Physical activity and overweight in adolescents: a pilot survey

Blythe Gresser

Medical College of Ohio

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FINAL APPROVAL OF SCHOLARLY PROJECT
Master of Science in Nursing

Physical Activity and Overweight in Adolescents: A Pilot Study

Submitted by

Blythe Gresser

In partial fulfillment of the requirements for the degree of
Master of Science in Nursing

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Physical activity and overweight in adolescents: A pilot survey

Blythe Gresser

Medical College of Ohio

2005
DEDICATION

I dedicate this scholarly project to my mother, Linda Gresser. I do not think that I could have asked for a better parent. With every decision that I have made in my life, you have always been there for support and unconditional love. Thank you so much for taking the time to listen to yet another paper or to make dinner for the thousandth time (even though I said I would). Not only have you helped me with everyday decisions, but you also have guided me towards my future path in life and I thank you with all of my heart for that. I also want to thank you for being such a great role model as both a person and a nurse. I love you very much.
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CHAPTER I
INTRODUCTION

Physical activity and overweight in adolescents: A pilot survey

Introduction

The prevalence of overweight and obesity in Americans is not only affecting older adults but it is now increasing in American children at a rapid rate. There are estimates that greater than 60% of the adult population is overweight and that around 30% are classified as obese (Hedley et al., 2004). The incidence of overweight in children and adolescents has more than doubled since the 1970s, and is estimated to be greater than 15% of all American children (National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP], 2004). Increased overweight in adolescents may correlate with a decrease in physical activity. According to the Youth Risk Behavioral Surveillance System of 2003, a survey of high school student’s physical activity indicated that greater than 11% of these students had no moderate or vigorous physical activity over a seven day time period (Grunbaum et al., 2004).

Statement of Problem

As the population grows more overweight, chronic health conditions may result in deadlier health consequences. These co-morbidities include high blood pressure, high serum cholesterol, type 2 diabetes, heart disease, cerebral vascular disease, gall bladder disease, arthritis, sleep disturbances, problems breathing and decreased mobility (United States Department of Health and Human Services [USDHHS], 2000). These health issues are associated with higher mortality rates and increased associated healthcare costs.

The problem is further compounded for adolescents through social stigma and lowered self-esteem associated with being overweight or obese (Strauss, 2000). These adolescents often have poor diets and participate in very little physical activity. Research has been conducted by
medical researchers and exercise physiologists for decades on the relationship between physical activity and overweight and obesity in adults. The inclusion of children and adolescents in this research has only recently gained momentum. While medical research has linked overweight to sedentary lifestyle in adolescents, there is little nursing research published about childhood or adolescent overweight and its relationship to inadequate patterns of physical activity.

Statement of Purpose

The purpose of this study is to design a Physical Activity Survey (PAS) that can be utilized by health care providers to determine those adolescents who have inadequate behaviors relating to physical activity patterns. Those adolescents who have a decreased physical activity level may be at risk for becoming overweight.

Conceptual Framework

The conceptual framework chosen for this study on the physical activity levels of adolescents is the Self-Care Deficit Theory of Nursing (SCDTN) (Orem, 2001). The SCDTN examines the role of the self-care agent, the patient or the patient’s agent, and their responsibility to care for themselves through the self-care requisites of activity and exercise. If the requisite is not met, a self-care deficit exists. The aim of nursing is to assist the person with self-care deficits to return to a more adequate state of wellness. For the purpose of the scholarly project, the self-care agent is the adolescent and the self-care deficit is the inadequate level of physical activity to achieve a normal weight body mass index (BMI).

Research Questions

The research question for this study: What physical activity behaviors need to be included in a physical activity survey of overweight adolescents?
Definition of Terms

Adolescent

Conceptual Definition: A young person who is between the ages of 11 and 21 years (Green, 1994). Orem (2001) defines the self-care agent as the person who provides self-care, which enables the person to maintain normal health and well-being.

Operational Definition: A young person who is between the ages of 11 and 18 years who takes the physical activity questionnaire.

Overweight Adolescent

Conceptual Definition: An adolescent who has a body mass index (BMI)-for-age at or above the 95th percentiles (Center of Disease Control [CDC], 2004). Orem (2001) defines an overweight adolescent as a self-care agent with a universal self-care deficit of normalcy, an imbalance between activity and rest.

Operational Definition: An 11 to 18 year-old young person who has a body mass index (BMI)-for-age at or above the 95th percentiles.

Obese Adolescent

Conceptual Definition: An adolescent who has a body mass index (BMI) of greater than 30 kg/m² (National Institutes of Health [NIH], 2002). Orem (2001) defines an obese adolescent as a self-care agent with a universal self-care deficit also of normalcy. An obese adolescent is overweight, but not all overweight adolescents are obese.

Operational Definition: An 11 to 18 year-old young person who has a body mass index (BMI)-for-age greatly beyond the 95th percentile.

Physical activity
Conceptual Definition: Bodily movement that is produced by the contraction of skeletal muscles and that substantially increases energy expenditure (USDHHS, 1996). The NIH (2002) defines physical activity as any form of exercise or movement that may include planned activity like walking, running, or organized sports as well as daily activities such as household chores and yard work. Physical activity is a universal self-care requisite performed by an individual that is necessary to regulate the way a human functions and develops. The balance between physical activity and rest equals the maintenance of or the balance between activity and rest (Orem, 2001).

Operational Definition: The self-report of participant in response to the items in the Physical Activity Survey (PAS).

Physical activity survey (PAS)

Conceptual Definition: A survey designed to determine the level of physical activity of an adolescent.

Operational Definition: A survey that the author of this scholarly project has proposed based on current research and publications, to compile data about the physical activity of adolescents.

