and sexual satisfaction relate to couple satisfaction?" was studied.

Null Hypothesis 1a:

Adults who participate in this study will not demonstrate a significant correlation between their overall scores on the Communication Scale, Rubin Love Scale, I;Rosenberg SES, the health status assessment, Sexual Relationship Scale, and scores on couple satisfaction as measured by the Couple Satisfaction Scale.

To consider the first research question and to test the Null Hypothesis 1a, single order Pearson  $r$  correlations were calculated between communication, love, self-esteem, health, sexual satisfaction, and couple satisfaction to determine if they were significantly different than 0. Table 1 presents the correlation matrix for the variables in the present study and the results of this correlation analysis. Couple satisfaction was found to be significantly and positively correlated with communication, love, self-esteem, health, and sexual satisfaction. The Pearson  $r$  correlation between couple satisfaction and communication was  $r = .695$ , ( $p < .00001$ ), for couple satisfaction and love  $r = .485$ , ( $p < .00001$ ), for couple satisfaction and self-esteem  $r = .318$ , ( $p < .00001$ ), for couple satisfaction and health  $r = .179$ , ( $p < .007$ ) and for couple satisfaction and sexual satisfaction ( $r = .648$ ,  $p < .00001$ ). Null Hypothesis 1a was rejected.

Table 1  
Correlation Matrix

	Age	Gender	Love	SWLS	Health	SelfEst	SexSat	Couple Sat	Comm	IPAQ	IPAQC
Age	-	.009	***-.263	-.091	.079	.068	***-.242	***-.210	**-.202	-.041	-.092
Gender		-	-.124	.112	-.105	.084	*.170	-.015	.034	*-.136	**-.207
Love			-	***.286	*.157	.032	***.369	***.485	***.427	.044	.039
SWLS				-	*.142	***.460	***.394	***.564	***.423	.011	.000
Health					-	** .202	*.167	** .179	*.161	** .222	.129
SelfEst						-	***.243	***.318	***.297	-.064	-.090
SexSat							-	***.648	***.631	-.035	-.038
Couple Sat								-	***.695	-.020	-.089
Comm									-	.075	.014
IPAQ										-	** .699
IPAQC											-

\*\*\* Correlation is significant at the 0.001 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Note. SWLS = Satisfaction With Life Scale, SexSat = Sexual Satisfaction, Couple Sat = Couple Satisfaction, Comm = Communication, IPAQ = International Physical Activity Questionnaire HEPA Scoring Protocol, IPAQC = International Physical Activity Questionnaire- Continuous

### Null Hypothesis 1b:

After controlling for age and gender, the variables of communication, love, self-esteem, physical health, and sexual satisfaction will not contribute significant unique variance to the prediction of couple satisfaction.

To test Null Hypothesis 1b a hierarchical multiple regression was performed with couple satisfaction as the criterion variable and age, gender, communication, love, self-esteem, physical health, and sexual satisfaction as the predictor variables. The results of this regression analysis are presented in Table 2. To control for age and gender, these variables were entered together as a block in the first model and accounted for 4.4% of the variance in a couple satisfaction. (Multiple  $R = .211$ ;  $R^2 = .044$ ; Adjusted  $R^2 = .036$ ;  $R^2$  Change = .044;  $F_{\text{Change}}(2, 226) = 5.25$ ;  $p = .006$ ). Only age was found to be a significant unique predictor of couple satisfaction ( $t = -3.23$ ,  $p = .001$ ), which indicated older participants reported less couple satisfaction. The variables of communication, love, self-esteem, physical health, and sexual satisfaction were entered as a block in the second model and together accounted for 56% additional variance in couple satisfaction (Multiple  $R = .777$ ;  $R^2 = .604$ ; Adjusted  $R^2 = .592$ ;  $R^2$  Change = .560;  $F_{\text{Change}}(5, 221) = 62.55$ ;  $p < .00001$ ). When entered as a block of variables communication ( $t = 6.40$ ,  $p < .00001$ ), love ( $t = 3.87$ ,  $p = .0001$ ), self-esteem ( $t = 2.85$ ,  $p = .005$ ), and sexual

satisfaction ( $t = 5.54, p < .00001$ ) were identified as significant unique predictors of couple satisfaction. These findings resulted in Null Hypothesis 1b being rejected.

Table 2

*Summary of Hierarchical Regression Analysis for Variables Predicting Couple Satisfaction (N = 229)*

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	37.996	1.654		22.97	< .00001
	Age	-.160	.049	-.210	-3.23	.001
	Gender	-.172	.829	-.014	-.21	.836
2	(Constant)	.802	2.680		.30	.765
	Age	-.013	.034	-.017	-.37	.713
	Gender	-.878	.565	-.069	-1.55	.122
	Love	.083	.021	.191	3.87	.0001
	Health	.020	.247	.004	.08	.936
	Self-Esteem	.177	.062	.131	2.85	.005
	SexSat	.260	.047	.318	5.54	< .00001
	Communic	.317	.050	.372	6.40	< .00001

Note. SexSat = Sexual Satisfaction, Communic = Communication

Model 1: Multiple  $R = .211$   $R^2 = .044$  Adjusted  $R^2 = .036$   $R^2$  Change = .044  $F_{\text{Change}}(2, 226) = 5.25$   $p = .006$

Model 2: Multiple  $R = .777$   $R^2 = .604$  Adjusted  $R^2 = .592$   $R^2$  Change = .560  $F_{\text{Change}}(5, 221) = 62.55$   $p < .00001$

### Research Question 2

To what extent does exercise relate to couple satisfaction?



Null Hypothesis 2a:

Adults who participate in this study will not demonstrate a significant correlation between their overall exercise scores on the IPAQ and scores on couple satisfaction as measured by the Couple Satisfaction Scale.

To test the Null Hypothesis 2a a single order Pearson  $r$  correlation was calculated for couple satisfaction and the IPAQ. As shown in Table 1 no significant correlation was found between couple satisfaction and the IPAQ ( $r = -.020, p < .763$ ). Thus, Null Hypothesis 2a was accepted.

Null Hypothesis 2b:

After controlling for age, gender, communication, love, self-esteem, physical health, and sexual satisfaction; exercise will not contribute significant unique variance to the prediction of couple satisfaction.

To test Null Hypothesis 2b IPAQ scores were added as a predictor variable in the third model of the hierarchical multiple regression performed with couple satisfaction as the criterion variable. These results are presented in Table 3. The results of the third model of this multiple regression analysis indicated that 60.7% (Multiple  $R = .779$ ;  $R^2 = .607$ ; Adjusted  $R^2 = .593$ ) of the variance of couple satisfaction was accounted for by the variables in this model.

However, exercise only accounted for an additional 0.3% ( $R^2$  Change = .003;  $F$  Change (1, 220) = 1.42;  $p$  = .234) of the variance in couple satisfaction with the other predictor variables entered into the equation. The variables of love ( $t$  = 3.83,  $p$  = .0002), self-esteem ( $t$  = 2.71,  $p$  = .007), sexual satisfaction ( $t$  = 5.39,  $p$  < .00001), and communication ( $t$  = 6.51,  $p$  < .00001) were all found to be significant predictors of couple satisfaction in this model. However, IPAQ was not a significant predictor of couple satisfaction in this model and the addition of IPAQ scores to the regression model did not account for significant additional variance in couple satisfaction. Null Hypothesis 2b was accepted.

Table 3

*Summary of Hierarchical Regression Analysis for Exercise and Other Variables Predicting Couple Satisfaction (N = 229)*

Model		B	Std. Error	Beta	t	Sig.
3	(Constant)	1.706	2.782		.61	.540
	Age	-.015	.034	-.020	-.44	.660
	Gender	-.937	.567	-.073	-1.65	.100
	Love	.082	.021	.189	3.83	.0002
	Health	.091	.254	.016	.36	.720
	Self-Esteem	.169	.062	.125	2.71	.007
	SexSat	.254	.047	.311	5.39	< .00001
	Communic	.324	.050	.381	6.51	< .00001
	IPAQ	-.421	.353	-.053	-1.19	.234

*Note.* SexSat = Sexual Satisfaction, Communic = Communication, IPAQ = International Physical Activity Questionnaire

Model 3: Multiple  $R = .779$   $R^2 = .607$  Adjusted  $R^2 = .593$   $R^2$  Change = .003  $F_{\text{Change}}(1, 220) = 1.42$   $p = .234$

### Research Question 3

To what extent does exercise relate to life satisfaction?

Null Hypothesis 3a:

Adults who participate in this study will not demonstrate a significant correlation between exercise scores on the IPAQ and scores of life satisfaction as measured by the SWLS.

To test Null Hypothesis 3a a single order Pearson  $r$  correlation was calculated for the SWLS and the IPAQ. This correlation was not significant ( $r = -.011, p < .873$ ) and no direct linear relationship was found between life satisfaction and exercise. Null Hypothesis 3a was accepted.

Null Hypothesis 3b:

After controlling for age, gender, communication, love, self-esteem, physical health, and sexual satisfaction; exercise will not contribute significant unique variance to the prediction of life satisfaction.

