The Effect Of Regular Exercise On The Incidence Of Depression In College Students

April E. Morris

Follow this and additional works at: https://athenacommons.muw.edu/msn-projects

Part of the Nursing Commons

Recommended Citation
Morris, April E., "The Effect Of Regular Exercise On The Incidence Of Depression In College Students" (2002). MSN Research Projects. 413.
https://athenacommons.muw.edu/msn-projects/413

This Thesis is brought to you for free and open access by the MSN Research at ATHENA COMMONS. It has been accepted for inclusion in MSN Research Projects by an authorized administrator of ATHENA COMMONS. For more information, please contact acpowers@muw.edu.
THE EFFECT OF REGULAR EXERCISE ON THE
INCIDENCE OF DEPRESSION IN COLLEGE STUDENTS

by

APRIL E. MORRIS

A Thesis
Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Nursing
in the Division of Nursing
Mississippi University for Women

COLUMBUS, MISSISSIPPI
August 2002
The Effect of Regular Exercise on the Incidence of Depression in College Students

by

April E. Morris

Instructor in Nursing
Director of Thesis

Associate Professor of Nursing
Member of Committee

Assistant Professor of Nursing
Member of Committee

Director of the Graduate School
Abstract

Depression is one of the most prevalent mental disorders found among college populations. College students are especially prone to depression as a result of the tremendous amount of stress that they experience. Exercise has been shown to decrease the severity and duration of depressive symptoms in adult and elderly populations. Although there have been numerous studies on the effects of exercise on depression in adult and elderly populations, there have been very few recent studies regarding the effects of exercise on depression in a college population. The purpose of this descriptive, comparative study was to determine the effect of regular exercise on the incidence of depression in college students. The theoretical framework utilized for this study was Pender’s Health Promotion Model. The null hypothesis that guided this study was as follows: There will be no statistically significant difference in the incidence of depression in college students who exercise regularly and those who do not exercise regularly. The independent variable for the study was exercising.
regularly, and the dependent variable was the incidence of depression. A convenience sample \((N = 96)\) of men and women was selected from two nursing classes and two health and kinesiology classes at an institution of higher learning in a rural state in the southeastern United States. The participants were divided into two groups based on the amount of exercise reported. Instrumentation used in the study included a researcher-designed demographic questionnaire and the Zung Self-Rating Depression Scale. Data gathered from the demographic questionnaire were analyzed using descriptive statistics, and data from the Zung Self-Rating Depression Scale were analyzed using a two-tailed \(t\) test. The findings on the Zung Self-Rating Depression Scale were not statistically significant; therefore, the researcher was unable to reject the null hypothesis. The researcher recommends replication using an experimental design with manipulation of the independent variable by having subjects implement a monitored exercise program to determine the effect of regular exercise on the level of depression.
Acknowledgments

I would like to express my gratitude to Terri Hamill, my advisor and committee chair, for her patience, guidance, and encouragement throughout this year.

I would like to thank the members of my committee, Dr. Melinda Rush and Janice Giallourakis, for all of their suggestions and recommendations.

To Dr. Mary Pat Curtis and all of the graduate nursing faculty, I would like to thank each of you for your encouragement and guidance throughout the program.

To my parents and family, thank you for encouraging me to follow my dream and to always do my best. Thank you for providing me with endless encouragement and support.

To Chris, I am forever in debt to you for all you have done for me throughout this year, from cooking and cleaning to proofreading and praying. Thanks for your unending faith in me, your constant support, and for putting up with me.
Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>v</td>
</tr>
<tr>
<td>List of Tables</td>
<td>ix</td>
</tr>
<tr>
<td>List of Figures</td>
<td>x</td>
</tr>
<tr>
<td>Chapter I. The Research Problem</td>
<td>1</td>
</tr>
<tr>
<td>Establishment of the Problem</td>
<td>2</td>
</tr>
<tr>
<td>Significance to Nursing</td>
<td>4</td>
</tr>
<tr>
<td>Nursing practice</td>
<td>5</td>
</tr>
<tr>
<td>Nursing education</td>
<td>6</td>
</tr>
<tr>
<td>Nursing research</td>
<td>6</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>7</td>
</tr>
<tr>
<td>Assumptions</td>
<td>9</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>9</td>
</tr>
<tr>
<td>Research Hypothesis</td>
<td>9</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>10</td>
</tr>
<tr>
<td>Summary</td>
<td>11</td>
</tr>
<tr>
<td>Chapter II. Review of the Literature</td>
<td>12</td>
</tr>
<tr>
<td>Summary</td>
<td>33</td>
</tr>
<tr>
<td>Chapter III. The Method</td>
<td>35</td>
</tr>
<tr>
<td>Design of the Study</td>
<td>35</td>
</tr>
<tr>
<td>Research Hypothesis</td>
<td>36</td>
</tr>
<tr>
<td>Setting, Population, and Sample</td>
<td>36</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>37</td>
</tr>
<tr>
<td>Methods of Data Collection</td>
<td>38</td>
</tr>
<tr>
<td>Methods of Data Analysis</td>
<td>40</td>
</tr>
</tbody>
</table>
H. Key to Scoring the Zung Self-Rating Depression Scale ......... 82
I. Referral Information for Participants .... 84
J. Information Handout on Depression for Participants ......... 85
List of Tables

Table                                                                 Page
1. Summary of Sample Demographics of College Students by Frequency and Percentages 45
2. Summary of Exercise Questions of College Students by Frequency and Percentage 46
3. Summary of Demographic Questions About Depression by Frequency and Percentage 48
List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Depression scores on the Zung Self-Rating Depression Scale</td>
<td>50</td>
</tr>
</tbody>
</table>
Chapter I
The Research Problem

Depression is a major public health problem with more than 18 million Americans affected each year (National Institute of Mental Health, 2000). The economic impact of depression on America has been estimated to be approximately $40 billion a year in direct costs for medical treatment and indirect costs of reduced productivity. Traditional treatment for depression, such as psychotherapy and antidepressant medications, are costly and time-intensive (O’Neal, Dunn, & Martinsen, 2000). Therefore, identifying an economically feasible adjunctive treatment for depression would be beneficial. Considering the potential physical and psychological benefits of physical activity, exercise may represent a reasonable and cost-effective option for treatment of depression. Many research studies have shown that exercise decreases the duration and severity of depressive symptoms in adult and elderly populations. However, minimal research has been done to determine the effect of regular exercise on the incidence of depression in college
students, a population in which 78% have exhibited symptoms of depression (Swilley, 2000).

Establishment of the Problem

Depression is prevalent in the college population with approximately one in five students expressing that their level of stress or depression is higher than normal at some point during their college years (Roper-Starch Survey, 1996). College students are prone to depression as a result of the tremendous amount of stress that they experience (Tosdal, 1998). Many young adults leave home for college with expectations of freedom, fun, and adventure. However, they often find themselves in emotionally challenging situations for which they are unprepared. These challenges are often related to increased responsibility, independence, and academic demands along with decreased emotional and financial support. When depression is untreated in college students, it often leads to problems with academic performance, substance abuse, and social and functional impairment (McKibban & Todd, 2001). Suicide, which is the second leading cause of death in 15- to 24-year-olds, is the most severe complication of depression (Swilley, 2000).

Today’s generation is significantly less active than previous generations. As a society, work and recreational
activities have become increasingly more sedentary. According to the National Institute of Health (1995), "exertion has been systematically engineered out of most occupations and lifestyles" (p. 3). According to the American Heart Association (1999), almost half of American youths ages 12 to 21 years are not physically active on a regular basis. Enrollment in daily physical education classes has fallen among high school students from 42% in 1991 to 25% in 1995 (American Heart Association, 1999). Today, college students are taking only the physical education classes needed to meet the requirements, which typically is a maximum of two credit hours over a 4-year college program ("Physical Activity," 2000). Although research has shown that people of all ages benefit from regular physical activity, only 23% of American adults report participating in regular physical activity for 20 minutes or longer, three or more days per week (U.S. Department of Health and Human Services [DHHS], 2000). According to the American College of Sports Medicine (1998), the physical benefits of regular exercise include decreased risk for coronary artery disease, improved cardiorespiratory function, and a decreased risk for chronic disease. Researchers have suggested that regular exercise may reduce an individual's risk for developing depression, may decrease the severity of symptoms
associated with depression, and also may be effective as an adjunctive therapy along with psychotherapy and medication (O’Neal et al., 2000).

While the positive effects of exercise on depression in elderly and adult populations have been established, few recent researchers have evaluated the effects of regular exercise on the incidence of depression in college students. The majority of studies in the past 15 years have focused on the impact of regular exercise on adult populations with diagnosed psychiatric disorders. Although the rates of stress and depression appear to be increasing in college populations with the level of physical activity steadily declining, there have been few studies over the past 15 years to examine this relationship in college students. Therefore, the purpose of this study was to examine the incidence of depression in college students who exercise regularly and those who do not exercise regularly.

Significance to Nursing

Finding ways to decrease the incidence of depression in the college population has significance to nursing science in a variety of domains: nursing practice, education, and research.
Nursing practice. Since regular exercise has been established to have numerous positive effects on health, nurse practitioners should be aware of the many benefits that exercise can have for their clients. Nurse practitioners are in a primary position to educate the public about the prevalence of depression in the college setting in order to increase awareness as well as to decrease the stigma associated with depression. Nurse practitioners are often employed in college health facilities and play a crucial role in improving the diagnosis and treatment of depression in this population. Health care providers must be aware of exercise as an adjunctive treatment for many health care problems including depression. Regular exercise may also prove helpful in promoting feelings of well-being during the initiation of antidepressant medications, which often take up to 4 weeks to reach therapeutic levels. The participation in regular exercise may also aid in weight control and sleep, which are common complaints voiced by depressed patients as well as common side effects caused by antidepressant medications. Decreasing the incidence of depression may lead to a decrease in the multiple complications and co-morbidities resulting from depression.
Nursing education. Information from this study can provide educational benefits for nursing students and nurses at all educational levels. Through this study, nurses can become aware of the prevalence of depression and its complications in the college population, which are too often overlooked. Nurses must be taught about the benefits of health-promoting behaviors, such as regular exercise, as an adjunctive treatment for depression. Nurse practitioners must be able to educate the public as well as colleagues on the many benefits of regular exercise acknowledging that it is an inexpensive, effective option for decreasing the severity and duration of depressive symptoms. Nurses must take a more active role in promoting exercise on college campuses by working collaboratively with the physical education department to sponsor exercise related activities.