Significance

Costs associated with obesity are greater than $117 billion in both direct and indirect costs (NIH, 2003). The direct costs relate to prevention, diagnostic and treatment services while indirect costs refer to possible lost wages due to disability or premature death from co-morbid complications (NIH, 2003). Recent statistics have estimated that 64 percent of adults in the United States are either overweight or obese (Hedley et al., 2004). Not only are these increases seen within the adult populations, but these trends are also exhibited in the younger age groups.
Greater than fifteen percent of children and adolescents ages six to 19 years old are estimated to be overweight or obese (NCCDPHP, 2004) which is an increase from eleven percent during the years 1988-1994 (USDHHS, 2000).

With these increases in prevalence, comes the increased risk for developing co-morbid health problems such as hypertension, high cholesterol, type 2 diabetes mellitus, heart disease, cerebral vascular disease, gall bladder disease, arthritis, sleep disturbances and breathing problems. To help prevent or reduce some of these complications, recommendations for at least one hour of physical activity daily, three to four days per week have been made for children and adolescents (USDHHS, 2000).

The recent focus on physical activity in the prevention of overweight and obese adolescents has increased the awareness that these adolescents are more likely to become overweight adults (Freedman et al., 2005). If this condition were able to persist, these adolescents are also at an increased risk for developing the chronic health conditions that are affecting overweight adults (Freedman et al., 2001).

The need for tools that healthcare providers or those directly in contact with the adolescent population can utilize to identify overweight individuals, is the newest area of focus among researchers. Intervention programs such as school-based programs (Frenn & Porter, 1999; Frenn et al., 2003; Jerum & Mazurek Melnyk, 2001; Tergerson & King, 2002; and Wu, Yu, Wei, & Yin, 2003) and strictly community-based programs (Anding, Kubena, McIntosh, & O’Brien, 1996; Berkey et al., 2000; Freedman, Kettel Khan, Dietz, Srimvasan, & Berenson, 2001; Gordon-Larsen, McMurray, & Popkin, 2000; Gordon-Larsen, McMurray, & Popkin, 1999; Roberts, 2000; and Steinbeck, 2001) have shown promise using increased physical activity for the prevention of overweight. The promotion of health through adequate physical activity can be
developed through these interventional programs and nurses can then focus their solid foundation of knowledge towards the reduction of risk factors associated with overweight and obesity.

Summary

Today, approximately 15% of adolescents are overweight. Sedentary lifestyle or physical inactivity is among the risk factors identified as contributory to this serious health issue. As a result of an analysis of the literature about the relationship of physical activity and overweight in adolescents, a survey will be developed, for the use by nurses and other healthcare personnel, to assess this risk factor.
CHAPTER II
LITERATURE

Introduction

This chapter includes a discussion of the Self-Care Deficit Theory of Nursing (Orem, 2001) as it relates to physical activity in overweight adolescents. A thorough review of the current literature about obesity in adolescents and physical activity levels as a risk factor for this health issue, will also be presented.

Conceptual Framework: Orem’s Self-Care Deficit Theory of Nursing

The SC Deficit Theory (Orem, 2001) was selected as the conceptual framework to guide this study. This nursing theoretical framework for practice is based on the major concepts of self-care agency, self-care deficits and nursing systems.

Orem (2001) defines self-care as “the practice of activities that maturing and mature persons initiate and perform, within time frames, on their own behalf in the interests of maintaining life, healthful functioning, continuing personal development, and well-being” (p. 461). An adolescent or “maturing person” is also included within this definition of being able to perform self-care as the self-care agent. Several authors support Orem’s premise that adolescents are capable of personal self-care agency (McCaleb & Cull, 2000). The act of self-care is a response to a person’s need to maintain health by engaging in their own care (Denyes, Orem, & SozWiss, 2001). If a deficit in the self-care agency exists, then a dependent care agent, such as a parent or a nurse, acts in place of the self-care agent.

Universal self-care requisites help to maintain current health and further promote development and include the maintenance of air, water, food, elimination, balance between activity and rest, balance between solitude and social interaction, prevention of hazards, and promotion of normal human functioning (Orem, 2001). In addition, developmental self-care
requisites, which are those determined by a person’s stage in life and are individualized depending on that person’s experiences and internal makeup, exist (Orem, 2001). Health-deviation self-care requisites are the behaviors that develop during times of illness. These include seeking and securing proper medical assistance, being aware and attending to the effects of the disability, properly carrying out medically prescribed treatments, being aware and attending to the negative effects of the medical treatment, changing one’s self image with the disease process, and finally learning to live with the illness and still continue to promote healing (Orem, 2001).

Adolescent overweight interfaces with all three of these self-care requisite components. The current project will focus on the universal requisite of the balance between activity and rest. Developmental requisites will also factor into the impact of overweight on the adolescent population. Life experience and stage of development greatly impact the choices made by adolescents. Health-deviation requisites are also obvious in the overweight adolescent as they may not see the future implications that this condition can have on their health.

Basic conditioning factors (BCFs) influence the self-care agent to act in certain ways. Included in the BCFs are age, gender, developmental state, health state, sociocultural orientation, health care system factors, family system factors, pattern of living, environmental factors, and resource availability (Orem, 2001). Self-care agents utilize BCFs to shape their future health patterns.

The SCDTN examines the self-care agent and their ability to meet their self-care needs. Self-care deficits occur when the agent is not able to perform the therapeutic self-care demands needed to maintain health (Orem, 2001). Overweight adolescents may exhibit multiple self-care deficits, however, the current study will only examine physical inactivity.
The final component of Orem’s SCDTN (2001) is that of the nursing system. When the self-care agent is unable to meet their therapeutic self-care demands, nurses assist that person with their care. The nurse determines which system, wholly compensatory, partly compensatory, or supportive-educative, will be used depending on type of care required by the individual.