To test Null Hypothesis 3b a hierarchical multiple regression was performed with life satisfaction as the criterion variable and age and gender as the predictor variables in the first block. The predictor variables of communication, love, self-esteem, physical health, and sexual satisfaction were then entered as a block of variables into the second model of the regression analysis. The third and final block consisted of the predictor variable exercise. The results are presented in Table 4.

The first model consisting of age and gender accounted for 2.1% of the variance in life satisfaction (Multiple  $R = .145$ ;  $R^2 = .021$ ; Adjusted  $R^2 = .012$ ;  $R^2$  Change = .021;  $F_{\text{Change}} (2, 226) = 2.43$ ;  $p = .090$ ). The Multiple  $R$  for the first model was not significant and age ( $t = -1.40$ ,  $p = .165$ ) and gender ( $t = 1.72$ ,  $p = .086$ ) were not significant predictors of life satisfaction in the first model. The second model accounted for 34.5% (Multiple  $R = .587$ ;  $R^2 = .345$ ; Adjusted  $R^2 = .324$ ) of the variance in life satisfaction. The second block of variables, which consisted of communication, love, self-esteem, physical health, and sexual satisfaction accounted for an additional 32.4% of the variance in life satisfaction ( $R^2$  Change = .324;  $F_{\text{Change}} (5, 221) = 21.82$ ;  $p < .00001$ ). The variables of love ( $t = 2.62$ ,  $p = .009$ ), self-esteem ( $t = 6.29$ ,  $p < .00001$ ), and communication ( $t = 2.08$ ,  $p = .038$ ) were all significant predictors of life satisfaction in the second model. The third model also explained 34.5% ( $R^2 = .345$ ; Adjusted  $R^2 = .322$ ) of the variance in life satisfaction. Exercise did not provide further unique and significant prediction ( $R^2$  Change = .001;  $F_{\text{Change}} (1, 220) = .30$ ;  $p = .585$ ) of life satisfaction when it was entered into the analysis. The variables of love ( $t = 2.63$ ,  $p = .009$ ), self-esteem ( $t = 6.30$ ,  $p < .00001$ ), and communication ( $t = 2.00$ ,  $p = .047$ ) were significant predictors in the third model. Null Hypothesis 3b was accepted. Exercise did not contribute significant unique variance to life satisfaction after controlling for age, gender, love, self-esteem, communication, physical health, and sexual satisfaction.

Table 4

*Summary of Hierarchical Regression Analysis for Variables Predicting Life Satisfaction (N = 229)*

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	27.972	1.607		17.40	<.00001
	Age	-.067	.048	-.092	-1.39	.165
	Gender	1.387	.806	.113	1.72	.086
2	(Constant)	.255	3.310		.08	.939
	Age	-.008	.042	-.011	-.19	.853
	Gender	.922	.698	.075	1.32	.188
	Love	.069	.026	.166	2.62	.009
	Health	.021	.306	.004	.07	.945
	Self-Esteem	.481	.077	.371	6.29	< .00001
	SexSat	.101	.058	.128	1.74	.084
	Communic	.127	.061	.156	2.08	.038
3	(Constant)	-.258	3.446		-.08	.940
	Age	-.006	.043	-.009	-.15	.879
	Gender	.956	.702	.078	1.36	.175
	Love	.070	.027	.167	2.63	.009
	Health	-.019	.315	-.004	-.06	.951
	Self-Esteem	.486	.077	.374	6.30	<.00001
	SexSat	.104	.058	.133	1.78	.076
	Communic	.123	.062	.151	2.00	.047
	IPAQ	.239	.438	.031	.547	.585

*Note.* SexSat = Sexual Satisfaction, Communic = Communication, IPAQ = International Physical Activity Questionnaire

Model 1: Multiple  $R = .145$   $R^2 = .021$  Adjusted  $R^2 = .012$   $R^2$  Change = .021  $F_{\text{Change}}(2, 226) = 2.43$   $p = .090$

Model 2: Multiple  $R = .587$   $R^2 = .3446$  Adjusted  $R^2 = .324$   $R^2$  Change = .324  $F_{\text{Change}} (5, 221) = 21.82$   $p < .00001$

Model 3: Multiple  $R = .588$   $R^2 = .3454$  Adjusted  $R^2 = .323$   $R^2$  Change = .001  $F_{\text{Change}} (1, 220) = .30$   $p = .585$

#### Research Question 4

Are the possible effects of exercise on couple and life satisfaction primarily indirect effects through other variables known to be affected by exercise, i.e. physical health and self-esteem, or are the possible effects of exercise on couple and life satisfaction both indirect and direct?

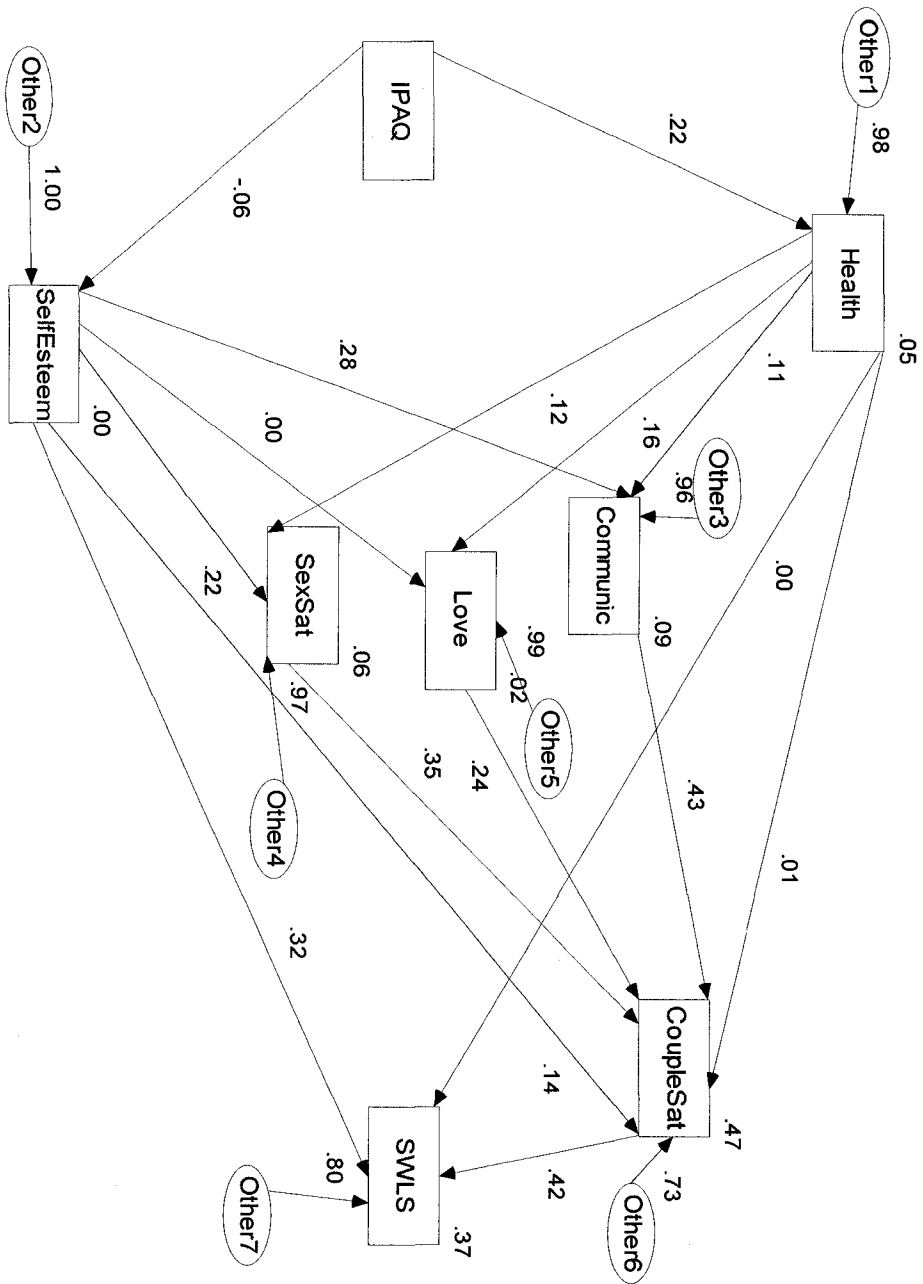
This study investigated and compared two possible models concerning the potential effects of exercise on couple satisfaction and life satisfaction. In one model the effects of exercise were hypothesized to be indirect effects on couple satisfaction and life satisfaction through the variables of physical health and self-esteem. This model was called the Indirect Model. In the alternate second model, exercise was hypothesized to have both direct effects and indirect effects through physical health and self-esteem on couple and life satisfaction. This model was called the Direct & Indirect Model. The study explored which model provided a better fit for the obtained data.