Nursing research. The available literature regarding regular exercise and depression focused on older adult populations with clinical depression. There have been few studies to examine this relationship in a healthy, college population. Implications from this study may add to the current body of knowledge concerning exercise as prevention and treatment of depression. Results could also be utilized to further define the role of exercise in treating depressed clients of all ages.
Theoretical Framework

The theoretical framework that was utilized for this study was Pender's (1987) Health Promotion Model. In the Health Promotion Model, Pender focused on the cognitive-perceptual and modifying factors which influence the adoption of health-promoting behaviors. Pender conceptualized that an individual's decision to pursue health-promoting behaviors is directly affected by interrelationships of cognitive, behavioral, environmental, social, and situational factors.

Five cognitive-perceptual factors are identified within the Health Promotion Model to have a direct impact on college students' decision to engage in health-promoting behaviors, such as exercise. These factors include importance of health, perceived control of health, perceived self-efficacy, perceived health status, and perceived benefits of health-promoting behaviors (Tomey & Allgood, 1998). The first factor that affects college students' decision to participate in regular exercise is the importance of health. This factor has implication for students who place a high value on health; they are more inclined to participate in activities which promote health, such as exercise. The second factor is the perceived control of health, which involves the student's belief that he or she can change his or her own health by
exercising and, therefore, further motivates the desire for health. The third factor is perceived self-efficacy, which is related to the student’s belief that participating in regular exercise is possible and therefore influences the decision to exercise. The fourth cognitive-perceptual factor identified in the model is perceived health status. This factor involves the student’s current state of feeling well or ill and determines the likelihood that exercise will be initiated. The fifth factor is the perceived benefits of behaviors. Students will be more inclined to begin or continue exercising if they believe that the benefits related to exercise are high.

This study was designed to discover if a health-promoting activity, such as exercise, could decrease the incidence of depression in college students. Pender’s Health Promotion Model provides a framework for studying and attempting to understand the cognitive-perceptual factors and modifying factors, such as age, gender, education, and income, that influence college students’ participation in regular exercise. The current author conceptualized that as health-promoting activities, such as exercise increase, the incidence of illnesses such as depression will decrease. The Health Promotion Model provides the basis for this concept which assumes that a
person’s perceived health status and his or her desire to achieve good health will lead them to seek health-promoting behaviors such as exercise.

Assumptions

This study is based on the following assumptions:

1. Depression is a phenomenon that is measurable.
2. Individuals place a high value on health and have the ability to change their own health by adopting health-promoting behaviors.

Statement of the Problem

As evidenced through research, depression has been found to be a prevalent problem in college students. Exercise has been demonstrated to decrease the severity and duration of depressive symptoms in clinically depressed adults and elders. However, little research has been done to determine the effect of exercise on depression in college students. Therefore, this researcher sought to determine whether regular exercise affects the incidence of depression in a college population.

Research Hypothesis

One null hypothesis was used to guide this study. It was as follows: There will be no statistically significant difference in the incidence of depression between college
students who exercise regularly and those who do not exercise regularly.

**Definition of Terms**

For clarification, the following terms have been defined as appropriate to this study:

1. **Depression**
   
   **Theoretical:** the subjective and objective expression of altered mood characterized by sadness, inactivity, difficulty in thinking and concentration, and feelings of loneliness or dejection.

   **Operational:** the subjective and objective expression of altered mood as measured by the Zung Self-Rating Depression Scale.

2. **College students**

   **Theoretical:** persons who are attending an institution of higher learning and working toward a degree.

   **Operational:** males and females who are attending an institution of higher learning and working toward a degree in a rural state in the southeastern United States.

3. **Regular exercise**

   **Theoretical:** routine participation in physical activity in order to increase or maintain the state of physical fitness.
Operational: routine participation in physical activity of three or more times per week for a minimum of 30 minutes per session in order to increase or maintain the state of physical fitness.

Summary

Depression is a common problem on many college campuses across the country. As many as 78% of college students will experience symptoms of depression at some point during their college years (Swilley, 2000). Although exercise has been established to provide a variety of benefits to improve the health of all ages, more than 40% of people over age 18 do not participate in any regular physical activity (DHHS, 2000).

Regular exercise has been shown to decrease the symptoms of depression in older adults; however, further research is necessary to determine if similar effects occur in healthy, young adults. Therefore, the focus of this study was to examine the effect of regular exercise on the incidence of depression in college students.
Since the early 1980s, numerous studies examining the effects of exercise on depression have been conducted. These studies have suggested that physical activity may reduce an individual’s risk for developing depression and may also reduce the severity and duration of depressive symptoms. The majority of past research has focused on exercise as an adjunctive treatment for depression in clinical group settings involving adult and elderly populations. The few studies that focused on healthy college students examined the effects of single session or short-term exercise regimens on alterations of mood states. A review of scholarly literature revealed that only a few studies were conducted to elucidate the effect of regular exercise on the incidence of depression in a healthy population, such as college students.

One study conducted by Haller (1996) examined the effects of both aerobic and anaerobic exercise on depression levels in students attending college. The independent variable studied by the researcher was the
exercise condition implemented by the students. The dependent variable was the level of depression of the college students. Haller (1996) defined depression as a mood disorder which “can be perceived as a disruption in the progress of a person’s emotional, cognitive, behavioral, and physical functioning” (p. 1). The researcher used the Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV) to determine the criteria related to depression. Exercise was defined as either an aerobic or anaerobic condition performed three times a week.

Haller (1996) utilized a quasi-experimental 2 x 3 mixed-model factorial design to examine the relationship between exercise and the level of depression. A convenience sample, which consisted of 179 Missouri Western State College students, was chosen from two physical education classes (PED 101) and two entry-level psychology classes (PSY 101). The students in the PED 101 classes were chosen for the experimental group because the class required them to perform an aerobic or anaerobic exercise at least three times a week. The students in the PSY 101 class were chosen as the control group with the exclusion of the students who were enrolled in both classes. The researcher developed a pen-and-paper survey using the DSM-IV criteria to determine the level of
depression. The validity of the survey was tested and established by clinical psychologists before use. After obtaining informed consent, all subjects were given the survey as a pretest before any intervention was started. After the pretest was completed, the experimental group took part in an aerobic or anaerobic exercise program for 6 weeks. At the end of the 6 weeks, the subjects in both groups were given the survey again as a posttest. A one-way ANOVA was used to analyze the data collected from both groups. This analysis included determining the effect of exercise on level of depression, the difference in levels of depression between the groups over time, and any interaction between exercise and level of depression.

Haller (1996) found that there was no significant difference in the level of depression between the experimental and control groups, $F(2, 116) = 0.34$, $p > .05$. Therefore, the researcher concluded that, according to this study, exercise does not have a measurable positive effect on level of depression in college students. The researcher recommended that replicating the study using a more sensitive, established test for evaluating levels of depression may achieve more reliable results. The researcher also suggested that the results may have been skewed by the subjects who dropped out of the control group during the study.
Haller's (1996) research is germane to this author's current investigation. The research populations in both studies were similar in that the subjects were college students. Although the present research did not establish information helpful in treating depression, Haller (1996) provided valuable information for designing future research studies and evaluating exercise and depression in the college setting.

Another study by Dimeo, Bauer, Varahram, and Halter (2000) suggested that while several studies have reported that physical activity has a positive effect on mood, the conclusions from these studies have limited validity due to multiple methodological problems. Dimeo et al. (2000) also claimed that while there have been many studies regarding the long-term effects of physical activity on levels of depression, few studies have been done to determine the short-term effects of physical activity on mood. Therefore, Dimeo et al. (2000) studied the short-term effects of an aerobic training program on patients with major depression. The independent variable studied by the researchers was the aerobic training program implemented by the participants. The dependent variable was the level of severity of the depression of the participants. Dimeo et al. (2000) used the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*
(DSM-IV) to define major depressive episode. Further criteria utilized to define depression for this study included age between 20 and 65 years, no change in medication or psychotherapy in the 6 weeks prior to implementation of the training program, hospitalization for no less than 2 weeks with no improvement, a score of 15 or greater on the Hamilton Rating Scale for Depression, and no prior history of organic disease or schizophrenia. The aerobic training program was defined as walking on a treadmill daily. The program consisted of five high-intensity training bouts of 3 minutes each with between training bouts of half speed intensity for 3 minutes.

Dimeo et al. (2000) utilized a quasi-experimental design to examine the relationship between severity of depression and the aerobic training program. A purposive sample, which consisted of 12 patients who met the inclusive criteria and gave informed consent, was chosen from a group of inpatients and outpatients previously diagnosed with major depressive episode. The sample was composed of 7 females and 5 males whose duration of present depressive episode was 35 weeks. After obtaining informed consent, the participants’ maximum range of physical performance was determined using a Modified Bruce treadmill test. Participants began the aerobic training
program on the following Monday and continued for the next 10 days excluding Sunday.

Dimeo et al. (2000) used the Borg Rate of Perceived Exertion Scale to evaluate the intensity of effort on a daily basis. The Borg is a visual analog which ranges from 6 (very light effort) to 20 (very, very hard effort). The participants' heart rates were monitored during training, and treadmill elevation was increased or decreased to ensure that participants were training at the selected level of intensity for the study which was 13 to 14 (somewhat hard). The Hamilton Rating Scale for Depression, a 21-item questionnaire used to measure severity of depression, was administered by a psychiatrist before and after implementation of the training program. The Scale for Self-Assessment of Depression was also used on the first, the fifth, and the last day of the training program to allow participants to evaluate their mood. Therapeutic response to the training program was defined as a 50% or greater decrease in the final score or a score of 10 or less on the Hamilton Rating Scale for Depression.

