To the Graduate Council:

I am submitting herewith a thesis written by Angela Hudson entitled "A Comparison of Whether Beginning Ballet Dancers are as Susceptible to Eating Disorders as are More Advanced Ballet Dancers". I have examined the final copy of this thesis and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Human Performance and Sport Studies.

Dr. Gene McCutchen, Major Professor

We have read this thesis
And recommend its acceptance:

Accepted for the Council:

Interim Vice Provost and
Dean of the Graduate School

A COMPARISON OF WHETHER BEGINNING BALLET DANCERS ARE AS SUSCEPTIBLE TO EATING DISORDERS AS ARE MORE ADVANCED BALLET DANCERS

A Thesis

Presented For The

Master of Science Degree

The University of Tennessee, Knoxville

Angela Hudson

May 2001

DEDICATION

This thesis is dedicated to my baby daughter

Alexis Sheree Hudson

who has given me strength through her smiles and laughter

to accomplish this moment.

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The author would like to thank her parents, Tony and Beverly Bishop, for their continual acknowledgement of their daughter's abilities. Their undying faith in the author has carried her through many moments of uncertainty. Finally, the author wishes to thank her husband, Andy Hudson, for all his love, support, and computer expertise. This project would not have been completed without him.

ABSTRACT

This study examines possible eating disorders among female ballet dancers. Its purpose was to determine if beginning ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers.

A modified version of the Thompson and Comeau questionnaire (Appendix A) concerning eating habits was given to 63 female ballet dancers at a large, public state university in the south. The sample size was determined by the number of dancers enrolled in the spring of 2001. The data were analyzed using the Windows SPSS package, version 10, resulting in descriptive statistics such as means, frequencies, percentages and cross-tabulations.

This study answers the author's research question of whether beginning ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers. The data showed that there was not a significant difference between Ballet I and II or Ballet II and III. However, there was a significant difference between Ballet I and III, which leads the author to state that there is no evidence to show that beginning Ballet I dancers in this study were as susceptible to eating disorders as were the more advanced dancers in Ballet III. The findings of this study provide dance administrators, teachers, choreographers, and dancers with an idea of how each level of dance compares with one another. The results of this study also indicate that there is a lack of recent research available to verify the results of this study..

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CHAPTER 1

INTRODUCTION

Weight and body shape of individuals are normally the outcome of biological, psychological, and social processes that occur within relationships and social institutions. Individuals with eating disorders have many influences that affect their every day lives. Families, organizations, communities, and societies have different factors that influence weight (Brownell & Fairburn, 1995).

Culture is one of the most powerful determinants of body weight because it sets the context for eating and activity and also assigns moral and social meanings to food, activity and body image. In Western culture, thinness in women has come to symbolize competence, success, control, and sexual attractiveness. A possible example would be a 5'7" model who barely weights 100 pounds. Given these apparently and generally unrealistic societal ideas, many adolescent girls and women experience discontent with their weight and shape.

Epidemiological studies suggest that the prevalence of anorexia nervosa has increased over the past 20 years, particularly among women between the ages of 15 and 25 (Brownell & Fairburn, 1995). In the case of bulimia nervosa, lack of sufficient research data makes it difficult to study trends.

Limitations in existing research permit only a broad analysis of the prevalence of eating disorders among dancers. In many studies, prevailing diagnostic criteria have not been used and appropriate control groups have been rare. One question that has not been investigated is whether the prevalence of eating disorders is higher in some dancers than in others. If such a prevalence were discovered,

then the key questions would become whether participation at a particular level of dance causes the eating disorder, or whether the individual with eating problems is drawn to the discipline of dance. According to this author's research, the studies necessary to address such questions have not been done.

It seems to be obvious that the community of dance would be well served if more researchers within the field would begin to address the lack of research and data in issues such as eating disorders. Understanding the who, what, when, where, and why could be the key in preventing and treating the disease for future generations of dancers.

Statement of Purpose

The purpose of this study was to determine if beginning ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers. In order to proceed with the study, this researcher will be using a modified version of the Eating Behavior Questionnaire that was written and created by Colleen Thompson and Michelle Comeau.

Definition of Terms

The term 'eating disorder' has come to have a relatively narrow defined meaning, particularly within the area of mental health (Button, 1993). Rather than referring to all disordered eating behavior, the term has come to be applied primarily to a spectrum of disorders associated with the avoidance of fatness and the pursuit of thinness (Button, 1993). The following criteria for anorexia nervosa and bulimia nervosa are the standard used by researchers in this field.

Anorexia Nervosa – the criteria are as follows:

A. Refusal to maintain body weight over a minimal weight for age and height or body weight 15% below that expected.

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbed in the way in which one's body weight, size, or shape is experienced. For example, a person claims to feel fat even when emaciated, and believes that one area of the body is too fat even when obviously underweight.