To consider Research Question 4, path analyses were performed using the AMOS statistical software package. The IPAQ was the lone exogenous variable in both models and both models in this study were recursive. Model

1, which is presented in Figure 3, represents the Indirect Model. The Indirect Model had a goodness of fit index (GFI) of .843. Wuensch (2006) recommends a GFI exceeding .9 for a model that accurately fits the data. The GFI for this model is therefore below what is considered a good fitting model. Furthermore, the Indirect Model had a normed fit index (NFI) of .693, which again is below the recommended .9 or higher for good fitting models (Wuensch, 2006). The comparative fit index (CFI), which falls between 0 and 1, with values close to 1 indicating a good fit was .699. This does, however, indicate that the Indirect Model was 69.9% better than the independent or null model, which assumes all variables are uncorrelated with each other. The root mean square error of approximation (RMSEA) compares models to the saturated model, which is the most general model possible and is guaranteed to perfectly fit any set of data (Arbuckle & Wothke, 1999). The RMSEA calculates a lack of fit for the Indirect Model to the saturated model. RMSEA of .08 or less equals an adequate fit, while RMSEA of .05 indicates an overall good fitting model (Wuensch, 2006). The RMSEA for the Indirect Model was .241, which is well above the indicators for a good or even adequate fitting model. When considered with the other indices indicating poor fit, the Indirect Model is rejected.



**Figure 3**  
**Path Analysis Model 1**  
**Indirect Model**



As Table 5 indicates the following standardized path coefficients (See Figure 3) were statistically significant: IPAQ – health (.222,  $p < .001$ ), self-esteem – sexual satisfaction (.220,  $p < .001$ ), self-esteem – communication (.277,  $p < .001$ ), self-esteem – couple satisfaction (.143,  $p = .005$ ), self-esteem – SWLS (.322,  $p < .001$ ), health – love (.157,  $p = .017$ ), communication – couple satisfaction (.432,  $p < .001$ ), sexual satisfaction – couple satisfaction (.345,  $p < .001$ ), love – couple satisfaction (.238,  $p < .001$ ), and couple satisfaction – SWLS (.416,  $p < .001$ ).

Table 5

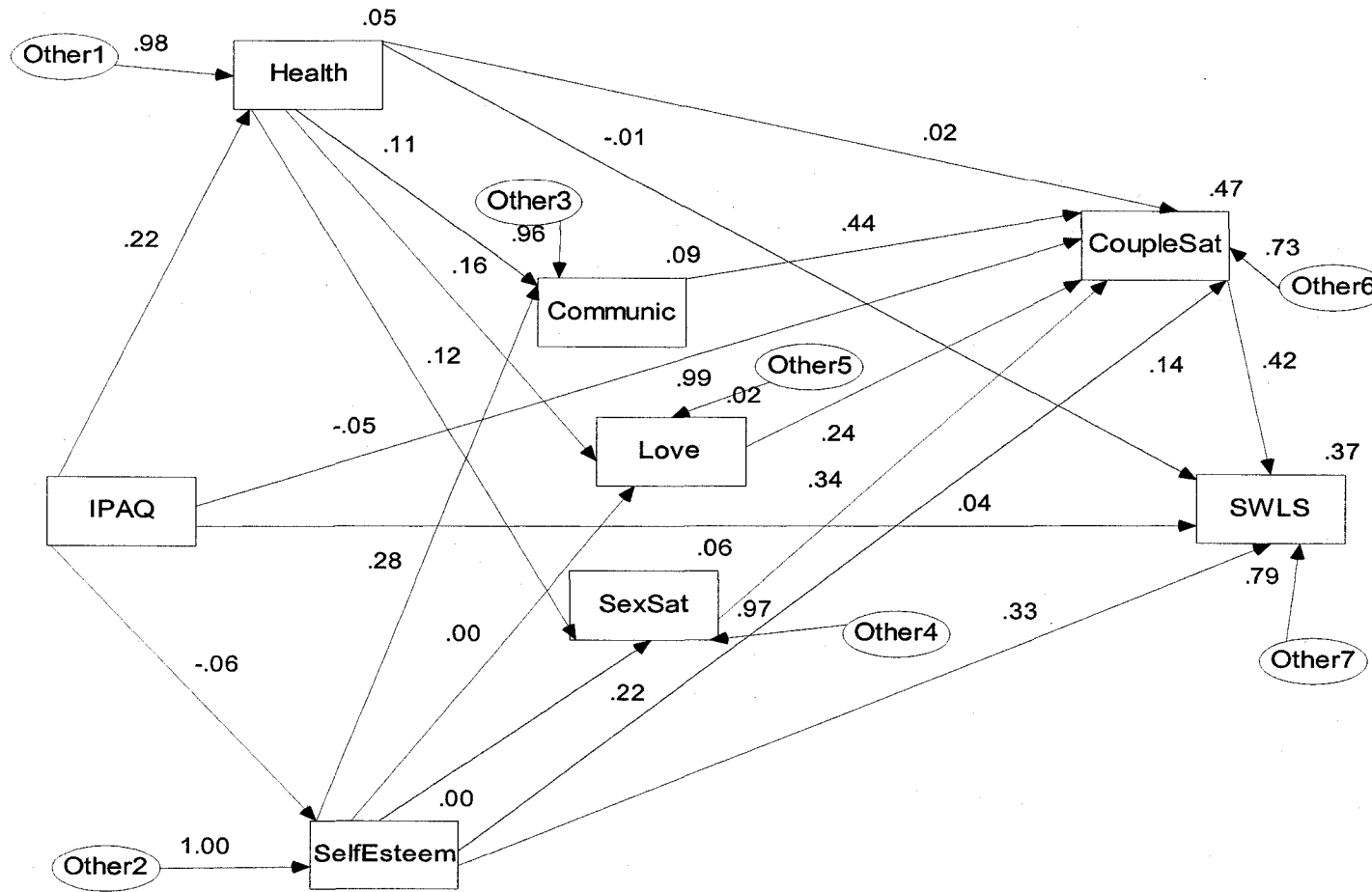
*Model 1- Indirect Model Maximum Likelihood Estimates*

		Estimate	S.E.	C.R.	<i>P</i>
Health	<--- IPAQ	.222	.093	3.431	< .001
Self-Esteem	<--- IPAQ	-.064	.389	-.963	.336
SexSat	<--- Self-Esteem	.220	.106	3.430	< .001
SexSat	<--- Health	.123	.433	1.921	.055
Communication	<--- Health	.106	.410	1.676	.094
Communication	<--- Self-Esteem	.277	.100	4.384	< .001
Love	<--- Self-Esteem	.000	.204	.005	.996
Love	<--- Health	.157	.836	2.397	.017
CoupleSat	<--- Self-Esteem	.143	.060	2.783	.005
CoupleSat	<--- Communication	.432	.038	8.560	< .001
CoupleSat	<--- Health	.012	.239	.236	.813
CoupleSat	<--- SexSat	.345	.036	6.926	< .001
CoupleSat	<--- Love	.238	.018	4.877	< .001
SWLS	<--- CoupleSat	.416	.061	7.364	< .001
SWLS	<--- Health	-.004	.275	-.070	.944
SWLS	<--- Self-Esteem	.322	.071	5.751	< .001

*Note.* SexSat = Sexual Satisfaction, CoupleSat = Couple Satisfaction, IPAQ = International Physical Activity Questionnaire, SWLS = Satisfaction With Life Scale

Model 2, which is presented in Figure 4, represents the Direct & Indirect Model. The Direct & Indirect Model had a GFI of .845. The GFI for this model is therefore below what is considered a good fitting model (.9 or above (Wuensch, 2006)). Furthermore, the Direct & Indirect Model had a NFI of .696, which again is below the recommended .9 or higher for good fitting models (Wuensch, 2006). The CFI was .699, which indicates the Direct & Indirect Model was 69.9% better than the independent or null model. The RMSEA, which compares models to the saturated model, was calculated to be .265 for the Direct & Indirect Model, which is well above the indicators for a good or even adequate fitting model (.05 and .08 (Wuensch, 2006)). When considered with the other indices indicating poor fit, the Direct & Indirect Model is rejected.

**Figure 4**  
**Path Analysis Model 2**  
**Direct and Indirect Model**



As Table 6 indicates the following standardized path coefficients (See Figure 4) were statistically significant: IPAQ – health (.222,  $p < .001$ ), self-esteem – sexual satisfaction (.220,  $p < .001$ ), self-esteem – communication (.277,  $p < .001$ ), self-esteem – couple satisfaction (.136,  $p = .008$ ), self-esteem – SWLS (.327,  $p < .001$ ), health – love (.157,  $p = .017$ ), communication – couple satisfaction (.441,  $p < .001$ ), sexual satisfaction – couple satisfaction (.337,  $p < .001$ ), love – couple satisfaction (.238,  $p < .001$ ), and couple satisfaction – SWLS (.418,  $p < .001$ ).