Dimeo et al. (2000) used a Spearman rank correlation test to determine any relationship between subjective and objective improvement in severity of depression. The pre- and post-depression scores were analyzed using a two-tailed Wilcoxon test. The researchers defined a value of
$p < .05$ to be statistically significant for this study.

Dimeo et al. (2000) found that there was a statistically significant difference in the level of depression of the participants before and after the aerobic training program. On the Hamilton Rating Scale for Depression, five participants had scores of 10 or less, and overall subjective and objective symptoms and signs of depression were significantly lower after the completion of the training program ($p = .002$). The researchers also found that the changes in the self-assessment scores after the training program had a significant correlation with the decrease in HAMD scores, $r = 0.66$, $p = .01$. Therefore, the researchers concluded that short-term aerobic training can cause a decrease in levels of depression in patients of all ages experiencing a major depressive episode. However, the researchers pointed out that because their design was a pre-post with no control group, the outcomes of the study may have been affected by the spontaneous fluctuation of depressive symptoms over time.

Recommendations for further research by the authors included conducting a randomized, controlled study to further determine the effects of short-term aerobic training on patients with major depression.

Dimeo et al.’s (2000) study is relevant to the current research, which was designed to compare the
incidence of depression in college students who participate in regular exercise and those who do not participate in regular exercise. Dimeo et al.’s (2000) study is pertinent because the participants, ranging from 20 to 65 years old, demonstrated a significant decrease in level of depression as a result of participating in short-term aerobic training. This finding supports the premise that exercise can decrease the incidence of depression in persons of all ages.

According to another study by Joiner and Tickle (1998), recent authors have suggested that physical exercise has positive effects on a variety of health outcomes, but there have been few studies to examine the therapeutic and prophylactic effects of exercise on depressive and anxious symptoms. Therefore, Joiner and Tickle (1998) studied the interrelations of exercise and depressive and anxious symptoms in a college setting. The hypotheses that guided Joiner and Tickle’s (1998) study were as follows:

1) that self-reported exercise level would prospectively predict changes in self-reported depressive symptoms, such as those low in exercise would be vulnerable to symptoms increases, 2) that depressive symptoms would predict prospective changes in self-reported exercise, such that those high in
depressive symptoms would report decreases in exercise, 3) that gender would moderate the exercise-depressive symptoms relation, such that the protective effect of exercise is stronger for women, and 4) that the prospective effect of exercise on depressive symptom levels would operate via its effect on self-esteem. (p. 192)

For the purposes of this particular study, exercise is used as the dependent variable when depressive and anxious symptoms are being studied as predictors of changes in self-reported exercise. However, depressive and anxious symptoms are used as the dependent variables when exercise is studied as the predictor of changes in depressive and anxious symptoms. Joiner and Tickle (1998) defined exercise using a one-item question, which asked subjects how many days per week they had exercised in the last 3 weeks. The researchers defined depressive symptoms by using the Beck Depression Inventory, a 21-item self-report inventory for depression. Anxious symptoms were defined by the investigators through the use of the Beck Anxiety Inventory, a 21-item self-report inventory for anxiety. Self-esteem was defined by the Rosenberg Self-Esteem Questionnaire, a 10-item scale that assesses global self-esteem.
Joiner and Tickle (1998) utilized a prospective, descriptive, correlational design to examine the interrelations between exercise, depression, and anxious symptoms. One hundred eighty-eight subjects (124 females and 64 males) were selected from introductory psychology classes at a southwestern university. The participants were given the exercise question, the Beck Depression Inventory, the Beck Anxiety Inventory, and the Rosenberg Self-Esteem Questionnaire to complete at the initial visit and asked to return in 3 weeks to complete the same four instruments.

Joiner and Tickle (1998) used means, standard deviations, and intercorrelations to analyze the exercise, depressive symptoms, anxious symptoms, self-esteem, and gender data collected. Multiple regression was used to test the hypotheses.

The researchers found that while testing depressive and anxious symptoms as predictors of changes in self-reported exercise, analysis indicated no main effect for depressive symptoms on exercise, $pr = -0.04$, $t(184) = -0.57$, $p = ns$. Therefore, the initial depressive symptoms were not significantly related to the changes in self-reported exercise. Anxious symptoms were also found to be unrelated to changes in self-reported exercise. However, the researchers, when studying exercise as a predictor of
changes in self-reported depressive and anxious symptoms, found a significant interaction between exercise and gender, $pr = -0.30$, $t(183) = -4.26$, $p < .0001$. This indicated that the relationship between exercise and depressive symptoms was affected by gender. The researchers also discovered that women who reported less exercise experienced an increase in depressive symptoms, $pr = -0.21$, $t(121) = -2.37$, $p < .05$. However, the relationship between exercise and depressive symptoms in men was found to be exactly opposite, $pr = 0.37$, $t(61) = 3.11$, $p < .005$. The men were found to have increased symptoms of depression with report of increased exercise. These findings were found to be specific to depressive symptoms only. There were no significant changes found regarding exercise, $pr = 0.04$, $t(184) = 0.50$, $p = ns$, or gender, $pr = -0.12$, $t(183) = -1.68$, $p = ns$, in response to anxious symptoms. The researchers also found that the exercise and gender interaction was a significant predictor of changes in self-esteem, $pr = -0.21$, $t(183) = 2.93$, $p < .05$. For example, women who exercised more had higher self-esteem and men who exercised more had lower self-esteem.

Joiner and Tickle (1998) found that high exercise was related to low depressive symptoms and increased self-esteem, especially in women. Therefore, the researchers
concluded that the current study concurs with prior research which supports the antidepressant effects of exercise among women. The researchers also concluded that because the findings were specific to depression versus anxiety, exercise may act as a buffer against depressive symptoms, but not all other psychiatric symptoms. The researchers mentioned that they were surprised to find that men reported higher levels of depression with higher levels of exercise. Joiner and Tickle (1998) suggested that this finding may have resulted from the relatively small sample of men in the study.

Recommendations for further research included using a more sophisticated instrument to measure the participants' level of exercise and controlling for important variables such as the relationship between depressive symptoms and phase of women’s menstrual cycle. The researchers also caution that the results of this particular study are specific to undergraduates, and generalization to other populations should be based on further research.

Joiner and Tickle’s (1998) study is similar to the current research in that it studied the effects of exercise on depression in a healthy population of college students. The study revealed that female college students reported less depressive symptoms as a result of increased levels of exercise. Therefore, this finding supports the
proposition that exercise can decrease the incidence of depression in a college setting.

Another study by Rehor, Dunnagan, Stewart, and Cooley (2001) studied the effects of three popular physical activities on the psychological well-being of university students. The purpose of the study was to evaluate if circuit training, weight training, and racquetball facilitated alterations of positive mood after a single episode of activity. Rehor et al. (2001) hypothesized that involvement in a single bout of physical activity would produce positive changes in mood. The independent variable for the study was implementation of the physical activity. The dependent variable studied was mood. Physical activity was defined by Rehor et al. (2001) as circuit training, weight training, or racquetball. Each activity was divided into three segments, 5 minutes of warm-up and stretching, 35 minutes of exercise, and 5 minutes of cool down. Mood was defined as tension, depression, anger, confusion, and vigor as measured by the Profile of Mood States.

Rehor et al. (2001) utilized a quasi-experimental design to examine the effects of physical activity on mood. A convenience sample was used which consisted of 44 students who were enrolled in three physical activity classes in the Fitness for Life Program at Montana State University. The subjects were divided into three groups
based on their physical activity class: a weight training group, a circuit training group, and a racquetball group. Each subject was administered the Profile of Mood States by a trained psychology student both before and after one class session. According to Snow and LeUnes (cited in Rehor et al., 2001), "the Profile of Mood States is recognized as providing a valid and reliable measure of current mood states of normal individuals who participate in sport and physical activity" (p. 251).

Descriptive statistics and a Bonferroni adjusted p value for analysis of variance were utilized to analyze the data collected from each of the three exercise groups. Changes in the Profile subscales were also analyzed by changing raw data to T scores and comparing the profiles. The T scores on the Profile of Mood States for the weight training group indicated a slight decrease between pretest and posttest scores on the subscales of tension, depression, anger, and confusion. A dramatic increase in T scores for the vigor subscale was seen. T scores for the circuit training group indicated slight decreases in depression and confusion with a dramatic decrease on the anger subscale. The racquetball group showed no change in the tension and confusion subscales. However, a small increase in vigor was seen along with a dramatic decrease on the depression subscale.
Rehor et al. (2001) found that all three activity groups reported lower mean scores on depression and anger and a higher mean on vigor immediately following the exercise session. Therefore, the researchers concluded that involvement in physical activity is associated with positive changes in mood states. Recommendations for further research included assessing the relationship between competitive and noncompetitive activities and their benefit as a possible adjunctive treatment for enhancing mood states. The researchers also recommended further studies with randomized control methods and larger sample sizes.

Rehor et al.'s (2001) findings were relevant to the author's current investigation. The research focuses were similar as both studies examined the effects of physical activity on depression in healthy college students. Rehor et al. (2001) provided valuable information and recommendations for further research regarding physical activity and mood states in a college setting.

Mack, Huddleston, Dutler, and Bian (2000) examined the happiness and sadness rated by persons involved in noncompetitive physical activity. Mack et al. hypothesized that the happy and sad mood states of persons enrolled in physical activity classes would not change over the length of the course. The independent variable studied was
physical activity. The dependent variables of interest were the subjects' mood states. Physical activity was defined by Mack et al. (2000) as attending a beginning volleyball course or a power walking and jogging activity course for a 7-week period. Mood states were defined using two of the eight scales of the Emotional Assessment Scale.