D. In females, absence of at least three consecutive menstrual cycles.

Although these criteria are widely applied in the research literature, none is without problems (Button, 1993). A minimum normal weight is hard to define, the intensity of fear of fatness is difficult to measure, and the menstrual criterion poses problems with women who take the contraceptive pill. However, preoccupation with food and weight issues is undoubtedly the most specific psychological characteristic of anorexia nervosa.

Bulimia Nervosa – the criteria are as follows:

A. Recurrent episodes of binge eating (rapid consumption of large amounts of food in a discrete period of time).

B. A feeling of lack of control over eating behavior during eating binges.

C. The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.

D. A minimum average of two binge-eating episodes a week for at least three months.

E. Persistent over concern with body shape and weight.

Assumptions

In order to proceed with this study, certain assumptions exist. One assumption was that dancers are prime subjects for eating disorders due to their supposed relation to the afore-mentioned material. Another assumption was that the dancers used in this study answered the questionnaire honestly, which may have affected validity.

Scope of the Study

A modified version from the Thompson and Comeau Eating Behavior Questionnaire (Appendix A) was given to each beginning and more advanced female ballet dancer in classes at a large, public state university in the south. The size of the sample was determined by the number of students enrolled in ballet dance classes in the spring of 2001.

Significance of the Study

It is no secret that Western society places considerable value on being thin (Brownell & Fairburn, 1995). This is especially true for women. Many people who fall into the category of eating disorders differ from one another in many ways, but they share one common feature: their lives are dominated by concerns about weight. Many people diet, but those with eating disorders become engaged in an obsessive and relentless pursuit that becomes all-consuming and takes over their lives.

What is the scale of the problem, and who is susceptible to eating disorders? It has frequently been asserted that eating disorders are on the increase, but the data are inconclusive. This is partly due to changes in rates of self-reporting. Some argue that we are more aware of eating disorders today, and this creates a misleading impression that such disorders are on the rise (Button, 1993).

Within any culture, there seems to be a number of factors that influence the prevalence of eating disorders. It is a common view, for example, that eating disorders are more prevalent among higher socioeconomic groups. However, this may be due to more of them seeking out treatment. There is also consistent

evidence that suggests that certain pursuits and occupations place people at a higher risk for eating disorders, such as dance and modeling. Button (1993) states that it appears the environment that emphasizes slimness, as does dance, leads to an increase in both dieting and eating disorders.

The performance of dance is assumed to be central in the lives of most young dancers. Adair (1992) states that the hard work, repetition, and structure of the daily class frequently results in 'unthinking' dancers that are trained to accept unquestioningly the professional requirements. Female dancers are confronted with their body shapes in every class as they dance before a wall of mirrors. According to Kaufman, Warren, & Hamilton (1996), ballet students who are close to their ideal weights are prone to eating disorders and injuries because they feel the need to be on a diet in order to attain the perfect body needed for professional ballet dancers. They are socialized to pay a great deal of attention to their looks, which usually results in a dissatisfaction with themselves and a constant battle for perfection. These ideas are encouraged and exacted by teachers. Some dance companies make their dancers weigh-in and anorexia nervosa and bulimia nervosa are an ever present reality.

The review of literature in Chapter 2 reveals a lack of data concerning eating disorders in dance. Very few scientific studies have been done. This study provides valuable data based on more than opinions. The information created by the responses to the questionnaire will benefit all who are involved with dancers. This includes, but is not limited to, dance administrators, owners of private studios, choreographers, and dance instructors. In addition, dancers themselves will benefit from this study, especially if they have an eating disorder or know someone who has.

CHAPTER 2

REVIEW OF LITERATURE

Existing literature on dietary habits and nutritional status of dancers is limited. However, eating disorders are very common in the dance world and need to be further studied. A short summary follows each section with a comprehensive summary and implication section at the end.

Hamilton, Brooks & Warren (1986) conducted a 24-hour nutritional survey of 19 professional female ballet dancers to examine the relationship between nutritional intake and eating behaviors. Weights were measured and menstrual irregularities were noted. Subjects who exhibited anorexic behaviors and had highly restrained and bulimic eating scores consumed significantly less protein and fat. Heavier dancers were found to consume fewer calories, exhibit more dieting behaviors, and report more menstrual irregularities than thinner dancers. When the dancers with menstrual irregularities were examined as a group, they were found to ingest less protein, iron, and niacin, and reported more anorexic and dieting behaviors than dancers without menstrual irregularities. In conclusion, Hamilton, Brooks, & Warren (1986) suggest that concerns about weight are manifested in the nutritional habits of professional ballet dancers. They also found that dancers nearer to ideal weight were more actively engaged in dieting behaviors than those who were thinner.

