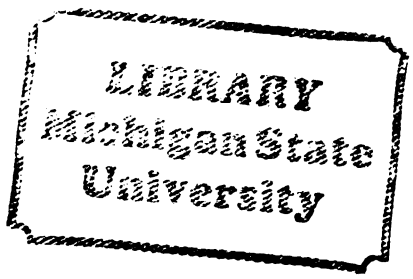

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THE RELATIONSHIP OF PHYSICAL ACTIVITY TO ADOLESCENT FEMALE PSYCHOLOGICAL DEVELOPMENT AND GENDER-ROLE IDENTITY

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Linda Covey

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THE RELATIONSHIP OF PHYSICAL ACTIVITY TO ADOLESCENT FEMALE PSYCHOLOGICAL DEVELOPMENT AND GENDER-ROLE IDENTITY

by

Linda Covey

A DISSERTATION

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ABSTRACT

This study was an exploration of the relationship between self-reported past and present physical activity levels and the self-image, sense of mastery, gender-role identity, self-perceived physical ability, self-perceived attractiveness, age, and age of menarche for high school adolescent women.

The Offer Self-Image Questionnaire and the Bem Sex Role Inventory were administered to 152 Caucasian sophomore, junior, and senior high school adolescent women from the middle socioeconomic class. One-way multivariate analysis of variance, post hot group comparisons, and multiple regression tests were used to analyze the test results.

The physical activity level groups reported by the subjects were as follows: (a) 66% were designated as physically active, (b) 15% as physically inactive, (c) 12% as physical activity drop outs, and (d) 7% were designated as physical activity increasers. The majority of the subjects reported an androgenous gender-role identity except for the predominantly undifferentiated inactive subjects.

Physical activity level groups had a significant effect on two of the three psychological self-scales, all three of the coping self-scales, the masculinity score, and on self-perceived physical ability. The active group in comparison to the (a) inactive group had significantly higher scores on two of the three psychological self-scales, all three of the coping self-scales, the masculinity score, and on self-perceived physical ability ratings; (b) drop-out group had significantly higher physical ability ratings and later age of menarche; and (c) increaser group had no significant differences on the dependent measures.

The drop-out group in comparison to the (a) inactive group had significantly higher scores on two of the three psychological self-scores, all three of the coping self-scores, the masculinity score, and on self-perceived physical ability ratings; and (b) increaser group had significantly higher scores on two of the three psychological self-scores. The increaser group in comparison to the inactive group had significantly lower femininity scores and significantly higher self-perceived physical ability ratings. The drop-out group was characterized by high psychological functioning, androgenous gender-role identities, and positive feelings about physical activity.

DEDICATION

To **Julie** and **Nate**

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CHAPTER I

INTRODUCTION

Statement of Problem

This study in its most general scope was an investigation of the relationship between physical activity and typical mental health syndromes presented by women. More specifically, this study explored high school adolescent women's self reported present and past levels of physical activity and concurrent measures of their psychological self, coping self, and their gender role identification. In addition, the adolescent women's self-perceived ability, self-perceived attractiveness, and age of menarche were assessed. Relationships were examined between the physical activity levels of the adolescent women and the psychological and coping self measures. A special focus of this research was on high school adolescent women who reported significant decreases in their physical activity since reaching adolescence.

Need for Study

National surveys and public health reports over the past two decades related to gender differences in psychological well-being and mental heath consistently reveal women reporting greater psychological distress then men (Campbell, 1981; Moore, 1980; National Center for Health Statistics, 1970; Rubenstein, 1982). Women report different kinds of symptoms of disturbance as well. Women of all ages report problems such as "excessive fears and worry, shyness, lack of self-confidence, feelings of inferiority, and depression, while

men of all ages present aggressive, destructive, and anti-social behavior" (Chesler, 1971, p. 22).

One research response to the gender-differences in mental health symptoms has been to examine the traditional feminine gender-role which requires a fundamentally passive and dependent orientation to life, and proscribes certain male gender-typed activities including vigorous physical activity, athletics, and sports (Duquin, 1979). In particular, psychological research has led to increasing recognition that a sense of perceived control, i.e., the sense of being able to cope and to control one's life, is essential to mental health and psychological well-being (Campbell, 1981; Moore, 1980). The traditional feminine gender-role, therefore, has been increasingly evaluated as detrimental to women and directly in conflict with both societal and basic psychological concepts of sound psychological functioning (Broverman, Broverman, Clarkson, Rosenkrantz, & Vogel, 1970; Chesler, 1971). Calls for the examination of the ways that the traditional feminine gender-role affects the mental health of women have been heard from a variety of social, psychological, and academic sources (Brodsky & Hare-Mustin, 1979; Donelson & Gullahorn, 1977; Hill et al., 1979; Lips, 1981; Moore, 1980; Rohrbaugh, 1979).

In considering the possible contribution of physical activity to mental health, particularly women's mental health, it seems logically consistent to view physical activity as a behavioral anecdote for the typical feminine distress syndromes of fearfulness, passivity, extreme dependence, etc. But the contribution of physical activity to mental health in general is far from clear, and the potential psychological conflicts that physically active women may experience are just beginning to be examined (Harris, 1973; Nicholson, 1979; Snyder & Kivlin, 1977; Snyder & Spreitzer, 1976).

It is of particular relevance to this study that two researchers have specified a need for the study of the physically inactive female. The female who dislikes or avoids physical activity (Harris, 1973) and/or finds "physical activity inconsistent with her self-structure" (Allen, 1974, p. 259) are in need of further study in order to better understand both female development and the role of physical activity in the psychological development of women today.

Theoretical Framework

This study is based on the phenomenological view that all human behavior, as well as such basic personal formulations as one's self-image, including one's gender-identity, are a function of personal perceptions, e.g., "those unique perceptions of oneself, the world in which one lives, and the meanings these personal perceptions have for the individual" (Combs & Snygg, 1959, p. 17). These personal perceptions are formulated through inferences that the individual makes, based on her personal experiences and interactions with the significant people in her life who impart social, cultural, and familial messages about who one is and how one should behave. Consequently, the self is viewed as essentially a social product, arising out of social interactions and from what H. S. Sullivan called "reflected appraisals, . . . inferences about ourselves made as a consequence of the ways we perceive others behavior toward us" (in Combs & Snygg, 1959, p. 134).

Certain self perceptions within the phenomenological self are understood to be especially central to one's self-concept. Gender identity is one of these core self-perceptions. Behavior which is considered to be appropriate to the female or male gender-role is viewed as basic and critically fundamental to one's identity and is very resistant to change (Combs & Snygg, 1959). From this phenomenological perspective, the physical body is considered "the most

constant aspect of one's experience" (p. 77) and plays a very large part in defining the phenomenal self. Even more important in the context of the present study is the crucial impact that the phenomenal self has on the bodily condition of the individual and the modes of physical activity that the individual perceives as personally appropriate. "Where the body goes, what it eats, drinks, enjoys, or avoids is the product of its perceptions" (pp. 78-9).

It is important to note that one of Freud's (1950) basic assumptions was that "the ego is first and foremost a body-ego . . . ultimately derived from bodily sensations, chiefly from those springing from the surface of the body" (p. 31). Psychoanalysts and the majority of psychotherapeutic researchers since Freud, however, have attempted to understand the feelings and behavior of the individual on a verbal and mental level that emphasizes the ego, the "I" as a primarily mental phenomenon, and deemphasizes the physical/bodily aspect of the phenomenal, perceiving, and feeling self (Lowen, 1958). Consequently, theory regarding the relationship of psychological variables and physical activity has been developed largely to explain data and guide research in the area of psychology and athletic performance.

Research and practice in the psychology of athletic performance has been published in the United States since 1898. European sport psychologists have been "concerned almost exclusively with the influence of selected psychological variables on performance in sport" (Dishman, 1982, p. 121). North American research, on the other hand, has focused on the impact of sport and physical activity on psychological functioning.

Several researchers have provided summaries of research and literature reviews from 1900 to the present related to the psychological effects of physical activity: Cooper, 1969; Dishman, 1982; Folkins & Sime, 1981; Layman, 1972, 1974; Scott, 1960. These reviews which present most of the ideas and data available

indicate that a variety of psychological changes may accompany vigorous physical activity. A variety of psychological characteristics have been studied in a number of different physical activity settings ranging from specific sports programs or exercise regimens to play activities that involve large muscle activity. This research has been founded on the basic psychological and philosophical premise that the mind and body are two aspects of the single, functional being that is the individual person. This basic mind-body unity assumes that if physical activity is physically beneficial, then it must also contribute to emotional health or a healthy personality. This basic premise continues to foster research and theoretical formulations from the earliest Freudian & Adlerian ideas that play activities and sports "involve meeting man's basic needs or represent the channeling of instincts" (Layman, 1972, p. 166), to the most contemporary hypothesis testing relating physical activity and psychological vigor.

Research results in the area of the psychological effects of physical activity present a confusing array of findings that make it difficult to relate physical and psychological variables. Physical activity is often undifferentiated from or defined as athletic participation, varsity sport team membership, participation in physical fitness or physical education classes or involvement in a short-term exercise/research project. These studies are often confounded by the lack of control for motor ability (Cooper, 1969; Layman, 1972) as well as by a lack of differentiation between the wide variety of experiences that can all be labeled "sport involvement" (Layman, 1972).

The psychological tests used to measure changes in psychological attributes as a result of various physical activities appear to have often been chosen without regard to the state or trait nature of the psychological variable in question. Most researchers have failed to consider the appropriateness or

sensitivity of the instrument to the usually short-term physical activities involved (Dishman, 1981; Folkins & Sime, 1981). Also, because of the lack of longitudinal studies, it is still unclear as to whether the characteristics that have emerged from these studies are attributable to physical activity involvement or sport participation or whether they are antecedent psychological variables brought by the individual to the sport setting (Dishman, 1982).

One of the few consistent findings in the literature related to physical activity and psychological variables is that desirable alterations in mood accompany vigorous exercise (Dishman, 1982). These findings have been supported from psychometric, psychological, and clinical perspectives and indicate that exercise or participation in an exercise program can be effective in the treatment of anxiety and depression and can positively effect self-concept.

Experimental studies have shown that vigorous exercise sessions can reduce state anxiety in populations of individuals scoring in both the normal and clinically anxious range on objective anxiety tests. These reductions in anxiety are most consistently related to jogging/running activities of a non-competitive nature. Strenuous exercise has not usually been shown to lower trait anxiety, and one review attributes some of the inconsistencies in the literature regarding exercise and state anxiety to the fluctuation of differences in trait anxiety of the individuals in the populations studied (Dishman, 1982).

The relationships of exercise to depression is similar to that of exercise and anxiety and comparable to changes resulting from traditional psychotherapeutic intervention. While causal mediators have not been identified, the reduction of symptoms of depression have been documented in six- and 10-week programs of muscular endurance and general exercise programs (Dishman, 1982).

Studies that report the psychological effects of physical activity on an individual's self-esteem (i.e., one's concept of her/his feelings of value or worth) essentially view self-esteem as a trait that is responsive and changeable, inversely associated with anxiety and depression, and dependent to some extent on one's physical self-esteem. There is a significant amount of evidence in the literature that perceptions of physical ability vary with self-esteem and that physical self-perceptions are related to actual fitness (Dishman, 1982). However, increases in physical self-esteem have been reported in the absence of any significant increases in actual fitness. One researcher concludes that "improvement in attitudes toward the self, the body and physical activity" in a study of the short term effect of physical conditioning "was a function of the intensity and frequency of the physical conditioning experience rather than specific fitness changes" (Layman, 1974, p. 44).

The psychological consequences of sport participation as reported in the literature are more variable than those observed with exercise (Dishman, 1982). Various reasons have been used to explain this finding: the competitive aspects of sport, the variety of possible sport situations, and the absence of longitudinal studies.

Cooper (1969) presented a psychological portrait of the athlete in comparison to the non-athlete which was based on studies that were "virtually all . . . basically correlational studies . . . (using) group administered personality measures (which) were employed with either high school or college males" (p. 18). The male athlete was described as more socially out-going and confident; more aggressive, dominant, and leading; higher in social adjustment as noted by both teachers and peers; higher in social status and prestige; more emotionally stable; less compulsive; has a higher pain tolerance; has lower feminine interests and higher masculine interests. While this general male "athletic personality"

picture has emerged quite consistently from the research regarding personality studies of sport participants as opposed to non-participants, it must be noted that studies of sport participation in relation to self-concept often yield conflicting results. Research seems to indicate that self-concept improvement is most likely to occur as a result of physical education programs designed to meet individual needs, with teachers who serve also in the role of understanding friend and/or psychotherapist (Layman, 1974).

Cooper (1969) also noted that much of the research in this area seemed to be an attempt to justify participation in athletics and that crucial issues about the psychological nature of physical activity remained unanswered. For instance, how these various aspects of personality are related and/or how they relate to greater or lesser degrees of physical ability, athletic participation, and athletic success remain to be understood. One study (Merriman, 1960) indicated that many personality differences between athletes and non-athletes drop out when motor ability is controlled. Cooper suggested that personality traits which are characteristically related to physical activity as opposed to formalized sports need to be clarified and that the trait picture presented needs to be simplified as the many different labels used in this area of research may refer to either similar or the same personality features.

In an extensive review of research relating physical fitness to personality variables, Folkins and Sime (1981) reported that physical fitness has generally been associated with improvement in mood states and self-concept.

In conclusion, it is important to note that the overwhelming majority of research to date has been done using high school or college-aged male subjects. The last decade has seen a significant increase in the amount of research focused on women, but adolescent and adult women are notably under-represented in the research that has, to date, contributed to theory in this area (Cooper, 1969;

Layman, 1974). In addition, research tends to positively support the role of various physical activity experiences for psychological well-being, but the question of how physical activity contributes to the psychological functioning of women and how it relates to their outlook toward the world remains unclear and largely unaddressed.

> Few clear-cut relationships between physical and psychological variables (are explicit) . . . . Rather it seems that the nature of the relationship between physical activity and psychological functioning varies according to age, sex, health, intelligence, motor aptitude, body build, attitudes of parents and peers, past experiences with success and failure, nature of the teacher-student as coach-player relationships, values present in the subculture, specific nature of the physical activity program in relation to the needs of the population sample, and methods of measuring the independent and dependent variables (Layman, 1974, p. 63).

Definition of Terms

For the purpose of this study, special terms were defined as follows.

Physical Activity

Physical activity was defined as any vigorous motor activity involving large muscle movement such as walking, biking, dancing, sports, exercises, and games.

Physical Activity Level

Physical activity level was defined by the subjects' self-reported ratings of their present physical activity levels and their past (preadolescent) activity levels on a six-point rating scale (see examples below).

> How would you rate your current level of physical activity compared to other girls your age? (Circle one.)
>
> | Very Inactive | Inactive | Slightly Inactive | Slightly Active | Active | Very Active |
> |---|---|---|---|---|---|
>
> How would you rate your past level of physical activity compared to other girls your age? (Circle one.)
>
> | Very Inactive | Inactive | Slightly Inactive | Slightly Active | Active | Very Active |
> |---|---|---|---|---|---|

These ratings and the differences among them were used to evaluate the subjects' physical activity levels and to clasify them into physical activity level groups.

Self-Image

The psychological self of the female adolescent was measured by the three psychological self scales of the Offer Self-Image Questionnaire for Adolescents.

Sense of Mastery

Sense of mastery was the "coping self" of the female adolescent as measured by the three coping self scales of the Offer Self-Image Questionnaire for Adolescents.

Gender-Role Orientation

The gender role orientation of the female adolescent was that measured by the Bem Sex-Role Orientation Inventory.

Self-Perceived Physical Ability

The self-perceived ability of the subjects was their self-reported ratings of their physical abilities on a six-point rating scale on the Physical Activity Level Questionnaire.

Self-Perceived Attractiveness

The self-perceived attractiveness of the subjects was their self-reported ratings of the physical attractiveness on a six-point rating scale on the Physical Activity Level Questionnaire.

Assumptions

For purposes of this study, the following assumptions were made; first, that important aspects of the phenomenological self and experience of the female

adolescent were actually measured by the selected paper and pencil structured questionnaires; and second, that the subjects in this study were typical white middle class sophomore, junior, and senior high school female adolescents who did not differ significantly from other middle class sophomore, junior, and senior high school female adolescent volunteer samples.

Delimitations

This study did not attempt to measure the physical activities, ability, or attractiveness of the subjects beyond their own self-reports. The focus of this research was on the subjects' self-perceptions as compared, by them, to other high school, adolescent females their age.

This study used a volunteer sample from the total population of sophomore, junior, and senior high school adolescent females at the Williamston High School, Williamston, Michigan. Results can only be generalized to a volunteer sample of this particular age group and white middle class socio-economic status.

No follow up or longitudinal investigation was conducted after the psychological tests were administered and the data collected. The design of this study did not allow a statement of causality. If statistically significant results were found, it was concluded only that a relationship exists between variables.

Research Questions

The following research questions were investigated in this study.

1. Is there a relationship between the physical activity level group and gender-role orientation endorsed by the female adolescent subjects.
2. Are there differences between each of the physical activity level groups on each of the psychological self-image measures.

3. Are there differences between each of the physical activity level groups on each of the coping-self measures.

Overview

Literature related to adolescent mental health and gender identity is reviewed in Chapter II. Research on high school adolescent women and their physical activity, with a special focus on those women who significantly decrease their physical activity in adolescence, is presented.

The design of this study, including the nature of the sample, the instrumentation, and the statistical analyses, are described in Chapter III. The data are presented and analyzed in Chapter IV.

Chapter V includes a summary and interpretation of the results of the study. Implications for further research are also reported.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This literature review was divided into three main areas. First, studies on adolescent mental health, with a special focus on the relationship of gender-role identity to adolescent mental health, are presented. Second, research on high school adolescent women and physical activity was presented which includes studies on gender-role issues for physically active girls. A review of research related to post-adolescent woman, physical activity, and gender role issues was included in this second section as an introduction to the research on adolescents. Third, research on adolescent women and attrition in physical activity was presented.

Adolescent Mental Health

The overwhelming majority of research on the development of normal adolescents refutes the positions of early psychoanalytic theorists that adolescence is typically a stressful and stormy human experience. Summarizing the work of a number of researchers in adolescent mental health, Offer, Ostrov, and Howard (1981) report that, "As far as we know, almost every researcher who has studied a representative sample of normal teenagers has come to the conclusion that they are characterized by good coping and a smooth transition into adulthood" (p. 91).