A within-subjects repeated-measures design was used to analyze mood states during the 7-week course. A convenience sample consisted of 74 undergraduate students, 46 men and 28 women, ages 18 to 28 years, who were enrolled in the 7-week activity courses at a midwestern university. For the purposes of this study, only the three adjectives used to describe happiness (happy, joyful, and delighted) and the three adjectives to describe sadness (sad, hopeless, and disturbed) were utilized. The scale consisted of the six randomly sequenced adjectives which were scored using six 10-cm visual analogs with the left end of the scale labeled least possible and the right end labeled most possible. A single score for each participant was obtained by adding the sum of the three happy adjectives and subtracting the sum of the three sad adjectives. The scores ranged from +300, which indicated extreme happiness, to -300 indicating extreme sadness. According to Carlson et al. (cited in Mack et al., 2000),
the happiness and sadness scales have established validity and reliability.

After informed consent was obtained, participants completed the mood state questionnaire at the beginning of class the first day of each week that the activity classes met. Following completion of the questionnaires, two independent, trained raters scored each questionnaire. Data from participants who had attended fewer than four of the seven activity classes were omitted. A $2 \times 2 \times 7$ factorial analysis of variance with repeated measures on mood state and age as a covariate was utilized to analyze the data. The repeated measures analyses for between-subjects’ main effects found sex to be significant, $F(1, 56) = 4.35, p < .05$; however, the between-subjects tests were not significant for age, $F(1, 56) = .08$, ns, or activity type, $F(1, 56) = 1.61$, ns. Women were found to have significantly happier mood scores than men. A Mauchly sphericity test was performed to determine which analysis of variance test should be utilized to examine the within-subjects’ effects. The Mauchly test indicated that multivariate tests should be performed. The Wilks Lambda statistic was used and found to be not significant, $\Lambda = .93; F(6, 51) = .60$, ns.

Mack et al. (2000) found that happy and sad mood states did not significantly change over the 7-week
activity courses. Mean scores for mood states were discovered to be moderately happy throughout the course of activity. Also, women were significantly happier than men during this particular study. Mack et al. (2000) also found that the typical correlation between high intensity physical activities and negative mood fluctuations was not evident with involvement in low intensity activities such as volleyball and power walking or jogging. Although no changes in mood were found during the course of activities, the results supported prior research which indicated that physical activity is associated with a positive mood profile.

Mack et al. (2000) stated that the majority of research focused on mood states utilized the Profile of Mood States to measure positive and negative mood states. The researchers report that only one of the six scales on the Profile of Mood States examines positive mood states, vigor-activity. The researchers felt that happy and sad mood states are different from the positive and negative mood states measured by the Profile of Mood States. Therefore, the researchers recommended including the basic emotions of happiness and sadness in future research. Mack et al. (2000) also recommended that future research examine the relationship between mood state measures of
persons involved in competitive and non-competitive physical activities.

The importance of Mack et al.'s (2000) study to the current research was that it examined the effects of short-term physical activities on happy and sad mood states in a college population. A strong relationship was identified between physical activity and a positive mood state with the greatest effect on college-aged women. This is relevant to the current research and supports the need for additional research on the type and duration of exercise necessary to provide positive effects on mood in this population.

In another study, Toskovic (2001) examined the acute changes in effect after normal college students participated in a single session of dynamic Taekwondo exercise. The researcher hypothesized that a negative mood would be decreased and a positive mood would be increased following a single bout of Taekwondo exercise. The independent variable studied was the participation in a Taekwondo exercise session. The dependent variable was the acute alteration in mood. Dynamic Taekwondo exercise was defined by Toskovic (2001) as moving kicks, punches, and blocks performed alone or in combination which are cyclic and require continuous maneuvering in front, side, and backward directions. It was further defined by the
researcher as a 75-minute class which included 15 minutes of warm-up, 40 to 50 minutes of various Taekwondo patterns, and 5 minutes of cool-down. Acute alteration in mood was defined as change in six psychological state dimensions as measured by the Profile of Mood States (POMS): vigor, tension, depression, anger, fatigue, and confusion.

A quasi-experimental design was utilized to examine the effects of a single Taekwondo exercise session on mood. A convenience sample was composed of 40 male and female college students between the ages of 18 and 21 years who enrolled in a Taekwondo activity class or a lecture-control class. Twenty participants were assigned to each group. Both the experimental and control groups completed the POMS prior to and immediately following the exercise or lecture class. The POMS is a self-administered inventory which consists of a 65-adjective rating scale that yields scores on each of the six psychological state dimensions (tension, anger, depression, vigor, fatigue, and confusion) along with a total mood disturbance score. The total mood disturbance score was calculated by adding the six subscores together. Each adjective was rated on a 0 to 4 point scale (0 = not at all, 4 = extremely). The POMS was chosen by the researcher because of its high
A series of 2 x 2 analyses of covariance tests were utilized to study the effects of sex and treatment (Taekwondo, lecture) on POMS scores. A significance level of $p \leq .007$ was selected. A significant difference on the total mood disturbance scores for experimental versus control subjects despite their sex was indicated by the analysis of covariance. Posttest scores due to treatment were also found to have a significant difference, $F(1, 36) = 37.39, p < .001$. Significant main effects were also discovered for each psychological state dimension: tension, $F(1, 36) = 22.20, p < .001$; depression, $F(1, 36) = 21.56, p < .001$; anger, $F(1, 36) = 8.13, p = .007$; fatigue, $F(1, 36) = 12.45, p = .001$; confusion, $F(1, 36) = 18.97, p < .001$; and vigor, $F(1, 36) = 26.8, p < .001$. There were no significant differences between sex groups.

Toskovic (2001) found that participation in a single session of dynamic Taekwondo exercise can produce immediate positive changes in mood in healthy college students. The students in the Taekwondo group reported a decrease in negative mood and an increase in positive mood when compared with the students in the lecture class students. Toskovic (2001) felt that the results of the study indicated that dynamic Taekwondo exercise can be
placed with more conventional sports that have been indicated to produce beneficial mood alterations.

Toskovic (2001) recommended additional research using larger samples of Taekwondo subjects, exercising at different intensities, and exercising at different times of day. The researcher suggested that taking these steps would aid in establishing how to generalize these findings and to help distinguish what part of the exercise the changes in mood might be attributed.

The results of Toskovic's (2001) study support the premise that many different types and durations of exercise can improve mood states in healthy college students. This is germane to the current research which investigated various types of regular exercise and their effects on the incidence of depressed mood in a college population.

Summary

The review of current literature revealed that the majority of recent research regarding the effects of exercise on depression has involved clinically depressed adult and elderly populations. Although these research studies focused on different populations, the findings supported the premise that exercise decreases the incidence of depression in persons of all ages. This
research also provided valuable information for designing future research studies to evaluate the effects of exercise on depression. The few studies that have examined the effects of exercise on depression in healthy college populations have focused on specific types of single bout or short-term exercise regimens. Therefore, further studies are necessary to determine if regular exercise affects the incidence of depression in college students.
Chapter III
The Method

The purpose of this nonexperimental, comparative study was to determine whether college students who exercised regularly had less incidence of depression than students who did not exercise regularly. In reviewing the current literature, few studies were identified that specifically linked regular exercise to incidence of depression in a college population.

Design of the Study

A nonexperimental, comparative design was utilized to test the following hypothesis: There will be no significant difference in the incidence of depression in college students who exercise regularly and those who do not exercise regularly. The design was appropriate for this study because the researcher was comparing the variables between the two groups. The dependent variable for the current research was depression. The independent variable was regular exercise. The control variable was current student status at the university. There was no manipulation of the variables by the researcher during the
study. Data collection was performed using a retrospective design that compared exercise frequency and duration and incidence of depression between two groups of college students. Measures were taken to minimize situational contaminants. These measures aimed to maintain constancy of conditions. The researcher explained the study to all participants by reading the informed consent and providing instructions for completion of the questionnaires. Assistance in completing the questionnaires was provided for all participants as needed. All participants were given an ample amount of time to complete the questionnaires.

Research Hypothesis

One null hypothesis was used to guide this study. It was as follows: There will be no statistically significant difference in the incidence of depression between college students who exercise regularly and those who do not exercise regularly.

Setting, Population, and Sample

The setting was an institution of higher learning in a rural state of the southeastern United States. The population consisted of male and female students who were attending an institution of higher learning and working toward a degree. A convenience sample was composed of 96
students who met the criteria and consented to participate. The sample was selected from two nursing classes and two health and kinesiology classes taught at an institution of higher learning. The participants were then placed into either an exercising group or a non-exercising group based on the amount of exercise reported on the demographic questionnaire. The exercising group was composed of the participants who reported three or more exercise sessions per week lasting at least 30 minutes each. The non-exercising group was composed of the participants who reported fewer than three exercise sessions per week or less than 30 minutes duration per session.

Instrumentation

The instruments utilized to collect data in this study included a researcher-designed demographic questionnaire and the Zung Self-Rating Depression Scale. The questionnaire was composed of 10 items concerning the subjects' age, sex, college class, exercise frequency, type, and duration, and previous diagnosis of depression and current treatment. The researcher-designed instrument had no established reliability or validity; however, content was reviewed by a panel of expert nurse researchers.
The Zung Self-Rating Depression Scale was used to measure the level of depression of the participants. The Zung scale is a widely used screening instrument for depression that was developed to assess symptoms of depression without the bias of an administrator affecting the results. The instrument is a 20-item self-report scale with 10 positively and 10 negatively worded statements. The 20 items on the scale cover affective, psychological, and somatic symptoms of depression. A Likert scale format was used to have the subjects indicate the frequency with which they experience a symptom or feeling that is described (little of the time, some of the time, good part of the time, most of the time). The answers were scored on a 1 to 4 scale from minimal (none or little of the time) to severe (most or all of the time). A score of 50 or more on the Zung scale was considered a strong indication of depressive illness. The instrument had established reliability and validity with a sensitivity of 97% and a specificity of 63% on the assessment of depression.