**Physical Activity in Adolescents**

Roberts (2000) and Steinbeck (2001) completed thorough reviews of the literature concerning the role of physical activity in the prevention of adolescent obesity. Both authors found that the prevention of overweight and obese adolescents was met through the balance of physical activity and a sensible diet. Their research also indicated that the promotion of healthy physical activity programs can succeed through the education of adolescents concerning the benefits of exercise.

Other authors (Berkey et al., 2000) examined the relationship of physical activity, inactivity and dietary patterns and their influence on annual weight changes of preadolescent and adolescent boys and girls. A cohort of 6,149 girls and 4,620 boys, ages 9-14 years old from across the United States, was used in this longitudinal study. Of this sample, 94.7% were Caucasian American. After anthropometric measurements of height and weight and a Tanner maturation scale were obtained, the subjects completed a food frequency questionnaire (FFQ) and a physical activity questionnaire (PAQ). The results indicated significant increases in BMI for girls with less physical activity and more time spent doing recreational inactivity such as television watching in the year between assessments. This same study found the boys also had significant increases in BMI related to increased television watching. For both girls and boys, the more time spent watching television correlated to an increase in BMI.
Gordon-Larsen et al. (2000) assessed how environmental and socioeconomic factors affect physical activity and inactivity patterns of adolescents. Using the National Longitudinal Study of Adolescent Health, 17,766 subjects with more than 50% representing adolescents of minority cultures, were surveyed to assess demographic data and a 7-day recall for physical activity. The researchers utilized a specific form of identification for these minority populations to separate the Hispanic population from every other ethnicity. These authors found a lower physical activity level and higher inactivity level in Non-Hispanic African Americans and Hispanics, which correlated to a low rate of attendance in physical education programs within the schools. Higher family income and a low crime environment were indicated to relate to increased physical activity and decreased inactivity. These findings show that physical activity and inactivity may be affected by different factors such as family income and environment.

In another study done previously, these same authors focused on how the activity patterns vary according to the different ethnicities (Gordon-Larsen et al., 1999). For this study, 13,157 participants were selected. The findings showed that males spent a larger number of hours watching television when compared to females but males also had higher physical activity levels than females. Non-Hispanic African American males and females also tended to watch more hours of television compared to Non-Hispanic Caucasian males and females while Non-Hispanic Caucasian females resulted in more bouts of physical activity than those within the minority adolescent populations.

Weight control behaviors of obese adolescents and the role of parental involvement were studied by numerous authors (Wu et al., 2003). These researchers looked at how obesity had brought on altered patterns of physical activity and diet as well as including parental supervision of these changes. A random sample of 247 obese third and fourth grade children and their
parents participated in the study. Two different questionnaires were used, one for the child and one for the parent.

Of the children studied, 56% were classified as obese and 11% were severely obese. Through the modifications the subjects selected, having no fried foods was the most widely chosen change with 97% of the subjects selecting some type of weight changing behavior. These behaviors were significantly related to the education level of the mother, family structure, socioeconomic status, and parent’s perception of child’s weight as well as their concern about this weight (Wu et al., 2003).

*Adolescent Attitude about Physical Activity*

Tergerson and King (2002) investigated the differences between male and female adolescents as to their perception of cues, benefits, and barriers to physical activity. The sample selected included 245 males and 290 females, both from private schools. Their report indicated that the best cue to increasing and sustaining physical activity was to have a peer with whom to exercise with. However, males and females viewed the benefits and barriers of physical activity differently. Males saw the benefits to be a way to get strong while females viewed it as a way to stay in shape. The barrier to exercise in boys was that “they want to do other things besides exercising”, while females stated “they had no time to exercise” (Tergerson & King, 2002).

Similarly, Frenn and Porter (1999) studied adolescents’ views concerning physical activity and nutrition. Although, the research is similar to that of Tergerson and King (2002), the foundation for this research was a qualitative study. Fifteen adolescents ages 10-18 of varied racial and ethnic backgrounds were recruited. The tools used within this study included the following: an interview guide, exercise logs using the child and adolescent activity log (CAAL), health habit and history questionnaire and observation field notes.
Nine categories of topics emerged from the data collected: definition of health, beliefs about what promotes health, rationale as to exercise, ways of accomplishing desired activity, action taken to promote health, things that made staying healthy more difficult, things that helped, views on how much and what foods they should eat, exercise and weigh, and finally programs that help them to stay healthy (Frenn & Porter, 1999). These authors concluded that adolescents’ beliefs about health promotion are similar to adults, and that they tend to follow their own path for physical activity, know how to eat well and exercise as well as what to do to have good health.

Physical Activity Interventions

Jerum and Mazurek Melnyk (2001) completed a thorough literature review of the effectiveness of specific interventions that can be utilized to prevent adolescent obesity. The results indicated that physical activity programs that are community-based such as those found in schools are beneficial to overweight adolescents. The authors also found that the role of the parents was important in determining the level of involvement the adolescent would take within the intervention.

One study investigated interventions using physical activity and nutritional alterations with adolescents (Frenn et al., 2003). These researchers studied the health differences in middle school students with relation to physical activity and nutrition. The sample included 67 intervention subjects and 63 control subjects who completed a food habits questionnaire and child and adolescent activity log (CAAL). These authors found that the intervention group was significantly linked to increases in physical activity among African Americans, Whites, Hispanics and Asians with the lowest income versus the control group. The peer led physical activity increased the total physical activity of the intervention group. These results do not
directly examine obesity but are an indication to the possible appearance of obesity in inactive adolescents.

*Physical Activity Questionnaires for Adolescents*

Ridley, Dollman and Olds (2001) developed a computer delivered physical activity questionnaire (CDPAQ) for younger adolescents. The 30 male and female subjects were assessed using accelerometry and heart rate monitoring. The subjects then completed the CDPAQ and a hard copy of the same questionnaire. The authors found that the variations of the CDPAQ may aid adolescents with remembering their physical activities. It also showed to benefit the adolescent ratings of perceived exertion through specific physical activity.