Results of over 20 years of testing over 15,000 adolescents using the Offer Self-Image Questionnaire (OSIQ) are reported in The Adolescent: A

Psychological Self-Portrait (Offer et al., 1981). OSIQ results show that the typical middle class adolescents in our culture generally enjoy life, are happy with themselves most of the time, and feel happy, strong, and self-confident. This description is evidenced by their responses on the OSIQ scales that constitute what the Offer group identifies as the psychological self-scales. The three scales comprising the psychological self are (a) the impulse control scale, (b) the emotional tone scale, and (c) the body and self-image scale. Test results involving these scales reveal that middle class adolescents feel in control of their lives and relaxed under normal circumstances. Although approximately 50% of the teenagers tested reported they were anxious, the authors surmise that this anxiety seems to pertain only to new and unusual situations because most adolescents also report that they "do not feel tense most of the time" (pp. 46-47). These OSIQ scales also indicate that, in general, normal adolescents feel proud of their physical development and claim to feel strong and healthy.

Analyses assessing the effects of gender and age on the psychological self scales revealed gender differences that indicate adolescent girls experience significantly more negative feelings about their bodies and describe themselves as being sadder, lonlier, and more vulnerable than boys (p. 47). Girls specifically feel more ashamed of their bodies, feel ugly and unattractive and feel less good about recent changes in their bodies than do the boys (Offer et al., 1981).

This finding substantiates the finding in a study conducted by Clifford (1971) on body satisfaction in adolescence. Clifford gave Secord and Jourard's (1953) Body and Self-Satisfaction Scale to 146 boys and 194 girls ranging in age from 11 to 19 years. This scale asked the subjects to indicate the degree to which they were satisfied with various parts and aspects of their bodies and themselves personally. Clifford found that while the majority of his sample had generally

positive attitudes toward themselves and their bodies, girls showed a strong tendency to be less satisfied and more critical of their bodies than boys.

In addition, Offer et al. (1981) found that girls state more often than boys that they have crying fits which they cannot control. There were no significant age or age and gender interaction effects on these psychological measures.

On the scales that comprise the OSIQ social self (social relations, morals, and vocational and educational goals), the most highly endorsed item by adolescents is "a job well done gives me pleasure." Male and female adolescents in our culture are overwhelmingly work-oriented, claiming they like to work and believing that there are jobs waiting for them for which they will be prepared and capable according to Offer et al. (1981). Adolescents generally report not wishing to be supported by others and claim that careers definitely lie in their future, everyday worlds.

Adolescents report enjoying the company of other people, learning a lot from others, and liking to help their friends. While the majority of adolescents report caring about how their actions affect people, more than half also denied that "an eye for an eye and a tooth for a tooth does not apply to our society" (p. 54). The Offer group (1981) states that this repsonse suggests that the majority of the adolescents thus believe that retaliation without concern for antecedent circumstances typifies adolescent values.

Analyses assessing gender and age effects revealed no differences on the social relationships scale of the OSIQ, but did indicate that girls scored higher on morals and ethical values and had more positive attitudes toward their future vocations than boys. Adolescent girls seemed to be more other-directed, concerned about hurting others, and telling the truth than boys. While adolescent boys more often said they felt like leaders, girls, more strongly than boys, claimed that they preferred to work than be cared for by someone else.

Sexual development and the integration of biological and hormonal influences into the psychosocial life of the adolescent is a major aspect of this stage of human development. On those OSIQ items which ask the adolescents about their sexual experiences, behavior, and impulses, the normal adolescents stated that they were not afraid of their sexuality and that they liked the recent changes in their bodies. These adolescents also reported that they did not consider their bodies poorly developed, and that they considered a friend of the opposite gender important to them.

On the OSIQ sexual attitudes scale items, age and gender effects were noted. Adolescent boys appeared to be more prone to joke about sex and attend sexy shows than girls. Boys also denied more often than girls that "It is hard for a teenager to know how to handle sex in a right way" (p. 62). Girls' responses revealed very strong age differences in that older girls were more likely to think about sex and to endorse "Sexual experiences give me pleasure" than young girls (p. 63). There were no such differences between older and younger adolescent boys. The only other age difference noted was a trend for both male and female older adolescents to be more confident in their physical appearance.

In regard to the normal adolescents' feelings about their families, most report no major problem areas. Adolescents report feeling their parents are proud of them and that they have a close relationship. In general, the parent-adolescent relationship, as reflected by the adolescents' responses, is mutually satisfying, stable, and supportive. There were no significant age or gender differences on the OSIQ family relationships scale.

The final OSIQ category, the coping self, focuses on how the adolescent copes with her/his internal and external worlds and her/his sense of emotional strength, adaptive abilities and resiliency. The three scales comprising this

category are the mastery of the external world scale, the psychopathology scale, and the superior adjustment scale.

Offer and his colleagues (1981) found normal adolescents reported facing life with confidence. Teenage boys and girls appeared to be empathic and able to positively identify with others. Teenagers reported being optimistic, enjoying challenges, and preparing in advance for new situations. These adolescents did not endorse items in the psychopathology scale, thus indicating that they saw themselves with no major problems. A significant minority of adolescents, however (one out of five), did indicate that they felt emotionally empty and confused "most of the time."

The Offer group (1981) reported significant interaction effects of gender and age and a significant effect by gender in the coping self scale. Younger girls described themselves as sicker on the psychopathology scale. There were no age differences on the mastery or on the superior adjustment scales. The significant gender difference revealed that girls more than boys feel felt fearful, and ashamed. Finally, while the girls expressed faith in their coping abilities, their feelings did not rank as strongly as the boys.' Girls also appeared to be more attached to their relatives and friends, more empathic, and more interpersonally-oriented than boys.

The Offer results (1981) are essentially substantiated by other research on adolescence which has generally found adolescents coping well and which has revealed no gender differences in regard to over-all measures of self-esteem. Empirical findings of gender differences emerge when research focuses on different aspects of self-esteem, and the differences are usually interpreted as reflecting the contrasting gender roles for male and female members in our society. For instance, girls perceive themselves more positively in regard to interpersonal relations and sociability and affiliation, and boys see themselves

more positively in times of achievement, academic aspirations, self assertion, and body image (Offer et al., 1981).

Simmons and Rosenberg (1975) interviewed 1988 children from Grades 3 to 12 in 1968 and found more disturbance among white adolescent girls than any other group. The white adolescent girls were more self-conscious, had less stable self-images, and reported lower self esteem on a questionnaire developed by the researchers, with responses made on a three-point rating scale. Simmons and Rosenberg relate these differences, in part, to white adolescent girls' greater dissatisfaction with their gender roles than white boys and black girls, the latter of whom place less emphasis on getting married, more emphasis on working to support themselves, and who are more confident about themselves and their relationships to boys than are white adolescent girls.

White adolescent girls reported that they were more dependent on peer evaluation for their self-images and less happy being girls than white boys and black girls respectively. White adolescent girls also placed more value on being popular than on "being able to do things for yourself" or on "being the best in the things you do" than white boys.

Further data analysis in which socio-economic status, grades in school, and gender are held constant in various combinations reveal that those adolescents with plans to attend college and who are happier with their gender have higher self-esteem, are less self-conscious, and are more stable than those who do not. White adolescent girls were lower on these variables than white adolescent boys and black girls.

Simmons and Rosenberg (1975) suggest that some of the reasons for these results may be (a) white boys have more optimistic future plans due to their greater social advantages, (b) black girls have more mothers as heads of

households and working out of the home as role models, (c) black girls have earlier and perhaps more self-enhancing sexual relationships.

In 1979 Rosenberg, using this same sample data from 1968, reported that 85% of adolescents thought their peers thought negatively of them and 32% reported "high depressive effect" (Rosenberg reported in Offer et al., 1981). This finding is in sharp contrast with the majority of other research on normal adolescents, and Offer and his colleagues suggest that this result is most likely an artifact of Rosenberg's scoring system and her sample. First, they note that Rosenberg applied the term "negative" to three points in a four-point rating scale, with the result that an individual who indicated that her/his peers liked her/him "pretty much," "not very much," or "not at all" was scored as making a negative response (Offer et al., 1981). Second, the fact that 32% of Rosenberg's adolescents answered that they were "not at all happy" when asked how happy they were most of the time and that 85% of the OSIQ teenagers reported being happy most of the time could well be a sampling bias, reflecting the socioeconomic differences between Rosenberg's black and working class adolescents of the 1960s and the OSIQ's white and middle class adolescents of the 1960s and 1970s. Finally, Rosenberg's data were gathered through the use of her own questionnaire and analyzed on the basis of interviewers' ratings of the subjects' responses. The OSIQ is a much more experimentally developed and standarized measure and thus subject to less interpretive bias.

Gleser, Seligman, Winget, and Rauh (1977) developed the Adolescent Life Assessment Checklist (ALAC) to be used with patient and non-patient, male and female, black and white adolescents and their parents. Forty-one statements regarding feelings and behavior with five alternative responses ranging from "never" to "almost always" were administered to three groups of adolescents:

1. 70 adolescents from an adolescent out-patient medical clinic of a general hospital;

2. 174 adolescents from an out-patient mental health clinic referral sample; and

3. 112 paid adolescent volunteers which represented a stratified, normative sample comprised of equal numbers of male and female, black and white, and age groupings of subjects (pp. 250-1).

The medical sample had significantly higher numbers of blacks and older adolescents than the mental health sample. The medical and normative samples were combined and contrasted to the mental health sample. Results were reported with gender, race, and sample source as factors.

As a group, these adolescents reported, "They had someone they felt close to; sometimes or often participated in sports and hobbies; had someone to confide in; and had satisfying contacts with the opposite sex" (p. 254). These teenagers also stated that they ". . . sometimes have arguments at home, difficulty with school subjects, headaches, difficulty sleeping, and sometimes are sad, depressed, nervous, tense, and irritable" (p. 254).

Only a small minority of the adolescents admitted to problems with drinking, smoking marijuana, taking street drugs, getting into trouble with the law, or thoughts of suicide. Results indicated significant gender, race, source, and race by source effects.

Female adolescents significantly more than male adolescents felt nervous, tense, had crying spells, and reported difficulty keeping friends. Girls reported using street drugs more often, spending more time day dreaming, lost their tempers over little things, had numerous fears, and had someone they felt close to and could confide in, to a greater extent than boys. Girls also experienced loss of appetite, stomach pains, headaches, nausea, and physical inability to go

on more than boys. Girls reported less trouble with the law and less participation in sports and hobbies than boys.

Female adolescents from the mental health sample reported more depression, sadness, thoughts of suicide, and felt more irritable and worthless than female adolescents from the medical/normative sample. There were no significant differences between male adolescents in these two samples. Nor were there any significant gender and race interaction effects.

The largest gender differences were noted in the scales reflecting affective distress, somatic complaints, and cognitive unproductivity with female adolescents having significantly higher scores. Race differences were also most pronounced in the affective areas with blacks indicating less stress.

In summary, the modal American teenager can be generally characterized as feeling confident, happy, and self-satisfied (Offer et al., 1981). Significant gender differences are reflected in a consistent finding that white girls report more affective distress, i.e., feeling lonely, sad, confused, and ashamed, than boys and reporting "decidedly negative feelings" toward their bodies.

While age ameliorates some of the difference in body-image feelings of boys and girls, the experience of adolescence is significantly different for individuals depending on their gender. Offer et al. (1981) state:

> In many ways our data can be viewed as reflecting traditional sex-role prescriptions. Pervading the boys' self-descriptions is their lack of fear, their autonomy, and their aggression. It is noteworthy that over 75% of the boys say they feel like leaders while girls affirm their concern for others and traditional moral values. It is as though, in their minds, the girls are still on the side of home and hearth, while the boys are the conquerors and achievers in the larger society (p. 98).

They conclude:

> Boys' instrumental aspirations may allow more room for psychological adoption than do girls' affiliative and nurturing aspirations. Other differences in self-image may be rooted in traditional sex-role aspirations and in the dominant status of men in Western civilization, but further studies will be necessary before firm conclusions are reached (pp. 100-101).

Adolescent Mental Health and Gender Role Orientation

An understanding of the impact of gender-role orientation on adolescent development is limited by the paucity of research on gender-role identity with this age group (Avery, 1982; Lamke, 1982; Wells, 1980;). Most gender-role research has been done with college samples and has been complicated by poor classification agreement across different gender-role inventories (Lamke, 1982; Small, Teagno, & Selz, 1980).

The gender-role orientation research area has experienced a significant amount of attention and theoretical and experimental input in recent years. Much of the work done in this area was initially generated by growing dissatisfaction with masculinity and femininity being conceptualized as bi-polar points on the same continuum and with the subsequent development of gender-role orientation inventories that measured masculinity and femininty as independent dimensions (Bem, 1974; Bem Manual, 1981; Helmreich & Stapp, 1975). Very generally, gender-role orientation research has progressed from early psychoanalytic, theoretical positions that the establishment of a traditional gender-role identity was the major task of adolescence to the contemporary idea that it is the instrumentality of the masculine gender-role that is the key variable in psychological adjustment and adaption (Jones, Chernovetz, & Hansson, 1978).

Bem developed the Bem Sex-Role Inventory (BSRI) based on the concept that a traditionally gender-typed person is someone who is aware of the cultural

definitions of gender-appropriate behavior and is consciously aware of keeping her/his behavior consistent with the appropriate feminine/masculine image. Consequently, the BSRI items were selected as feminine or masculine on the basis of cultural definitions of gender-typed social desirability (Bem, 1981).

Research by Bem and her associates in the 1970s had initially presented androgenous individuals (those having a balance of masculine and feminine attributes) as more flexible and better able to adapt to a wide variety of social and personal situations than individuals who adhered to the more rigid, traditional gender-roles (Bem, 1975; Bem & Lenney, 1976). However, more research is finding androgenous and masculine individuals to be equal on self-esteem measures and a variety of positive psychological attributes (Small et al., 1980). In research regarding psychological well-being and women, it is the masculinity variable and the instrumentality it represents that appears to be the key to the healthy psychological development and high self-esteem that androgenous and masculine women report (Del Rey & Sheppard, 1981; Jones, et al., 1978).

Nicholson and Antill (1981) investigated the personal problems of adolescents with special reference to their relationship to gender-role identity and peer acceptance by administering a series of peer preference ratings, the Bem Sex-role Inventory (BSRI), and the Mooney Problem Checklist to 164 middle class high school students in Sydney, Australia. The subjects were 40 male and 48 female eighth grade students (M age = 13.5 years) and 39 male and 37 female twelfth grade students (M age = 17.5 years). Based on previous research with adolescents on associations between gender-role identity and personal adjustment, Nicholson and Antill hypothesized that (a) girls would report more problems than boys; (b) younger adolescents would have more problems than older adolescents; (c) younger adolescents would have more problems concerning

health, physical development, and social relations than older adolescents; (d) older adolescents would have more problems concerning their future vocational and educational goals than younger adolescents; (e) peer acceptance and masculinity would both be negatively correlated to the number of problems reported; (f) femininity would be positively related to number of problems reported by girls; and (g) girls would report more interpersonal problems and boys will report more problems relating to the future.

Results indicated that girls reported significantly more problems than boys only in the twelfth grade. Eighth grade boys reported significantly more problems than twelfth grade boys and more problems than eighth grade girls, but not to a significant degree. The most problems checked across all four groups related to school work and secondly to social-psychological relations. Twelfth grade girls had significantly more problems than twelfth grade boys in social and personal-psychological areas, in health and physical development, and in social and recreational activities. Eighth grade boys had significantly more problems than twelfth grade boys with health and physical development, social-psychological relations, social and recreational activities, home and family, morals and religion, and school related items. Twelfth grade girls had one problem significantly greater than eighth grade girls involving future vocation and educational goals. Correlations of peer acceptance to problems supported the inverse relationship hypothesis only in eighth grade boys.

The negative relationship hypothesized between masculinity and problems was not substantiated by this research. The predicted positive relationship of femininity to problems was supported for both eighth and twelfth grade girls as well as a non-significant trend for femininity to be related to the total number of problems reported by boys.

Because the hypothesis that older adolescents would report fewer problems than younger adolescents was substantiated for boys, but not for girls; and because it was noted that boys remained predominantly masculine in their gender-role orientation while girls became significantly more feminine as they grew older, the researchers adjusted the grade differences in problems reported by the girls for the variation explained by the femininity variable. Reductions in the differences between the eighth and twelfth grade female groups were substantiated, except for the category of "courtship, sex, and marriage." The category of "health and physical development" problems went from a significant to a non-significant difference between groups; and in the categories in which the younger girls reported more problems, the differences between groups increased when adjusted for femininity.

These results are considered by Nicholson and Antill (1981) to give strong cross-sectional correlational support for the greater difficulties and poor mental health of the female adolescent and a strong indication that the feminine gender-role plays a significant role in the female adolescent's adjustment difficulties. These researchers, however, did not report any analysis of these results which involved the adjustment of scores based on the differences explained by the masculinity variable. The female adolescent in their sample not only became significantly more feminine, but also significantly less masculine. No analysis of this issue was reported.

Wells (1980) studied the relationship between traditional, androgenous, cross-gender, and undifferentiated gender-role identity (GRID) and psychological adjustment for adolescents. Because of the relevance of Wells' research in content and research format to this study, it is reviewed here in detail. Wells administered the short form of the Bem Sex-role Inventory (BSRI), three scales from the Offer Self-image Questionnaire (OSIQ) for adolescents (mastery of the

external world, superior psychological adjustment, and social relations), and the Rosenberg Self-esteem Scale (10 items to be rated on a four-point scale) to 103 high school students in one high school's history and sociology classes.

The sample consisted of 64 boys (M age = 16.01 years) and 39 girls (M age = 16.1 years), all of whom were volunteers, white, and from professional families. This sample represented a 93% volunteer rate.

Wells modified the BSRI for use with high school students. The rat ng scale was reduced from seven points to five because pilot study subjects found the seven-point scale difficult to use, and terms were elminated from the inventory which pilot study subjects reported they didn't understand.

Wells chose the three Offer scales and the Rosenberg measure because they represented

> . . . several facets of adjustment as well as competencies most typical of individuals with a traditional gender-role (GRID) identity (e.g., mastery of the external world for boys and social relations for girls). In this way, the test for differences in adjustment of androgenous and traditional adolescents would be made in some of the areas in which traditional individuals are believed to be the most effective (p. 62).

The specific research questions addressed were:

1. What is the difference in the psychological adjustment of adolescents with traditional, androgenous, cross-, and undifferentiated gender-role identities?

2. What is the impact of masculinity and femininity, considered separately, on psychological adjustment?

3. What is the contribution of gender-role identity over masculinity and femininity, considered separately, to psychological adjustment?

4. In addition, the effect of gender on these relationships was explored.

Masculinity, femininity, and gender-role identity scores, as measured by the BSRI, were calculated for each subject. Adjustment differences were tested for by a series of 2x4 ANOVAs with GRID and sex as factors. Each of the four

adjustment scores was a dependent variable. Each ANOVA was followed by an a posteori contrast test for significant differences between sexes by identity groups.