Research, common sense, and experience show us that a number of problems are associated with eating disorders. Brooks, Warren, & Hamilton (1987) wanted to know the relationship between eating problems and amenorrhea in ballet dancers. They did a study on 55 adult dancers (aged 19-35) in four ballet companies in the U.S. and in

Western Europe. One-third of the dancers reported having an eating disorder which consisted of anorexia nervosa or bulimia nervosa. This study also showed that amenorrhea and eating problems were significantly related. Fifty percent of amenorrheics reported anorexia, while only 13% of the normals did. In conclusion, this study found that eating disorders are not only problems in and of themselves, but they can lead to many other problems as well. They concluded that eating disorders may be one factor in the pathogenesis of prolonged amenorrhea in these ballet dancers.

Hamilton, Brooks, Warren, & Hamilton (1988) researched the role of selectivity in the pathogenesis of eating disorders in ballet dancers. Forty-nine female dancers from four national ballet companies in the U.S. and the People's Republic of China, and from highly and moderately selective dance companies were studied to determine the incidence of eating disorders. All had a delay in menarche and weighed approximately 14% below their ideal weight. One of the things revealed by this study was that delayed menarche was typical of the majority of national dancers and was probably reflective of both genetic and environmental factors. They point out that competitive and technical proficiency requirements are the same for dancers and other athletes. However, the difference lies within the aesthetic requirement in dance. The ideal body shape is typically long, lean, and is more likely to be found in girls with a delay in menarche. So, those without a delay in menarche seem to have a prerequisite for eating disorders. In conclusion, this study showed that the shock of entering the dance company culture may lead dancers to eating disorders. These findings suggest that national ballet companies who do not control early selection processes of their dancers may be choosing women who have more difficulties maintaining the low body weight demanded by this

profession, and so are more at risk for developing eating disorders than highly selected/bred dancers. Dance companies that audition also showed significantly higher incidences of eating disorders compared to the more selective group. These data suggest that dancers who have survived a stringent process of early selection may be more naturally suited to the thin body imaged demanded by dance and so are less at risk for the development of eating disorders.

In a study done by Stensland & Sobal (1992), a questionnaire was completed by 106 female dancers. Seventy-one percent participated in ballet, 60% in jazz, and 74% in modern. Some of the dancers (31%) participated in all three types of dance. Items in the questionnaire included dance experience, height and weight, demographic data, sources of nutrition information, intake frequency of specific foods, vitamin and mineral supplement use, caffeine and alcohol consumption, tobacco use, and menstrual patterns. It was found that more than half of the dancers were using vitamin and mineral supplements in large quantities, and almost all showed symptoms of anorexia and/or bulimia. Eighteen percent of the females reported irregular menstrual cycles. In conclusion, Stensland & Sobal (1992) found that eating disorders are very common among dancers. They also stated that dietitians should be aware that dancers could likely benefit from improved nutritional education and counseling. Education and counseling could be the key to preventing and stopping eating disorders.

Holderness, Brooks, & Warren (1994) studied eating disorders and substance use using subjects from a dancing population and subjects from a non-dancing population. They examined the co-occurrence of eating disorders, substance use, and emotional distress among 50 female ballet dancers and 56 female non-dancers (aged 13-31).

Subjects filled out questionnaires about eating behaviors, substance use, and emotional functioning. In conclusion, it was found that while no differences were found in disordered eating between the two groups, results did indicate that profiles of eating disorders among the dancers differed significantly from those of women developing eating disorders in the general population.

O'Mahony & Hollwey (1995) examined the relationship between eating disorders and problems in interpersonal functioning. They stated that there was no one simple reason why female dancers and other women were led to eating disorders. Questionnaires measuring eating problems and interpersonal adjustment were completed by three groups of women: thirty-one anorexic patients (aged 20-53), 105 dancers, models and athletes (aged 16-58) whose interests or occupations involved a concern about bodily shape or condition, and 96 members (aged 18-40) of the general public. In conclusion, O'Mahony and Hollwey's (1995) results suggest that eating disorders are rampant among all three groups of subjects. They also found that psychosocial differences are unlikely to play a strong role in the initial development of eating disorders.

This next study examined amenorrhea in ballet dancers in the Netherlands (Fogelholm, Lichtenbelt, Ottenheijm, & Westerterp, 1996). The conclusion was that lean and intensively physically active females have an increased risk for late menarche. Several factors may explain this delay: genetic predisposition, little body fat, strenuous training, low energy intake, eating disorders, and stress. One very interesting finding was that the dancers who did not have a delay in menarche were not as likely to be at risk for

eating disorders compared to dancers in the U.S. This may be due to cultural differences regarding body image in the U.S. and the Netherlands.