Methods of Data Collection

Protection of human rights was provided by obtaining approval from the Mississippi University for Women Committee on the Use of Human Subjects in Experimentation (see Appendix A). Approval was obtained from the Division
Head of the Health and Kinesiology Department and the Director of the Nursing programs to utilize classes for participation in the study (see Appendices B and C). After permission was obtained, the researcher set up dates for data collection with the department directors. Mississippi University for Women Counseling and Testing Center was notified of the potential for referral of depressed students (see Appendix D).

On the scheduled data collection dates, the researcher was present to provide written and verbal explanation of the study to all participants (see Appendix E). The participants were asked to complete the Morris Demographic Questionnaire (see Appendix F) and the Zung Self-Rating Depression Scale (see Appendix G). Following completion of the depression scale, participants were asked to calculate their own depression score (see Appendix H). Students were then informed that a score of 50 or greater on the Zung scale indicated depressive illness. Written information for referral to the University Counseling Center (see Appendix I) and an informational handout on depression were provided for all students to take home (see Appendix J).

Subjects’ right to privacy was maintained by not using names of participants at any time during the study. Subjects’ right to self-determination was maintained by
explaining the purpose of the study and obtaining informed consent by asking participants to complete the demographic questionnaire and the depression scale. Participants were informed that their choice to participate or not participate in the study would not affect their standing with the university in any way. The participants’ completion and return of the demographic questionnaire and the depression scale were their confirmation to participate in the study.

Following completion of the Morris Demographic Questionnaire and the Zung Self-Rating Depression Scale, each set of subject data was assigned an identification number. The questionnaires and the depression scales were checked for blank forms or misinterpretation, and inadequate forms were discarded. At this time, the forms of participants who were currently being treated for depression were also eliminated. Precategorized data from the questionnaires, and the depression scales were coded and transferred onto fixed format data files for computer analysis. Data cleaning, such as checking for outliers and consistency, was performed to eliminate errors.

Methods of Data Analysis

After completion of the Morris Demographic Questionnaire and the Zung Self-Rating Depression Scale,
each subject was placed into one of two groups based on the amount of exercise reported. Subjects who reported exercising a minimum of three times per week for at least 30 minutes per session were placed into Group 1. Subjects who reported exercising less than three times per week or for less than 30 minutes per session were placed into Group 2. In order to analyze the data, predetermined scoring methods for the Zung Self-Rating Depression were utilized. Subject scores of 50 or greater were deemed a positive indicator for depressive illness.

Data were analyzed using descriptive statistics to determine measures of central tendency, frequency, and percentages for each item on the Morris Demographic Questionnaire. A two-tailed t-test was utilized to determine if there was a significant difference in the incidence of depression between the exercising group and the non-exercising group.

Limitations

The limitations of the research study included utilization of a sample of convenience and the time of year data were collected. A quota sample was collected from students in the health and kinesiology classes and nursing classes. The health and kinesiology students were chosen because they had already implemented an exercise
program as part of their class requirements prior to data collection. Data were collected in the spring of the year one week prior to final examinations, which may have had an effect on the subjects' state of mood. The researcher considered these limitations, but the study was conducted to determine whether regular exercise had an effect on the prevalence of depression in the students. These limitations may diminish the ability to generalize these findings to all college students.

Summary

A non-experimental, comparative design was utilized to determine the effects of regular exercise on the incidence of depression in college students. The theoretical framework used to guide the study was Pender's Health Promotion Model. A convenience sample of 96 students was obtained from two nursing classes and two health and kinesiology classes at an institution of higher learning in a rural state in the southeastern United States. Data were collected using a researcher-designed questionnaire, the Morris Demographic Questionnaire, and the Zung Self-Rating Depression Scale. Descriptive statistics were used to analyze data from the demographic questionnaire. A two-tailed t test was used to analyze
data from the Zung Scale to determine the effect of regular exercise on the incidence of depression.
Chapter IV
The Findings

The purpose of this study was to determine the effect of regular exercise on the incidence of depression in college students. The research design selected was descriptive, comparative. For data collection, the Zung Self-Rating Depression Scale and the Morris Demographic Questionnaire were administered to two nursing classes and two health and kinesiology classes. Descriptive statistics and a two-tailed t test were used to analyze data. A description of the sample, results of data analysis, and additional findings of interest are presented in this chapter.

Description of the Sample

A convenience sample (N = 96) was selected from two nursing classes and two health and kinesiology classes. Eligibility criteria included (a) current student status at the university and (b) were not currently receiving treatment for depression. Therefore, none of the participants were currently being treated for depression. The participants were divided into two groups based on the
amount of exercise reported on the Morris Demographic Questionnaire. The two groups consisted of a regular exercise group ($n = 51$) and a no-exercise group ($n = 45$). Demographics of the sample including age, sex, and college class are presented in Table 1.

Table 1

Summary of Sample Demographics of College Students by Frequency and Percentages

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>$f^a$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 to 21</td>
<td>50</td>
<td>52.1</td>
</tr>
<tr>
<td>22 to 25</td>
<td>22</td>
<td>22.9</td>
</tr>
<tr>
<td>26 to 29</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td>≥ 30</td>
<td>16</td>
<td>16.7</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td>Female</td>
<td>88</td>
<td>91.7</td>
</tr>
<tr>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>21</td>
<td>21.9</td>
</tr>
<tr>
<td>Sophomore</td>
<td>20</td>
<td>20.8</td>
</tr>
<tr>
<td>Junior</td>
<td>39</td>
<td>40.6</td>
</tr>
<tr>
<td>Senior</td>
<td>16</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Note. Percentages were rounded to the nearest tenth.

$^aN = 95$. 
The next demographic questions examined current participation in exercise, frequency, type, duration per session, and how long the students had been exercising. An overwhelming majority of the subjects (n = 82, 85.4%) indicated that they were currently exercising. Of the 85.4% exercisers in this study, 63.4% were exercising three or more times per week and 87.8% were exercising for at least 30 minutes or more per session. The most frequently reported types of exercise included walking, aerobics, and jogging. Walking was reported by 91.5% of the participants as the type of exercise performed. The length of time that the students had been exercising ranged from one week to greater than one year. A summary of the findings regarding the exercise questions on the demographic questionnaire are presented in Table 2.

Table 2

Summary of Exercise Questions of College Students by Frequency and Percentages

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>f²</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82</td>
<td>85.4</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>14.6</td>
</tr>
</tbody>
</table>

(table continues)
Table 2 (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency of exercise</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 2 times a week</td>
<td>30</td>
<td>36.6</td>
</tr>
<tr>
<td>3 to 4 times a week</td>
<td>46</td>
<td>56.1</td>
</tr>
<tr>
<td>5 to 6 times a week</td>
<td>5</td>
<td>6.1</td>
</tr>
<tr>
<td>Every day</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Duration of exercise per session</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 30 minutes</td>
<td>10</td>
<td>12.2</td>
</tr>
<tr>
<td>&gt; 30 minutes</td>
<td>72</td>
<td>87.8</td>
</tr>
<tr>
<td><strong>Length of exercise program</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>1 month</td>
<td>7</td>
<td>8.5</td>
</tr>
<tr>
<td>3 months</td>
<td>4</td>
<td>4.9</td>
</tr>
<tr>
<td>4 months</td>
<td>9</td>
<td>11.0</td>
</tr>
<tr>
<td>5 months</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>6 months</td>
<td>28</td>
<td>34.1</td>
</tr>
<tr>
<td>1 year</td>
<td>13</td>
<td>15.9</td>
</tr>
<tr>
<td>&gt; 1 year</td>
<td>18</td>
<td>22.0</td>
</tr>
<tr>
<td><strong>Type of exercise</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk</td>
<td>75</td>
<td>91.1</td>
</tr>
<tr>
<td>Jog</td>
<td>15</td>
<td>18.3</td>
</tr>
<tr>
<td>Bike</td>
<td>4</td>
<td>4.9</td>
</tr>
<tr>
<td>Swim</td>
<td>8</td>
<td>9.8</td>
</tr>
<tr>
<td>Aerobics</td>
<td>36</td>
<td>43.9</td>
</tr>
<tr>
<td>Weightlifting</td>
<td>9</td>
<td>11.0</td>
</tr>
<tr>
<td>Yoga</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td>Basketball</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Water aerobics</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Stair stepping</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Tennis</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Racquetball</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Note. Percentages were rounded to the nearest tenth.

\(^a_n = 82.\)
Two additional questions on the demographic form asked subjects if they had ever been diagnosed with depression and if they were currently receiving treatment for depression. Only 7.3% \((n = 7)\) responded that they had been diagnosed with depression, and 5.0% \((n = 5)\) were currently receiving treatment. The five participants who reported currently being treated for depression were eliminated from the study. The findings for the depression questions are depicted in Table 3.

Table 3

Summary of Demographic Questions About Depression by Frequency and Percentages

<table>
<thead>
<tr>
<th>Question</th>
<th>(f^n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior diagnosis of depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td>No</td>
<td>89</td>
<td>92.7</td>
</tr>
<tr>
<td>Currently treated for depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>5.0</td>
</tr>
<tr>
<td>No</td>
<td>96</td>
<td>95.0</td>
</tr>
</tbody>
</table>

\(N = 96.\)

Results of Data Analysis

One null hypothesis guided this study. That hypothesis was as follows: There will be no statistically
significant difference in the incidence of depression among college students who exercise regularly and those who do not exercise regularly. Depression was measured using the Zung Self-Rating Depression Scale. Total scores on the Zung Self-Rating Depression Scale were calculated, and the means of the scores were used to compare the exercise group with the no-exercise group by means of a two-tailed t test. The results were that there was no statistically significant difference, $t(94) = 1.8088$, $p = .0737$, between the depression scores on the Zung Self-Rating Depression Scale in the exercise group and the no-exercise group. Thus, the researcher failed to reject the null hypothesis.