Similarly, Booth, Okely, Chey and Bauman (2002), developed an Adolescent Physical Activity Recall Questionnaire (APARQ) that included questions about organized sports and games and nonorganized physical activity. The results indicated that the APARQ meet the needs of assessment for adolescent physical activity. It also was found to be an indicator for accurate energy expenditure within the adolescent population.

Other researchers (Craig et al., 2003) designed the International Physical Activity Questionnaire (IPAQ) to determine the physical activity levels of people ages 15 to 69 years old. The scoring of the questionnaire is performed by the tallying of the total time spent on activities of energy expenditure, which included occupational, transport, household and leisure activities. The results concluded that the IPAQ was an acceptable tool for the measurement of physical activity.

*Health Co-Morbidities*

Anding et al. (1996) studied the presence of coronary heart disease (CHD) risk factors mainly focusing on blood lipid levels, cardiovascular fitness, obesity and blood pressure among
adolescents. Random selection was used to choose the sample size of 29 boys and 24 girls with both sexes being ages 14- and 15-years-old. The tools used within this study were a 24-hour dietary recall, a 2-day food recall, a smoking history questionnaire, a step test to measure cardiovascular fitness, anthropometrics such as height, weight and skinfold measurements, and the measurement of blood pressure and blood lipid levels.

Theses results showed that girls had significantly higher total cholesterol, HDL-C and LDL-C levels that the boys studied. A significantly larger number of girls were found to have high or borderline high total cholesterol levels as opposed to the boys. Almost 50% of both sexes were found to be classified as obese according to their body mass index (BMI). The mean fitness scores were below average for both sexes, however, the girls scored a significantly higher rating than the boys indicating a lower level of cardiovascular fitness. Finally and most importantly, of the subjects studied, 25% had 2 or more risk factors for CHD (Anding et al., 1996).

Similarly, Freedman et al. (2001) studied the relationship between childhood and adolescent obesity and CHD risk factors such as levels of blood lipids, insulin and blood pressure. They, however, looked at how childhood and adolescent obesity carried over to adult risk factors for CHD. Subjects were selected using a longitudinal study called the Bogalusa Heart Study and included 2,617 subjects (57% female and 43% male) who were initially examined at the ages of 2-17. These subjects were then re-examined at the ages of 18-37. The tools used were anthropometry, blood pressure, blood lipid and insulin measurements which was similar to those used in the study performed by Anding et. al. (1996).

Freedman et al. (2001) supported the findings of Anding et al. (1996) in that of the 186 children who had a BMI ≥ the 95th percentile, 77% of them became obese adults with a BMI ≥
30 kg/m². This finding is compared to only 7% of the children classified as having normal BMI percentile rankings becoming obese adults. Contrary to the findings by Anding et al. (1996), Freedman et al. (2001) was only able to find a small relation of childhood obesity and CHD risk factors while these researchers did find a significant correlation of adult BMI to insulin and triglyceride levels.

Summary

There is an abundance of research about overweight in adolescents in medical and exercise science journals but little nursing research has been completed. These medical publications about overweight in teenagers support the need to use physical activity in prevention and health promotion. Nursing researchers can build from this foundation and add to the knowledge base by designing assessment and interventional strategies with overweight adolescents.
CHAPTER III
METHOD

Introduction

The purpose of this chapter is to outline the method to be utilized for the evaluation of a physical activity survey for adolescents by a panel of experts. The goal is to develop a process that will enable health care practitioners to better identify those adolescents who are overweight with a risk factor of decreased physical activity levels. This chapter includes the proposals for the research design, sample population and setting, materials, data collection and data analysis.

Research Design

The design of this study is descriptive, utilizing an adolescent physical activity survey based upon criteria derived from a literature review. After the survey is finalized, it will be submitted to a panel of experts, who have expertise in working with overweight adolescents, consisting of an Advanced Practice Nurse, an Exercise Physiologist and a Pediatrician. This panel will then analyze the survey for content validity. Prior to submission of the survey to this expert panel, the verbal agreement to participate in the study will be obtained by each one of the panel members. Once the panel has agreed to review the survey, it will be mailed along with a two-week deadline for completion and a scheduled meeting time to review the suggestions with the expert either in person or by telephone.

Subjects

This study will not have study subjects. If this research were to be completed with study participants, the target population would include adolescents between the ages of 11 to 18 years old. The inclusion criteria would be age between 11 and 18 years, ability to read and understand English and ability to complete survey independently. The setting could be any primary care
office of a health care provider who has direct interaction with the target population of adolescents, a school setting or similar facility serving an adolescent population.

Materials

The physical activity survey to be developed in this study will be designed using the current literature. In addition to the identification of physical activity level, demographic data will be collected including age, gender, ethnicity, height, weight, and qualification for subsidized lunches at school.

Data Collection

Sampling. As this study is designed to develop a new physical activity survey and to determine the content validity of that survey, there is no target population. If a pilot study were to be completed after the content validity was determined, then the subjects would include a small number of randomly selected adolescents between the ages of 11 and 18 years old. No comparison would be needed for this pilot study, so there is no need for group assignment of the population.

Protection of human rights. The new adolescent physical activity survey will not be distributed to an actual population so there was no need to submit the protocol of this study to the Internal Review Board (IRB) of The Medical College of Ohio for review. The actual involvement of adolescents in this study would require submission to the IRB.

Procedures for experimental and control groups. There are no experimental or control groups included within the study, so there are no procedures for these groups.