Abraham (1996) studied characteristics of anorexia nervosa and bulimia nervosa in 60 ballet dancers (aged 15-19) in full-time training and compared them with 216 other young women (aged 15-17) in school. Subjects completed a questionnaire that included the Eating Attitudes Test. Dancers had higher scores on the EAT, and were more likely to have an eating disorder when strict modified Diagnostic and Statistical Manual of Mental Disorders III Revised criteria were applied (Abraham, 1996). Results showed that one dancer and no student had anorexia nervosa. One dancer and three students had bulimia nervosa, and five dancers and nine students had an unclassified eating disorder. In addition, one dancer had been treated for anorexia nervosa in the past year, one was treated for bulimia nervosa, and six for weight loss. In conclusion, this study suggested that dancers were more likely to have been told to increase their body weight and to ignore that advice, and were more likely to be afraid of losing control of their weight and becoming obese if they attempted weight gain.

Summary

Although the research ideas may vary in content, there were several consistent findings. All of the articles agreed that eating disorders are prevalent among dancers. Brooks, Warren & Hamilton (1987) stress the fact that eating disorders can be the start of many problems in the future. Hamilton et al. (1988) showed that the shock of entering the dance company culture may lead dancers to eating disorders. Stensland & Sobal (1992) stress the fact that eating disorders are very common among dancers and that dancers could benefit from nutritional education and counseling. O'Mahony &Hollwey

(1995) also suggest that eating disorders are rampant among dancers. Fogelholm et al. (1996) indicated that profiles of eating disorders among dancers differed from women in the general population. Abraham (1996) found that dancers were more likely to ignore the advice to gain weight.

One idea left out of all the articles is how to help dancers with eating disorders. It would be helpful to understand the skills and knowledge needed to cure this disease in the dance community. As stated earlier, education and counseling could be the key to preventing and stopping eating disorders.

Implications

The lack of research of a scientific nature concerning eating disorders among dancers implies that it is either unimportant or no one has invested the time, energy and money to do so. Because eating disorders can be life threatening, I will assume it is due to the latter. Dance educators and dancers deserve the time spent researching this problem so that programs can be developed to help prevent the occurrence of eating disorders and to help those who already have the disease.

CHAPTER 3

METHODS

Introduction

As stated in chapter one, the purpose of this study was to determine if beginning ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers. This chapter contains detailed information concerning how the study was conducted and contains the following five parts: (a) description of participants, (b) rationale, (c) development of the instrument, (d) procedures, and (e) evaluation.

Description of Participants

A modified version of Thompson and Comeau's Eating Behavior Questionnaire (Appendix A) was directed to the attention of beginning and more advanced female ballet students at a large, public state university in the south. Every dancer who filled out the questionnaire did so on a voluntary basis and the identities were made anonymous in this study to encourage an honest response. The sample size was determined by the number of ballet dance students enrolled in the spring semester of 2001.

Rationale

This study attempts to deal with the majority affected by the problem and further research would be costly and would need more time. A questionnaire was selected in order to collect data on the eating behaviors of these dancers and because it is the least time consuming method of collecting data. The survey was limited to female dancers due to the lack of male subjects. The results of this study will hopefully be of great interest to those individuals asked to participate along with those in supervisory positions, because

of the common knowledge that eating disorders are considered to be a concern in the dance world.

Development of the Instrument

The questionnaire was chosen from a test written and created by Thompson & Comeau (2000): The Eating Behavior Questionnaire. Additional demographic items were added by this researcher which included age, classification, height, weight, level of ballet dance class, and number of years/months in ballet. Questions from the survey included information that is considered to be valid in predicting whether or not an eating disorder is probable.

Validity refers to the precautions within a study taken to insure that the instrument developed measures what it is intended to measure. To help establish validity, the questionnaire was read by the following individuals:

*Gene McCutchen, Assistant Professor and Coordinator of Dance at the University of Tennessee.

*Wendell Liemohn, Professor of Exercise Science at the University of Tennessee.

*Dennie Kelley, Associate Professor and Program Leader of Sport Management at the University of Tennessee.

Procedures

This researcher administered the survey to the beginning ballet classes as well as to the more advanced ballet classes. A cover letter (Appendix B) as well as an oral and written statement (Appendix C) of the purpose of the study, potential benefits, potential risks, and confidentiality assurance was given to each dancer. They voluntarily filled out the questionnaire at that time and returned it to this researcher immediately afterward.

As an incentive for completing the survey, the researcher offered a summary of the results to anyone interested. Confidentiality was assured to be maintained throughout the study.

Evaluation

The first step in the evaluation process was to ensure that each question within the survey provided meaningful information to answer this study's research question. Table 1 below identifies the subject matter of each research question and matches it to the item number in the questionnaire. Performing statistical operations was the second step in the evaluation process. Descriptive statistics were used to interpret the data, including means, percentages, frequencies, and cross tabulations. The Window SPSS package, version 10, was used to analyze the data.