Findings for the total group of participants indicated an unusual lack of depression among the sample, which may explain the researcher’s failure to reject the null hypothesis. Only 7 of the 96 participants in this study were depressed according to the score of the Zung Self-Rating Depression Scale. The highest possible score was 80, with a score of 50 or greater indicating probable depression. Of those 7 depressed students, only 2 were in the exercise group. The mean score for all subjects on the Zung Self-Rating Depression Scale was 36.9. The difference in overall depression scores on the Zung Self-Rating Depression Scale are depicted in Figure 1.
Summary

Demographic characteristics of the sample were discussed. One null hypothesis, which stated that regular exercise would not affect the incidence of depression in college students, guided this study. The mean scores for the Zung Self-Rating Depression Scale were calculated for both the exercise and no-exercise groups. A two-tailed t test was used to analyze the mean depression scores. There

Figure 1. Depression scores on the Zung Self-Rating Depression Scale.
was no statistically significant difference in the scores on the Zung Self-Rating Depression Scale between the two groups.
Chapter V
The Outcomes

Although many studies have been conducted comparing exercise and depression, the review of literature identified few studies that explored the relationship between exercise and depression in a college population. The purpose of this study was to determine the effect of regular exercise on the incidence of depression in college students. Pender’s (1987) Health Promotion Model provided the theoretical framework for this study. The researcher selected two nursing classes and two health and kinesiology classes and obtained permission from the administrators. The researcher visited each class once; at that time obtained informed consent and demographic information and administered the Zung Self-Rating Depression Scale. Each participant was placed into either an exercise group or a no-exercise group based on the amount of exercise reported on the demographic questionnaire. Demographic data were analyzed using descriptive statistics. Data obtained from the Zung Self-Rating Depression Scale were analyzed using a two-tailed t test.
Summary of Findings

The sample consisted of 96 college students with 51 in the exercise group and 45 in the no-exercise group. Participants were selected by convenience sampling from two nursing classes and two health and kinesiology classes taught at a university in a rural state in the southeastern United States. The majority of the participants were between the ages of 18 and 21 years (52.1%), and 91.7% of the participants were female. Most of the students \((n = 82, 85.4\%)\) in the sample were currently exercising. However, of the students who were currently exercising, only 53.1% \((n = 51)\) were exercising at least three times per week for a minimum of 30 minutes. The most frequently reported types of exercise were walking, aerobics, and jogging. The length of time that the students had been exercising ranged from one week \((n = 1, 1.2\%)\) to greater than one year \((n = 18, 22.0\%)\). Most of the students \((n = 89, 92.7\%)\) in the sample had never been diagnosed with depression. Five students \((5.0\%)\) were currently receiving treatment for depression and were eliminated from the study.

The hypothesis that directed this study was that there would be no statistically significant difference in
the incidence of depression between college students who exercise regularly and those who do not exercise regularly. The findings, using a two-tailed t test and a mean score analysis from Zung Self-Rating Depression Scale, were not statistically significant at an alpha of .05. The researcher was thus unable to reject the null hypothesis.

Additional Findings

Scores of the Zung Self-Rating Depression Scale revealed a remarkable lack of depression among the sample, which may explain the researcher’s failure to reject the null hypothesis. Also of interest, only 14 of the participants in the no-exercise group were engaging in no exercise. Thirty-one of the 45 subjects in this group were exercising, but did not meet the researcher’s criteria for regular exercise. As a result, the depression scores of the no-exercise group may have been skewed by the participants who were currently exercising. The mean depression score for the exercise group was 35.5 and 38.8 for the no-exercise group. Each statement on the Zung Self-Rating Depression Scale was scored on a 1 to 4 scale from minimal (none or little of the time) to severe (most or all of the time). A score of 50 or greater on the Zung scale was considered a strong indication of depression. Of
the 96 participants, 7 (7.3%) were found to be depressed and 5 of the 7 were in the group who were not exercising regularly.

**Discussion**

The beneficial effects of exercise on depression have been supported by numerous studies in the literature. This author has cited several studies which support this finding; however, few studies have specifically examined exercise in relation to depression in a college population. While regular exercise has been shown to have many positive effects on college students, this study was unable to demonstrate that depression was one of those variables. Previous studies have reported that physical activity has a positive effect on college students' mood state (Dimeo et al., 2000). Although this researcher was unable to reject the null hypothesis, there were more depressed students in the no-exercise group than there were in the exercise group as revealed by the scores on the Zung Self-Rating Depression Scale.

Previous research reported that depression is prevalent on college campuses (Roger-Starch, 1996; Swilley, 2000); however, the current researcher was unable to support these findings. Overall, participants in this study were not depressed. Of the 96 students who
participated in this study, only 7.3% indicated probable depression on the Zung Self-Rating Depression Scale. This may have been attributed to the fact that 85.4% of the students were engaging in some type of exercise. While this author defined regular exercise as routine participation in physical activity at least three times per week for at least 30 minutes per session, many students were exercising daily for less than 30 minutes or less than three times per week for greater than 30 minutes. The students who were currently exercising, but did not meet the researcher’s defining criteria for regular exercise, were placed in the no-exercise group. As a result, the mean depression score for the no-exercise group could have been skewed by the scores of the students who were actually exercising. Prior research has indicated that short-term exercise can cause a decrease in levels of depression (Dimeo et al., 2000). In addition, recent studies have reported that involvement in various durations and types of physical activity is associated with positive mood states (Mack et al., 2000; Rehor et al., 2001). Therefore, this could explain the significant lack of depression among the sample as well as the researcher’s inability to reject the null hypothesis.

A second explanation for why this was not a depressed population could be that only 21.9% of the students were
freshmen. According to Tosdal (1998), college students are prone to depression as a result of the tremendous amount of stress that they experience. Tosdal (1998) also states that many students leave home for college with expectations of freedom, fun, and adventure; however, they often find themselves in challenging situations for which they are unprepared. College freshmen are often faced with the challenges of increased responsibility, independence, and academic demands along with decreased emotional and financial support. Therefore, freshmen are especially prone to depression due to the amount of stress that they experience while making the transition from high school to college. On the other hand, upper classmen have had time to adjust to the challenging demands of college life and are less likely to experience depression related to these stressors. The fact that the majority of the students in the sample were upper classmen could have resulted in the lack of depression found among the sample.

Another explanation as to why the students did not indicate depression on the Zung Self-Rating Depression Scale could be that they misrepresented their responses to the questions or gave answers that they believed to be consistent with current social norms in order to portray positive images of themselves. This has been reported as a limitation of utilizing self-report instruments to collect
data (Polit & Hungler, 1999). While the researcher reassured the students of their confidentiality and encouraged them to answer honestly, the non-depressed answer to each of the 20 questions was quite evident.

A final explanation for why this was not a depressed population could be due to the absence of factors relating to seasonal affective disorder. Data were collected during the late spring when students were spending more time outside enjoying the weather and engaging in physical activities. Also, data collection took place about 2 weeks prior to summer break. Therefore, it is probable that the students’ lack of depression was related to the time of year data were collected.

In conclusion, this discussion has outlined possible reasons as to why this study’s sample was overall not depressed. This researcher was unable to support previous research that reported a high incidence of depression among students in a college setting. Although regular exercise as defined for the current research did not appear to impact the incidence of depression among the students in the sample, this author believes that various durations and types of exercise could be used to decrease the incidence of depression in a college population. The studies reviewed did help to support the belief that exercise can reduce an individual’s risk for developing
depression and also decrease the severity of symptoms associated with depression.

Implications for Nursing

A number of implications for nursing science were derived from this study. Implications are suggested for nursing theory, research, education, and practice.

Theory. The findings of the current study support Pender's Health Promotion Model which focuses on identifying the cognitive-perceptual factors and modifying factors that influence an individual's participation in health-promoting behaviors, such as exercise. Although this author was unable to reject the null hypothesis, the findings supported this author's conceptualization that as health-promoting activities such as exercise increase, the incidence of depression among college students decreases.

Research. Although the findings of this study were not statistically significant, this study can be used to guide future research regarding the effects of exercise on depression in a healthy college population. Additional research is needed to examine depression and interventions that could reduce the risk of developing depression and decrease the severity of symptoms. Exercise could serve as a reasonable, cost-effective option for preventing and treating depression. Although this study could not support
prior research indicating that depression is prevalent among college campuses, additional research needs to be done with students in college settings.

Education. Findings from this study can serve to enhance the nurse practitioner’s role in providing preventive care and treatment to persons affected by depression. This study will provide educational benefits to nursing students and nurses at all educational levels. Nurses will have a better understanding of the prevalence of depression and its impact on the college population. Nurse practitioners should be taught that they will be in an important position to identify and treat depressed college students. Nurse practitioners must be able to educate the public as well as colleagues on the many benefits of exercise, acknowledging that it is an inexpensive, effective option for decreasing the severity and duration of depressive symptoms.

Practice. Although the findings from this study were not significant, they do have implications for the advanced practice nurse. Many nurse practitioners are employed in college health facilities and play an important role in improving diagnosis and treatment of depression in this population. Health care providers must be aware of exercise as an adjunctive treatment for many health problems including depression. Regular exercise may
also aid in promoting feelings of well-being during the initiation of antidepressant medications, which often take up to 4 weeks to reach therapeutic levels. Engaging in regular exercise may also help with weight control and sleep, which are common problems voiced by depressed persons. Decreasing the incidence of depression will lead to a decrease in the multiple complications and co-morbidities resulting from depression.

Conclusions

Based on the results of this study, the following conclusions were made:

1. Stress experienced by college students does not always result in depression.

2. Although statistically insignificant, the students in the exercise group had lower depression scores than those in the no-exercise group.

3. Many college students are engaging in regular exercise of various durations and types.

4. Pender’s Health Promotion Model was an appropriate framework for investigation of the health promotion activity of exercise.

Recommendations for Further Study

The researcher makes the following recommendations for nursing science:
1. Replication of this study using randomized, controlled methods, and a larger sample size.

2. Replication of this study placing participants into one of three exercise categories: regular exercise, occasional exercise, and no exercise.

3. Replication of this study using a pretest and posttest to measure improvement in depressive symptoms following implementation of an exercise program.