To assess the contribution of masculinity, femininity, and GRID, a series of hierarchical, multiple regression analyses were performed in which masculinity, femininity, and GRID were independent variables and the adjustment variables were the dependent variables. Masculinity and femininity were entered on the first step in order to assess their impact separately. GRID was entered at the second step to assess its impact over masculinity and femininity. Masculinity and femininity were treated as continuous variables, and GRID was coded as a dummy variable with masculinity, femininity, and undifferentiated as the three dummies, and androgenous identified as the omitted category. Results for boys and girls were computed separately.

The Bem sex-role inventory classified the subjects as follows:

32 androgenous:	9 boys, 23 girls
27 undifferentiated:	16 boys, 11 girls
25 feminine:	4 boys, 21 girls
19 masculine:	10 boys, 9 girls

On the mastery of external world variable, ANOVA comparisons produced one statistically significant main effect for GRID. Masculine adolescents were the highest in mastery and undifferentiated were lowest, with androgenous and feminine adolescents somewhere in between.

A posteriori contrast tests revealed two statistically significant comparisons: masculine adolescents were significantly higher in mastery than undifferentiated, and androgenous adolescents were higher than undifferentiated. Multiple regression analyses revealed that masculinity for both sexes predicts high mastery while femininity has no effect. Therefore, cross-gender role

identity is advantageous for this aspect of adjustment for girls, and low masculinity, which is the case for femininity and undifferentiated adolescents, is associated with poor mastery for all subjects.

On the social relations variable, the ANOVA comparisons produced statistically significant effects for sex, identity, and the sex by identity interaction. Girls have better social relations than boys, according to these results, and among the girls androgenous individuals have the best social relations, undifferentiated the poorest, with feminine and masculine adolescents in the middle. Among boys, feminine adolescents have the best social relations, undifferentiated the poorest, with masculine and androgenous about the same and in the middle. A posteriori contrast tests for sex and identity groups yielded several statistically significant comparisons:

1. androgenous and feminine adolescents have better social relations than undifferentiated subjects of both sexes;
2. for boys, high femininity predicts superior social relations while masculinity has no effect; and
3. for girls, high femininity and high masculinity predict superior social relations.

Therefore, androgenous and high masculinity and femininity are important for adolescent girls for social relations, but for boys high femininity is associated with superior social relations. Undifferentiated GRID is associated with poor adjustment for both sexes.

On the superior adjustment measure, ANOVA comparisons yielded a statistically significant main effect for GRID. Androgenous subjects have the best adjustment, undifferentiated the poorest, with masculinity and femininity in between. None of these groups were shown to be statistically significantly different from one another on a posteriori tests.

Multiple regression analyses reveal that for boys, high femininity is predictive of superior adjustment and the relationship between masculinity and superior adjustment approaches statistical significance. For girls only masculinity is predictive of superior adjustment. Therefore, on this measure, androgeny is essential for boys, but masculinity alone is essential for superior adjustment for girls. Wells states, "The high adjustment of androgenous and masculine girls on this measure is due to the subjects' high degrees of masculinity" (p. 68). An undifferentiated identity is associated with poor adjustment for both sexes.

On the self-esteem measure, ANOVA comparisons produced no statistically significant main effects but did yield a statistically significant sex and GRID interaction effect. For boys, undifferentiated subjects had the highest self-esteem, with masculine, feminine, and androgenous having lower and similar scores. For girls masculine subjects had the highest self-esteem, undifferentiated the lowest, with androgenous and feminine in between.

A posteriori contrast tests resulted in no statistically significant differences between group means. Multiple regression analyses revealed that among boys neither masculinity nor femininity is significant to self-esteem. For girls high masculinity is predictive of self-esteem. Wells reports, "The low degrees of self-attributed masculinity typical of undifferentiated and feminine girls is reflected in their relatively low self-esteem" (p. 68).

The addition of gender-role identity to the regression equation significantly increases the amount of variance explained in only two of the eight analyses. For girls androgeneous subjects had better adjustment than feminine subjects and the androgenous girls had higher self-esteem than the undifferentiated girls.

The following chart presents the distribution of GRID scores for Wells' high school sample and Bem's 1977 college sample.

		Wells High School Sample, 1979, N=103	Bem College Sample 1977, N=375
Boys	Mas	26%	37%
	Fem	10%	16%
	And	23%	21%
	Und	41%	27%
Girls	Mas	14%	16%
	Fem	33%	34%
	And	36%	29%
	Und	17%	20%

(source: Wells, p. 69)

These results indicate that high school boys report an undifferentiated GRID 2½ times more than high school girls and that there are 13% more androgenous high school girls than boys. A chi-square analysis of these data found the high school and college populations to be significantly different from one another, with high school and college males being more dissimilar than high school and college females.

This important study by Wells points out that the effect of gender-role identity on psychological adjustment is complex and depends upon both the gender of the respondent and the index of adjustment. When GRID is analyzed and masculinity and feminity are not considered separately,

> An androgenous identity is associated with good adjustment. Androgenous girls have better social relations than all other adolescents, and androgenous boys and girls have the highest superior adjustment of the four identity groups. In contrast to a traditional identity, though, androgenous identity confers no advantage in adjustment. There are no differences in the adjustment of androgenous adolescents and traditional adolescents. Of the androgenous and traditional groups, feminine girls rank lowest in adjustment although not to a statistically significant degree (pp. 69-70).

When masculinity and femininity are considered separately, it is the independent contribution of masculinity to positive adjustment that was essential for the females on all the dependent measures in this study.

> In sum, low masculinity and not high femininity is associated with poor adjustment for girls . . . feminine girls attempting to become more masterful, better adjusted, and high in self-esteem may not have to abandon femininity as much as add masculinity to their self-concepts" (pp. 70-71).

Lamke (1982) studied the relationship between gender-role orientation and self-esteem in adolescence. Lamke administered two different indices of gender-role orientation to her adolescent subjects in order to determine the percentage of agreement in gender-role classification for adolescents across the two gender-role measures. Females also assessed whether self-esteem differences exist between gender-role measures, whether masculinity and femininity are correlated with self-esteem, and the extent to which variance in self-esteem is accounted for by masculinity or femininity.

Lamke's subjects were 106 high school students from a northeastern senior high school; 42 in tenth grade, 43 in eleventh grade, 21 in twelfth grade. Mean age was 16.4 (age range, 15-18). All subjects completed a questionnaire packet in homeroom periods which included the Bem short form (BSRI) (modified as in Wells, 1980), the Personal Attributes Questionnaire (PAQ) short form and the Rosenberg Self-esteem Scale.

The gender-role orientation scores from each inventory are presented below:

Bem Scores:	M median = 3.90 F median = 3.99
PAQ:	M median = 3.92 F median = 4.02

The BEM and PAQ masculinity and femininity scales correlated significantly with each other. The percentage of subjects classified into the same gender-role category was only 64.1%. When corrected for chance, the percentage of agreement fell to 51%.

Differences between gender-role categories in self-esteem were assessed by ANOVA procedures. Results indicated a significant main effect for BSRI gender-role orientation, but none for sex or for sex by BSRI gender-role orientation interaction. Results for the PAQ were the same. A posteriori (Duncan's (1955) multiple range test) results for BSRI indicated that androgenous subjects had higher levels of self-esteem than masculine, feminine, or undifferentiated. PAQ results indicated that androgenous adolescents had significantly higher self-esteem than feminine and undifferentiated but did not differ significantly from masculine subjects on the self-esteem measure.

ANOVA and a posteriori contrasts were then computed separately for males and females. Results for BSRI for males indicated a significant main effect for Bem gender-role categories with androgenous males having significantly higher levels of self-esteem than masculine or undifferentiated males. Androgenous males were not significantly different in their levels of self-esteem than feminine males. PAQ results revealed a significant main effect for gender-role orientation for males, but no significant differences in self-esteem levels among the four gender-role categories were revealed in a posteriori contrasts.

For females, BSRI indices did not result in any significant main effect for gender-role orientation, but PAQ results were significant and indicated that both androgenous and masculine females had higher levels of self-esteem than undifferentiated females. Androgenous and masculine females did not differ significantly in self-esteem levels.

In considering the independent contributions of masculine and feminine variables, correlational analyses were calculated between the BSRI masculine and feminine variables and PAQ masculine and feminine variables and self-esteem. These analyses revealed that all were significantly correlated to self-

esteem. Differing results were obtained, however, when the correlations for males and females were analyzed separately.

For adolescent males, both BSRI masculinity and femininity and PAQ masculinity and femininity were significantly correlated to self-esteem. For females, BSRI and PAQ masculinity significantly related to self-esteem while BSRI and PAQ femininity did not. Multiple regression analyses revealed that both BEM and PAQ masculinity and femininity were significant predictors of self-esteem, but when computed separately for males and females, differing results, by sex were obtained. For males only BSRI femininity and both PAQ masculinity and femiiity predicted self-esteem. For females, only BSRI and PAQ masculinity significantly predicted self-esteem.

These results indicate that when masculinity and femininity are treated as continuous variables, the BSRI and PAQ measures yield comparable results and replicate findings with college students. However, when treated as dichotomous variables, i.e., by using a median split method for gender-role categorization, the number of adolescents discrepantly classified increases greatly, and differing results in research relating gender-role classification to psychological variables is obtained. For instance, in the Lamke (1982) study, BSRI results support androgeny as opposed to masculinity as indicative of self-esteem. PAQ results are less supportive of androgeny since androgenous and masculine adolescents did not differ on self-esteem levels.

Wells' (1980) research results strongly suggest that the impact of gender-role orientation would vary by sex, with masculinity and not femininity predicting self-esteem for females. These results are supported by Lamke on both the BSRI and PAQ. Self-esteem for females from highest level to lowest based on gender-role goes from masculinity to androgeny to femininity to undifferentiated.

Different results than Wells obtained for males are reported by Lamke. Wells found undifferentiated males to have higher levels of self-esteem than androgenous, masculine, or feminine males, but not significantly higher. Lamke found that high levels of BSRI and PAQ femininity and masculinity correlated with self-esteem in males with BSRI femininity and PAQ masculinity and femininity significantly predicting self-esteem for males in multiple regression analyses. Significant is the consistent finding that for females, high masculinity correlates with positive psychological adjustment and self-esteem.

Small et al. (1980) examined the relationship of gender-role typology to medical and psychiatric symptoms and personality functioning in adolescence. Subjects were 79 men and 109 women, mean age 18.3, enrolled in undergraduate psychology classes in college and high school. It was hypothesized that undifferentiated individuals would report more psychiatric symptomology--depression, in particular—as well as more physical complaints than individuals of other orientations. Androgenous and masculine individuals were hypothesized to be healthiest on all dimensions, followed by feminine individuals.

The instruments used were the BSRI, the Cornell Medical Index Health Questionnaire (CMI), the Offer SIQ for adolescents (OSIQ), and the Self-rating Depression Scale (SRDS). Results indicated that women reported more psychiatric and medical complaints and claimed, in comparison to men, to "have more concern and empathy for others, to have a well-developed sense of duty" (i.e., a better developed super-ego). Women reported being more actively involved in making plans for the future, and being more conservative in their sexual attitudes. Differences between gender-role orientation categories revealed no significant differences on the medical or psychiatric indices, but did indicate significant differences on 9 of the 11 OSIQ scales. No significant differences were found on the OSIQ morals or psychopathology scales.

Post-hoc analyses revealed the following major trends. First, in every case that reached significance, the androgenous group had the lowest mean (best adjustment) and the undifferentiated the highest (worst adjustment). Second, on 8 of 11 of the OSIQ scales, there was an increasing progression in means with androgenous than masculine than feminine than undifferentiated going from best to worst adjustment. Third, in most cases the androgenous, masculine, and feminine groups did not differ from each other, nor did the feminine and undifferentiated (p. 311).

These results, however, suffer from several methodological difficulties. In the Small et al. (1980) study, high school and college aged subjects were combined in the sample. These groups have been shown to differ significantly on the BSRI categories and this may have contributed to some of the lack of clarity between the sex-role groups in Small's results. In addition, the OSIQ is an instrument normed and developed for use with white middle class high school students, and its use with college aged subjects is of questionable validity. Finally, the Small group did not analyze its results by considering masculinity and femininity as continuous variables and consquently the significance of masculinity and femininity as main effects or in interaction with gender on self-esteem levels was not determined. The results, however, do support, in general, previous research which presents female adolescents reporting more psychiatric and medical distress than male adolescents and which reveals that androgenous and masculine adolescents function at the highest levels of psychological functioning while undifferentiated adolescents report the poorest psychological adjustment.

Avery (1982) addressed the relationship between gender-role orientation and loneliness in adolescents using the BSRI short form and the UCLA Loneliness Scale with 225 juniors and seniors in high school. Subjects ranged in age from 12

to 18 (mean average, 14.66). Specific research topics were to assess if differences in loneliness exist between gender-role categories, whether masculinity and femininity are correlated with loneliness, and the extent to which variance in loneliness is accounted for by masculinity and femininity. The Loneliness Scale consists of 20 self statements concerning satisfaction with interpersonal relationships which subjects answer using a four-point rating scale. Avery's results indicated that when males and females are combined, the androgenous and masculine gender-role orientations are most indicative of positive adjustment, i.e., these individuals are less lonely than individuals of the other gender-role orientations. When the sexes are considered separately, androgenous males are significantly less lonely than feminine and undifferentiated males and masculine males are less lonely than feminine males. Androgenous and masculine males are not significantly different on this loneliness measure.

For females the results are less clear. Results revealed only that androgenous females were less lonely than undifferentiated females. Androgenous, masculine, and feminine females did not differ on this loneliness measure. Males were significantly more lonely than females.

These results are somewhat confusing. The authors question whether the smaller sample of females (88 to 137 males) was partially responsible for the lack of clearer findings for women. They also question whether the greater percentage of androgenous females to androgenous males (37.5% to 17.5%) may have affected the results. Another possible consideraton is the use of the BSRI which in the Lamke (1982) study would have led to the conclusion that self-esteem differences existed between categories for males only while PAQ results would have revealed the reverse. Another problematic aspect of this study is the use of a the BSRI unmodified for the high school subjects. In addition, the

psychological variable (loneliness) was defined by the subjects' responses to questions about their satisfaction with their interpersonal relationships. This is a traditionally feminine high esteem area and several researchers have previously noted that females generally perceive themselves more positively than males on issues regarding interpersonal relations, sociability, and affiliation (reviewed in Offer et al., 1981). However, on indices of sadness, loneliness, and vulnerability, females generally score higher than males. The results of this research showing men lonelier than women may, in fact, be an artifact of the index of self-esteem used in this study.

Summary

The literature reviewed in this section reveals that the typical adolescent copes well with her/his life's challenges and makes a relatively smooth adjustment into adulthood. Adolescent girls are characterized by more psychological distress than are boys, with more feelings of loneliness, sadness, intellectual confusion, and feelings of shame about themselves emotionally and physically.

The feminine gender-role has been linked to the psychological difficulties of women. The research on adolescent girls in regard to gender-role identity and their psychological well-being supports the idea that an androgenous gender-role identity is indicative of high self-esttem for adolescent girls and, in particular, that high masculinity correlates with positive psychological adjustment for women in this age group.

Women, Physical Activity, and Gender-Role Orientation

Research on adolescent girls and physical activity is extremely limited. Psychological studies in the area of physical activity have been done primarily

with male college athletes. The research on women has been done primarily with female college athletes or outstanding women in national, international, or Olympic competition (Duquin, 1979; Harris, 1972; Kaplan, 1979; Metheny, 1965; Oglesby, 1978; Snyder & Spreitzer, 1978; Williams, 1978; Zoble, 1972).

Williams (1978) reviewed research on the psychological characteristics of the "proficient" female athlete. Williams reviewed only those studies in which the Cattell 16 Personality Factor Test (16PF) and/or the Edwards Personal Preference Schedule (EPPS) was used to measure psychological variables. Noting that caution should be used in generalizing her findings which came from the limited number of available studies, Williams states that the "successful female competitor generally tends to be more assertive, dominant, self-sufficient, independent, aggressive, intelligent, reserved, achievement-oriented, and to have average to low emotionality" in comparison to the "characteristically normative female" (p. 253). A cross-cultural study of American and Hungarian Olympic athletes by Balazs (1977) also revealed "several identical patterns in the developmental dynamics of these two groups: all the girls talked about themselves as energetic and very active children . . . with an early and strong "desire to excel" and a desire and enjoyment of physical movement (p. 109).

In research, however, that compares female athletes to their non-athlete counterparts (usually collegiate samples), many researchers note the similarity between these two groups (Dayries & Grim, 1970; Landers, 1969). Malumphy (1967), in a study of college female athletes in individual, team, subjectively-judged, and in both team or individual sports, reported differences and similarities between these athletic groups and non-participants. Results revealed that individuals in these sport team categories seemed to be differentiated by those characteristics which would logically correlate with the

different sport experiences. Malumphy reports, for instance, that the characteristics which differentiate the individual and subjectively-judged sport groups are those which seem necessary for independent and autonomous action, i.e., less anxiety, more tough poise, more extroverted and venturesome than team and non-participants. The team sports group was defined as having less leadership and more anxiety than the former sports groups, but more tough-mindedness than the non-participants. The non-participants were described as very similar to the athletes, but with low scores on some of the variables that would seem to coincide with the competitive drive of the athlete groups.

Snyder & Spreitzer (1978) report a series of studies that they conducted in the late 1970s concerning women in sports, with a primary emphasis on the analysis of any objective or subjective role conflict that athletics may represent for the female. In a 1975 study, they collected data from a cross-section of over 500 adults sampled from the general population. Their data results indicated that certain sports were considered enhancing to a girl/woman's feminine qualities (swimming, tennis, gymnastics) while others were considered to detract from her feminine qualities (softball, basketball, and track).

College women participating in intercollegiate championships revealed a similar rank perception of the stigma of varying athletic events for the participants, although those women who were participating actively in sports were much more favorable in their perceptions of sports as appropriate for females than was a control group of non-athletes. Sixty-five percent of the non-athletes in the control group felt that athletics detracted from a woman's feminine qualities, while 56% of the basketball players sampled, 50% of the track and field participants, 40% of the swimming and diving participants, and 31% of the gymnasts felt that to be true of their sports experience.

In another study, Snyder and his colleagues (1975) collected data measuring female athletes and non-athletes' attitudes toward various parts of their bodies and their self-perceived femininity. They also analyzed the height and weight of female athletes in national collegiate athletic competition in comparison to a group of non-athletes. Results of these studies revealed that female athletes had more positive feelings toward their bodies than did non-athletes, that there were very few differences between female athletes and non-athletes on their self-ratings of femininity, and that there were no significant differences between the height and weight of the female athletes and non-athletes. In addition, comparison between a group of athletes competing in women's national intercollegiate championships in gymnastics, basketball, track and field, swimming and diving, and a group of collegiate female non-athletes found that the athletes felt generally in good spirits and satisfied with life to a greater degree than non-athletes.

In conclusion, Snyder and his colleagues' research resulted in no support for the theoretical position that sports activity is psychologically stressful for women. In addition, except for some of the negative stigma noted, sports activity appears to be a self-enhancing experience for the female participant.