Table 1 Match of Research Questions with Questionnaire Items

Research Question Subject Matter	Item Number in Questionnaire
Demographics	1,2,3,4,5, and 6
Feelings About Food	10,11,18,22, and 25
Psychological Behaviors	12,13,14,15,16,17,20, and 21
Social Behaviors	7,8, and 9
Weight Control Methods	19,23,24,26, and 27
Answer to Having an Eating Disorder	28

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to determine if beginning female ballet dancers were as susceptible to eating disorders as were more advanced dancers. A questionnaire was given to 63 ballet students enrolled at a large, public state university in the south. Figure 1 identifies the individual class percentage of students who filled out the questionnaire.

Dancers were asked to fill out their age, classification, height, weight, level of dance class, and their experience. Next, they answered 21 questions concerning eating habits with the response of: 1=Never, 2=Sometimes, or 3=Often. The final question required a direct answer of yes or no.

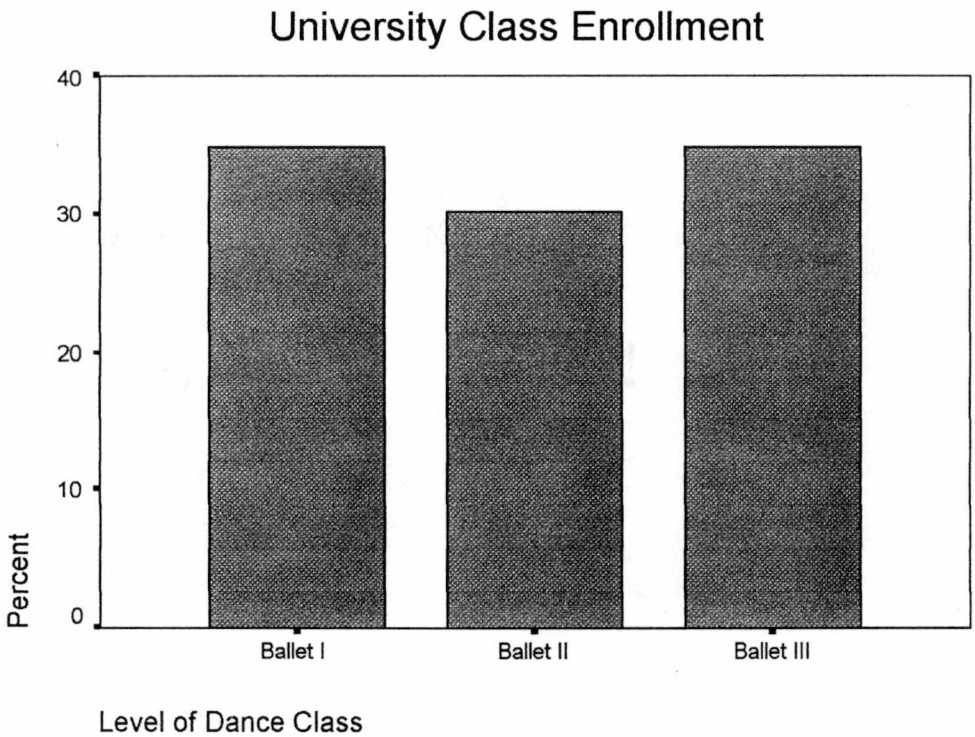

Figure 1 Percentage of Questionnaire Participants

Chapter four examines the results of the questionnaire using tables to display findings. Tables 2, 3, and 4 illustrate the findings of each class in response to the questions in the survey. The three tables totaled together provide 100% or the 63 students that filled out the questionnaire. Percentages were used to identify the differences more easily. The tables show that Ballet I dancers answered "Never" more often than did Ballet II and Ballet III dancers. These tables also show that there is very little difference between Ballet I and II, and Ballet II and III in the responses given in the questionnaire. However, there is a significant difference between Ballet I and Ballet III. The following discussion is divided into four categories: a) comparison of data between Ballet I, II, and III, b) analysis of the means, c) analysis of significance, and d) final question in survey.

In order to answer the research question, the means were compared against one another, then tested for significance. Table 5 illustrates the descriptive statistics for Ballet I, II, and III. An ANOVA analysis was run to see if there was any significance between the three groups that would warrant further analysis. Table 6 illustrates that there was a significant difference (.003) between the three levels. Next, a Bonferroni test was run to test for significance between each level of dance. Table 7 displays that there was very little difference between Ballet I and Ballet II (significance value of .051) and Ballet II and Ballet III (significance value of 1.000). However, there was a significant difference between Ballet I and Ballet III (.003). With the findings of this study, this researcher can reasonably say that there is no evidence to show that Ballet I is as susceptible to eating disorders as are the more advanced dancers in Ballet III.