Table 6

*Model 2- Direct and Indirect Model Maximum Likelihood Estimates*

			Estimate	S.E.	C.R.	P
Health	<---	IPAQ	.222	.093	3.431	< .001
Self- Esteem	<---	IPAQ	-.064	.389	-.963	.336
SexSat	<---	Self-Esteem	.220	.106	3.430	< .001
SexSat	<---	Health	.123	.433	1.921	.055
Communication	<---	Health	.106	.410	1.676	.094
Communication	<---	Self-Esteem	.277	.100	4.384	< .001
Love	<---	Self-Esteem	.000	.204	.005	.996
Love	<---	Health	.157	.836	2.397	.017
CoupleSat	<---	Self-Esteem	.136	.060	2.656	.008
CoupleSat	<---	Communication	.441	.037	8.756	< .001
CoupleSat	<---	Health	.024	.244	.484	.628
CoupleSat	<---	SexSat	.337	.035	6.786	< .001
CoupleSat	<---	Love	.238	.018	4.879	< .001
CoupleSat	<---	IPAQ	-.052	.342	-1.052	.293
SWLS	<---	CoupleSat	.418	.061	7.394	< .001
SWLS	<---	Health	-.015	.282	-.271	.786
SWLS	<---	Self-Esteem	.327	.070	5.843	< .001
SWLS	<---	IPAQ	.045	.401	.825	.409

*Note.* SexSat = Sexual Satisfaction, CoupleSat = Couple Satisfaction, IPAQ = International Physical Activity Questionnaire, SWLS = Satisfaction With Life Scale

In comparing the Indirect Model to the Direct & Indirect Model (Table 7) findings indicated that they did not significantly differ from each other ( $p = .418$ ). Therefore, there is no statistical evidence that these two models differed.

Table 7

*Chi Square Fit Indices and Model Comparisons*

Model	$\chi^2$	Degrees of Freedom	$\chi^2$ diff	Degrees of Freedom
Model 1 Indirect Model	171.277 ( $p = .000$ )	12		
Model 2 Direct & Indirect Model	169.531 ( $p = .000$ )	10		
Difference between Model 2 & Model 1			1.747 ( $p = .418$ )	2

After reviewing both hypothesized path models, it was clear neither model fit the data well and that the path between exercise and self-esteem was not significant. Since the path from exercise to health was significant,

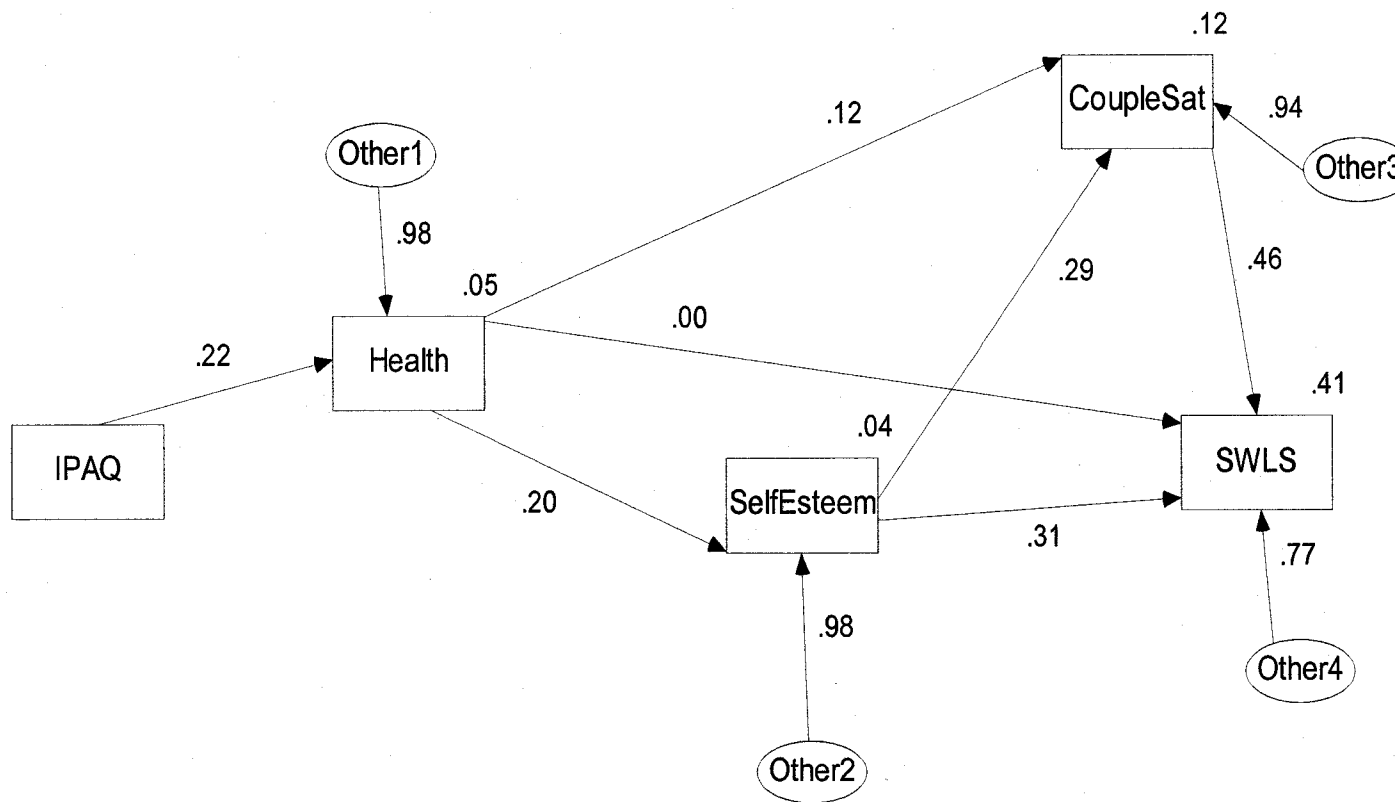


and since no path was included in the original hypothesized models from health to self-esteem, it was decided to do a third additional exploratory model in which all of the effects of exercise were hypothesized to be indirect effects through health. The variables of communication, love, and sexual satisfaction, which were well-established in the correlational analysis and regression analysis as predictors of couple satisfaction, were not included in this exploratory analysis to simplify the model and to focus on the primary variables of interest (i.e. exercise, health, self-esteem, couple satisfaction, and life satisfaction). The results of this exploratory analysis are presented in Figure 5 and Table 8.

This third model represents the Indirect Effects Through Health Model. The chi-square for this model was 3.838 with 3 degrees of freedom and a probability level of .279. A non-significant probability level is indicative of data that did not significantly vary from the proposed path model. The Indirect Effects Through Health Model's GFI of .993 signifies a good fitting model and above the recommended level of .9 or above (Wuensch, 2006). Furthermore, this model had a NFI of .978, which again is above the recommended .9 or higher for good fitting models (Wuensch, 2006). The CFI was .995, which indicates the Indirect Effects Through Health Model was 99.5% better than the independent or null model. The RMSEA which, as previously mentioned, compares models to the saturated model was found to be .035 for the Indirect Effects Through Health Model. Wuensch (2006)

states that a good fitting model will have a RMSEA of below .05. As the Indirect Effects Through Health Model is below this .05 level and when considered with the other indices indicating a good fit, the Indirect Effects Through Health Model is considered a plausible model.

**Figure 5**  
**Exploratory Path Analysis Model**  
**Indirect Effects Through Health Model**



As Table 8 indicates the following standardized path coefficients (See Figure 4) were statistically significant: IPAQ – health (.222,  $p < .001$ ), health – self-esteem (.202,  $p = .002$ ), self- esteem – couple satisfaction (.294,  $p < .001$ ), self- esteem – SWLS (.313,  $p < .001$ ), and couple satisfaction – SWLS (.465,  $p < .001$ ).

Table 8

*Exploratory Model- Indirect Effects Through Health Maximum Likelihood Estimates*

		Estimate	S.E.	C.R.	P
Health	<--- IPAQ	.222	.093	3.431	< .001
Self-Esteem	<--- Health	.202	.266	3.108	.002
CoupleSat	<--- Health	.119	.353	1.876	.061
CoupleSat	<--- Self-Esteem	.294	.086	4.629	< .001
SWLS	<--- Health	-.004	.280	-.069	.945
SWLS	<--- Self-Esteem	.313	.071	5.731	< .001
SWLS	<--- CoupleSat	.465	.052	8.560	< .001

*Note.* CoupleSat = Couple Satisfaction, IPAQ = International Physical Activity Questionnaire, SWLS = Satisfaction With Life Scale

### Summary of Chapter IV

Chapter IV presented the results of this study. Descriptive and correlational statistics were provided as were the results of the hierarchical regression analysis and path analysis performed for this study. Null

Hypothesis 1a was rejected after correlational analysis determined that the variables of love, self-esteem, physical health, sexual satisfaction, and communication were all significantly and positively related to couple satisfaction. Null Hypothesis 1b was also rejected after hierarchical regression analysis showed that the predictor variables of love, self-esteem, physical health, sexual satisfaction, and communication accounted for significant and unique variance in the prediction of couple satisfaction after controlling for age and gender. Null Hypothesis 2a was retained after correlational analysis indicated that the variables of exercise and couple satisfaction were not significantly related. Null Hypothesis 2b was also retained after hierarchical regression analysis showed that exercise did not account for significant and unique variance in couple satisfaction after controlling for age, gender, love, self-esteem, physical health, sexual satisfaction, and communication. Null Hypothesis 3a was also retained since exercise and life satisfaction were not significantly correlated. Finally, Null Hypothesis 3b was also retained after hierarchical regression analysis indicated that exercise did not account for significant and unique variance in life satisfaction after controlling for age, gender, love, self-esteem, physical health, sexual satisfaction, and communication.