Kukla and Pargman (1976) conducted a study to investigate the self-perceptions of females in varsity as opposed to intramural sport activities. Using interview techniques and content analysis, these researchers compared a group of 15 collegiate varsity female athletes with a group of 15 intramural collegiate athletes on their responses to questions which asked for their personal perceptions of how their involvement in athletics has affected their lives.

Additional questions asked the athletes to express themselves on society's view of sports as a masculine activity and on any comparisons or contrasts between "the way you are when you are involved in athletics and when you are

not." The subjects' written and verbal responses were audiotaped and then evaluated by naive judges using an evaluative rating instrument developed by the researchers. The judges found that varsity athletes identified more personal growth statements in response to what athletics meant to them (self-awareness, confidence, self-expression) than intramural athletes who stressed physical factors (appearance, health, etc.). Varsity athletes also responded verbally as having greater concern with how others viewed them than the intramural group. Ninety-seven percent of all subjects reported differences between their "sport self" and "social self," indicating that they felt a higher social interest (feel closer to others, greater cooperation, friendlier, etc.) and greater achievement orientation (competitive, sense of accomplishment, leadership, etc.) while involved in athletics.

How the subjects felt about their particular levels of four traits--aggression, dominance, stamina, and risk taking—was evaluated. No significant differences are reported, but the researchers state that the varsity group indicated high levels of aggression and moderate levels of dominance compared to moderate and low levels of these traits, respectively, for the intramural athletes. The researchers report the groups responded similarly to their self-perceived levels of stamina and risk-taking, but no levels are reported. This study seems to support the idea that athletics at the varsity level may have some negative consequences in terms of the athletes' perceiving others as viewing them negatively, but in general athletics at both varsity and intramural levels seem to be related to physical and emotional well-being.

There have been some researchers who have attempted to analyze differing gender-role orientations for women in various sport activities and at varying levels of sport competition (Clark, 1980; Malumphy, 1971) and others who have

claimed to have revealed an "apologetic"* present in the high femininity scores of some female athletes. Snyder and Kivlin (1977) studied the responses of collegiate athletes versus non-athletes on questionnaire items that were designed to measure orientations toward the female role in the family and employment outside the home. They found that on all eight questions, the athletes registered more traditional responses than the non-athletes. The researchers comment that the non-traditional role of the woman in athletics does not seem to spill over into all aspects of the gender-role.

However, the most predominant result of the more recent studies of gender-role orientation of female athletes which use gender-role inventories specifically designed for the measurement of this variable reveal that collegiate female athletes do differ in gender-role orientation from their non-athletic counterparts. Collegiate female athletes are generally found to be androgenous, i.e., more masculine than non-athletic females who most often present as feminine on the gender-role inventories. Helmreich and Spence (in Harris, 1978) using the Personal Attributes Questionnaire (PAQ) found female athletes, as well as women scientists and engineers, to be primarily androgenous and masculine in rank order. Myers & Lips (1978) used the Bem sex-role inventory (BSRI) and found the largest percentage of women entrants in a Canadian national raquetball championship were classified as androgenous. Peake (1978) studied female English, engineering, and physical education majors in college and found them to be primarily feminine, masculine, and androgenous, respectively.

Duguin (1977) gave the BSRI to male and female physical education majors and athletes and found males to be predominantly masculine and females to be

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*Women in sports not conforming to the sterotypical view of the female role (softball and basketball) espouse more traditional views of women's social role than those women in sports which do conform to the stereotypical view of women (tennis and swimming) (Del Ray, 1977, pp. 219-220)

predominantly androgenous. Uguccioni and Ballantyne (1980) gave the BSRI to 83 female varsity athletes, 192 females active in recreational sports, and 58 non-participants in athletics. Results revealed that varsity women athletes were more androgenous and masculine in a gender role orientation, recreational participants were mostly feminine, and non-participants were mostly feminine and undifferentiated.

Research by DelRay and Sheppard (1981) found androgeny and masculinity to be the predominant gender-role orientations of 192 female varsity athletes. In summarizing their research findings, they reflect as well on the general findings of research related to gender-role orientation, the female athlete, and psychological well-being and self-esteem measures:

> The most significant result is that androgenous subjects had significantly higher self-esteem than the feminine and undifferentiated subjects. Masculine subjects had significantly higher self-esteem than undifferentiated. Results indicate that, overall, the subject's masculinity variable correlated highest and significantly with self-esteem . . . further analysis revealed that neither the absence of masculinity nor the presence of femininity predicted self-esteem . . . (pp. 171-3).

Helmreich and Spence (in Harris, 1978) suggest that "female athletes don't 'suffer' a deficit of femininity—rather high achieving women in science and athletics are more likely to possess masculine and feminine attributes more often than male athletes" (p. 42). DelRay and Sheppard (1981) further state: "Women who are stereotypic are operating with an impoverished model with regard to self-esteem. It is the addition of characteristics associated with masculinity which are essential . . . athletics appears to be an environment which may promote characteristics defined as masculine for women" (p. 173).

The question of whether the "masculinization" of athletic women results in physical characteristics that may be detrimental to their appearance and how they are perceived by others was investigated in an interesting study by Atkins,

Morse, and Zweigenhaft in 1978. These researchers investigated a stereotype of women athletes. They predicted that college students would have a slightly negative stereotype of women athletes, would see them as unattractive and masculine, and that in attempting to identify athletes they would tend to select less attractive women.

In a series of three studies, these researchers asked three different groups of randomly selected college males and females to, first, rate the "female athlete" on 17 bi-polar adjectives presented on seven-point Likert scales; second, rate 34 head and shoulders pictures of collegiate females according to attractiveness, 10 of which were pictues of varsity female athletes; and, third, pick out the female athletes' pictures from the 34 pictures mentioned above. Mean scores differing by more than one point from four (neutral) were considered a shared stereotype.

Study 1 revealed a shared stereotype of female athletes who were perceived to be "healthy" rather than "sickly," "leaders" rather than "followers," "strong-willed" rather than "weak-willed," "brave" as opposed to "cowardly," and "strong" rather than "weak." Two other ratings indicated that female athletes were judged to be "slightly" masculine and "unattractive" but not enough to constitute part of the shared stereotype.

Study 2 results indicated that there were no significant differences between attractiveness ratings of female athletes and non-athletes. Significant differences were noted between the ratings of males and females and between those subjects who had a male versus female experimenter. Males judged the pictures to be significantly more attractive than females, and those subjects with a female experimenter judged the pictures to be less attractive than those subjects who had a male experimenter. The researchers note in their conclusions

that the female experimenter was an extremely attractive young woman and possibly made the photographed women appear less attractive by comparison.

In the third study, female subjects were able to choose accurately the female athlete 60% of the time and male subjects 50% of the time, which are results significant far beyond chance. Results were the same with either male or female experimenters. Attractiveness ratings for women selected as athletes were not significantly different from those women not selected. When subjects did not choose the correct woman as the athlete, 60% of the time the picture selected was rated as more attractive than the true athlete. The woman rated most attractive was selected as athlete 31 times while the woman rated least attractive was chosen as athlete 32 times. The conclusion of these researchers is that women who participate in athletics are recognizable, but are no less attractive than other, non-athletic women.

In summary it appears that women who are active in athletics also have attributes of high self-esteem, psychological well-being, and an androgenous gender-role identity. Little or no negative consequences seem to result from women's athletic activities or from the high masculinity inherent in their gender-role orientation.

High School Adolescent Women, Physical Activity and Gender-Role Orientation

Snyder and Spreitzer (1978) report several studies on the psychological correlates of sport involvement for high school aged females. In 1975 these researchers sent questionnaires to Ohio high school junior and senior female athletes in gymnastics, basketball, and track. These specific sports were chosen because of their well-established place in high school athletic programs and because they represented differentially socially-sanctioned types of athletic activities for females.

Five hundred athletes received questionnaire packets which included second questionnaires to be independently completed and sent in by friends of the athletes who were not active in any organized athletic programs. Through this technique, the researchers established a control sample for a first study comparing athletes and non-athletes and obtained a comparison group of high school female musicians which was used in a second study and compared to the high school female athletes.

In the first study, the responses of both the athletes and non-athletes to questions concerning their socialization into sport, their self-perceived femininity and athletic ability, and certain aspects of their body images were compared. The results which appeared to differentiate between the groups were:

1. athletes started their sport participation early in life (at elementary school age);

2. basketball players were more likely to have been called "tomboy" in their early lives than gymnasts or track and field athletes;

3. only 21% of the athletes received encouragement for their endeavors from their male friends but received considerable encouragement from their girl friends, family, teachers, and coaches;

4. seventy percent of gymnasts, 58% of non-participants, 56% of track and field athletes, and 44% of basketball players perceived themselves as very feminine in comparison to other girls; and

5. a strong positive relationship existed between self-perceptions of athletic ability and sport participation and the body image variables surveyed (energy level, body build, waist, bust, profile).

In the second study using these same athletes and the comparison group of high school musicians, Snyder and Spreitzer (1978) studied between-group differences on several psychological attributes. The data analysis included comparisons among high school girls who were athletes only, musicians only, both athletes and musicians, and non-participants in both activities. Parental socioeconomic status was used as a control variable.

Those results most pertinent to the present study were that parental encouragement for the female athletes was as high (or higher from fathers) as was parental support for the female musicians. Also, the high school female athletes scored as high as the musicians and non-participants on questionnaire measures of psychological well-being. Snyder and Spreitzer (1978) concluded that their research does not support the position that being female and an athlete leads to dysfunctional psychological effects due to the conflict between these two contradictory social rules for high school girls.

In 1979 Nicholson conducted a study for the purpose of comparing some self-perceived characteristics between junior high school female participants and non-participants in athletics. Nicholson developed a questionnaire which she claims approximates a short form of the Gough and Heilbrun Adjective Checklist (1965) and which asks the subjects to describe themselves by responding to certain characteristics on a four-point rating scale (some sample adjectives: ambitious, competitive, independent, strong).

Athletic participation was defined as any involvement in formal sports programs in school, a private club, or the general community. Nicholson's sample consisted of 271 participants and 231 non-participants. Results revealed significant between-group differences on self-perceptions, i.e., ambitious, competitive, strong, and fast being associated with athletic participation. When socioeconomic status was controlled for using father's occupation as the control variable, the between-group differences were reduced. Participants had higher percentages on these characteristics than non-participants within each occupational status. The characteristics feminine, affectionate, sensitive, gentle, and attractive revealed no significant group differences.

These findings revealed group differences, but also raised the issue of the interaction effect between these characteristics and socioeconomic status. In

addition, the researcher noted that the adjectives associated with sport participation are characteristically associated with masculine attributes. This suggests that with continued female athletic involvement in sport, one may find a convergence of self-perceptions by male and female athletes.

Kelly (1969) analyzed the personality characteristics of female high school athletes in comparison to non-participants. Two hundred nine high school female athletes from the 1967 Iowa state tournaments in basketball, softball, golf, and track and field; 206 non-participants; and 68 graduated athletes were included in this study.

Results revealed high school athletes to be significantly higher than non-participants on the California Psychological Inventory (CPI) traits of dominance, sense of well-being, and socialization and on traits of sociability and self-acceptance. Non-participants were significantly higher than athletes on the femininity trait. When the CPI personality profiles of the athletes and non-participants were graphed and compared with a CPI high school female normative sample, the athletes followed the same pattern as the norm group but tend to be somewhat higher. The non-participants tend to fluctuate both above and below the high school norm.

Kelly's (1969) analyses revealed differences between those athletes in individual sports in comparison to athletes in team sports. High school female athletes in individual sports were significantly higher than team sport athletes on measures of sociability and self-acceptance and on traits of dominance, capacity for status and social presence.

When groups of college women, athletes and non-athletes, physical education majors, and general college students, and former participants and non-participants in high school athletic competition were compared on the Tenessee Self-Concept Scale, the former high school participants scored higher in total

self-concept than all the other groups, but not significantly higher than the physical education majors (Vincent, 1976). This result was also true for the subscale self-concept items except for the category of moral-ethical self in which the higher scores of the high school and physical education groups did not reach significance. Rohrbaugh (1979) suggests that these findings indicate that "sports may foster self-confidence and identity, especially when they are a part of the (high school girl's) adolescent growth experience" (p. 41).

In a 1978 study by Harris, male and female high school basketball players were compared on measures of gender-role orientation and fear of success in a one-on-one competition basketball shooting performance task. The gender-role orientations of this high school sample, as measured by the PAQ, were:

71 Female Athletes	62 Male Athletes
34% = feminine	32% = androgenous
24% = androgenous	27% = masculine
24% = undifferentiated	24% = undifferentiated
15% = masculine	14% = feminine

Harris suggests that her results could indicate her subjects' still undeveloped gender-role identity and/or the fact that her feminine female basketball players do not find their sport to be in conflict with their gender-roles. In comparison, Wells' (1980) sample of high school adolescents scored as follows on the BSRI:

64 Females	39 Males
36% = androgenous	41% = undifferentiated
33% = feminine	26% = masculine
17% = undifferentiated	23% = androgenous
14% = masculine	10% = feminine

Nicholson and Antill's 1981 Australian sample on the BSI scored as follows:

Females		Males	
Eighth Grade	Twelfth Grade	Eighth Grade	Twelfth Grade
31.3% = und.	56.8% = fem.	37.5% = mas.	38.5% = mas.
29.2% = fem.	24.3% = and.	27.5% = and.	25.6% = and.
29.2% = and.	13.5% = und.	25.0% = und.	23.1% = und.
10.4% = mas.	5.4% = mas.	10.0% = fem.	12.8% = fem.

A comparison of the above samples reveals that the athletes in Harris' study resemble the Australian twelfth grade adolescent girls in Nicholson and Antil's 1981 study in terms of gender-role identity, with the majority reporting a feminine gender-role identity. The high school female athletes did not report the androgenous gender-role identity of either their collegiate counterparts or Wells' (1980) high school female subjects.

Summary

In general the literature suggests that high school girls in vigorous physical activities share the psychological well-being and positive mental health of their collegiate counterparts. The gender-role identity of these high school athletes is less clear, with some research supporting their traditionally feminine values and with some support for their espousing less feminine traits than their non-athlete peer groups. Also, the relationship among adolescent female development, physical activity, and gender-role orientation remains largely unexplored.

The Adolescent Female and Attrition in Physical Activity Research

In 1940 Baker undertook a study to find an explanation for the "unusual resistance" to team sports and physical education experiences in general of most

girls and women who have passed adolescence. In a survey that included 1150 subjects between the ages of 15 and 25, Baker asked her respondents for information concerning their activities for the past year; their height, weight, age, age of menarche; as well as their attitudes toward physical education activities.

Based on the survey data, Baker concluded:

1. subjects showed unquestionable preferences for activities which are not physical education;

2. the preferences in physical education were not typical school activities;

3. preferences in physical education were characterized as non-competitive, individual, and unsupervised;

4. amounts of participation in physical education varied inversely with chronological age. Decrease in participation is a gradual process, accelerated slightly in the beginning and tapering off as age increases;

5. girls who reached the menarche after 15 participated more extensively in physical education activities than those who reached it earlier;

6. environmental influence was discernible in participatory habits; school environment seemed conducive to larger participation; non-academic to smaller;

7. the range of participation was small and was concentrated in a few activities.

8. familiarity with an activity tended to increase participation in that activity;

9. the origin of learning physical education activities did not influence voluntary participation in them;

10. deviations in bodily weight had no apparent influence on participation in physical education;

11. participation in physical education activities was not affected appreciably by appearence in gymnasium costume or capability associated with participation;

12. extra-class team membership did not condition participation;

13. the greater the temporal deviations from the menarche, the smaller the amounts of participation in physical education. It seems to be the increase in chronological age, which parallels these deviations, however, which colors the results;

14. the greatest number attended movies; this was larger than in any other activity. The smallest number participated in an activity which was designated as physical education;

15. the percentage which swam was larger than in any other physical education activity; and

16. expenditure of time tended to be concentrated in one physical education activity.

Baker concluded that the voluntary physical activity patterns of females in the 1940s seemed largely unpremeditated, capricious, and minimal.

During the 1950s, research was providing data indicating that adolescent boys made rapid and steady improvement in strength from 13 to 16 years of age while girls evidenced a rapid increase in strength from ages 12 to 14 and then an abrupt decline at 15 years and after (Vincent, 1968). Girls' general motor ability was shown to not improve after age 14, while boys' steadily improved from age 8 to 18. Girls' agility was similarly perceived in relation to boys'.

Some researchers theorized that females would be less ego-involved and have less social support for maintaining and/or enhancing their physical abilities and activities than males whose social/gender-role perceptions include the need for achievement and motivation for success on motor ability tasks (Harris, 1972; Sherriff, 1971; Tyler, 1973; Wyrick, 1971). Noting research that related grip strength to physical activity level and a positive attitude toward physical activity, Wyrick (1976) reports that "the decreased interest that adolescent girls exhibit in physical performance causes them to become problems as subjects of scientific investigation where fitness and skill parameters are to be explored" (p. 26).

Tyler (1973) reported that while it seems clear that the adolescent girls who drop out of athletic endeavors in early adolescence suffer in terms of motor ability because of their lack of participation, it remains a question as to why females drop out if they have experienced success in the sport world. Tyler points out that female athletes are shown to possess favorable personality traits and a favorable sense of psychological well-being. She consequently suggests that sport participation and vigorous physical activity represent an adolescent crisis for the female whose female adolescent status becomes increasingly linked to her femininity which is not culturally linked or congruent with her physical activities.

Tyler points out in particular that the female's more passive-social role adoption inhibits movement experience and reduces motor skills and training which leads to a lack of movement vocabulary and enhances a sense of physical inadequacy. In addition, success in athletic endeavors has been considered by some to lead to an adolescent identity crisis when the adolescent girl's pre-pubertal experiences involved success and fulfillment in these culturally defined "masculine" activities (Bardwick, 1971). This athletic experience is hypothesized to make it very difficult for the adolescent girl to assume a clearly feminine gender-role identity and preference for the feminine role. She will identify herself as female, but she will also have learned that she is capable of achieving success and self-esteem in the competitive and aggressive modes of athletics. This theoretical framework suggests then that the female adolescent who is ceasing her physical activity is resolving the dissonance between her pre-adolescent physical activity and her adolescent feminine gender-role and not because of physical inability or innate lack of a predisposition to athletics (Tyler, 1973). It seems logical to assume, therefore, that giving up physical activity would result in negative psychological consequences for the adolescent female

who would be sacrificing a significant source of her identity and self-esteem for the purpose of fulfilling her socially sanctioned feminine gender-role orientation. No research to date has explored this issue.

While women's current involvement and achievement in sports and athletics refutes in itself the view that woman's physical abilities necessarily decline in adolescence, there was research done in the late 1960s which addressed this issue. In 1968 Vincent assessed the motor skills of 300 women ranging in age from 12 to 18 years and from grades seven through freshman year in college. Using a standardized testing program (Greensboro Experimental Testing Project), all subjects were tested on tasks of agility, running, coordination, speed, jumping skills, through catching and arm and shoulder strength.