Data collection. Upon the completion of a systematic review of the current literature, the Adolescent Physical Activity Survey (Appendix A and B) will be organized. Then, the researcher will obtain the agreement of the expert panel to be a part of the review board for the
new adolescent physical activity survey. After the panel has been formed, the survey will be mailed to the panel members along with panel member guidelines explaining the contents of the survey, survey instructions to the survey participants (Appendix A) and the survey (Appendix B). Included will also be the requirements for returning the survey and survey instructions. The panel members will return these materials along with suggestions for content alterations within two weeks of the initial receipt by the expert panel member. After receiving this information, the researcher will then analyze these suggestions for any possible changes within the Adolescent Physical Activity Survey.

Controls for threats to internal and external validity. The internal validity threats of history, maturation, instrumentation, statistical regression, selection, mortality, interactions with selection, ambiguity, and compromised experimental and control groups all are not involved with in this study as there are no subject participants. The external threats to validity also involve the subjects and would not apply to this research (Burns & Grove, 2001). The existence of confounding variables such as nutrition, genetics and parental weight are not explored in this study. These variables could be potential threats to overall validity of the physical activity questionnaire.

Pilot study. There are no pilot studies that have been completed involving this specific adolescent physical activity survey as it was designed specifically for the current research.

Assumptions. This research is based on the following assumptions:

1. Adolescents want to be in control of their own self-care duties to maintain and improve overall health.

2. Identification of self-care deficits by healthcare professionals can be facilitated through the use of a physical activity survey.
3. Becoming overweight is preventable and can be reversed through the introduction of physical activity, in addition to dietary modifications.

4. Lack of or inadequate physical activity levels (or sedentary lifestyle) may be related to overweight in adolescents, and is considered to be a risk factor for the development of chronic health issues.

Limitations. The following limitations have been identified for this study:

1. The designed adolescent physical activity survey is intended as a pilot study with limited content validity.

2. The panel of experts who were surveyed consisted of a small sample.

3. The panel of experts may have had limited experience assessing appropriate physical activity levels in adolescents.

4. No statistical analysis for this study was attempted.

Data Analysis

The data analysis for this research will consist of a review of the comments made by the expert panel as to the validity of the physical activity survey. No statistical analysis will be completed for this study. If the survey designed by this study were to be utilized in further research, then the reliability of the physical activity survey would need to be determined through inferential statistics.

Summary

The design of this study is descriptive involving the development of an adolescent physical activity survey. An expert panel will then be utilized to determine content validity of that survey. The data collection process will include the gathering of suggestions by the panel of experts. These ideas will be reviewed for their relevance to the survey.
CHAPTER IV
RESULTS

Introduction

This chapter includes the written comments of the expert panel committee members concerning the Adolescent Physical Activity Survey.

Findings

A panel of experts that consisted of a Pediatric Nurse Practitioner, an Exercise Physiologist and a Pediatrician reviewed the Adolescent Physical Activity Survey (Appendix A and B). Their analyses are based on both the survey content and the instructions of the survey. All of these healthcare providers have extensive education and clinical experience with overweight and obese adolescents.

Survey Instructions

Table 1

<table>
<thead>
<tr>
<th>Expert Panel Member Suggestion for the Adolescent Physical Activity Survey Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric Nurse Practitioner (EPM #1)</td>
</tr>
<tr>
<td>Suggestion: Inclusion of statements about compensation for survey participants, that participation is voluntary with no repercussions if decide to not participate and that the adolescents can withdraw at any time</td>
</tr>
</tbody>
</table>
### Demographic Data

Table 2

Expert Panel Member Suggestions for the Adolescent Physical Activity Survey—Demographic Data

<table>
<thead>
<tr>
<th>Question #</th>
<th>Pediatric Nurse Practitioner (EPM #1)</th>
<th>Exercise Physiologist (EPM #2)</th>
<th>Pediatrician (EPM #3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Section Instructions: Below are questions about your age, if you are male or female, your height, your weight and if you are able to get free lunches at school. Please answer these questions honestly.</td>
<td></td>
<td>Comment: Last sentence may be viewed as negative. Suggestion: Below are some questions about you and your health. Please answer each question to the best of your ability.</td>
<td></td>
</tr>
<tr>
<td>#3: What is your ethnicity or ethnic background?</td>
<td></td>
<td>Suggestion: Adding Black as a secondary option to the African American ethnic box. Adding Native American to the answer choices.</td>
<td></td>
</tr>
<tr>
<td>#4: Do you qualify for free lunches at school?</td>
<td>Comment: I’ve found many kids qualify but don’t participate in “free lunches” as it labels them. Suggestion: If they qualify, add another box option to identify if they also participate in free lunches.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Comments</td>
<td></td>
<td>Suggestion: Inclusion of questions regarding grade in school, who the adolescent lives with and how many people live in the home</td>
<td></td>
</tr>
</tbody>
</table>
**Weekly Physical Activity**

Table 3

Expert Panel Member Suggestions for the Adolescent Physical Activity Survey—Weekly Physical Activity

<table>
<thead>
<tr>
<th>Question #</th>
<th>Pediatric Nurse Practitioner (EPM #1)</th>
<th>Exercise Physiologist (EPM #2)</th>
<th>Pediatrician (EPM #3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#7: In the past week, I have done vigorous physical activity such as fast bicycling, running, playing basketball and heavy lifting for at least 30 minutes (These activities should have made you sweat).</td>
<td>Suggestion: Inclusion of other activity options such as swimming, soccer and tennis.</td>
<td>Comment: If it is cold outside, then the adolescent may not sweat. Suggestion: Alteration to “These activities should have made you breathe hard and may have caused you to sweat.”</td>
<td>Comment: Good explanation in regards to the portion of the question, these activities should have made you sweat.</td>
</tr>
<tr>
<td>#8: List the vigorous activity or activities that you have done here.</td>
<td></td>
<td>Suggestion: Alteration to “List the vigorous activity or activities that you have done this week, here. Make a checklist of potential activities instead of providing lines.”</td>
<td></td>
</tr>
<tr>
<td>#10: List the moderate activity or activities that you have done here.</td>
<td></td>
<td>Suggestion: Alteration to “List the moderate activity or activities that you have done this week, here.”</td>
<td></td>
</tr>
<tr>
<td>#12: List the light activity or activities that you have done here.</td>
<td></td>
<td>Suggestion: Alteration to “List the light activity or activities that you have done this week, here.”</td>
<td></td>
</tr>
</tbody>
</table>
### Physical Activity in Gym Classes