Neither the indirect or direct path models proposed in this study fit the data and therefore were rejected. Furthermore, when compared to one another they were not found to be significantly different. A third exploratory

model was then investigated to explore a simpler model in which exercise's effects were hypothesized to be all indirect and through the variable of health. This Indirect Effects Through Health Model was found to be a plausible and good fitting model.

## CHAPTER V

### DISCUSSION

#### Introduction

Chapter V will include a discussion of the results presented in Chapter IV. Specifically, Chapter V will include discussion sections on the following: Couple Satisfaction, Couple Satisfaction and Exercise, and Life Satisfaction and Exercise. This chapter will also include sections on the implications of this study as well as the limitations of this study. A summary will conclude the chapter.

The purpose of this research was to investigate the extent of the relationship of exercise to couple satisfaction, to examine the extent of the relationship of exercise to life satisfaction, and to examine the relationship between the variables of communication, love, self-esteem, physical health, and sexual satisfaction to the variable of couple satisfaction.

Previous research has shown that exercise can have beneficial effects on an individual's physical and mental health (e.g. McGannon & Poon, 2005; Taylor, 2000; USDHHS, 1996). Good physical and mental health has been positively linked to both couple satisfaction (e.g. Davila, et al., 2003; Luteijn, 1994) and life satisfaction (e.g. Veenhoven, 1996). Thus, the present study explored whether exercise also has a relationship with couple satisfaction and life satisfaction. Previous research that has set out with the similar purpose

of investigating the degree of exercise's relationship to couple satisfaction and life satisfaction has returned only mixed results. For example, Hinckley (1985), Luepnitz (1986) and Maloy (1986) all found some positive relationships between exercise (i.e. running) and couple satisfaction. However, Richards (1986) and Baldwin (1998) each found no relationship between couple satisfaction and exercise (i.e. running). Furthermore, while numerous studies (e.g. Clark, et al., 1999; Eronen, et al., 1997; Kemmler, et al., 2002; McAuley, et al. 2000; McAuley & Rudolph, 1995; McMurdo & Burnett, 1992; Morgan & Bath, 1998; Peppers, 1976;) have found a clear and positive relationship between exercise and life satisfaction in older adults, studies investigating life satisfaction and exercise across the lifespan have found both a positive relationship (Melin, et al., 2003) and no relationship (Ornes, et al., 2005; Gauvin, 1989) between exercise and life satisfaction. This study attempted to account for some of the limitations seen in some of the previous studies. For example, some earlier studies focused primarily on running for the type of exercise, did not report certain statistical analyses, had small sample sizes, and lacked controls. Furthermore, the approach to measuring exercise varied across studies with some studies using a self-report of miles run per week, the Yair's Commitment to Running Scale, or actual running done through a running program for the study. In the present study the IPAQ, a newer measure developed by Craig, et al. (2003) was used to measure MET minutes across a wide range of exercise activities. The



IPAQ was chosen so that all activities (not just one specific one like running) could be cumulatively recorded. The IPAQ also allowed for the measurement of whether an individual was maintaining or gaining health benefits through their physical activity.

### Couple Satisfaction

Some previous research has indicated that the variables of communication, love, self-esteem, physical health, and sexual satisfaction have been found to relate to couple satisfaction (e.g. Boland & Follingstad, 1987; Haavio-Mannila & Kontula, 1997; Luteijn, 1994; Robinson, et al., 2001; Sprecher & Regan, 1998). Part of the purpose of this study was to see if these results would be replicated. Consistent with prior research the correlational findings showed that communication, sexual satisfaction, love, self-esteem, and physical health were each significantly correlated with couple satisfaction; with love, sexual satisfaction and communication showing moderate to high correlations. The results also indicated the strongest magnitude correlation with couple satisfaction was communication followed by sexual satisfaction, love, self-esteem, and physical health. Furthermore, these same variables were able to predict significant and unique variance in couple satisfaction when entered together in a hierarchical multiple regression analysis that controlled for age and gender. Only the variable of health was not identified as a unique and significant predictor of couple

satisfaction when entered simultaneously with the other variables into the model. This is probably related to other relationship variables being stronger predictors of couple satisfaction when investigated at the same time. In other words, when entered alongside of communication, sexual satisfaction, love, and self-esteem, health was not a significant unique predictor of couple satisfaction. Furthermore, health may not have been as salient a factor for participants in this study as they generally reported themselves as young (mean age of 30.59) and healthy (mean score of 4.61) adults.

Similar to the correlational findings, the standardized regression coefficients in the aforementioned hierarchical multiple regression analysis indicated that when this block of variables were entered together in the regression model, communication and sexual satisfaction were more heavily weighted as predictors of couple satisfaction followed by love, and self-esteem. Within this set of variables communication, was the most heavily weighted unique predictor of couple satisfaction. This seems to be in line with Gottman's (1994) research finding that communication is a primary factor in couple satisfaction as well as Whisman, Dixon, and Johnson's (1997) recognition of poor communication being the most cited reason for couple's having problems. Furthermore, Rogge and Bradbury (1999) found that communication was able to predict whether a couple would be satisfied with their relationship 4 years after being married. In their 1987 review of the literature, Boland and Follingstad reported that regardless of the type of

communication (i.e. content or process), it was related to whether a couple reported being satisfied with their marriage. Clearly the results of the current study match well with previous studies done on the importance of communication to a couple's satisfaction.

Sexual satisfaction was also a more heavily weighted predictor variable related to couple satisfaction. This finding is consistent with the research of Litzinger and Gordon (2005) who found that both communication and sexual satisfaction could independently predict couple satisfaction. The relationship between sexual satisfaction and couple satisfaction found in this study, does add strength to other previous findings as well. For example, Young, et al., (1998) reported a significant correlation between sexual satisfaction and couple satisfaction with an  $r = .622$ . Perrone and Worthington (2001) reported an  $r = .54$  for sexual satisfaction and couple satisfaction. The current study found a correlation similar in magnitude ( $r = .65$ ) for these same two variables to the Young, et al., (1998) and Perrone and Worthington (2001) studies.

In their 2001 study, Perrone and Worthington found love to be significantly correlated to marital satisfaction with an  $r = .56$  which is similar to the magnitude of the correlation obtained in the present study between love and couple satisfaction ( $r = .485$ ). In the current study, love was also found to be a significant predictor of couple satisfaction according to the hierarchical multiple regression analysis performed. This is also in line with

previous studies (e.g. Hendrick and Hendrick, 1997), that have found love to be a strong predictor of couple satisfaction. Thus, the present study seems to support the importance of taking love into account when attempting to understand couple satisfaction.

Although both health and self-esteem were significantly correlated with couple satisfaction, only self-esteem proved to be a unique significant predictor of couple satisfaction when entered together with the other predictor variables in the regression model. Horwitz, McLaughlin, and White (1998) report, that the relationship between marriage and positive mental health was one of the more established findings in the literature. The finding of self-esteem being related to couple satisfaction also fits well with previous research. In 1994, Luteijn found that lower self-esteem was correlated with reports of lower quality intimate relationships.

On the other hand, health was also positively associated with couple satisfaction, however when entered into the same regression model with some of the other stronger predictors of couple satisfaction, it was not identified as a significant predictor of unique variance in couple satisfaction. This seems in part due to the fact that health demonstrated small magnitude significant correlations with several other predictors entered in the model (i.e. love, self-esteem, sexual satisfaction, and communication). There may be several possible interpretations of this finding. One interpretation may be that, unlike the current study, some of the previous studies that investigated the

relationship between health and couple satisfaction were comparative in nature (e.g. Gallo, et al., 2003; Robinson Kurpius, et al., 2001; Roth-Roemer & Robinson Kurpius, 1996). These studies tended to compare individuals known to be suffering from certain specific health conditions (i.e., menopause, rheumatoid arthritis, and atherosclerosis) to those who were not. The current study may have had less variance in terms of individual's health since it did not set out to compare disparate groups. Another possible explanation for this finding is that health might play a much larger role in the prediction of couple satisfaction when there are major health issues that the couple is dealing with, in the moment. Again, many of the previous studies looking at this topic had participants definitively defined as suffering from particular health problems (e.g. Gallo, et al., 2003; Robinson Kurpius, et al., 2001; Roth-Roemer & Robinson Kurpius, 1996). It is possible that since the participants in the current study were relatively healthy (health status mean of 4.61) undergraduate and graduate students with a mean age of 30.59, this resulted in less variance in terms of health status and health failing to be a unique and significant predictor of couple satisfaction. As a relatively young and healthy sample, participants may not have perceived health as an important factor and health issues may have been less salient in this group of participants. In addition, certain health issues that may have been present in the sample could possibly be somewhat adapted to, as Brickman and Campbell's (1971) theory on adaptation states. Thus, poor

health could initially lead to a decrease in couple satisfaction, but might eventually be adjusted or adapted to and therefore fail to be a significant predictor of couple satisfaction.