Results revealed age group differences in both the positive and negative direction that refuted the general plateau and decline theory about motor skills for females. This researcher notes that since the "decline" studies of the 1950s and her study in 1968, there had been significant changes in the cultural expectations for girls which included more acceptance of sports for girls and greater opportunity for physical activities. While Vincent's statement may, indeed, be the case, Sherriff (1971) provided additional support for the existence of a negative sanction of athletic participation for high school girls, especially from their male peers. In her study Sherriff found that parents and high school girls did not find female athletes unfeminine, but did think that athletic activity was "better suited to the physical make up of the male" (p. 33). One-half of the high school girls sampled felt that competitive sports developed "masculine" mannerisms and attitudes while a majority of the high school boys said that intensive sport participation brought out undesirable qualities in girls.

Another study in 1966, using the same survey instruments as Sherriff with a college-aged population, found college males much less critical of athletics for

women and revealed college women and men to have a generally positive attitude toward women and athletics. This suggests that for high school girls, athletics or physical activity may represent a risk for their relationships with boys and their identity that does not exist for the collegiate female.

Support for this suggestion is provided by Feltz (1978) in her study of athletics in the status system of female adolescents. Feltz's research was a replication of an earlier study which did not include the category of athletics for girls because there were no interscholastic games available for the girls he studied in 1961.

Of seven criteria for status, being an athlete ranked fifth among Feltz's (1978) 258 high school girls as a criterion for popularity with both male and female peers. Being in the leading crowd, being a leader in activities, being a cheerleader, and clothes were ranked one through four, respectively, by the girls as criteria for popularity among girls. Being in the leading crowd, being a cheerleader, clothes, and being a leader in activities were ranked one through four as criteria for popularity among boys.

Because these same subjects indicated that they would choose athletics over any other activity, study hall for study, and study hall for other purposes if they had an extra hour in school, Feltz concluded that girls enjoyed athletic participation, but may still have had fears of the "jock" label that they perceived went with serious competitive athletics.

Contemporary research on the high school adolescent who drops out of athletics was conducted in Michigan in the late 1970s. The Joint Legislative Study on Youth Sports Programs (1976) conducted an assessment of the participation of Michigan school children between the ages of 5 and 17 in recreational or free-play activities, intramural activities, interscholastic activities, and agency-sponsored activities. In phase one of this three-part

study, a representative sample of Michigan's school population was determined in terms of (a) geographic location, (b) population density, (c) school district size, (d) socioeconomic status, (e) ethnic background (f) age, and (g) sex (p. 36). The sample consisted of over 93,000 subjects. Youth participation patterns in physical activities by age and sex and drop out information were provided in this study.

During 1975-6 in 15 of the most popular agency-sponsored sports programs, over 300,000 young people participated in each of the sports of baseball, softball, swimming, bowling, and basketball. These figures are based on a total reported enrollment of 2,313,477. The total number of female participants was 46,490 or nearly one-half of the total sample. The sports activities chosen by girls were, in rank order: softball with 228,000 participants (this equals one of every five girls in Michigan), swimming with 180,000 participants (one of six girls), bowling with 143,000 participants (one of eight girls), basketball with 116,000 participants (10% of all girls), and gymnastics with 111,000 participants.

The researchers were surprised to also find 75,000 girls played baseball, 50,000 in soccer, 34,000 playing flag football, and 28,000 girls played tackle football. Girls were also involved in wrestling (1.7%), weight lifting (1.2%), karate (1.7%), judo (1.0%), ice hockey (.9%), and boxing (.8%). In comparison to boys, girls' participation is lower, but the extent of participation by girls was much higher than anticipated.

Female participation patterns by age differed somewhat from males and across sport activity. The researchers noted that female participation patterns were not as readily grouped across ages by sport group as were males, and they speculated that this may be due to the current rapid state of flux of female sport participation. Most of the sports participation by girls revealed peak incidences at 12 or 13 years of age with progressive increases preceeding and rather steady

declines following the peak years. These data revealed that the peak incidence in sports participation is similar for girls and boys. Since girls mature earlier and previous work had indicated that girls decrease participation after puberty, it was expected that girls would reach their peak levels of participation earlier. In fact, for some sports girls peak participation was at 15 (downhill and water skiing) and later than boys (softball, tackle football, gymnastics, and tennis). Male participation patterns show a progressive increase up to ages 11, 12, and 13 with the peak years of participation being 11 through 14. After this male patterns show a general decline through age 17.

In 1977 phase two of the joint legislative study presented some background on the sport participants. Boys were introduced into their sports earlier than girls, usually at ages eight and nine while girls reported beginning their activities at age 10. Most boys and girls were introduced into sport through recreational play (49%), followed by agencies (23%), private lessons (14%), physical education classes (8%), and intramural and interscholastic sports (3%).

The youth who participated in sports generally rated their abilities highly, but boys rated their abilities "above average" more than girls (38% to 29%). Most of the athletes and their parents considered sport participation to have a positive effect on the youngster, although parents rated sports more positively for their children than did the participating children.

Those attributes considered positively affected by sports participation by the athletes were, in ranking order, performance effort (83%), skill level (79%), sportsmanship (78%), physical condition (69%), and self confidence (68%). Less than one-half of the athletes felt that their sport participation had a positive effect on learning to control their feelings and emotions (43%) or on improving their relationships with their peers (42%).

A comparison of athletes to non-athletes was made concerning the relative efforts of sport and non-sport activities on social and personal attributes. The effects of non-sport activities for non-athletes was reportedly positive on performance effort (73%) and self confidence (68%). Like athletes, less than one-half of the non-athletes felt that their activities had a positive effect on their emotional control or their relationships with their peers. Also, school grades and sibling relationships were considered positively affected by the least number of subjects in both groups.

The major difference seemed to be that more athletes saw their sport activities as enhancing their sportsmanship while less than one-half of non-athletes saw their non-sport activities doing so. Non-athletes more than athletes felt that their activities enhanced their school grades. Very little gender difference within these groups was noted. The researchers state,

> "When differences (between the sexes) did occur, a greater portion of the males than the females ascribed positive or negative effects. The tendency to assign positive values to youth sports programs was also greater among the parents of male athletes than among parents of female athletes" (p. 61).

Several studies were conducted at Michigan State University following the joint legislative study regarding the reasons for the attrition rates noted in youth sports. Gould, Feltz, Horn, and Weiss (1982) surveyed 50 swimming drop outs ranging in age from 10 to 18 years in order to determine why these competitive swimmers dropped out and to ascertain if the reasons differed as a function of sex, age, or past swimming experience. Twenty-nine male and 21 female swimming drop outs (average age, 14.74 years) were surveyed; 27 had previously swum for high school teams and 23 in non-school club programs. On the average, these swimmers had begun competitive swimming at age 11 with some as early as five years and some as late as 16. The average age when they dropped out was 13.62 and ranged from 8 to 18 years.

All subjects were asked to rate 32 reasons for discontinuing involvement on a Likert type scale. These results were rank ordered, means computed, and how the subjects rated each item according to each of the Likert scale ratings was presented. Reasons rated as very important to dropping out were:

42% of all subjects = "I had other things to do."

24% = "I was not as good as I wanted to be."

28% = "I didn't have fun."

16% = "I did not like the pressure" (p. 7).

Reasons of least importance were "I was too old; I didn't travel enough; my parents and friends didn't want me to swim; I wasn't able to use facilities and equipment enough."

Gender differences were found in that girls significantly more often than boys rated "I did not like the pressure" as an important reason for dropping out. Age differences were analyzed after dividing the subjects into two groups, ages 10-14 (n=29) and 15-18 (n=15). Significant age differences were found. The older group rated no teamwork, parents or friends did not want me to swim, not enough challenge, and injured as more important than the younger group for dropping out. Younger drop outs rated other things they do as a more important reason for dropping out than the older group. In terms of years of participation, the greater importance put on not being with friends by swimmers with less experience (0-2) years than swimmers with more experience (3 or more years) was the only significant difference between these groups.

Interview findings revealed that 68% of these swimmers had participated in other sports since dropping swimming and 80% indicated they "planned" to compete in organized sports that year. Consequently, Gould et al. (1982), obtained results that refute the contention of several other major studies that

the majority of athletic drop outs are discontinuing sport participation completely.

The relationship of perceived competence and length of involvement in sport for sport participants and sport drop outs was investigated in two studies by Feltz and her colleagues (Feltz, Gould, & Horn, 1982; Feltz & Petlichkoff, 1983). Noting that "the sense that one has the ability to master a task" is thought to be an important determinant of participation motivation, these researchers administered the Harter Perceived Competence Scale for Children (1979) to 148 males and 172 female swimmers, ages 8 through 19 (average age 13.47) and a drop out sample of 29 male and 21 female former swimmers, ages 10 through 18 (average age 14.74). A drop out was defined as a youth who had swum for two years and still could, but was not swimming at the time of the data gathering. Also administered was a questionnaire which assessed "reasons for discontinuing involvement" in swimming. Each subject was also interviewed for more indepth information on why the child discontinued involvement.

The perceived competence scale is comprised of four subscales: (a) cognitive competence, (b) social competence, (c) physical competence, (d) general self-esteem. Results revealed a significant participation status by gender interaction which indicated that male drop outs had a significantly higher perceived physical competence and general self-esteem than female drop outs. Females were found to be higher in perceived social competence. In correlations controlling for age, there was evidence of a low but significant relationship between years of swimming and both social and physical perceived competence.

A second study (Feltz & Petlichkoff, 1983) to investigate whether these results with swimmers would generalize to different school-sponsored sports was conducted. It was found that sports participants were higher in perceived physical competence than were sports drop outs, but the differences found

between male and female swimming drop outs in study one were not found in study two. There was, however, an overall gender difference in that males had higher scores than females on the perceived physical competence scale.

The drop outs from school-sponsored sports ranked "having other things to do" first from a list of 32 reasons for discontinuing sports. "Not having skills improve" and "not being as good as they wanted to be" were considered third and fourth in rank by 47.8% and 52.1% of the drop outs, respectively. The authors suggest this to mean that "a large percentage of the drop outs thought they lacked the physical competence to improve in their sport" (p. 11). Female swimming drop outs stated more often than male swimming drop outs that they disliked the pressure and also did not continue in another sport (43% to 28%). However, in school-sponsored sports, more male than female drop outs had discontinued all sport participation.

Dishman (1982), in a review of research in the area he defined as "behavioral involvement and exercise adherence in sport psychology," presented several investigations of the psychological differences between eventual adherents and drop outs of exercise programs. Dishman reported that no differences on psychological measures of attitudes toward physical activity, self-perceptions of physical abilities, or feelings of health responsibility were found between adherents and non-adherents. Dishman noted that one study suggested that the drop outs may be lower in self motivation than the adherent in a preventive health exercise setting.

Sonstroem and Kampper (1980) attempted to predict athletic participation for middle school-aged boys. They administered the Physical Estimation and Attraction Scales (PEAS) and the Bialer's Locus of Control Scale for Children (1961) to 212 non-participants in athletics and to 181 participants in flag football and cross-country (91 and 57, respectively).

The PEAS was designed to measure self-perceptions of physical ability and interest in vigorous physical activity. Both the PEAS and the locus of control scales discriminated between the groups of initial participants and non-participants in this study. High estimates of one's abilities and high interest in physical activity, as well as an internal locus of control score, correlated with sports involvement. However, neither instrument effectively predicted participants from eventual drop outs. (The locus of control scale approached significance). Informal interviews with the drop outs after this study was completed suggested to the researchers that many middle school boys with high PEAS and locus of control scores (internal) had dropped out to pursue other and comparable sports activities.

In conclusion, this area of research reveals and investigates the decline evidenced in the physical activity patterns of boys and girls. No studies, however, investigated the psychological ramifications of this decline for adolescents high school girls.

Summary

The literature indicates that adolescent girls report more symptoms of psychological distress than adolescent boys. White females in particular seem to have less stable self-concepts and lower self esteem than their white male and black female counterparts.

Gender-role research indicates that an androgenous and, therefore, more masculine gender-role identity is related to psychological well-being for both adult and adolescent women. The psychological distress of adolescent girls has consequently been linked to their feminine gender-role, or, more precisely, to their lack of the instrumentality that the masculine gender-role entails.

Research in the area of physical activity and women reveals that the overwhelming majority of physically-active women are androgenous and, therefore, more masculine in their gender-role orientation than their non-active counterparts. These women also report high levels of self-esteem and psychological well-being. It has been subsequently suggested that physical activity, sports, and athletic participation may be a facilitator of female mental health due to its inherently "masculine" qualities.

Research on the relationship between physical activity, adolescent female development and gender-role orientation is limited, and somewhat contradictory in its findings. Adolescent high school female athletes have been found to espouse very traditional feminine values in some studies and more masculine characteristics in others. However, no support was found for the position that physical activites in the form of athletics and sports present a conflict or psychological distress for the female athlete.

Finally, theoretical positions have been espoused that represent the females who drop out of physical activities in adolescence as doing so to reduce the dissonance between their pre-puberty physical activities and their adolescent feminine gender-role identity. The resulting theoretically posited psychological distress and risk inherent in the cessation of this activity, which had once been a source of the girl's personal identity and self-esteem, remains unaddressed.

CHAPTER III

METHODOLOGY

The purpose of this research was to explore the relationship of self-reported physical activity to adolescent women's self-image, sense of mastery, and gender-role identity. A special focus was the definition and description of the adolescent women who significantly decreased physical activity in their teenage years. The relationship of self-perceived physical ability, self-perceived attractiveness, and age of menarche to the other variables was also explored.

Design

This study used a what Borg and Gall (1979) designate as a causal-comparative design which involved "exploring causal relationships among variables that cannot be manipulated experimentally" and "comparing samples that are different on a critical variable but otherwise comparable" (1979, p. 444). This design is also referred to as ex post facto research, "since causes are studied after they have presumably exerted their effect on another variable" (p. 445).

The design does not allow a statement of causality to be made, given statistically significant results. It can only be concluded that a relationship exists between variables, should significance occur.

The causal-comparative design can be especially useful "for identifying possible causes of observed variations in behavior patterns . . . which can give direction to later experimental studies" (Borg & Gall, 1979, p. 446).

The independent variable in this study was self-perceived physical activity as reported by all subjects on the Physical Activity Level Questionnaire. The independent variable was a phenomenological measure, consistent with the theoretical framework of this study which understands the human self-concept and human behavior to be governed by the unique perceptions that one has of oneself, the world, and the meanings of those perceptions for the phenomenal self. "What a person thinks and how he behaves are largely determined by the concepts he holds about himself and his abilities . . . and how he perceives the situations he's involved in" (Combs & Snygg, 1959, p. 122).

Six dependent variables were obtained from the subjects' perceptions of their psychological selves as measured by the Impulse Control Scale, the Emotional Tone Scale, and the Body and Self-Image Scale of the Offer Self-Image Scale for Adolescents (OSIQ); coping selves as measured by the Mastery Scale, the Psychopathology Scale, and the Superior Adjustment Scale of the OSIQ; gender-role orientations as measured by the Bem Sex-Role Orientation Inventory. Separate measures of the students' masculinity and femininity scores were also obtained.

The dimensions of the adolescent self-image from the OSIQ were chosen because of their direct relationship to the psychological distress syndromes most often reported by women (see Review of Literature: Adolescent Mental Health), and to the sense of perceived control and coping that has been repeatedly cited as crucial to human psychological well-being (see Introduction: Need for Study, p. 2).

Population

The population consisted of 194 sophomore, junior, and senior adolescent women from the Williamston High School, Williamston, Michigan. This late

adolescent group was chosen to maximize the probability that all subjects would have reached physical maturity and would have made choices about their activities that were, at this stage of their development and high school sequence, fairly stable. This age group also represents the older adolescent age range for the Offer Self Image questionnaire which lowers the probability that age would have a significant effect on the dependent measures.

Sample

The sample consisted of the 152 sophomore, junior, and senior adolescent women who volunteered to participate in the research program and who completed two days of testing during their English, history, American government, and writing development classes. Permission to use this high school sample was granted by the high school principal after consultation with the teachers involved (see Appendix A). Approval for this research was also received from the Michigan State University Committee on Research Involving Human Subjects (see Appendix B).

The volunteer subjects were asked to rate first their present and then their past (pre-adolescent) activity levels on a rating scale from 1 (very inactive) to 6 (very active). These ratings and the differences between them were used to evaluate the subjects' physical activity as both continuous and dichotomous variables. The subjects' responses were used to create the following physical activity level groups:

--the physically active group which was defined as those subjects whose past and present activity level scores were 4 (slightly active) and above and which did not differ by more than + 1 or -1;

--the physically inactive group which was defined as those subjects whose past and present activity level scores were 3 (slightly inactive) or below and which did not differ by more than + 1 or -1;

—the drop-out group which was defined as those subjects who reported a present activity level that was two or more rating scale points below their past activity level rating; and

—a group of unanticipated subjects which was defined as increasers. These subjects reported a present activity level that was two or more rating scale points above their past activity level rating.

Data Collection

The Offer Self-Image Questionnaire and the Bem Sex-Role Inventory were administered on the first day of testing. The Physical Activity Level Questionnaire was administered on the second day of testing. Both testing periods were approximately 50 minutes in length which gave the subjects ample time to complete the test instruments. The tests were administered personally by this researcher in the high school cafeteria.

Instrumentation

Physical Activity Level Questionnaire

The Physical Activity Level Questionnaire was a survey instrument which required the subjects to identify their past and present levels of physical activity in comparison to other women their age. In addition to these self-report items, the questionnaire consisted of several items which asked each subject to record past and current physical activities and the amount of time spent on each, for the purpose of focusing the subjects on the task and to gain other important demographic information to further identify this sample (see Appendix C).

Six-point rating scales on the physical activity level questionnaire were used to assess the subjects' self-perceived levels of physical activity, past and present, self-perceived physical ability and attractiveness. Other descriptive data; i.e., age, class, age of menarche, typical daily activities, the subjects' feelings about activities, and reasons for present and past activity levels was

also obtained. No attempts were made to measure any of the above data beyond the subjects' own self-reports. Subjects were asked to answer the questions honestly and in a way that was most representative of their most thoughtful perceptions of themselves and their activities.