**Table 4**

Expert Panel Member Suggestions for the Adolescent Physical Activity Survey—Physical Activity in Gym Classes

<table>
<thead>
<tr>
<th>Question #</th>
<th>Pediatric Nurse Practitioner (EPM #1)</th>
<th>Exercise Physiologist (EPM #2)</th>
<th>Pediatrician (EPM #3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#15: On those days you were in gym class, did you participate for more than 15 minutes each day?</td>
<td></td>
<td>Suggestion: Alteration of the question to “Were you moving around, playing sports, games or exercising for more than 15 minutes each day?”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Comments</th>
<th>Comment: Physical education participation is often only one semester of school curricula.</th>
</tr>
</thead>
</table>

**General Comments**

**Table 5**

Expert Panel Member Suggestions for the Adolescent Physical Activity Survey—General Comments

<table>
<thead>
<tr>
<th>Pediatric Nurse Practitioner (EPM #1)</th>
<th>Exercise Physiologist (EPM #2)</th>
<th>Pediatrician (EPM #3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comments: Good length of the survey—too long would discourage completion. Suggestions: Addition of a comments section within the survey so participants could explain questions or concerns about the survey, such as medical handicaps. Inclusion of questions about the amount of time spent on sedentary activities such as watching television, playing computer games and talking on the telephone.</td>
<td></td>
</tr>
</tbody>
</table>


Summary

The results included in this chapter were based on the written comments and suggestions of the expert panel members. These findings were identified and were separated into sections based on each individual panel member. The sample characteristics were not given due to there being no sample utilized within this research.
CHAPTER V
DISCUSSION

Introduction

This chapter includes the discussion of the research findings as they relate to the current literature and the nursing theoretical framework. Conclusions will be drawn relating to this material. The limitations of this research and its implications and recommendations for further research will also be included within this chapter.

Findings

Previous literature findings about overweight and obesity in adolescents involve the need for physical activity and how it relates to the reduction of co-morbid conditions. This relationship has guided major health organizations to recommend that every individual perform at least 30 minutes of moderate physical activity on five or more days of the week in order to maintain a normal, healthy lifestyle (HHS and USDA, 2005). These recommendations increase with children and adolescents to 60 minutes of moderate physical activity on at least seven days of the week (HHS and USDA, 2005). The Adolescent Physical Activity Survey was based upon these protocols.

Survey Instructions

The directions for the survey participants establish the plan that the subjects will follow and were written at the sixth grade reading level to ease understanding of the survey contents. Burns and Grove (2001) state that readability is important when designing the instrument or tool to be utilized within research as it will aid the accuracy of the study results.

Demographic Data

The first section of the survey includes demographic data such as age, gender, ethnic background and the adolescent’s qualification for the free lunch program. Inclusion of age has
been found to be important in determining the physical activity pattern of adolescents, therefore, three age categories (11-13, 14-16 and 17-18) were included. Previous research has identified that as age increases, adolescents tend to become less physically active and more likely to be at risk for becoming overweight (Grunbaum et al., 2004). Gender is also an indicator of physical activity patterns according to the Youth Risk Behavior Surveillance System (Grunbaum et al., 2004) as male adolescents have a higher incidence of overweight than that of their female counterparts.

Ethnic categories of Caucasian, Asian, Hispanic, African American and other were selected to show cultural background of the participants. The inclusion of this question is supported by the current literature, which indicated a greater incidence of overweight in the Non-Hispanic African Americans and Hispanics, and a lower occurrence of overweight in Non-Hispanic Caucasians (Gordon-Larsen et al., 2000; Gordon-Larsen et al., 1999). Qualification for the free lunch programs in United States schools is also an important indicator that relates income status to dietary habits. Previous research has supported the correlation of lower income to a higher incidence of overweight (Drewnowski & Specter, 2004).

**Weekly Physical Activity**

The second portion of the survey’s first section includes the anthropometric data of height and weight. This is important in determining a person’s body mass index or BMI, which is the value utilized to classify overweight and obesity in adolescents. The use of BMI is supported by the current literature and indicates that it is one important measure in identifying adolescents who are at risk for becoming overweight (Pietrobelli et al., 1998).

The second set of questions within the survey relate to the adolescent’s physical activity levels in the last week, specifically the amounts of vigorous, moderate and light activities
performed for at least 30 minutes. Also, the adolescent will be asked to list the specific activity completed within those levels of physical activity. This level of activity or inactivity relates to the prevalence of overweight adolescents. Those adolescents who perform less physical activity than the recommended amount are more likely to become overweight (Berkey et al., 2000).

*Physical Activity in Gym Classes*

The final section of the survey includes questions concerning the level of participation in physical education (PE) classes at school. Many schools have greatly reduced and even eliminated PE classes as a part of their educational curricula. The current percentage of adolescents who actually attend PE classes daily is around 28% (Grunbaum et al., 2004). As many adolescents do not participate in physical activity after school, and the incidence of overweight is growing, it is important to gather information that might relate PE activity time and overweight in adolescents.

*Expert Panel Member Findings*

*Survey Instructions*

The Pediatric Nurse Practitioner suggested that the survey instructions include the possibility of compensation for the study participants. Burns and Grove (2001) state that creative incentives such as small monetary amounts or other gifts are vital to the response rate of research materials. This same expert panel member recommended the need for the instructions to include that study participation is voluntary and subjects may withdraw at anytime with no repercussions. It is also important to indicate to the subject that this research could not take place without their participation. This empowers the subject to want to assist with the research (Burns & Grove, 2001).