Overall, this study seems to support previous research that indicated the variables of communication, love, self-esteem, physical health, and sexual satisfaction were all important and related to couple satisfaction.

Researchers and those working with couples should take these variables into account when attempting to understand couple satisfaction.

### Couple Satisfaction and Exercise

The present study investigated three research questions related to whether or not exercise might be related to or influence couple satisfaction. The first was an investigation of whether the two variables are correlated. The second was whether exercise helped to predict significant and unique variance in couple satisfaction after controlling for variables previous research had found to be related to couple satisfaction. Third, the study looked at whether exercise might have indirect effects on couple satisfaction through health and self-esteem or whether it may have both indirect and direct effects on couple satisfaction. A simplified exploratory path analysis was also performed to investigate whether all of exercise's effects on couple satisfaction might be indirect and through the variable of health.

Overall, the results of this study indicated that exercise, as measured in the current study, did not have a significant direct relationship to couple satisfaction. Exercise was found to not be significantly correlated with couple satisfaction and exercise did not predict a significant and unique proportion of variance in couple satisfaction when entered into a hierarchical regression model after the variables of age, gender, communication, love, self-esteem, physical health, and sexual satisfaction. When looking at all types of physical activity, rather than just jogging as in many previous studies, no direct relationship between exercise and couple satisfaction was found.

Any relationship that exercise may have to couple satisfaction appeared to be indirect and through its relationship with health. Exercise was positively and significantly correlated with health ( $r = .222$ ), which in turn had small magnitude significant positive correlations with relationship variables related to couple satisfaction, i.e. communication, sexual satisfaction, and love as well as a small magnitude correlation with couple satisfaction itself. In the two initial hypothesized path analyses, exercise had a significant path coefficient to health, which in turn had a significant path coefficient to love, which in turn had a significant path coefficient to couple satisfaction. One explanation might be that those who exercise more have better health. In having better health participants may feel better about themselves and have more of a capacity to focus externally on their partner and express more love towards them. This in turn could lead to higher

feelings of satisfaction with the relationship. Also, participants who experience better health may experience better sexual satisfaction and better self-esteem which in turn may relate to couple satisfaction. In the present study the path from health to sexual satisfaction approached significance ( $p = .055$ ).

While the path between health and self-esteem was not included in the two initial hypothesized path models that were tested, a third simplified exploratory model, the Indirect Effects Through Health Model, did investigate the path between health and self-esteem. This model showed that this pathway had a path coefficient of .20 which was significant at the  $p = .002$  level. The Indirect Effects Through Health Model, which explored whether exercise's effects on couple satisfaction were all indirect and through health, was found to be a plausible model. This is in contrast to the hypothesized Indirect Model and the hypothesized Direct & Indirect Model which both did not demonstrate a good fit and were not plausible. An important note of caution, however, is that the exploratory Indirect Effects Through Health Model is a trimmed model and may be capitalizing on chance relationships in the data (Klem, 2000).

This Indirect Effects Through Health Model does seem to indicate that exercise does have an effect on couple satisfaction, albeit indirectly through health. In this model, exercise had a significant path coefficient to health, which in turn had a significant path coefficient to self-esteem, which had a



significant path coefficient to couple satisfaction. It may be that through exercising an individual is in better health, which could serve to boost one's self-esteem which in turn could lead to one being able to feel confident and able to interact well with their partner. It should also be noted that the path coefficient between health and couple satisfaction itself also approached the significant level.

The overall findings seem to indicate that exercise in young to middle aged adults does not make a significant direct contribution to the couple's satisfaction. Exercise only seemed to have indirect effects on couple satisfaction through health. This study indicated that when considering direct effects, other variables such as communication, sexual satisfaction, love, and self-esteem are clearly stronger than exercise in predicting couple satisfaction. However, exercise seems have a relationship to couple satisfaction indirectly through health. Future research will be needed to further explore these results.

A question raised by this study is why exercise had no direct relationship and only an indirect relationship with couple satisfaction through health and not self-esteem. Some previous studies have shown that exercise was positively related to both physical health and self-esteem (e.g. USDHHS, 1996; Fox, 2000), which in turn, have both been found to be positively related to couple satisfaction (e.g. Davila, et al., 2003). Furthermore, some other studies have found a direct relationship between

exercise and couple satisfaction (e.g. Hinckley, 1985; Luepnitz, 1985; Maloy, 1986).

The answer to this question may lie with the specifics of these studies in comparison to the specifics of the current study. For example, in this study exercise was not found to have a significant correlation to self-esteem even though many previous research studies have shown some relationship between the two variables (e.g. Fox, 2000; Strelan & Hargreaves, 2005). Fox's (2000) review of the literature did, however, point out that self-esteem can draw from a wide range of events including academic, social, emotional, and physical. As the participants were all undergraduate and graduate students taking graduate level courses in this study, it is possible that at this juncture in their lives, the academic portion of their self-concept may have a heavier influence on self-esteem than does the physical aspect of their lives. Fox also indicated that global self-esteem, as measured in the current study, was less susceptible to change than various areas of self-esteem (i.e. physical, academic, social, etc.). In other words, participants may have experienced some change to their physical self-esteem through exercise, but not enough to affect their overall self-esteem. Furthermore, Strelan, et al., (2003) reported that the motivation for exercising had key effects on whether it improved self-esteem or not. For example, these authors found that women who objectified their bodies and exercised with the main purpose being to get to the social standard of beauty did not report increased self-esteem. The present

investigation did not attempt to measure the motivation for one's exercise and motivation for exercising was not included as a variable in the study.

Fox (2000) also reported that resistance training appeared to improve body image and physical self-esteem more than endurance training. Again, this study attempted to investigate all types of exercise and therefore did not break down the reports of exercise into whether it was more resistance or endurance based. However, this study did look at exercise and whether it was being performed at a level that enhanced or maintained health effects. Exercise resulting in alterations to one's physical fitness has been reported to be an important factor in obtaining higher self-esteem (Spence, et al., 2005). In the present study, exercise measured in terms of expected health maintenance and health enhancement levels did positively relate to physical health, and indirectly to self-esteem. Overall, it seems likely that a wide range of factors affect global self-esteem (i.e. academics, socially related events, etc.). This, combined with global self-esteem's lower susceptibility to change may have resulted in exercise not having the anticipated direct positive relationship to self-esteem.

Another possible reason for the lack of a direct relationship between exercise and couple satisfaction is the way the exercise was performed and the events surrounding it. Luepnitz (1986) reported that having both partners jog was related to higher couple satisfaction. He also pointed out that having only one partner jogging could result in lower couple satisfaction.

This was supported by Richards (1986) who found that if each individual in the dyad viewed the activity differently (e.g. good thing or bad thing), then the satisfaction with the relationship would decrease. Baldwin (1998) also reported that the support one received from their partner for their exercise greatly affected the couple satisfaction. In this study individual partners were studied who reported on the exercise levels they engaged in and did not report whether their partner accompanied them or supported them in their exercise endeavors. There are certainly many examples where it is easy to see how not being supported in one's exercise regimen could result in poor couple satisfaction. For example, a couple that argues about the timing of the exercise or length of time it takes to complete the exercise may certainly not be gaining many positive benefits from the exercise when one also weighs the negatives involved with actually performing it.

Another possible reason that the current study did not find a direct relationship between couple satisfaction and exercise when a few other studies did (Hinckley, 1985; Luepnitz, 1986; Maloy, 1986), may be related to the participants and the approach used to measure the exercise. Hinckley (1985), for example, had 3 couples run a 15 minute mile 48 out of 60 days. Whereas, Maloy (1986) had one partner in a dyad engage in a 10-week running program. Although both of these studies had very small sample sizes, 3 couples for Hinckley (1985) and 10 couples for Maloy (1986), both did look at individual's just beginning a running program. It may be possible

that individuals who are just beginning an exercise program may obtain different benefits from the exercise than those who have been exercising for some time and have adapted to those initial changes. Thus, the length of time spent as an exerciser might have an impact on couple satisfaction. Another study by Luepnitz (1986), measured exercise by the number of miles reported to be run each week (with the minimum for inclusion to the study being 10 miles per week). This researcher found that when both partners run they reported the highest combined satisfaction scores when compared to non-runners and couples where only one partner runs. Interestingly, when only one partner ran, those couples showed the lowest satisfaction scores. By using the IPAQ in this study it was shown that the cumulative effects of exercise on one's health may lead indirectly to increased couple satisfaction. Therefore, it does not appear that a specific type of exercise would be needed to gain these effects.

Future research seems to be needed to help determine whether the meaning an individual attributes to the physical activity as well as the support they receive while doing the activity are key factors in whether exercise actually contributes to one's satisfaction. Participating in various types of physical activity, does not appear to directly relate to one's satisfaction with their relationship. However, in the current study exercise was found to have a positive relationship to health, and the exploratory Indirect Effects Through Health Model was found to be plausible.