Offer Self-Image Questionnaire

The Offer Self-Image Questionnaire (OSIQ) for adolescents is a self-descriptive personality test that was constructed in the early 1960s to "tap significant areas in the adjustment and the psychology of the teenager" (Offer & Howard, 1972, p. 529). Since that time, over 15,000 adolescents have been administered the OSIQ to assess how they feel about themselves and their millieu (Offer, Ostrov, & Howard, 1982, p. 1). The OSIQ is referenced in Handbook III, Volume I, of Tests and Measurements in Child Development (Johnson, 1976) as a measure of personality adjustment for children ages 12 to 19 years, with adjustment being defined as "the effectiveness of the child's efforts to adjust to his environment" (p. 560). This reference notes that empirical analysis of the questionnaire indicates its effectiveness in discriminating between groups of adolescents and provides supportive measures of its reliability. Over the past 20 years, the OSIQ has been used to study and differentiate the following groups of adolescents: normal, delinquent, physically ill, older (16-19), younger (13-15), females, males, urban, rural, suburban, and, finally, teenagers from the United States, Australia, Israel, and Ireland. The samples cover only the middle class.

The OSIQ relies on two major assumptions. First, that it is necessary to evaluate adolescent functioning in several areas, understanding that psychological development is multi-dimensional and that, consequently, mastery in one aspect and failure in another is entirely possible; second, that the

adolescent has sufficient psychological sensitivity to allow self-description to be used as a basis for reliable selection of subgroups.

Offer states that empirical work with the OSIQ "tends to validate these assumptions" (Offer et al., 1982, p. 1). The Offer group developed the OSIQ using theoretical concepts from psychodynamic, phenomenological, and cognitive approaches to the understanding of the "self." The "self" is described by the Offer group as the

> . . . phenomenal self. It is the "me" as experienced or perceived by the person whom we seek to know . . . the "I" (is viewed) as becoming self-reflective and by definition, as developing a me, a process beginning in early childhood and reaching new heights at but continuing beyond adolescence (p. 17).

Use and refinement of the OSIQ resulted in the development of 11 areas that were believed to be important to the psychological life of the adolescent:

Scale Number	Areas	Number of Items
1	Impulse control	10
2	Emotional tone	10
3	Body and self image	10
4	Social relationships	10
5	Morals	10
6	Sexual attitudes	10
7	Family attitudes	20
8	Mastery of external world	10
9	Vocational and educational goals	10
10	Psychopathology	15
11	Superior adjustment	15

Source: Offer et al., 1982, p. 1.

These 11 scales which represent different aspects or dimensions of the self have been "more meaningfully clustered into five dimensions: the psychological, social, sexual, familial, and coping selves" (Offer et al., 1981, p. 39). The scales that comprise the psychological self and the coping self follow.

Psychological self	(1)	Impulse control
	(2)	Emotional tone
	(3)	Body and self image
Coping self	(8)	Mastery of the external world
	(10)	Psychopathology
	(11)	Superior adjustment

The psychological self scales deal with "the emotions the teenager experiences, his sense of control over his impulses, and his conception of his body" (p. 45). These scales were used in this study to assess the subjects' sense of emotional and physical well being (see Appendix D).

The coping self scales measure "the signs and psychopathological symptoms the adolescent states he has" (Scale 10) and allow the adolescent "to describe how he copes with his world" (p. 72). In terms of the latter, these scales demonstrate "how well an adolescent adapts to the immediate environment" (Scale 8) and "how well the adolescent copes with himself, significant others and his world (Scale 11). This scale could also be defined as a measure of ego strength" (Offer et al., 1982, p. 72). In this study, these scales were used to assess the subjects' self-perceived sense of personal mastery and control in her environment (see Appendix E).

Offer and his associate report Cronbach alphas ranging from .38 to .88 and claim "high and acceptable internal reliabilities" for the scales and the total score of the OSIQ (Offer et al., 1981) (see Appendix F). In a 1979 study, a sample of normal teenagers was used to gather stability data in two testing situations six months apart. These data indicate that "the scale scores are almost as stable as they are internally consistent, with the stability coefficients ranging from .48 to .84 for the scales and .73 for the total score" (Offer et al., 1981, p. 142). Other

studies with different adolescent populations, including an eight year longitudinal study, provided scores which produced similar results (pp. 142-3).

Because the OSIQ was designed to reflect 11 separate self-dimensions of a multi-dimensional self, the authors note that "we would expect these dimensions to show a great deal of over-lap" but the distinctions among clusters of these scales are sufficient "to justify retaining their separate identities" (p. 143). Validity studies support the above statement.

Offer and Howard (1972) conducted analysis of variances and t tests evaluating the extent to which each scale discriminated among various samples of Australian and American youth and contrasting groups differentiated by sex, age, normality, and disturbance. Results found that the scales significantly differentiated the various adolescent groups, except for the different national groups (Offer & Howard, 1972, pp. 531-2) (see Appendices G & H).

Three studies which compared the correlation of the OSIQ with other personality measures have found that "moderate to high correlations exist between the OSIQ and the Bell Inventory, the Minnesota Multiphasic Personality Inventory and the Tennessee Self-Image Test" (Offer et al., 1981, p. 143). Hjorth (1980) reports, in addition, that the body and self image scale on the OSIQ correlates more highly with the same scale on the Tennessee than it does with any other scale of that test. And, finally, in the eight year longitudinal study mentioned previously, three different types of adaptation to adolescence were found within a group of normal subjects. This study reports that:

> . . . the OSIQ mean scores of persons who take each (adaptive) route differ significantly and the rankings of the OSIQ means followed exactly the theoretical rankings with regard to the degree of mental health and adjustment shown by subjects in each of these three groups (p. 144).

The authors concluded that the OSIQ "not only can identify normals, but also can discriminate among psychologically meaningful sub-groups within populations of normals" (Offer et al., 1982, p. 6).

Bem Sex-Role Inventory

The Bem Sex-Role Inventory (BSRI) was developed in the early 1970s for the purpose of initiating empirical research on the psychological concept of androgeny (see Appendix I). It was necessary at that time to develop a new type of inventory that did not "automatically build in an inverse relationship between masculinity and femininity" or view the gender-role orientation as "bipolar ends of a single continuum" (Bem, 1974, p. 155). The BSRI, therefore, treats masculinity and femininity as two independent dimensions and is comprised of 60 personality characteristics, 20 of which are stereotypically feminine, 20 stereotypically masculine, and 20 that serve as filler items.

The items on the BSRI were chosen from an initial item pool of 400 personality characteristics and were selected for either the masculinity or femininity scales if independently judged by both male and female judges (100 Stanford University undergraduates) to be significantly more desirable for a man or woman, respectively, in American society (Bem, 1974). Neutral personality characteristics, i.e., those judged to be no more desirable for one sex than the other by the judges, were originally scored for a social desirability response set indicator; but recent research has questioned their actual neutrality, so they are now used as unscored filler items.

> The BSRI is based on a conception of the traditionally sex-types person as someone who is highly attuned to cultural definitions of sex-appropriate behavior and uses such definitions as the ideal standard against which her or his own behavior is to be evaluated . . . the traditionally sex-typed person is motivated to keep her or his behavior consistent with an idealized image of femininity or masculinity, a goal that she or he presumably accomplishes both by

> selecting behaviors and attributes that enhance the image . . . items were selected on the basis of cultural definitions of sex-typed social desirability and not on the basis of differential endorsement by females and males (Bem, 1981, p. 4).

The BSRI is an inventory that can be used with individuals and/or large groups and can be completed in approximately 15 minutes. While it has been used primarily with college students, it has been increasingly used with a variety of populations including high school students (Abrahams, Fellman, & Noah, 1978; Hogan, 1977; Kirkpatrick, 1979; Lamke, 1982; Wells, 1980). Subjects are classified into gender-role groups on the basis of a median split with the subjects being divided at the median on both the femininity and masculinity scales. This results in a four-fold classification. Subjects are designated as feminine, for example, if they score over the median of the feminine scale and under on the masculine. If a subject scores over the median on both scales, she is classified as androgenous. If a subject scores below the median on both scales, she is classified as undifferentiated. Psychometric analyses of the BSRI support its internal consistency, the empirical independence of the scales, and its test-retest reliability (see Appendices J, K, and L).

Empirical research, with subjects selected on the basis of their BSRI scores, tends to validate the central hypotheses that the BSRI does discriminate between individuals who restrict their behavior in accordance with gender-role stereotypes and those who do not. In a series of studies focused on expressive and instrumental behavior, gender-typed subjects preferred gender-appropriate activity and resisted gender-inappropriate activity, even when these choices cost them money, significantly more often than androgenous or cross-gender-typed individuals (Bem & Lenney, 1976). In addition, only androgenous individuals consistently displayed significant levels of both masculine and feminine behaviors (Bem, 1975; Bem, Martyna & Watson, 1976).

And, finally, the BSRI has been specifically recognized for its clarity in differentiating between cultural gender-roles and gender typing. This distinction is necessary in research that purports to focus on the contribution or drawbacks of gender-roles (Worrell, 1978).

The Bem Inventory as modified for use with high school students by Wells (1980) and Lamke (1982) was used in the present study. The rating scale was shortened from seven to five rating scale points, and definitions were provided for words that the Williamston High School teachers thought the adolescent subjects might not understand.

Statistical Hypotheses

The hypotheses to be examined in this study are presented below. these hypotheses were tested using two-tailed tests of significance at the .05 level.

Hypothesis 1

Null Hypothesis 1

There is no significant relationship between the physical activity level group and gender-role orientation endorsed by female adolescent subjects.

Alternative Hypothesis 1

There is a significant relationship between the physical activity level group and the gender-role orientations endorsed by the adolescent female subjects.

Hypothesis 2

Null Hypothesis 2

There are no differences between each of the physical activity level groups on each of the psychological self-image measures.

Alternative Hypothesis 2

There are significant differences between each of the physical activity level groups on each of the psychological self-image measures.

Hypothesis 3

Null Hypothesis 3

There are no differences between each of the physical activity level groups on each of the coping self measures.

Alternative Hypothesis 3

There are significant differences between each of the physical activity level groups on each of the coping self measures.

Data Analysis

A chi-square test of significance was used to test hypothesis one. The chi-square tested whether the frequency with which each of the gender-role orientation categories was endorsed by each physical activity level group differed significantly from the frequencies that were expected from an equally or normally distributed population (Borg & Gall, 1979).

A one-way multivariate analysis of variance (MANOVA), followed by post hoc group comparisons, was used to test hypotheses two and three. These procedures provided an omnibus statistical test of significant main effects of the independent variable and made possible analysis of the nature of the group differences on the dependent variables. The MANOVA allowed these data to be approached as a whole, i.e., as a set of interrelated traits, and is preferable to a series of single test of significance that provide "isolated and/or redundant data with dubious meaning and the possibility of multiplying statistical error (Finn, 1974, p. 7).

A step-wise multiple regression analysis was performed to further explicate the contribution and interaction between physical activity and the masculinity and femininity variables in the prediction of the psychological self and coping self dependent measures. This regression procedure entered the independent variables one by one according to, first, which variable explained the greatest amount of variance in the dependent variable and, then, in a step-wise procedure, entered the remaining variables according to which one explained the greatest amount of variance left unexplained by the variables already entered (Cohen, Foster, Helm, & Tuccy, 1978). This regression procedure was used to explore which of the independent variables was the strongest predictor of the dependent variables in order to further explain the significant between group differences found by the MANOVA and post hoc procedures. Also reported in this analysis was the contribution of self-perceived physical ability, self-perceived attractiveness, and age of menarche to the prediction of the dependent variables. All hypotheses were tested at the p .05 level of significance.

Summary

From a population of 194 sophomore, junior, and senior high school women, a sample of 152 volunteer subjects was classified according to self-reported present and past activity levels into four physical activity groups: (a) physically active, (b) physically inactive, (c) drop-outs, and (d) increasers. All subjects were given the Offer Self-Image Questionnaire and the Bem Sex-Role Inventory. The causal comparative experimental design of the research allowed relationships between the dependent and independent variables to be reported.

A chi-square test was performed to test for a significant relationship between the physical activity level groups and the gender-role categories

endorsed by the subjects. Descriptive statistics were also reported which presented the composition of the sample and activity level groups. A one-way multivariate analysis of variance with post hoc group comparisons was performed to test for significant differences between the physical activity level groups on the dependent measures. A step-wise multiple regression was performed to further explore the relationships between the independent and dependent variables.

CHAPTER IV

DATA ANALYSES, RESULTS AND CONCLUSIONS

Several statistical procedures were used to analyze the differences among the four physical activity groups. First, the sample was described and a chi-square test was used to analyze the age, class, and gender role characteristics of each physical activity group. Second, a multivariate analysis of variance followed by post hoc group comparisons was used to analyze between group differences on the psychological self and coping self-scales, the Bem masculinity and femininity scores; self-perceived ability, self-perceived attractiveness, age, and age of menarche. Finally, a step-wise multiple regression analysis was used to assess the contribution of physical activity, masculinity and femininity, self-perceived ability, self-perceived attractiveness, and menarche to the prediction of the psychological self-and coping self-scales. Special attention was given to the description and analysis of the drop out group in terms of physical activity level, gender role identity, and scores on the psychological measures used in this study.

Description of Sample Results

From the total population of 56 sophomore, 71 junior, and 67 senior girls at Williamston High School (N = 194), 47 sophomores, 61 juniors, and 44 seniors volunteered to be a part of this research sample (N = 152). An additional 23 subjects took part in one of the two days of testing but did not attend the second day of testing and did not volunteer to complete the inventories when requested to do so in a two week follow up.

Three other subjects' test results were unusable due to the number of omitted items, and one subject's results were omitted due to her deviant response set on the Offer Self-Image Questionnaire. The sample number of subjects (N = 52) represents 78% of the total population (N = 192). The mean age of the sample was 16.44 years.

Physical Activity Level Group Statistics

When these subjects were classified according to the physical activity level categories, the following results were obtained (see Table 2). Of the total sample, 66% of the subjects were designated as active, 15% as inactive, 12% as drop-outs, and seven percent were designated increasers. The average age for each of the physical activity level groups was as follows: physically active, 16.46 years; physically inactive, 16.56 years; drop-outs, 16.31 years; and increasers, 16.10 years.

Table 1
Physical Activity Level Group Statistics

Group	Class of Subjects	Number	Percentage
Physically active	Sophomore	30	30%
	Junior	42	42%
N = 100	Senior	28	28%
Physically inactive	Sophomore	5	22%
	Junior	11	48%
N = 23	Senior	7	30%
Drop-outs	Sophomore	6	33%
	Junior	6	33%
N = 18	Senior	6	33%
Increasers	Sophomore	6	55%
	Junior	2	18%
N = 11	Senior	3	27%

Past and present activity level means for the physical activity groups are presented in Table 2.

Table 2
Present and Past Activity Level Means for Physical Activity Level Groups

Physical Activity Groups	Present Activity Mean	Past Activity Mean
Active	4.9	4.9
Inactive	2.6	2.9
Drop out	2.9	5.4
Increaser	4.7	2.2

Chi-square and Descriptive Analysis of Physical Activity Level Groups by Gender Role Category Results: Testing Hypothesis I

A chi-square analysis was used to test statistical Hypothesis I.

Null hypothesis 1. There is no significant relationship between the physical activity level group and gender-role orientation endorsed by the female adolescent subjects.

Alternative hypothesis 1. There is a significant relationship between the physical activity level group and the gender-role orientations endorsed by the adolescent female subjects.

Results indicate a non-significant chi-square, $\chi^2(9) = 16.64$, p .0547. While this finding indicated that the groups did not differ on the basis of gender role identity and the null hypothesis cannot be rejected, some of the small and unequal cell sizes suggested that descriptive statistics may also be useful and informative for understanding these results. The following statistics represent the total number and percentages for each of the gender role categories for the total sample (see Table 3).

Table 3
Total Sample Gender-Role Categories

Gender Role Category	Total Number	Percent of Sample
Androgeneous	55	36.2%
Undifferentiated	37	24.3%
Masculine	32	21.1%
Feminine	28	18.4%

The composition of each physical activity group according to gender role categories is reported in Table 4. An androgenous identity was reported by the majority of the subjects in all of the physical activity groups except for the physically inactive subjects who reported a mostly undifferentiated and feminine gender role identity, respectively. For these inactive subjects, the androgenous gender identity was reported least of the four gender role categories. The drop-outs and the increasers were very similar in their reported gender role identities with almost equal percentages of feminine and undifferentiated subjects and with the masculine gender identity being reported the least. The physically active group reported almost equal numbers of masculine and undifferentiated gender identities, with a feminine identity being reported least of all.

Table 4
Gender Role Categories by Physical Activity Group

Physical Activity Group	Number	Gender Role Category	Percentage
Actives	37	Androgenous	37%
	25	Masculine	25%
	22	Undifferentiated	22%
	16	Feminine	16%
Inactives	10	Undifferentiated	44%
	7	Feminine	30%
	4	Masculine	17%
	2	Androgenous	9%
Drop-outs	10	Androgenous	55%
	3	Feminine	17%
	3	Undifferentiated	17%
	2	Masculine	11%
Increasers	6	Androgenous	55%
	2	Feminine	18%
	2	Undifferentiated	18%
	1	Masculine	9%

N = 152

Multivariate Analysis of Variance (MANOVA) Results: Testing Research Hypotheses 2 and 3

One way multivariate analyses of variance procedures were used to test the following hypotheses:

Hypothesis 2

Null hypothesis 2. There are no differences between physical activity level groups on each of the psychological self-image measures.

Alternative hypothesis 2. There are significant differences between physical activity level groups on each of the psychological self-image measures.

Hypothesis 3

Null hypothesis 3. There are differences between physical activity level groups on each of the coping self-measures.

Alternative hypothesis 3. There will be significant differences between the physical activity level groups on each of the coping self measures.

The MANOVA results found a significant multivariate effect, $F(33, 386.65) = 2.86, p < .001$.

The univariate statistical tests are reported in Table 5.

Table 5
Univariate F Statistics for Physical Activity Level Group Effects on the Dependent Variables

Dependent Variables	F	P
Psychological Self		
Impulse scale	3,141 = 1.63	p<.1854
Emotion scale	3,141 = 8.38	p<.001
Body and self-image scale	3,141 = 5.63	p<.001
Coping Self		
Mastery scale	3,141 = 4.05	p<.0085
Psychopathology scale	3,141 = 3.02	p<.0319
Superior adjustment scale	3,141 = 2.69	p<.0484
Bem Sex-Role Inventory		
Masculinity	3,141 = 5.47	p<.0014
Femininity	3,141 = 2.28	p<.0820
Self-Perceived Physical Ability	3,141 = 14.11	p<.001
Self-Perceived Attractiveness	3,141 = 1.76	p<.1580
Age	3,141 = .74	p<.53
Menarche	3,141 = 1.66	p<.1787

These results indicate statistically significant differences among the physical activity level groups on the emotion scale and the body and self-image scale of the psychological self; the mastery scale, psychopathology scale, and superior adjustment scales of the coping self; the Bem masculinity measure; and on self-perceived ability ratings. There were no statistically significant

differences among the physical activity level groups on the impulse scale of the psychological self, the Bem femininity measure, self-perceived attractiveness ratings, age, or age of menarche.