4. Replication of this study using a population that is depressed prior to the start of the study and then implementing an exercise program.

5. Replication of this study using a population with equal representation of all classes: freshman, sophomore, junior, and senior.

6. Replication of this study during the fall or winter months when students are less likely to spend time outside engaging in physical activities.
REFERENCES
References


APPENDIX A

APPROVAL OF MISSISSIPPI UNIVERSITY FOR
WOMEN’S COMMITTEE ON USE OF HUMAN SUBJECTS
IN EXPERIMENTATION
December 19, 2001

Ms. April Morris  
c/o Graduate Nursing Program  
P. O. Box W-910  
Campus

Dear Ms. Morris:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted.

The committee reminds you that the results of any questionnaire or survey must be kept under lock and key to ensure confidentiality and be kept for a sufficient length of time to protect the participant and the researcher.

I wish you much success in your research.

Sincerely,

Vagn K. Hansen, Ph.D.  
Provost and Vice President  
for Academic Affairs

VH:wr

cc: Mr. Jim Davidson  
Ms. Terri Hamill  
Dr. Sheila Adams

Where Excellence is a Tradition
APPENDIX B

LETTER TO DIRECTOR OF
HEALTH AND KINESIOLOGY DEPARTMENT
February 4, 2002

Dr. Jo Spearman
Division Head, Health and Kinesiology
Mississippi University for Women
Box W-1636
Columbus, MS 39701

Dear Dr. Spearman,

I am a registered nurse and a graduate nursing student at Mississippi University for Women. For my masters thesis, I am conducting a research study about the effects of exercise on depression in college students. I am contacting you because I would like to discuss the possibility of using a couple of the Health and Kinesiology classes to seek participants for my study. If possible, I would like to utilize a class that is already required to exercise as a part of the class requirement.

The study will be approved by the University before implementation. In the spring semester, between March and April, the participants will be asked to fill out a short demographic questionnaire along with a self-rating depression scale which will take about 15 minutes of their time. All information obtained during the study will be kept strictly confidential and will be used only for the purpose of the study. Names of the participants will not be used at any time during the study.

I will be happy to provide any further information regarding the study. Please feel free to contact me any time at (601) 296-0908 or via e-mail at AMorrisRN@AOL.COM

Thank you for your time and consideration of this request.

Sincerely,

April E. Morris, RN
Dear Dr. Cox,

I am a registered nurse and a graduate nursing student here at Mississippi University for Women. For my masters thesis, I am conducting a research study about the effects of exercise on depression in college students. I am contacting you because I would like to discuss the possibility of using a couple of the nursing classes to seek participants for my study.

The study will be approved by the University before implementation. In the spring semester, between March and April, the participants will be asked to fill out a short demographic questionnaire along with a self-rating depression scale which will take about 15 minutes of their time. All information obtained during the study will be kept strictly confidential and will be used only for the purpose of the study. Names of the participants will not be used at any time during the study.

I will be happy to provide any further information regarding the study. Please feel free to contact me any time at (601) 296-0908 or via e-mail at AmorrisRN@AOL.COM.

Thank you for your time and consideration of this request.

Sincerely,

April E. Morris, RN
APPENDIX D

LETTER TO MISSISSIPPI UNIVERSITY FOR WOMEN’S DIRECTOR OF COUNSELING AND TESTING CENTER
February 4, 2002

Ms. Linda Halbert
Director, Counseling and Testing Center
Mississippi University for Women
Box W-1607
Columbus, MS 39701

Dear Ms. Halbert,

I am a registered nurse and a graduate nursing student at Mississippi University for Women. For my masters thesis, I am conducting a research study about the effects of exercise on depression in college students. I am notifying you in the event that students are identified in need of counseling for depression during this study.

The study will be approved by the University before implementation. In the spring semester, between March and April, the participants will be asked to fill out a short demographic questionnaire along with a self-rating depression scale. The participants will be calculating their own depression scores, and referral information along with pamphlets on depression will be provided to them.

Please feel free to contact me any time at (601) 296-0908 or via e-mail at AmorrisRN@AOL.COM

Thank you for your assistance.

Sincerely,

April E. Morris, RN
APPENDIX E

INFORMED CONSENT FORM FOR PARTICIPANTS
Dear Study Participant,

I am a registered nurse and a graduate nursing student at Mississippi University for Women. I am conducting a research study about the effects of exercise on depression in college students. This study will help health care providers understand if exercise affects depression in college students. This study has been approved by the University.

I am asking you to complete a 10-item demographic questionnaire along with a 20-item depression rating scale which will take approximately 10 to 15 minutes of your time.

In order for you to participate in this study, I need your permission. All information obtained during this study will be kept confidential and will be used only for the purpose of this study. The names of participants will not be used at any time during this study. Your participation is strictly voluntary. Your choice to participate or not to participate in this study will not affect your standing with the University in any way. Your completion of the questionnaire and the depression scale will confirm your consent to participate in this study.

If you would like any further information regarding this study, please feel free to contact me at (601) 296-0908 or via e-mail at AmorrisRN@AOL.COM

Thank you for your time and consideration of this request.

Sincerely,

April Morris, RN
Morris Demographic Questionnaire

Please check (✓) the appropriate response to each of the following questions:

1. Age (years)
   - a. 18 to 21
   - b. 22 to 25
   - c. 26 to 29
   - d. 30 or over

2. Sex
   - a. Male
   - b. Female

3. Class
   - a. Freshman
   - b. Sophomore
   - c. Junior
   - d. Senior
   - e. Other. Please specify: _______________________

4. Do you currently exercise?
   - a. Yes
   - b. No

   A. If yes, how often do you exercise?
      - a. 1 to 2 times a week
      - b. 3 to 4 times a week
      - c. 5 to 6 times a week
      - d. Every day

   B. What type of exercise do you do? (Check all that apply)
      - a. Walk
      - b. Jog
      - c. Swim
      - d. Aerobics
      - e. Please specify: _______________________

   C. How long do you exercise during each session?
      - a. Less than 30 minutes
      - b. 30 minutes or more

   D. How long have you been exercising?
      - a. 1 week
      - b. 1 month
      - c. 6 months
      - d. 1 year
      - e. Other. Please specify: _______________________

5. Have you ever been diagnosed with depression?
   - a. Yes
   - b. No

   If yes, are you currently being treated?
   - a. Yes
   - b. No
APPENDIX G

ZUNG SELF-RATING DEPRESSION SCALE
Zung Self-Rating Depression Scale

Please read each statement and decide how much of the time the statement describes how you have been feeling during the past several days.

<table>
<thead>
<tr>
<th>No.</th>
<th>Place a check (√) mark in the appropriate column</th>
<th>None of the time</th>
<th>Some of the time</th>
<th>Good part of the time</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel downhearted and blue.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Morning is when I feel the best.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I have crying spells or feel like it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I have trouble sleeping at night.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I eat as much as I used to.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I still enjoy sex.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I notice I am losing weight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I have trouble with constipation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>My heart beats faster than usual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I get tired for no reason.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>My mind is as clear as it used to be.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I find it easy to do the things I used to.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I am restless and can’t keep still.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I feel hopeful about the future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I am more irritable than usual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I find it easy to make decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I feel that I am useful and needed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>My life is pretty full.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I feel that others would be better off if I were dead.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I still enjoy the things I used to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Zung, A Self-Rating Depression Scale, Arch Gen Psychiatry, 1965, 12: 63-70.
APPENDIX H

KEY TO SCORING THE ZUNG SELF-RATING DEPRESSION SCALE
KEY TO SCORING THE ZUNG SELF-RATING DEPRESSION SCALE

Use this key to determine the value (1-4) that correlates with your response to each statement. Add up the numbers for a total score. Most people with depression score between 50 and 60. The highest possible score is 80.

<table>
<thead>
<tr>
<th>No.</th>
<th>Place a check (✓) mark in the appropriate column</th>
<th>None of the time</th>
<th>Some of the time</th>
<th>Good part of the time</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel downhearted and blue.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Morning is when I feel the best.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>I have crying spells or feel like it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>I have trouble sleeping at night.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>I eat as much as I used to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>I still enjoy sex.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>I notice I am losing weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>I have trouble with constipation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>My heart beats faster than usual.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>I get tired for no reason.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>My mind is as clear as it used to be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>I find it easy to do the things I used to</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>I am restless and can’t keep still.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>I feel hopeful about the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>I am more irritable than usual.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>I find it easy to make decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>I feel that I am useful and needed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18</td>
<td>My life is pretty full.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>I feel that others would be better off if I were dead.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>I still enjoy the things I used to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

APPENDIX I

REFERRAL INFORMATION FOR PARTICIPANTS
Dear Participants,

Most people with depression score 50 or over on the Zung Self-Rating Depression Scale. If your calculated score on the Zung Scale was 50 or over, please contact the Mississippi University for Women Counseling and Testing Center at (662) 329-7349 or go to 118 Reneau Hall for further testing.

Sincerely,

April Morris, RN
During any 1 year period, 17.6 million American adults or 10% of the population suffer from a depressive illness. The cost in human suffering cannot be estimated. Depressive illnesses often interfere with normal functioning and cause pain and suffering not only to those who have a disorder, but also to those who care about them. Serious depression can destroy family life as well as the life of the ill person.

Possibly the saddest fact about depression is that much of this suffering is unnecessary. Most people with a depressive illness do not seek treatment, although the great majority — even those with the severest disorders — can be helped. Thanks to years of fruitful research, the medications and psychosocial therapies that ease the pain of depression are at hand.

Unfortunately, many people do not recognize that they have a treatable illness. Read this flyer to see if you are one of the many undiagnosed depressed people in this country or if you know someone who is. The information briefly presented here may help you take the steps that may save your own or someone else’s life.

What is a Depressive Disorder?