Table 2 Ballet I Questionnaire Responses

Level of Dance Class Ballet I

	Never	Sometimes	Often
	%	%	%
Are you ever secretive about your eating habits?	30.2%	4.8%	
Do you ever feel anger towards anyone that questions your eating habits?	23.8%	9.5%	1.6%
Do you ever avoid social events because there will be food present?	34.9%		
How much do you think about food?		17.5%	17.5%
Do you ever feel guilty after you eat?	11.1%	22.2%	1.6%
Do you ever feel that life will be perfect and you will be happy if you lose weight?	19.0%	9.5%	6.3%
Do you ever feel that you have to be perfect in everything you do?	15.9%	14.3%	4.8%
Do you ever feel the only control you have in your life is with food and weight?	28.6%	6.3%	
Do you ever feel that no matter what you do, it will never be good enough?	14.3%	17.5%	3.2%
Do you ever feel powerful and in control when you are able to abstain from eating?	19.0%	12.7%	3.2%
Do you ever have an intense fear of gaining weight?	20.6%	11.1%	3.2%
Do you ever feel ashamed of your eating behaviors?	20.6%	12.7%	1.6%
How often do you exercise to burn calories, rather than to stay fit?	17.5%	11.1%	6.3%
Do you ever think that you are ugly or fat?	3.2%	27.0%	4.8%
Do you ever feel you are fat, even though people tell you otherwise?	15.9%	11.1%	7.9%
Do you ever feel that you do not deserve to eat?	33.3%	1.6%	
How often do you use laxatives, diet pills, or diuretics as a method of weight control?	33.3%	1.6%	
How often do you binge on food when you are experiencing negative feelings?	19.0%	15.9%	
Do you ever feel out of control when you eat?	23.8%	11.1%	
How often do you starve yourself?	30.2%	3.2%	1.6%
How often do you binge and then self-induce vomiting?	34.9%		

Table 3 Ballet II Questionnaire Responses

Level of Dance Class Ballet II

	Never	Sometimes	Often
	%	%	%
Are you ever secretive about your eating habits?	20.6%	7.9%	1.6%
Do you ever feel anger towards anyone that questions your eating habits?	15.9%	11.1%	3.2%
Do you ever avoid social events because there will be food present?	28.6%	1.6%	
How much do you think about food?		11.1%	19.0%
Do you ever feel guilty after you eat?		23.8%	6.3%
Do you ever feel that life will be perfect and you will be happy if you lose weight?	11.1%	15.9%	3.2%
Do you ever feel that you have to be perfect in everything you do?	11.1%	11.1%	7.9%
Do you ever feel the only control you have in your life is with food and weight?	25.4%	4.8%	
Do you ever feel that no matter what you do, it will never be good enough?	11.1%	14.3%	4.8%
Do you ever feel powerful and in control when you are able to abstain from eating?	14.3%	12.7%	3.2%
Do you ever have an intense fear of gaining weight?	4.8%	15.9%	9.5%
Do you ever feel ashamed of your eating behaviors?	7.9%	17.5%	4.8%
How often do you exercise to burn calories, rather than to stay fit?	6.3%	11.1%	12.7%
Do you ever think that you are ugly or fat?	3.2%	19.0%	7.9%
Do you ever feel you are fat, even though people tell you otherwise?	1.6%	19.0%	9.5%
Do you ever feel that you do not deserve to eat?	22.2%	6.3%	1.6%
How often do you use laxatives, diet pills, or diuretics as a method of weight control?	23.8%	1.6%	4.8%
How often do you binge on food when you are experiencing negative feelings?	14.3%	11.1%	4.8%
Do you ever feel out of control when you eat?	17.5%	11.1%	1.6%
How often do you starve yourself?	20.6%	9.5%	
How often do you binge and then self-induce vomiting?	30.2%		

Table 4 Ballet III Questionnaire Responses

Level of Dance Class Ballet III

	Never	Sometimes	Often
	%	%	%
Are you ever secretive about your eating habits?	19.0%	14.3%	1.6%
Do you ever feel anger towards anyone that questions your eating habits?	22.2%	12.7%	
Do you ever avoid social events because there will be food present?	30.2%	4.8%	
How much do you think about food?		11.1%	23.8%
Do you ever feel guilty after you eat?	1.6%	17.5%	15.9%
Do you ever feel that life will be perfect and you will be happy if you lose weight?	9.5%	19.0%	6.3%
Do you ever feel that you have to be perfect in everything you do?	4.8%	15.9%	14.3%
Do you ever feel the only control you have in your life is with food and weight?	30.2%	4.8%	
Do you ever feel that no matter what you do, it will never be good enough?	7.9%	19.0%	7.9%
Do you ever feel powerful and in control when you are able to abstain from eating?	11.1%	20.6%	3.2%
Do you ever have an intense fear of gaining weight?	4.8%	17.5%	12.7%
Do you ever feel ashamed of your eating behaviors?	9.5%	23.8%	1.6%
How often do you exercise to burn calories, rather than to stay fit?	3.2%	17.5%	14.3%
Do you ever think that you are ugly or fat?		25.4%	9.5%
Do you ever feel you are fat, even though people tell you otherwise?	1.6%	15.9%	17.5%
Do you ever feel that you do not deserve to eat?	27.0%	7.9%	
How often do you use laxatives, diet pills, or diuretics as a method of weight control?	23.8%	4.8%	6.3%
How often do you binge on food when you are experiencing negative feelings?	17.5%	12.7%	4.8%
Do you ever feel out of control when you eat?	15.9%	14.3%	4.8%
How often do you starve yourself?	27.0%	7.9%	
How often do you binge and then self-induce vomiting?	31.7%	3.2%	