Post Hoc Group Comparisons: Results

Post hoc group comparisons were used to investigate the between-group contrasts that accounted for the significant multivariate effect on the dependent variables. Mean scores for the physical activity level groups on the dependent measures are presented in Table 6.

Table 6
Mean Scores for Physical Activity Level Groups on the Dependent Variables

Dependent Variables	Physically Active Group	Physically Inactive Group	Drop Out Group	Increaser Group
Psychological Self				
Impulse Scale	48.84	49.00	56.24	44.01
Emotion Scale	55.31	42.45	59.97	41.92
Body and Self-Image Scale	52.01	39.74	56.83	41.17
Coping Self				
Mastery Scale	53.89	41.62	53.42	48.79
Psychopathology Scale	52.98	45.05	54.50	42.46
Superior Adjustment Scale	53.88	45.97	58.39	45.89
Bem Sex-Role Inventory*				
Masculinity	2.35	2.84	2.30	1.48
Femininity	1.70	1.94	1.70	2.50
Self-Perceived Physical Ability	4.85	3.35	4.30	4.33
Self-Perceived Attractiveness	4.10	3.65	4.20	3.56
Age	16.46	16.56	16.31	16.10
Age of Menarche	12.69	12.35	12.00	12.44

*Lower scores indicate higher gender typing.

Contrast One: Physically Active Group Versus Physically Inactive Group

There were statistically significant differences between the physically active group and the physically inactive group on the dependent variables, $F(11,131) = 6.02$, $p < .001$. Examination of the univariate tests presented in Table 6 reveal which univariates accounted for the significant multivariate effect.

Table 7
Physically Active Group/Physically Inactive Group
Univariate F Statistics

Dependent Variables	F	P
Psychological Self		
Impulse scale	1,141 = .001	p<.97
Emotion scale	1,141 = 15.25	p<.001
Body and self-image scale	1,141 = 10.83	p<.001
Coping Self		
Mastery scale	1,141 = 11.59	p<.001
Psychopathology scale	1,141 = 5.14	p<.03
Superior adjustment scale	1,141 = 4.31	p<.04
Bem Sex-Role Inventory		
Masculinity	1,141 = 15.07	p<.001
Femininity	1,141 = 4.15	p<.04
Self-Perceived Physical Ability	1,141 = 40.84	p<.001
Self-Perceived Attractiveness	1,141 = 3.25	p<.07
Age	1,141 = .22	p<.64
Menarche	1,141 = 1.31	p<.25

These results indicated that there were statistically significant differences between the physically active group and the physically inactive group on the following dependent measures: the emotion and body and self-image scales of the psychological self; the mastery, psychopathology, and superior adjustment

scales of the coping self; the Bem masculinity and femininity measures; and on self-perceived physical ability ratings. The physically active and physically inactive groups were not significantly different on the following dependent measures: the impulse scale of the psychological self, self-perceived attractiveness ratings, age, and age of menarche.

Examination of the mean scores on the dependent variables for the physically active and the physically inactive groups indicated that the physically active group's means were higher on all the dependent measures that represented statistically significant contrasts between the two group (see Appendix M). This result indicated that the physically active group members reported self-image and coping characteristics that were significantly more positive than those reported by the physically inactive group members. The physically active group members reported significantly more masculine and more feminine characteristics than the physically inactive group members and also reported significantly higher physical ability ratings.

The physically active group members also reported higher self-perceived attractiveness ratings which were not significantly different from the physically inactive group members' ratings. The physically active group members were younger and had experienced menarche later than the physically inactive group members, but neither of these differences were statistically significant.

Contrast Two:
Physically Active Group/Drop out Group

There were statistically significant differences between the physically active group and the drop out group on the dependent variables, $F(11,131) = 6.02$, $p < .001$. Examination of the univariate tests presented in Table 8 revealed which univariates accounted for the significant multivariate effect.

These results indicated that the physically active group and the drop out group were significantly different only on the self-perceived ability and age of menarche variables.

Examination of the mean scores on the dependent variables for the physically active and drop out groups indicated that the physically active group members reported significantly higher self-perceived physical ability ratings than the drop out group members and also reported a significantly later age of menarche (see Appendix N). Although none of the other dependent measures were significant contrasts between these groups, it is interesting to note that the drop out group's mean scores were higher than the physically active group's mean scores on all of the psychological self and coping self-scales, except for the mastery scale on which the two groups reported almost identical scores.

Table 8
Physically Active Group/Drop out Group
Univariate F Statistics

Dependent Variables	F	P
Psychological Self		
Impulse scale	1,141 = 3.56	p<.06
Emotion scale	1,141 = 1.64	p<.20
Body and self-image scale	1,141 = 1.37	p<.24
Coping Self		
Mastery scale	1,141 = .01	p<.91
Psychopathology scale	1,141 = .15	p<.70
Superior adjustment scale	1,141 = 1.14	p<.29
Bem Sex-Role Inventory		
Masculinity	1,141 = .17	p<.70
Femininity	1,141 = .02	p<.90
Self-Perceived Physical Ability	1,141 = 4.87	p<.03
Self-Perceived Attractiveness	1,141 = .07	p<.80
Age	1,141 = .47	p<.50
Menarche	1,141 = 4.30	p<.04

Contrast Three:
Physically Active Group/Increaser Group

The physically active group and the increaser group did not significantly differ on the dependent variables, $F(11,131) = 1.32$, $p < .22$.

Contrast Four:
Drop out Group/Physically Inactive Group

There was a statistically significant difference between the drop out group and the physically inactive group on the dependent variables $F(11,131) = 2.63$, $p < .01$. Examination of the univariate tests presented in Table 9 revealed the univariates that accounted for the significant multivariate effect.

Table 9
Drop out Group/Physically Inactive Group
Univariate F Statistics

Dependent Variables	F	P
Psychological Self		
Impulse scale	1,141 = 2.28	p<.13
Emotion scale	1,141 = 15.45	p<.001
Body and self-image scale	1,141 = 11.46	p<.001
Coping Self		
Mastery scale	1,141 = 5.84	p<.02
Psychopathology scale	1,141 = 3.98	p<.05
Superior adjustment scale	1,141 = 5.78	p<.02
Bem Sex-Role Inventory		
Masculinity	1,141 = 10.25	p<.002
Femininity	1,141 = 2.66	p<.11
Self-Perceived Physical Ability	1,141 = 8.51	p<.004
Self-Perceived Attractiveness	1,141 = 2.35	p<.13
Age	1,141 = .83	p<.36
Menarche	1,141 = .72	p<.40

These results indicated that the drop out group and the physically inactive group were significantly different on the following dependent variables: the emotional and body and self-image scales of the psychological self; the mastery, psychopathology, and superior adjustment scales of the coping self; the Bem masculinity variable, and on self-perceived physical ability ratings. These two groups were not significantly different on the impulse scale of the psychological self, the Bem femininity measure, or on self-perceived attractiveness ratings, age, or age of menarche.

Examination of the mean scores on the dependent variables for the drop out group and the physically inactive group indicated that the drop out group reported higher scores on all the dependent measures except for age and age of menarche (see Appendix O). This result indicated that the drop out group members reported self-image and coping characteristics that were significantly more positive than those reported by the physically inactive group members except on the impulse scale of the psychological self. The drop out group members also described themselves with significantly more traditionally masculine characteristics and as significantly more physically able than the physically inactive group members.

Contrast Five:
Drop out Group/Increaser Group

There were statistically significant differences between the drop out group and the increaser group on the dependent variables $F(11,131) = 2.18$, $p < .02$. The univariate tests presented in Table 10 report the univariates that accounted for the significant multivariate effect.

The results indicated that the drop out and increaser groups were significantly different on the emotion and body and self-image scales of the psychological self, but did not have a statistically significant contrast on any of

the other dependent variables. Examination of the mean scores for the drop out and increaser group members on the dependent measures indicated that the drop out group members' scores were higher than the increasers' scores on all but the femininity, self-perceived physical ability, and age of menarche variables (see Appendix P).

These results indicated that the drop out group members reported significantly more positive self-image characteristics on the emotion and body and self-image scales of the psychological self than the increaser group members. These two groups did not differ significantly on any of the other dependent measures.

Table 10
Drop out Group/Increaser Group
Univariate F Statistics

Dependent Variables	F	P
Psychological Self		
Impulse scale	1,141 = 3.86	p<.051
Emotion scale	1,141 = 9.74	p<.002
Body and self-image scale	1,141 = 5.72	p<.02
Coping Self		
Mastery scale	1,141 = .53	p<.47
Psychopathology scale	1,141 = 3.83	p<.05
Superior adjustment scale	1,141 = 3.48	p<.06
Bem Sex-Role Inventory		
Masculinity	1,141 = .72	p<.40
Femininity	1,141 = 1.06	p<.30
Self-Perceived Physical Ability	1,141 = .02	p<.89
Self-Perceived Attractiveness	1,141 = 2.00	p<.16
Age	1,141 = .32	p<.57
Menarche	1,141 = .70	p<.40

Contrast Six:
Increaser Group/Physically Inactive Group

There were statistically significant differences between the increaser group and the physically inactive group on the dependent variables $F(11,131) = 2.05$, $p < .03$. The univariate tests presented in Table 11 revealed the univariates that accounted for the significant multivariate effect.

These results indicated that the increaser group and the physically inactive group were significantly different on the femininity and self-perceived physical ability variables. These groups did differ significantly any of the other dependent measures.

Table 11
Increaser Group/Physically Inactive Group
Univariate F Statistics

Dependent Variables	F	P
Psychological Self		
Impulse scale	1,141 = .69	p<.41
Emotion scale	1,141 = .01	p<.93
Body and self-image scale	1,141 = .05	p<.82
Coping Self		
Mastery scale	1,141 = 1.38	p<.24
Psychopathology scale	1,141 = .19	p<.66
Superior adjustment scale	1,141 = .001	p<.99
Bem Sex-Role Inventory		
Masculinity	1,141 = 2.83	p<.10
Femininity	1,141 = 5.64	p<.02
Self-Perceived Physical Ability	1,141 = .612	p<.02
Self-Perceived Attractiveness	1,141 = .05	p<.82
Age	1,141 = 1.74	p<.19
Menarche	1,141 = .04	p<.85

The mean scores for the increaser and the physically inactive groups on the dependent measures indicated that the increaser group members' scores were significantly higher than the physically inactive group members' scores on the self perceived ability variable and were significantly lower on the femininity variable (see Appendix O). This result indicated that the members of the increaser group described themselves as significantly more physically able and with significantly fewer traditionally feminine characteristics than the physically inactive group members.

Step-Wise Multiple Regression Analysis: Results

A step-wise multiple regression analysis was performed with past and present physical activity level ratings, Bem masculinity and femininity scores, self-perceived physical ability ratings, self-perceived attractiveness ratings, and age of menarche entered in a step-wise procedure as the predictor variables. The criterion variables were the standard scores for the psychological self and coping-self scales.

Psychological Self: Impulse Scale

The seven predictor variables accounted for 12.89 of the total variance on the impulse scale. The most significant predictor variable was self-perceived attractiveness ratings which accounted for 6.6% of the total variance (see Table 12).

Psychological Self: Emotion Scale

The seven predictor variables accounted for 30.3% of the total variance on the emotion scale. The most significant predictor variable was the Bem masculinity measure which accounted for 18.5% of the total variance (see Table 13).

Table 12
Step-Wise Multiple Regression Analyses Results: Psychological Self Impulse Scale

Overall F = 2.88145 p .008

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	SPAT	.25702	.06606	.06606	.19806542	$p < .05$
2	F Bem	.30856	.09521	.02915	-.16706268	$p < .05$
3	M Bem	.32637	.10652	.01131	-.11609674	NS
4	PresAct	.34314	.11775	.01123	-.18609022	NS
5	SPAB	.35572	.12653	.00879	.11107972	NS
6	Menarche	.35680	.12731	.00077	.03500137	NS
7	PastAct	.35826	.12833	.00103	.03848453	NS

Table 13
Step-Wise Multiple Regression Analyses Results: Psychological Self Emotion Scale

Overall F = 9.97700, p .001

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	M Bem	.42953	.18450	.18450	-.28619550	p < .05
2	SPAT	.49933	.24933	.06483	.21161351	p < .05
3	PastAct	.53194	.28296	.03363	.15921076	NS
4	F Bem	.53986	.29145	.00849	-.09322431	NS
5	Menarche	.54576	.29786	.00640	.09595698	NS
6	SPAB	.55004	.30254	.00469	.08537742	NS

Psychological Self: Body and Self Image Scale

The seven predictor variables accounted for 38.5% of the total variance on the body and self-image scale. The most significant predictor variable was the Bem masculinity measure which accounted for 23% of the total variance (see Table 14.)

Coping Self: Mastery Scale

The seven predictor variables accounted for 41.3% of the total variance on the mastery scale. The most significant predictor variable was the Bem masculinity measure which accounted for 31.5% of the total variance (see Table 15).

Coping Self: Psychopathology Scale

The seven predictor variables accounted for 21.5% of the total variance on the psychopathology scale. The most significant predictor variable was the Bem masculinity measure which accounted for 13.6% of the total variance (see Table 16).

Coping Self: Superior Adjustment Scale

The seven predictor variables accounted for 35% of the total variance on the superior adjustment scale. The most significant predictor was the Bem masculinity variable which accounted for 27.3% of the total variance (Table 17).

In summary, these results indicated that on all the psychological self-and coping self-scales that had a statistically significant effect for physical activity level group, the Bem masculinity measure accounted for most of the total variance predicted by all seven of the predictor variables. On the impulse scale of the psychological self, which did not have a statistically significant effect for physical activity level groups, the self-perceived attractiveness rating variable

Table 14
Step-Wise Multiple Regression Analyses Results: Psychological Self Body and Self-Image Scale

Overall F = 12.26970, p .001

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	M Bem	.47958	.22999	.22999	-.31524456	p<.05
2	SPAT	.57789	.33396	.10396	.28101177	p<.05
3	Past Act	.59924	.35909	.02513	.13049415	NS
4	F Bem	.61504	.37827	.01919	-.13192409	NS
5	SPAB	.61885	.38297	.00470	.06551220	NS
6	PresAct	.61993	.38431	.00134	.05152738	NS
7	Menarche	.62076	.38534	.00103	-.03358324	NS

Table 15
Step-Wise Multiple Regression Analyses Results: Coping Self Mastery Scale

Overall F = 13.76835, p .001

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	M Bem	.56153	.31532	.31532	-.43688586	p< .05
2	SPAT	.61101	.37333	.05802	.23064293	p< .05
3	PresAct	.62613	.39204	.01871	.12487789	NS
4	F Bem	.63336	.40114	.00910	-.10654589	NS
5	Past Act	.63934	.40876	.00762	.09582622	NS
6	Menarche	.64215	.41235	.00360	-.05887462	NS
7	SPAB	.64263	.41297	.00062	-.03473743	NS

Table 16
Step-Wise Multiple Regression Results: Coping Self Psychopathology Scale

Overall F = 5.45498, p .001

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	M Bem	.36855	.13583	.13583	-.25354077	$p < .05$
2	SPAT	.44249	.19580	.05997	.22922843	$p < .05$
3	Menarche	.45370	.20584	.01004	-.10533908	NS
4	SPAB	.46253	.21393	.00809	.09291255	NS
5	F Bem	.46436	.21563	.00170	-.04807216	NS
6	PastAct	.46631	.21744	.00181	.05591544	NS
7	PresAct	.46687	.21797	.00053	-.02937923	NS

Table 17
Step-Wise Multiple Regression Analyses Results: Coping Self
Superior Adjustment Scale

Overall F = 9.24503, p .001

Rank	Predictor Variables	Multiple R	R Square	R Square Change	Beta	Significance
1	M Bem	.52246	.27296	.27296	-.45238493	$p < .05$
2	F Bem	.55019	.30271	.20974	-.18226772	$p < .05$
3	SPAT	.56048	.31413	.01143	.08201506	NS
4	PastAct	.56420	.31833	.00419	.07153099	NS
5	Menarche	.56603	.32039	.00206	.04551890	NS
6	SPAB	.56618	.32055	.0016	.02626876	NS
7	PresAct	.56641	.35082	.00027	-.02102785	NS

accounted for most of the total variance predicted by the seven predictor variables. Correlation coefficients for the predictor and criterion variables are presented in Table 18.

Description and Analyses of Drop out Group Statistics

The drop out group represented 12% of the total number of subjects in this volunteer sample. The 18 drop out group members represented six adolescent girls from each of the sophomore, junior, and senior high school classes. The average age of the drop out group members was 16.31 years.

The drop out group consisted primarily of girls reporting an androgeneous gender-role identity (see Table 4).

An androgeneous gender-role identity was also reported most often by girls in the physically active and increaser groups and least often by girls in the physically inactive group. Consequently, the drop out group members report gender-role identities that are most similar to those reported by the physically active and increaser group members.

The drop out group was a statistically significant contrast with the physically inactive group. Examination of these results indicated that the drop out group had significantly higher scores on the emotion and body and self-image scales of the psychological self, all of the coping self-scales, the Bem masculinity measure, and on self-perceived physical ability ratings. These results indicated that the drop out group members reported significantly more positive self-image and coping characteristics than the inactive group and described themselves with significantly more traditionally masculine attributes than did the physically inactive group members. The drop out group members also rated their physical ability significantly higher than the inactive group members.

Table 18
Correlation Coefficients

	PRESACT	PASTACT	FBEM	MBEM	MENARCHE	SPAB	SPAT	IMPULSE	EMOTION	BANDS	MASTERY	PSYCHO
PASTACT	.41505											
FBEM	-.11483	.03292										
MBEM	-.21222	-.22320	.16554									
MENARCHE	.15153	-.07677	-.00731	.06656								
SPAB	.53790	.47547	-.07362	-.30550	.15614							
SPAT	.20546	.29136	-.02338	-.28533	.14012	.40777						
IMPULSE	-.01499	.08950	-.17671	-.20097	.03531	.15397	.25702					
EMOTION	.21626	.32973	-.14299	-.42953	-.09120	.32647	.36660	.60336				
BANDS	.27890	.33350	-.19688	-.47958	-.01632	.37321	.44587	.46740	.63117			
MASTERY	.28764	.29687	-.19246	-.56153	-.05702	.31041	.39107	.56505	.72579	.61752		
PSYCHO	.13891	.21778	-.09626	-.36855	-.09223	.26025	.33987	.59297	.73073	.59746	.69285	
SUPADJ	.16479	.19067	-.25657	-.52246	.02070	.24009	.24733	.45243	.48657	.50005	.63301	.41616

The statistically significant contrast between the drop out group and the physically active group indicated that the drop out group had reported significantly lower self-perceived ability ratings and a significantly earlier age of menarche than the physically active group members. The statistically significant contrast between the drop out group and the increaser group indicated that the drop out group members reported significantly higher and, consequently, more positive self-image characteristics on the emotion scale and the body and self-image scale of the psychological self than did the increaser group members.