A depressive disorder is a "whole-body" illness, involving your body, mood, and thoughts. It affects the way you eat and sleep, the way you feel about yourself, and the way you think about things. A depressive disorder is not the same as a passing blue mood. It is not a sign of personal weakness or a condition that can be willed or wished away. People with a depressive illness cannot merely "pull themselves together" and get better. Without treatment, symptoms can last for weeks, months, or years. Appropriate treatment, however, can help most people who suffer from depression.

Types of Depression

Depressive disorders come in different forms, just as do other illnesses, such as heart disease. This pamphlet briefly describes three of the most prevalent types of depressive disorders. However, within these types there are variations in the number of symptoms, their severity, and
Major depression is manifested by a combination of symptoms (see symptom list) that interfere with the ability to work, sleep, eat, and enjoy once pleasurable activities. These disabling episodes of depression can occur once, twice, or several times in a lifetime.

A less severe type of depression, dysthymia, involves long-term, chronic symptoms that do not disable, but keep you from functioning at "full steam" or from feeling good. Sometimes people with dysthymia also experience major depressive episodes.

Another type is bipolar disorder, formerly called manic-depressive illness. Not nearly as prevalent as other forms of depressive disorders, bipolar disorder involves cycles of depression and elation or mania. Sometimes the mood switches are dramatic and rapid, but most often they are gradual. When in the depressed cycle, you can have any or all of the symptoms of a depressive disorder. When in the manic cycle, any or all symptoms listed under mania may be experienced. Mania often affects thinking, judgment, and social behavior in ways that cause serious problems and embarrassment. For example, unwise business or financial decisions may be made when an individual is in a manic phase. Bipolar disorder is often a chronic recurring condition.

Symptoms of Depression And Mania

Not everyone who is depressed or manic experiences every symptom. Some people experience a few symptoms, some many. Also, severity of symptoms varies with individuals.

<table>
<thead>
<tr>
<th>Depression</th>
<th>Mania</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Persistent sad, anxious, or &quot;empty&quot; mood</td>
<td>• Inappropriate elation</td>
</tr>
<tr>
<td>• Feelings of hopelessness, pessimism</td>
<td>• Inappropriate irritability</td>
</tr>
<tr>
<td>• Feelings of guilt, worthlessness, helplessness</td>
<td>• Severe insomnia</td>
</tr>
<tr>
<td>• Loss of interest or pleasure in hobbies and activities that were once enjoyed, including sex</td>
<td>• Grandiose notions</td>
</tr>
<tr>
<td>• Insomnia, early-morning awakening, or oversleeping</td>
<td>• Increased talking</td>
</tr>
<tr>
<td></td>
<td>• Disconnected and racing thoughts</td>
</tr>
<tr>
<td></td>
<td>• Increased sexual desire</td>
</tr>
<tr>
<td></td>
<td>• Markedly increased energy</td>
</tr>
</tbody>
</table>
Causes of Depression

Some types of depression run in families, indicating that a biological vulnerability can be inherited. This seems to be the case with bipolar. Studies of families, in which members of each generation develop bipolar disorder, found that those with the illness have a somewhat different genetic makeup than those who do not get ill. However, the reverse is not true: Not everybody with the genetic makeup that causes vulnerability to bipolar disorder has the illness. Apparently additional factors, possibly a stressful environment, are involved in its onset.

Major depression also seems to occur, generation after generation, in some families. However, it can also occur in people who have no family history of depression. Whether inherited or not, major depressive disorder is often associated with having too little or too much of certain neuro-chemicals.

Psychological makeup also plays a role in vulnerability to depression. People who have low self-esteem, who consistently view themselves and the world with pessimism, or who are readily overwhelmed by stress are prone to depression.

A serious loss, chronic illness, difficult relationship, financial problem, or any unwelcome change in life patterns can also trigger a depressive episode. Very often, a combination of genetic, psychological, and environmental factors is involved in the onset of a depressive disorder.
Diagnostic Evaluation and Treatment

The first step to getting appropriate treatment is a complete physical and psychological evaluation to determine whether you have a depressive illness, and if so what type you have. Certain medications as well as some medical conditions can cause symptoms of depression and the examining physician should rule out these possibilities through examination, interview, and lab tests.

A good diagnostic evaluation also will include a complete history of your symptoms, i.e., when they started, how long they have lasted, how severe they are, whether you've had them before and, if so, whether you were treated and what treatment you received. Your doctor should ask you about alcohol and drug use, and if you have thoughts about death or suicide. Further, a history should include questions about whether other family members have had a depressive illness and if treated, what treatments they may have received and which were effective.

Last, a diagnostic evaluation will include a mental status examination to determine if your speech or thought patterns or memory have been affected, as often happens in the case of a depressive or manic-depressive illness.

Treatment choice will depend on the outcome of the evaluation. There are a variety of antidepressant medications and psychotherapies that can be used to treat depressive disorders. Some people do well with psychotherapy, some with antidepressants. Some do best with combined treatment: medication to gain relatively quick symptom relief and psychotherapy to learn more effective ways to deal with life's problems. Depending on your diagnosis and severity of symptoms, you may be prescribed medication and/or treated with one of the several forms of psychotherapy that have proven effective for depression.

Psychotherapies

There are many forms of psychotherapy effectively used to help depressed individuals, including some short term (10-20 weeks) therapies. "Talking" therapies help patients gain insight into and resolve their problems through verbal "give-and-take" with the therapist. "Behavioral" therapists help patients learn how to obtain more satisfaction and rewards through their own actions and how to unlearn the behavioral patterns that contribute to their depression.

Two of the short term psychotherapies that research has shown helpful for some forms of depression are Interpersonal and Cognitive/Behavioral therapies. Interpersonal therapists focus on the patient's disturbed personal relationships that both cause and exacerbate the depression. Cognitive/behavioral therapists help patients change the negative styles of thinking and behaving often associated with depression.

Psychodynamic therapies, sometimes used to treat depression, focus on resolving the patient's internal psychological conflicts that are typically thought to be rooted in childhood.

In general, the severe depressive illnesses, particularly those that are
recurrent, will require medication along with psychotherapy for the best outcome.

Helping Yourself

Depressive disorders make you feel exhausted, worthless, helpless, and hopeless. Such negative thoughts and feelings make some people feel like giving up. It is important to realize that these negative views are part of the depression and typically do not accurately reflect your situation. Negative thinking fades as treatment begins to take effect. In the meantime:

- Do not set yourself difficult goals or take on a great deal of responsibility.
- Break large tasks into small ones, set some priorities, and do what you can as you can.
- Do not expect too much from yourself too soon as this will only increase feelings of failure.
- Try to be with other people; it is usually better than being alone.
- Participate in activities that may make you feel better.
- You might try mild exercise, going to a movie, a ball-game, or participating in religious or social activities.
- Don't overdo it or get upset if your mood is not greatly improved right away. Feeling better takes time.
- Do not make major life decisions, such as changing jobs, getting married or divorced, without consulting others who know you well and who have a more objective view of your situation. In any case, it is advisable to postpone important decisions until your depression has lifted.
- Do not expect to snap out of your depression. People rarely do. Help yourself as much as you can, and do not blame yourself for not being up to par.
- Remember, do not accept your negative thinking. It is part of the depression and will disappear as your depression responds to treatment.

Family and Friends Can Help
Since depression can make you feel exhausted and helpless, you will want and probably need help from others. However, people who have never had a depressive disorder may not fully understand its effect. They won't mean to hurt you, but they may say and do things that do. It may help to share this pamphlet with those you most care about so they can better understand and help you.

**Helping the Depressed Person**

The most important thing anyone can do for the depressed person is to help him or her get appropriate diagnosis and treatment. This may involve encouraging the individual to stay with treatment until symptoms begin to abate (several weeks), or to seek different treatment if no improvement occurs. On occasion, it may require making an appointment and accompanying the depressed person to the doctor. It may also mean monitoring whether the depressed person is taking medication.

The second most important thing is to offer emotional support. This involves understanding, patience, affection, and encouragement. Engage the depressed person in conversation and listen carefully. Do not disparage feelings expressed, but point out realities and offer hope. Do not ignore remarks about suicide. Always report them to the depressed person's therapist.

Invite the depressed person for walks, outings, to the movies, and other activities. Be gently insistent if your invitation is refused. Encourage participation in some activities that once gave pleasure, such as hobbies, sports, religious or cultural activities, but do not push the depressed person to undertake too much too soon. The depressed person needs diversion and company, but too many demands can increase feelings of failure.

Do not accuse the depressed person of faking illness or of laziness, or expect him or her “to snap out of it.” Eventually, with treatment, most depressed people do get better. Keep that in mind, and keep reassuring the depressed person that, with time and help, he or she will feel better.

**Where To Get Help**

A complete physical and psychological diagnostic evaluation will help you decide the type of treatment that might be best for you. Listed below are the types of people and places that will make a referral to, or provide, diagnostic and treatment services. Check the *Yellow Pages* under “mental health,” “health,” “social services,” “suicide prevention,” “hospitals,” or “physicians” for phone numbers and addresses.

- Family doctors
• Mental health specialists, such as psychiatrists, psychologists, social workers, or mental health counselors

• Health maintenance organizations

• Community mental health centers

• Hospital psychiatry departments and outpatient clinics

• University- or medical school-affiliated programs

• State hospital outpatient clinics

• Family service/social agencies

• Private clinics and facilities

• Employee assistance programs

• Local medical and/or psychiatric societies

Further Information

Write to:

D/ART/Public Inquiries
National Institute of Mental Health
Room 7C-02
5600 Fishers Lane
Rockville, MD 20857
1-800-421-4211

National Alliance for the Mentally Ill
200 North Glebe Road, Suite 1015
Arlington, VA 22203-3754
(703) 524-7600; 1-800-950-NAMI

National Depressive and Manic Depressive Association
730 N. Franklin, Suite 501
Chicago, IL 60601
(312) 642-0049; 1-800-826-3632

This flyer is in the public domain and may be used and reprinted without permission. Citation as to source is appreciated.

U.S. Department of Health and Human Services
National Institutes of Health
National Institute of Mental Health,