Table 5 Descriptive Statistics From Ballet I, II, and III

Concern for diet

Level of Dance Class	N	Mean	Std. Deviation	Std. Error of Mean
Ballet I	22	30.9545	5.6187	1.1979
Ballet II	19	35.8947	7.7309	1.7736
Ballet III	22	37.5909	5.9174	1.2616
Total	63	34.7619	6.9485	.8754

Table 6 Significance Test with ANOVA

ANOVA

Concern for diet

	Sum of Sq.	df	Mean Sq.	F	Sig.
Between Groups	519.366	2	259.683	6.298	.003
Within Groups	2474.062	60	41.234		
Total	2993.429	62			

Table 7 Bonferroni's Test of Significance Between Levels of Dance

Dependent Variable: Concern for diet

Bonferroni

Level	Level	Mean Difference (I-J)	Std. Error	Sig.	95 % Confidence Interval L. Bound	95 % Confidence Interval U Bound
Ballet I	Ballet II	-4.9402	2.0111	.051	-9.8934	1.305E-02
	Ballet III	-6.6364*	1.9361	.003	-11.4049	-1.8678
Ballet II	Ballet I	4.9402	2.0111	.051	-1.3052E-02	9.8934
	Ballet III	-1.6962	2.0111	1.000	-6.6494	3.2571
Ballet III	Ballet I	6.6364*	1.9361	.003	1.8678	11.4049
	Ballet II	1.6962	2.0111	1.000	-3.2571	6.6494

*. The mean difference is significant at the .05 level.

The final question on the survey required a direct yes or no answer. Although more advanced level dancers answered "Often" to more questions in the survey than did the lower level dancers, none of the dancers in Ballet III answered "yes" and only one in Ballet II thought they may have an eating disorder. Table 8 displays the answers given by each dance class in response to the final survey question.

Table 8 Response to Question 28 by Each Level of Dance

Count

		Level of Dance Class			
		Ballet I	Ballet II	Ballet III	Total
Do you think that you may have an eating disorder?	Yes	3	1		4
	No	19	18	22	59
Total		22	19	22	63

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to determine if beginning female ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers. This study addressed the fact that there is a lack of research within the dance community concerning eating disorders. The data which are available are several years old and do not address how to prevent and stop the disease.

A questionnaire was given to 63 female ballet dancers at a large, public state university in the south. The sample size was determined by the number of students enrolled in classes in the spring of 2001. Using the Windows SPSS package, version 10, the data were examined using descriptive statistics such as means, frequencies, percentages, and cross-tabulations.

Conclusions

The main goal of this study was to determine if beginning ballet dancers were as susceptible to eating disorders as were more advanced ballet dancers. The other goal was to bring to the surface the need for more research in this field. Having the knowledge to educate and counsel dancers on eating disorders may be the key to preventing and stopping this life-threatening disease.

Although this researcher hopes that all dancers answered the questionnaire honestly, this is questionable. Dancers who have had more experience in ballet know that body appearance is very important, especially if one wants to pursue a professional career. Those who are striving for this would seem to be more apt to develop an eating

disorder to obtain the desired body image. Also, more experienced dancers have been around other dancers and the competition to be the best and the thinnest is an ever-present reality. This study revealed that there is very little difference between Ballet I and II, and Ballet II and III, but there is a significant difference between Ballet I and III. This researcher can reasonably say that beginning dancers are not as susceptible to eating disorders as are more advanced dancers, but further research is needed to verify this trend.

Final Observations and Recommendations for Further Study

As stated throughout this study, eating disorders are an ever-present reality for dancers. Past research has allowed us to see a glimpse of what goes on in the dance world, but there is not enough recent data to verify this. One has to rely on research that dates back more than 10 years. Also, most of the studies that this researcher has found have not had any programs set up to help educate and counsel dancers on eating disorders.

Further research is needed in the field of dance with regard to eating disorders. Knowing the signs/symptoms to look for could be very beneficial in preventing and stopping this disease. Dance administrators and teachers could be very instrumental in encouraging undergraduate and graduate students to conduct research concerning dancers and eating disorders. They should also be encouraged to set up programs to discourage this behavior. Those who are already in the field need to be more aware of the fact that there is relatively little data to work with and be motivated to continue this important research. It is the hope of this researcher that dance administrators, teachers, choreographers, and dancers will become more involved in the fight to prevent and

stop eating disorders. Education and counseling are the first steps to ending this disease. By working together and getting more involved in doing research and programs to prevent this disease, not only will a contribution be made to the dance community, but many lives might be saved.