## Life Satisfaction and Exercise

Another one of the main purposes of this study was to investigate whether exercise might have a relationship with life satisfaction. This was studied in three ways. The first was an investigation of whether exercise and life satisfaction were correlated. The second was whether exercise helped to predict significant and unique variance in life satisfaction after controlling for other variables that have previously been found to be related to life satisfaction. The third considered whether exercise might have indirect effects on life satisfaction through health and self-esteem or whether it may have both indirect and direct effects on life satisfaction. A simplified exploratory path analysis was also performed to investigate whether all of exercise's effects on couple satisfaction were indirect and through the variable of health.

Similar to the results found between couple satisfaction and exercise, life satisfaction and exercise as measured in this study were also found to not have a significant direct relationship. The correlation between exercise and life satisfaction was close to 0. This was not significant and exercise did not predict a significant and unique portion of variance in life satisfaction when entered into the hierarchical regression model after the variables of age, gender, communication, love, self-esteem, physical health, and sexual

satisfaction were entered into the model. Thus, exercise did not correlate significantly with life satisfaction and also did not emerge as a unique predictor of life satisfaction in the regression model. Although the two hypothesized path models were found not to be plausible, the exploratory Indirect Effects Through Health model was found to be plausible and exercise was found to have indirect effects on life satisfaction through health, self-esteem and couple satisfaction. Interestingly, the life domain of couple satisfaction had the highest significant path coefficient leading to life satisfaction (.42). This seems to confirm Lent's (2004) life satisfaction model and Lent, et al.'s (2005) study showing the importance of life domains to life satisfaction. Furthermore, the 2005 study by Lent et al. showed life domains such as couple satisfaction to be the most consistent predictor of life satisfaction.

Although the results of this study do not indicate a direct relationship between exercise and life satisfaction previous research has found a significant link between exercise and life satisfaction in older adults (e.g. Kemmler, et al., 2002; Morgan and Bath 1998). The current study's participants ranged in age from 20 to 57 with a mean age of 30.59 ( $SD = 7.86$ ). One purpose of this study was to investigate adults from a wider age range. While studies of older adults (e.g. Clark, et al., 1999; Eronen, et al., 1997) have found a relationship between exercise and life satisfaction, previous studies (Gauvin, 1989; Melin, et al., 2003; Ornes, et al., 2005) have

shown mixed findings for younger adults. The current study, however, found no direct relationship between exercise and life satisfaction in adults ranging in age from 20 to 57. Unlike the studies showing a strong link between exercise and life satisfaction among older adults, exercise did not show a significant direct relationship with life satisfaction in the current study's sample of younger to middle aged adults. The current findings seem consistent with the research of Gauvin (1989) and Ornes, et al. (2005) who also did not find significant relationships between exercise and life satisfaction in adults who ranged in ages 18 to 77 (Gauvin, 1989) and 8 to 70 (Ornes, et al., 2005).

Overall, these results seem to indicate that for young to middle aged adults, physical activity does not have a direct relationship to satisfaction with life. Life domain variables such as couple satisfaction and individual variables such as self-esteem seem to hold more promise when it comes to understanding what directly affects life satisfaction. However, the exploratory path model conducted did indicate the plausibility of indirect effects of exercise on life satisfaction through health, self-esteem and couple satisfaction.

As with couple satisfaction, it is important to consider the possible reasons that exercise did not demonstrate a significant direct relationship with life satisfaction. Similar to couple satisfaction, the positive relationship between exercise and self-esteem and health reported in some studies in the



literature (e.g. Fox, 2000; USDHHS, 1996) was seen as possibly a reason for expecting exercise to relate to life satisfaction since both self-esteem (Diener, 1984) and health (Veenhoven, 1996) have been shown to be related to life satisfaction. However, as previously noted, the lack of a direct relationship between exercise and self-esteem found in the current study could be related to a number of factors including the role that motivation may have played in the exercise or physical activity in the first place. This type of reasoning could also affect the relationship between exercise and life satisfaction as well. In other words, this study attempted to build on previous research that only looked at running as the exercise of choice. By using the IPAQ this study obtained a much broader picture in terms of considering whether any type of physical activity had a relationship to life satisfaction. However, in obtaining this broader view, more variability with respect to motivation for exercising may also have been obtained. For example, it is possible that certain types of activity, even if done to a level of improving one's health as measured by the IPAQ, might have a detrimental effect on one's life satisfaction. For instance, if someone were to engage in non-enjoyable strenuous activity for long periods of time as part of their job, they probably would not reap the same benefits as someone who is wanting and able to lift weights at home during a time of their choosing even though both are gaining physical health benefits. Thus, the reason and motivation behind doing the exercise may be very pertinent to understanding the effects it may have on

life satisfaction. Indeed, Gauvin (1989) found in her study on exercise and life satisfaction that one's personal goals and attainment of those goals may be a major key to life satisfaction.

Interestingly, when viewed in the Indirect Effects Through Health Model, exercise was found to have a significant path coefficient to health, which in turn had a significant path coefficient to self-esteem, which had a significant path coefficient to couple satisfaction. This possibly could indicate that individuals who are healthier as a result of exercise might have a greater sense of self-esteem, which in turn could lead to a greater satisfaction with their life.

### Implications of the Study

This study was able to replicate and support previous studies in the couple satisfaction literature that found that certain variables relate to and predict couple satisfaction. In particular, the variables of communication, sexual satisfaction, love, and self-esteem each were found to be important predictors and should be taken into account when investigating couple satisfaction. Furthermore, professional counselors who are working with couples would be well advised to understand and respond appropriately to the impact of these variables on the couple's relationship. Health may also be a factor relating to couple satisfaction, however, the relationship is not as strong as the variables of communication, sexual satisfaction, love, and self-

esteem. Thus, it may be important for a counselor who is seeing a couple seeking assistance due to low satisfaction with their relationship to assess the couple's status and perceptions in each of these areas to assist with treatment planning.

In regards to exercise, overall exercise levels did not directly correlate with increased couple satisfaction or life satisfaction. This is based on the finding that there was no direct correlational relationship between exercise, as measured in this study, and couple satisfaction or life satisfaction. This study has found that young to middle aged adults' life and relationship satisfaction was not significantly and directly correlated with the amount of physical activity that they engaged in. Exercise was not found to be directly and significantly related to life and couple satisfaction. Exercise appears, however, to have indirect effects on these satisfaction variables through one's health. These findings appear to suggest that if one is able to exercise at a level that positively affects their health, indirect effects of exercise may occur in self-esteem and in satisfaction with life and couple satisfaction. Future research is needed to further explore the relationship of exercise to health and self-esteem, life and couple satisfaction. Furthermore, future research may also focus on whether exercise might have a more significant effect for individuals suffering from poor physical and mental health.

Clearly the results of this study indicate that exercise should not be looked at as a panacea for all of one's ills. Future studies might investigate

individuals' opinions and beliefs about the effects of exercise on their relationship and life satisfaction. This may be in part accomplished through qualitative research that allows participants to more fully tell their story. Furthermore, a look at the different contexts that exercise is completed in, may also be beneficial to fully understanding exercise's possible effects on different variables. Thus, future studies may investigate the reasons or motivation one is engaging in while exercising and whether they are feeling supported in this endeavor. Questions that seem important to answer would be whether the exercise is a required activity, whether the person is enjoying the activity, the motivation for the exercise, whether exercise is done excessively, and whether the person is engaging in the exercise in order to improve parts or aspects of themselves that they dislike.

Social cognitive theory (Bandura, 1986) might be a productive framework for future researchers to use in investigating these areas. Outcome expectations, personal goals, and self-efficacy are variables addressed within the theory that seem helpful to understanding the relationship between exercise and satisfaction. For example, outcome expectations recognize consequences (positive or negative) the participant has received, believes they will receive, or observed others receiving for engaging in exercise. Personal goals help to identify why a person is engaged in exercise while self-efficacy identifies whether the person believes they can successfully perform the exercise at the intensity and duration needed to

attain their goals. Social cognitive theory, therefore, may help future researchers conceptualize how the thoughts and beliefs of a participant can affect how exercise impacts couple and life satisfaction.

### Limitations of the Study

Although this study hoped to recruit participants from a range of racial/ ethnic backgrounds and sexual orientations, the returns were overwhelming from white heterosexual respondents. With respect to race and ethnicity, out of 229 respondents 10 respondents (4.4%) reported themselves as African-American/ black, not of Hispanic origin, 7 (3.1%) as bi-racial/ multi-racial, 5 (2.2%) as Asian or Pacific Islander, 3 (1.3%) as Hispanic, and 1 (0.4%) as American Indian/ Alaskan Native. With respect to sexual orientation only 2 (0.9%) reported being bisexual, 2 (0.9%) as lesbian, and 1 (0.4%) as gay. Additionally, participants in this study tended to score in the moderately satisfied range on the measure of couple satisfaction in the satisfied range on the measure of life satisfaction, and in the fair to good range on the health measure. This indicated that they were generally a healthy and satisfied group. This may limit the generalizability of the results and does not adequately address the shortcomings seen in previous studies regarding the use of homogenous samples. Furthermore, this study only investigated undergraduate and graduate students enrolled in graduate level courses responses, which may have resulted in findings specific to those

groups that may not be generalizable to the entire population. Also, the research was conducted entirely in the United States in one Midwestern state, and in future research, samples of participants from a more diverse geographical region might be obtained. Finally, in the current study only one measure of exercise was used and limitations of this measure may affect current findings. Future research may wish to include more than one measure of exercise and physical activity.