*Demographic Data*
Further suggestions by the expert panel were made for each section of the survey. The Exercise Physiologist suggested altering the introductory statement for the Adolescent Physical Activity Survey as parts of the original may be viewed as negative to the participant. Burns and Grove (2001) agree with this and further state the importance of the survey or questionnaire being unbiased toward the participants. These authors indicate that this is one of the major differences between this tool and interviews with study participants, as interviews can often involve a bias to the questioning.

This same panel member suggested adding the ethnic option of Black to the African American option so as to include Africans and Haitians. The inclusion of a Native American option was also suggested. As our population continues to grow and change, so does the need to include the other ethnic options for study participants to select. Several authors (Gordon-Larsen et al., 1999) identify the need to include a variety of ethnic backgrounds within physical activity research. This is based on the findings that discrepancies exist between certain ethnicities and the incidence of overweight.

The Pediatric Nurse Practitioner recommends the inclusion of a box for those subjects that qualify for free lunches at school to also select if they actually participate. The comment was made with this recommendation stating that adolescents may qualify but often do not participate due to the stigma attached to receiving free lunches. This study researcher was unable to find results to support that suggestion, however, the views of peers does play a large role in adolescent decision-making (Tergerson & King, 2002).

The Exercise Physiologist suggested the inclusion questions about the adolescent’s grade in school, how many family members live in the home and whom the adolescents live with. The addition of a question about the adolescent’s grade in school could indicate the level of activity
performed by each school grade studied. This is supported by the current literature that indicates that physical activity level decreases significantly from grade 9 to grade 12 (Grunbaum et al., 2004). The number of family members living in the adolescent’s home relates to socioeconomic status and the availability of healthy food choices (Strauss & Knight, 1999). The inclusion of a question regarding whom the adolescent lives with is also supported by current research. Wu et al. (2003) found a direct connection between the level of caregiver involvement and the reduction in adolescent body weight.

**Weekly Physical Activity**

The Exercise Physiologist made a suggestion to alter the statement involving sweating during vigorous physical activity, as cold weather activities may not make a person sweat but they may breathe hard. This could be important to include as many adolescents perform a variety of physical activities throughout the entire year (Booth et al., 2002). The Pediatrician’s comments contradicted this though, by stating that the inclusion of sweating was a good explanation of vigorous physical activity.

The Exercise Physiologist also suggested the alteration of the listing of physical activities by the study participants to the selection of specific activities from boxes. Open-ended questions like lists can often be difficult to interpret and analyze (Burns & Grove, 2001) so the selection of boxed answers may aid in analyzing the study findings. If this Adolescent Physical Activity Survey were to be utilized later through inferential statistics, this alteration might assist in analysis of the results.

The Pediatric Nurse Practitioner made the final suggestion within this section by recommending the inclusion of other vigorous physical activity options such as swimming, soccer and tennis. Many adolescents who are physically active do participate in a wide variety
of activities (Booth et al., 2002). Therefore, these adolescents should have clearly expressed choices in order to clarify their answering of the question (Burns & Grove, 2001).

**Physical Activity in Gym Classes**

The Exercise Physiologist suggested altering the question about physical activity in gym class, giving the adolescent more specific options for the physical activity. The PE section of the survey also included statements by the Pediatric Nurse Practitioner, who commented that many adolescents often are required to participate in only one semester of PE classes. This is supported by the recent study involving adolescents throughout the United States that found that only 28% of high school students actually attend PE classes on a daily basis (Grunbaum et al., 2004).

**General Comments**

The Pediatrician stated that the length of the survey was acceptable, as increased length would have discouraged the completion by participants. Burns and Grove (2001) support this statement and find that it increases the likelihood of questions being left unanswered. Another suggestion by this expert panel member was to include a comments section for the study participants to state concerns that they have with any of the questions. Including this section may make it more difficult to analyze the data but it would increase the confidence of the participants regarding their influence on the study (Burns & Grove, 2001).

The final suggestion by this expert panel member was for the addition of questions about the study participant’s involvement in sedentary activities. These questions can assess the level of television watching, playing of computer games and talking on the telephone in connection to the increased incidence of becoming overweight. The assessment of this relationship has been the focus of a large amount of current research (Gordon-Larsen et al., 1999, 2000).
Implications for Nursing Theory

Orem’s (2001) Self-Care Deficit Theory of Nursing (SCDTN) was used as the theoretical framework for this research. While adolescents are capable of being their own self-care agent, developmental self-care limitations may exist that lead the adolescent to develop the self-care deficit of becoming overweight. The Adolescent Physical Activity Survey can assist healthcare practitioners with the identification of those adolescents at risk for developing this self-care deficit. This population and their dependant care agents can then be educated as to the importance of physical activity.

Implications for Nursing Practice and Education

The healthcare practitioner working with the adolescent population recognizes the growing incidence of overweight among this population and the relationship of overweight to the development of co-morbid conditions. Advanced Practice Nurses play a vital role in identifying those adolescents who are at greater risk for illness based on their physical activity patterns. Using valid and accurate assessment tools for detection of overweight, nurses can enhance their knowledge and skills to intervene with overweight adolescents.

Nurses are focused on educating the community about the risks of becoming overweight and ways of reducing those risk factors through the incorporation of physical activity (Anding et al., 1996; Berkey et al., 2000; Freedman et al., 2001; Gordon-Larsen et al., 2000; Gordon-Larsen et al., 1999; Roberts, 2000; Steinbeck, 2001). This empowers the public to make informed and educated decisions about the importance of physical activity in the further disease prevention and health promotion.