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APPENDICES

APPENDIX A

The Eating Behavior Questionnaire
(Modified from the Thompson & Comeau Eating Behavior Test)

Age ____ Classification _____

Height _____ Weight _____

Level of dance class _____

Years/Months in ballet _____/_____

Please respond to each question with the following: 1=Never 2=Sometimes 3=Often

_____Are you ever secretive about your eating habits?
_____Do you ever feel anger towards anyone that questions your eating habits?
_____Do you ever avoid social events because there will be food present?
_____How much do you think about food?
_____Do you ever feel guilty after you eat?
_____Do you ever feel that life will be perfect and you will be happy if you lose weight?
_____Do you ever feel that you have to be perfect in everything that you do?
_____Do you ever feel the only control you have in your life is with food and weight?
_____Do you ever feel that no matter what you do, it will never be good enough?
_____Do you ever feel powerful and in control when you are able to abstain from eating?
_____Do you ever have an intense fear of gaining weight?
_____Do you ever feel ashamed of your eating behaviors?
_____How often do you exercise to burn calories, rather than to stay fit?
_____Do you ever think that you are ugly or fat?
_____Do you ever feel you are fat, even though people tell you otherwise?
_____Do you ever feel that you do not deserve to eat?
_____How often do you use laxatives, diet pills, or diuretics as a method of weight control?
_____How often do you binge on food when you are experiencing negative feelings?
_____Do you ever feel out of control when you eat?
_____How often do you starve yourself?
_____How often do you binge and then self-induce vomiting?

Please answer only yes or no to the following question.

_____Do you think that you may have an eating disorder?

APPENDIX B

Cover Letter

March 28, 2001

Dear Participant,

As part of my requirement for completion of a Master's Degree at the University of Tennessee, I am gathering data concerning eating disorders among female ballet dancers. In appreciation for your time and completion of the questionnaire, I will gladly supply you with the results of this study if you should so desire. This information will be beneficial to you in determining the signs/symptoms to look for in someone, particularly dancers, who may have an eating disorder. Your responses and identity will be anonymous.

Many thanks are owed to you for your assistance in this study. Thank you for your time, attention and concern regarding this matter.

Sincerely,

Angela Hudson

APPENDIX C

Informed Consent

Title

A Comparison of Whether Beginning Ballet Dancers are as Susceptible to Eating Disorders as are More Advanced Ballet Dancers.

Purpose of the Study

The purpose of this study is to determine if beginning ballet dancers at a large, public university in the south are as susceptible to eating disorders as are more advanced ballet dancers at the same university. The questionnaire is designed to help determine the signs/symptoms to look for in someone who may have an eating disorder.

The questionnaire will take approximately 10 minutes to complete. Participation in this study in completely voluntary. If you choose not to participate, turn in the blank questionnaire.

Confidentiality

Names are not put on the questionnaire, so your identity will remain confidential throughout this study.

Potential Risks

This study does not involve any risk to the participant.

Potential Benefits

Participation in this study would begin to address the lack of recent and scientific research on eating disorders among dancers. You will receive no direct benefit from completing this questionnaire. However, if you choose to contact the investigator listed below, you will be given a list of the signs/symptoms of someone, particularly dancers, who may have an eating disorder.

COMPLETION AND RETURN OF THIS QUESTIONNAIRE SERVES AS YOUR CONSENT FORM

If you should desire further information or would like the results from this study, please contact:

Angela Hudson, Master's Candidate
University of Tennessee
Department of Exercise Science and Sport Management
1914 Andy Holt Avenue
Knoxville, TN 37996-2700
(865) 974-2169

APPENDIX D

Questionnaire Comment Sheet

NOTE: Please feel free to make any suggestions to the format and/or content directly on the questionnaire as you complete the requested information.

The **purpose of the study** is to determine if beginning female ballet dancers at a large, public university in the south are as susceptible to eating disorders as are more advanced female ballet dancers at the same university. The questionnaire is designed to obtain information regarding eating behaviors of the dancers.

1. Do you feel that the questionnaire measures what it is intended to measure?

2. Is the questionnaire easy to understand? If not, please make suggestions.

3. Do you feel the dancers will answer the questions honestly?

4. Do you have any other questions, suggestions, and/or comments?

VITA

Angela Bishop Hudson was born in Etowah, Tennessee, on April 5, 1975. Most of her years were spent growing up in Calhoun, Tennessee. She graduated from McMinn County High School in 1993 with honors and entered the University of Tennessee, Knoxville, in the fall of 1994. She graduated with honors in December 1998 with a B.S. in Education; Major in Exercise Science and Minor in Dance. In the fall of 1999, after teaching at various dance studios and training clients in health clubs, Angela entered the graduate program of Exercise Science and Sport Management at UTK as a Graduate Teaching Associate. She was awarded a M.S. degree in Human Performance and Sport Studies in May 2001.