Another limitation of this study may have been the nature of the research instruments. All data was obtained through self-report. The IPAQ, for example, required participants to recall their physical activities and time spent in those activities for the past 7 days. This type of self-report may include errors in recall. In addition measuring exercise over a longer period of time may result in different findings. Future research might benefit from using a measuring device like the Computer Science and Application Inc. accelerometer which objectively records actual activity and stores it in 1 minute intervals. Thus, deficiencies in recall or attempting to answer in a more socially desirable way could be eliminated or least limited.

In regards to couple satisfaction this study only took into account one partner's perception of the relationship. It may be plausible that the partner not participating may have had a more positive or negative view of the relationship. For example, a non-participating partner may notice that the participating partner is not as stressed and easier to get along with after

exercising and therefore may report higher couple satisfaction. However, they may also view the participating partner's exercise as taking away from their together time as a couple and thus report lower satisfaction.

In the present study attempting to maintain clarity between the definitions of exercise and physical activity may have unintended results. That is, exercise is traditionally defined as any physical activity done above and beyond one's daily routine for the intentional purpose of improving one's health, whether that be mental or physical. This definition implies an underlying motivation in doing the activity (i.e. improving one's health). In using the IPAQ to measure exercise levels, other types of physical activity not specifically intended to increase health (i.e. job related activities) needed to also be included. Thus, individuals who purposely engage in physical activity to maintain or enhance their health, could have different life and couple satisfaction scores than those who are engaged in physical activity because they are forced or required to as part of their job or engaged in physical activity for other reasons. These individuals may see physical activity as a chore or stressful, which might have deleterious effects on life and couple satisfaction.

## Summary of Chapter V

Chapter V included sections of discussion and implications of the results of this study. The chapter also included discussions on the limitations

of the study as well as suggestions for future research. A summary concluded the chapter.

Overall, this study has revealed some interesting findings. Consistent with prior research variables previously shown to be related to couple satisfaction (i.e. communication, love, self-esteem, physical health, and sexual satisfaction) were once again shown to be linked to couple satisfaction in this study. This should serve to only strengthen the research findings that these are important variables to pay attention to when studying the concept of couple satisfaction or when working with individuals in this area. Exercise was not found to be directly related to or to predict significant variance in the variables of couple satisfaction and life satisfaction. However, the exploratory path model in which all the effects of exercise on couple satisfaction and life satisfaction were hypothesized to be indirect and through health was found to be a plausible model and merits future study. The context in which this exercise takes place may be a very important consideration in future research as well as the meaning the person or their partner attributes to the exercise.



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**Appendix A**  
**HSIRB Approval Letter**

# WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board

Date: January 8, 2007

To: Patrick Munley, Principal Investigator  
Mark St. Martin, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

A handwritten signature in cursive script that reads "Amy Naugle".

Re: HSIRB Project Number: 06-12-24

This letter will serve as confirmation that your research project entitled "Investigation of Relationship Characteristics, Exercise and Physical Activity, Couple and Life Satisfaction" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 8, 2008

## **Appendix B**

### **Recruitment Script- Instructors and Professors**

Research Project: An Investigation of Relationship Characteristics, Exercise and Physical Activity, Couple and Life Satisfaction

Recruitment Script: To be read over the telephone, written in an email, or read in person to college professors/ instructors, to gain permission to recruit students in their class.

Hello, my name is Mark St. Martin and I am a doctoral student in the Counseling Psychology Program at Western Michigan University. I am conducting a research project on factors relating to couple satisfaction as well as life satisfaction. I am interested in recruiting students in your class who are age 19 or over and either are married or in a committed relationship in which they have been living together for at least one year. This research requires the completion of several short questionnaires and a demographic sheet, all of which are anonymous. Completing the questionnaires and demographic sheet will take approximately 20 minutes. Participants can complete these at their convenience and mail them back to me. As a "thank you" for completing the surveys, participants will also have an opportunity to enter a drawing for four gift certificates to Meijer. Two \$100 and two \$50 gift certificates will be given away. In order to recruit in your class I would like to come into your classroom and read a prepared script outlining the purpose of the study to your students. If you are willing to allow me to recruit participants in your class, I will need a signed letter from you for the Human Subjects Review Board at Western Michigan University. Again, this is an anonymous survey research project so no names or other identifying information will be included in any of the research.

Is there any other information that I could provide that might help you in making this decision? Thank you for your time and cooperation.



## **Appendix C**

### **Recruitment Script – Potential Participants**

Research Project: An Investigation of Relationship Characteristics, Exercise and Physical Activity, Couple and Life Satisfaction

Recruitment Script: To be read in person to students in graduate classes at Western Michigan University's main campus, undergraduate and graduate classes at WMU's extended university programs, or potential participants responding to fliers, or potential participants being recruited.

Hello, my name is Mark St. Martin and I am a doctoral student in the Counseling Psychology Program at Western Michigan University. I am conducting a research project on factors relating to couple satisfaction as well as life satisfaction. I am interested in recruiting individuals who are age 19 or over and either are married or in a committed relationship in which they have been living together for at least one year. This research requires the completion of several short questionnaires and a demographic sheet, all of which are anonymous. Completing the questionnaires and demographic sheet will take approximately 20 minutes. Participants can complete these at their convenience and mail them back to me. As a "thank you" for completing the surveys, participants will also have an opportunity to enter a drawing for four gift certificates to Meijer, two \$100 and two \$50 gift certificates will be given away. If you are interested in the gift certificate drawing you can fill out and return the enclosed postcard separately. If you think that you are interested in participating please take a survey packet. Carefully read and fill out the enclosed materials and mail them back to me in the postage-paid envelope I have provided. If you wish to take an extra packet for your partner or a friend who is also a student at WMU, please feel free to do so. However, I ask that you not complete the packets together nor share any answers until the packets have been mailed back. Again, this is an anonymous survey research project so please do not put your name or other identifying information in the survey packet that you return.

Is there any other information that I could provide that might help you in making this decision? Thank you, I truly appreciate your participation in this research.

**Appendix D**  
**Recruitment Flyer**

Participants Needed!!!

Are you at least 19 years old and have you been living with your partner in a committed relationship or marriage for over 1 year?

If so your participation in a research project investigating variables relating to couple satisfaction as well as life satisfaction is requested.

This brief survey research should only require about 20 minutes of your time and is completely anonymous

Participants are eligible to win one of four gift certificates to Meijer Retail and Grocery Supercenter.

Two \$100 gift certificates and two \$50 gift certificates will be given away.

If interested please contact Mark St. Martin at 269-381-1044 or via email at [m0stmart@wmich.edu](mailto:m0stmart@wmich.edu)

## Appendix E

### Demographic Questionnaire

### Demographic Sheet/ Background Information

A. Age \_\_\_\_\_

B. Gender (Please circle the one that best describes you)

1. Male      2. Female

C. Race/ Ethnicity (Please circle the answer that best describes you)

1. American Indian or Alaskan Native      2. Asian or Pacific Islander

3. African-American/ Black not of Hispanic Origin      4. Hispanic

5. White, Not of Hispanic Origin      6. Bi-racial/ Multi-racial

D. Please circle your current year in school:

1<sup>st</sup> year undergraduate study,      2<sup>nd</sup> year undergraduate study,

3<sup>rd</sup> year undergraduate study,      4<sup>th</sup> year undergraduate study,

Graduate student master's degree program,

Graduate student Ph.D. program,      Other – please specify \_\_\_\_\_

Please write in your major area of study at the undergraduate or graduate level \_\_\_\_\_.

E. Relationship status (Please circle the answer that best describes your current relationship)

1. Committed relationship/ Living Together      2. Married/ Living Together

F. Number of consecutive years with your current partner \_\_\_\_\_

G. Number of children \_\_\_\_\_

H. Household income (Please circle your and your significant other's combined annual income range)

1. < \$15,000      2. \$15,001-\$25,000      3. \$25,001-\$35,000

4. \$35,001-\$45,000      5. \$45,001-\$55,000      6. \$55,001-\$65,000

7. \$65,001-\$75,000      8. \$75,001-\$85,000      9. \$85,001-\$95,000

10. \$95,001-\$105,000      11. \$105,001-\$115,000      12. \$115,001-\$125,000

13. \$125,001-\$135,000      14. \$135,001-\$145,000      15. \$145,001-\$155,000

16. >\$155,001

I. Sexual Orientation (Please circle one)

Gay

Lesbian

Heterosexual

Bisexual