Nurses can also incorporate adequate physical activity and the promotion of health through school based programs as suggested within the current literature (Frenn et al., 2003).
Within the schools, nurses become important in diagnosing overweight and then promoting healthy behaviors such as increased physical activity and a well-balanced diet. Further, nurses can be utilized as educators regarding the importance of increased physical activity for the adolescent’s parents or primary care givers.

Community-focused wellness programs have been developed to target ethnic populations who are statistically at most risk for becoming overweight (Gordon-Larsen et al., 1999, 2000). The primary goal of these programs is to educate those ethnicities at greater risk about the importance of maintaining a healthy weight through increased physical activity patterns. Through community programs, the entire population can benefit from the overall improvement in health and well being.

Advanced Practice Nurses can become a driving force for further funding of overweight research and education programs. Improved research funding for efficient interventions is needed to combat overweight among every generation. This need is also seen among both community and school based programs for prevention of overweight and health promotion.

**Recommendations for Further Research**

As the incidence of overweight continues to rise, so too does the importance of research about those adolescents who are at risk. The growing trend among research about overweight has been the inclusion of adolescents and children. There remains a scarcity of nursing research concerning this health issue. Further research about inadequate physical activity levels, as an etiological influence in the co-morbid conditions associated with overweight individuals, must be conducted.

The Adolescent Physical Activity Survey as described in this Scholarly Project, could be utilized with adolescents in an attempt to establish an initial reliability. When statistical
inferences are made, it can then be utilized by healthcare practitioners to identify those adolescents at risk for becoming overweight in relationship to their physical activity.

**Conclusions**

The conclusion of this research is the following: the Adolescent Physical Activity Survey contains valid content to assess the physical activity patterns of adolescents. This is based on the comments and suggestions of the three expert panel members. Healthcare providers can then utilize these physical activity levels to identify those adolescents who are at risk for becoming overweight.

**Summary**

The results of the research indicated that the Adolescent Physical Activity Survey has initial content validity. Suggestions were made for the modification and clarification of certain questions on the survey. The survey questions were based upon current clinical literature. The findings of the expert panel members’ comments were related to the Self-Care Deficit Theory of Nursing as a model for nursing practice. Implications for nursing practice and further nursing research were also identified.
Appendix A

DIRECTIONS FOR SURVEY

Thank you for helping with this research by completing the Adolescent Physical Activity Survey. This survey has been given to you and other students like yourself, who are 11-18 years of age. You do not need to put your name at the top of the survey. Read the directions that are listed for each section and either circle your answer or fill in the blank based on the directions given.

Remember, this is not a test and there are no right or wrong answers for any of the questions. This survey is about you, so please be honest. If you have any questions, please raise your hand and someone will come to help. After you finish the survey, please reread the questions to check that you have answered them all to the best of your ability. Thank you again for your help.
Appendix B

ADOLESCENT PHYSICAL ACTIVITY SURVEY

Below are questions about your age, if you are male or female, your height, your weight, and if you are able to get free lunches at school. Please answer these questions honestly.

Participant number: _XXX___________________________________

Directions: Place an X next to your selection.

1. How old are you?
   _____11-13  _____14-16  _____17-18

2. Are you male or female?
   _____MALE  _____FEMALE

3. What is your ethnicity or ethnic background?
   _____CAUCASIAN  _____HISPANIC  _____AFRICAN AMERICAN  
   _____ASIAN  _____OTHER

4. Do you qualify for free lunches at school?
   _____YES  _____NO  _____UNKNOWN

5. How tall are you? Insert your feet and inches on the appropriate lines.
   _____FEET  _____INCHES

   _____POUNDS

In this next section, think about the physical activity that you have done for at least 30 minutes sometime in last week. Put an X next to the number of days that you did this activity.

7. In the past week, I have done vigorous physical activity such as fast bicycling, running, playing basketball and heavy lifting for at least 30 minutes (These activities should have made you sweat).
   _____0 days  _____1-2 days  _____3-4 days  _____5 or more days

8. List the vigorous activity or activities that you have done here:
   __________________________________________________________
   __________________________________________________________

9. In the past week, I have done moderate physical activity such as fast walking, dancing, and slow bicycling for at least 30 minutes.
   _____0 days  _____1-2 days  _____3-4 days  _____5 or more days
10. List the moderate activity or activities that you have done here:

___________________________________________________________________________
___________________________________________________________________________

11. In the past week, I have done light physical activity such as slow walking for at least 30 minutes.

_______ 0 days _______ 1-2 days _______ 3-4 days _______ 5 or more days

12. List the light activity or activities that you have done here:

___________________________________________________________________________
___________________________________________________________________________

This next section asks questions about your physical activity in school through gym classes. Place an X next to the answer for each question.

13. In this school year, I have had physical education classes (gym) as a part of school.

_______YES  _______NO

14. How many days in the last week have you been in gym classes?

_______ 0 days _______ 1-2 _______ 3-4 days _______ All 5 days

15. On those days you were in gym class, did you participate for more than 15 minutes each day?

_______YES  _______NO
References


Health and Human Services (HHS) and United States Department of Agriculture (USDA).


2004, from the U.S. Department of Health and Human Services Web site:


ABSTRACT

The purpose of this study was to design a Physical Activity Survey (PAS) that can be utilized by health care providers to determine those adolescents who have inadequate behaviors relating to physical activity patterns. Orem’s Self-Care Deficit Theory of Nursing was the theoretical framework to guide this study. An expert panel consisting of a Pediatric Nurse Practitioner, an Exercise Physiologist and a Pediatrician was formed to analyze the content of the Adolescent PAS. This panel made suggestions for content alteration, which were then analyzed and organized into five different categories. These suggestions included the addition of questions regarding grade in school, number of family members in the home, whom the adolescent lives with, boxes for specific physical activities, and time spent performing sedentary activities. These findings suggested that Advance Practice Nurses play a role in the identification and education of at-risk adolescents related to their activity patterns.