Examination of the drop out group's mean scores on the dependent measures indicated several trends which were not statistically significant. The drop out group had the highest mean scores of the activity level groups on all of the psychological self and coping self-measures except for the mastery scale of the coping self. On the mastery scale the drop out group and the physically active group had almost identical mean scores (53.42:53.89).

The drop out group's mean on the self-perceived physical ability measure was at a mid-point between the highest mean of the active group and the lowest mean of the inactive group. The drop out group had the highest mean on the self-perceived attractiveness variable in comparison to the increaser group which reported the lowest mean. The drop out group reported the earliest mean age of menarche, 12.00 years, in comparison to the physically active group which reported the latest, 12.69 years.

On the Bem sex-role inventory, the drop out group's mean masculinity score was midway between the highest mean reported by the increaser group and the lowest mean reported by the inactive group. On the femininity measure, the drop out group and the active group reported the highest mean scores and the increaser group reported the lowest.

Finally, the drop out group members' reasons for decreasing their physical activity in adolescence are listed below. The past and present activity level ratings of the subjects are reported in parentheses following the reasons they gave for their activity decreases.

If your past level of physical activity is different from your current level, how would you explain the change? (Circle one.) (If the levels are the same, go to the next question.)

a. It's primarily due to my physical abilities. (6-4)(6-1)
b. It's primarily due to my interest in physical activity. (6-4)
c. It's primarily due to the influence of my friends. (5-3)(6-1)
d. It's primarily due to the influence of my family.
e. It's primarily doing what's appropriate for my age.
f. It's primarily due to the time I give to physical activities now compared to the time I give to other activities in my life. (4-2)(6-4)(6-4)(5-3)(5-2)(5-2)(6-3)(6-4)(6-4)(5-2)(6-4)
g. Other (use other side to explain your answer further). (5-3)(5-3)(6-1)

Some of the drop out group members made the following additional comments about their physical activity:

1. I don't have enough time any more. (5-3)
2. It's important for girls to be physically active to improve their outlook on themselves and life and also (to) improve their physical condition. (6-4)
3. I wish I were more active. (5-2)(6-3)(5-2)
4. Time; in summer I'm very active. (6-4)
5. I don't think (being active) is necessary. (5-2)
6. I like to party--my family pressures me to party in the wrong way which I wish I could stop. (6-1)
7. Not enough time and too much homework. (6-4)
8. I know I should exercise more . . . I'm a little lazy . . . a lack of self-motivation and willpower to do it by myself. (5-2)
9. I just moved here and haven't gotten into things yet; I do exercises to keep in shape more than some of the girls are. (5-3)
10. I have a job after school until 8:00 or 9:00. If I don't have to work, I have homework or chores at church. (5-2)
11. Knee injury. (5-3)
12. Piano lessons--I stopped volleyball 'cause it was hard on my fingers! Sports are a good reason to make friends, talk with people, and forget problems. (5-3)
13. I'm busy with school, and I'm quite lazy. (6-2)

14. I like to feel fit because I feel better about myself. Swimming is only in the summer . . . it's a strenuous exercise and it gets my muscles really toned. (6-4)
15. Work and school take up a lot of time. (6-4)

None of the drop out group members reported that they decreased physical activity because it was inappropriate for their age or because it was not an appropriate activity for a girl to pursue. Sixteen of the 18 drop out group subjects reported positive feelings about being physically active, and six of these subjects reported wishing they had the time to be more physically active. Only two of the drop out subjects reported that physical activity was not important or necessary to them.

Conclusions

One of the major findings of this study was that a majority of the adolescent women sampled were designated as physically active (66%). In addition, one-third or six of the subjects designated as dropouts were still physically active adolescents, and a small group of 11 adolescent women who had become physically active in adolescence were identified and designated as the increaser group.

Another important finding of this study was that the majority of the sample subjects reported androgeneous gender role identities (see p. 81). Further examination of the gender-role identities reported by the subjects when classified into the four physical activity level groups indicated that the majority of the physically active, drop out, and increaser group subjects had an androgeneous gender role identity. The majority of the inactive subjects had an undifferentiated gender role identity. A summary of the differences found among the physical activity level groups on the dependent variables is reported in Table 19.

Table 19
Summary of Comparisons Between Groups

	DEPENDENT VARIABLES											
	OFFER Self Image Questionnaire						BEM Sex Role Inventory		Physical Activity Level Questionnaire			
	Psychological Self Scales			Coping Self Scales								
	Impulse	Emotion	Body/Self Image	Mastery	Psychotherapy	Superior Adjustment	Masculinity	Femininity	Self-perceived Physical Ability	Self-perceived Attractiveness	Age	Age of Menarche
COMPARISON GROUPS	1	2	3	4	5	6	7	8	9	10	11	12
(1) Active : Inactive (2)	NS	1>2	1>2	1>2	1>2	1>2	1>2	1>2	1>2	NS	NS	NS
(1) Active : Drop out (3)	NS	NS	NS	NS	NS	NS	NS	NS	1>3	NS	NS	1 > 3
(1) Active : Increaser (4)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
(3) Drop out : Inactive (2)	NS	3>2	3>2	3>2	3>2	3>2	3>2	NS	3>2	NS	NS	NS
(3) Drop out : Increaser (4)	NS	3>4	3>4	NS	NS	NS	NS	NS	NS	NS	NS	NS
(4) Increaser : Inactive (2)	NS	NS	NS	NS	NS	NS	NS	4 < 2	4 > 2	NS	NS	NS

> scores significantly higher

< scores significantly lower

NS: no significant difference

According to the test results presented in Table 19, the following conclusions can be made. The active group in comparison to the inactive group reported the following psychological attributes:

1. greater ability to experience many different feelings with better emotional control (Scale 2);
2. more positive feelings about their physical bodies and the biological changes of adolescence (Scale 3);
3. better adaption to their immediate environment in terms of finishing tasks and handling crises (Scale 4);
4. less overt psychopathological (Scale 5);
5. greater ability to cope with themselves, significant others, and the intellectual and competitive challenges of the future (Scale 6);
6. more traditionally masculine and feminine characteristics; and
7. greater self-perceived physical ability.

The active group in comparison to the drop out group reported the following psychological attributes:

1. greater self-perceived physical ability and
2. later age of menarche.

The active group in comparison to the increaser group reported no statistically significant differences on the dependent variables.

The drop out group in comparison to the inactive group reported the following psychological attributes:

1. greater ability to experience many different feelings with better emotional control (Scale 2);
2. more positive feelings about their physical bodies and the biological changes of adolescence (Scale 3);
3. better adjustment to their immediate environment in terms of finishing tasks and handling crises (Scale 4);
4. less overt psychopathology (Scale 5);

5. greater ability to cope with themselves, significant others, and the intellectual and competitive challenges of the future (Scale 6);

6. more traditionally masculine characteristics; and

7. greater self-perceived physical ability.

The drop out group in comparison to the increaser group reported the following psychological attributes:

1. greater ability to experience many different feelings with better emotional control (Scale 2) and

2. more positive feelings about their physical bodies and the biological changes of adolescence (Scale 3).

The increaser group in compar-on to the inactive group reported the following psychological attributes:

1. less traditionally feminine characteristics and

2. greater self-perceived physical ability.

In addition, according to the step-wise multiple regression analysis which tested the contribution of past and present activity levels, masculinity score, femininity score, self-perceived ability ratings, and age of menarche to the prediction of each of the three psychologial self and coping self-scales, the following conclusions can be made.

1. The amount of total variance accounted for by the seven variables listed above on each of the psychological self and coping self-scales was 12.8% on the impulse scale, 30.3% on the emotion scale, 38.5% on the body and self-image scale, 41.3% on the mastery scale, 21.5% on the psychopathology scale, and 35% on the superior adjustment scale.

2. The masculinity variable was the most significant predictor variable for all of the psychological self and coping self-scales except for the impulse scale of the psychological self.

In summary, the step-wise multiple regression analysis indicated that the masculinity variable was the most significant predictor of the psychological self and coping self-scale scores that had a statistically significant effect for

physical activity level groups. However, all seven of the independent variables together did not account for the majority of the variance on any of the psychological self or coping self-scales reported in this study.

Finally, the subjects designated as the drop out group reported that they had decreased physical activity in adolescence because of a lack of time and the demands of other activities in their lives; i.e., school, jobs, and chores at home. The vast majority of the drop out subjects reported positive feelings about physical activity. None of the drop out subjects reported that she had decreased physical activity in adolescence because it was an inappropriate activity for an adolescent girl to pursue or because being physically active was unfeminine.

CHAPTER V

SUMMARY, INTERPRETATIONS, AND IMPLICATIONS FOR FUTURE RESEARCH

This chapter is divided into three main sections. The first section is a summary of this research project. The second section is an interpretation of the findings with respect to the theoretical concepts upon which the study was based. The third section suggests implications for future research.

Summary

The purpose of this study was to investigate the relationship of physical activity to mental health problems typically reported by women. High school adolescent women were chosen to be the sample subjects for the purpose of providing additional research findings about the adolescent stage of development for women and more specifically for the purpose of exploring the interplay of gender-role identity formation and physical activity in the psychological development of women during adolescence.

The psychological attributes which were investigated in this study were measures of the adolescent women's impulse control, emotional tone, body image satisfaction, sense of mastery, psychopathology, and superior adjustment as defined by the three psychological self-scales and the three coping self-scales of the Offer Self Image Questionnaire for adolescents, respectively.

The attributes measured by the Offer psychological self-scales were chosen for this study because national surveys, public health reports, and research related to gender differences in mental health consistently reveal women reporting greater emotional distress, fearfulness, depression, and less

satisfaction with their bodies than men (Offer, 1981; National Center for Health Statistics, 1970; Rubenstein, 1982). The Offer coping self-attributes were chosen for this study because psychological research has indicated that a sense of being able to cope and to control one's life is essential to mental health and psychological well-being (Campbell, 1981; Moore, 1980).

The Bem Sex Role Inventory modified for use with high school adolescents was used to measure the gender role identities and the masculine and feminine personality characteristics of the sample subjects. Physical activity was defined by the self-reported past and present physical activity level ratings of the subjects on the Physical Activity Level Questionnaire. The use of this self-report measure rather than a more objective measure of physical activity is based on the phenomenological foundation of this study which considers self-perceptions concerning psychological and physical attributes to be the basis of one's self-image and the guidelines for individual behavior (Combs & Snygg, 1959).

A survey of the literature regarding the effects of physical activity on psychological development indicates that a variety of positive psychological changes have been attributed to vigorous physical activity. The research results, however, are often confusing, and it is difficult to make a clear statement about the relationship between psychological and physical variables based on the research to date (Cooper, 1969; Dishman, 1982; Folkins & Sime, 1981; Layman, 1972). In addition, the vast majority of the resarch on physical activity and psychological development has been done with male subjects. High school adolescent women are seriously under-represented in the research which has contributed to theory in this area.

Literature related to adolescent mental health indicated that, in general, adolescents normally cope well with the challenges and crises of life.

Adolescent women, however, report more psychological distress than adolescent boys, and some resarch studies attempt to relate gender role characteristics to the gender-differences found in adolescent mental health (Lamke, 1982; Offer et al., 1981; Wells, 1980). Research in this area suggests that an androgeneous gender role identity is related to psychological well-being for adolescent girls. More precisely, it is suggested that the high masculinity inherent in the androgeneous gender-role, and the instrumentality which it represents is the key to the high psychological functioning of androgeneous adolescent girls. That is, if masculinity is defined by such attributes as being assertive, independent, self-reliant, self-sufficient, willing to take a stand, and willing to take risks, then women who share such attributes may be better able to cope with modern life with a high level of psychological well-being.

Research which relates physical activity and gender-role identity in adolescent female development is extremely limited and seemingly contradictory in its findings. Adolescent high school female athletes have been found to espouse very traditional feminine values in some studies and more masculine characteristics in others. No support was found for the theoretical position that physical activities in the form of sports or athletics presented a conflict for the female athlete. No studies were found that evaluated the psychological correlates or consequences of a decrease in physical activity in adolescence for the adolescent female.

The sample for this study consisted of 152 sophomore, junior, and senior high school adolescent female volunteers. The subjects were predominantly from middle class families. The mean age of the subjects was 16.44 years. The sample subjects were classified into physical activity level groups based on their self-reported past and present physical activity level ratings which were reported on a six-point rating scale. Subjects were designated as physically active if they

reported being active in childhood and adolescence, and their past and present activity levels did not differ by more than $\pm$ 1 rating scale points. Subjects were designated as inactive if they reported being inactive in childhood and adolescence, and their past and present activity levels did not differ by more than $\pm$ 1 rating scale points. Subjects were designated as drop outs if they reported a present activity level that was 2 or more rating scale points below their past activity level ratings. Subjects were designated as increasers if they reported a present activity level 2 or more rating scale points above their past activity level ratings.

A chi square analysis of the relationship between the physical activity level group and the gender role identity endorsed by the subjects indicated that the physical activity level groups did not differ on the basis of gender-role identity. Further examination of the data revealed that the majority of the subjects in the active group, drop out group, and increaser group reported an androgenous gender-role identity. The majority of the inactive subjects reported an undifferentiated gender-role identity.

Multivariate analysis of variance (MANOVA) and post hoc group comparison procedures were used to analyze the differences between the physical activity level groups on the psychological self-scales, coping self-scales, masculinity and femininity scales, self-perceived physical ability ratings, self-perceived attractiveness ratings, age, and age of menarche.

The physical activity level groups were found to be significantly different on the dependent variables. More specifically, the MANOVA procedures found a significant multivariate effect for physical activity level groups on the following variables: (a) emotion scale of the psychological self, (b) body and self-image scale of the psychological self, (c) mastery scale of the coping self, (d) psychopathology scale of the coping self, (e) superior adjustment scale of the

coping self, (f) masculinity scores, and (g) self-perceived physical ability ratings. The post hoc group comparison procedures found the following significant between-group comparisons.

The active group in comparison to the inactive group had higher scores on the emotion scale and the body and self-image scale of the psychological self; the mastery, psychopathology, and superior adjustment scales of the coping self; the masculinity and femininity measures; and on self-perceived physical ability ratings. These results indicate that the active group in comparison to the inactive group reported significantly higher psychological functioning on the psychological self and coping self-scales, more traditionally masculine and feminine personality attributes, and high self-perceived ability ratings.

The active group in comparison to the drop out group reported significantly higher self-perceived physical ability ratings and a significantly later age of menarche. The active group in comparison to the increaser group had no significant differences on any of the dependent variables.

The drop out group in comparison to the inactive group had significantly higher scores on the emotion scale and the body and self-image scale of the psychological self; the mastery, psychopathology, and superior adjustment scales of the coping self; the masculinity measure; and on self-perceived physical ability ratings. These results indicate that the drop out group in comparison to the inactive group reported significantly higher psychological functioning on the psychological self and coping self-scales, significantly more traditionally masculine characteristics, and significantly higher self-perceived ability ratings.

The drop out group in comparison to the increaser group reported significantly higher scores and consequently significantly higher psychological functioning on the emotion and body and self-image scales of the psychological self.

The increaser group in comparison to the inactive group reported significantly less traditionally feminine characteristics and significantly higher self perceived physical activity ratings.

(All of the above between-group comparisons are presented in Table 18, p. 105.)

Step-wise multiple regression analysis of the contribution of past and present activity level ratings, masculinity and femininity scores, self-perceived physical ability, self-perceived attractiveness, and age of menarche to the prediction of the psychological self-scales and the coping self-scales indicated the following:

1. the masculinity variable was the most significant predictor for all the psychological self-scales and the coping self-scales except for the impulse scale of the psychological self,
2. the most significant predictor of the impulse scale of the psychological self was self-perceived attractiveness ratings, and
3. the majority of the variance on all the criterion variables was accounted for by attributes not addressed in this study.

Finally, those subjects designated as the drop out group in this study were found to be characterized by high psychological functioning, androgeneous gender-role identities, and positive feelings about physical activity. In addition, none of the drop out group subjects reported decreasing physical activity because of gender-role conflicts.

Interpretation

One of the major findings of this study was that a majority of the adolescent high school women sampled described themselves as physically active. This finding seems to reflect the tremendous changes in the cultural expectations for girls and women regarding physical activity that have taken place in American society in the last several decades. The sample subjects

appeared to be reporting that being physically active was a normal part of their daily lives and a natural part of their self-image and social role. This finding is in stark contrast to Baker's survey results in 1940 that found adolescent girls and women's physical activity patterns to be capricious and minimal. In addition, the negative skew of the data toward a self-report of being physically active seems to indicate that it may have become socially desirable for high school adolescent women to be physically active or at least to report being physically active. This finding also appears to refute the theory that physical activity in adolescence represents a crisis for adolescent women (Barkwick, 1971; Tyler, 1973) and suggests that physically active adolescent girls do not experience the negative sanction or disapproval from their male peers that Sherriff noted was present for high school girls in her 1971 study.

The high activity level of the sample subjects further suggests that the gender-role identity for girls and women in our society is incorporating the competitiveness, assertiveness, and physical and psychological vigor that has typified the traditional masculine gender-role in our culture. If this is true, the gender role identities of the sample subjects would also include high levels of traditionally masculine personality characteristics, but not necessarily lower levels of traditionally feminine personality characteristics. More specifically, the predominantly physically active sample subjects would be expected to report more androgenenous gender-role identities. This expectation was substantiated by this research which found the majority of the sample subjects reporting androgenous gender-role identities. This finding may explain some of the apparently-contradictory findings of earlier studies in which physically active girls were characterized by traditionally feminine values in some studies and by more masculine characteristics in others studies in which a standardized gender-role inventory was not used to evaluate masculine and feminine attributes.

The suggestion that physical activity and androgenous gender-role identities would be associated for adolescent high school women was further supported in this study by the analysis of the four physical activity level groups in terms of gender-role identity. The finding that the majority of the physically active, drop out, and increaser group subjects in comparison to the inactive group subjects reported androgeneous gender-role identities seems to suggest that being physically active in childhood and/or adolescence is associated with a gender-role identity that includes high levels of traditionally masculine and feminine personality characteristics. The fact that the majority of the physically inactive group subjects reported an undifferentiated gender role identity may also indicate that without the experience of physical activity at some time in her life, the adolescent high school female may not develop a self image that is as stable or as clearly defined as her more physically active counterparts. In addition, this result is intriguing because it suggests that physical activity in comparison to physical inactivity may be associated with a higher level of traditionally feminine characteristics for high school women.

In summary, this study lends support to the literature that suggests that physical activity is associated with high levels of masculine attributes as well as high levels of feminine attributes for women (Helmreich & Spence, 1977a, in Harris, 1978). It must be noted that the gender-role identities of these sample subjects were determined using only women's scores. The inclusion of a comparison group of male subjects could have altered the number of subjects in each category and the rank order of the gender-role categories for this sample. For instance, the inclusion of a male sample could have raised the median masculinity score and lowered the median femininity score and resulted in fewer androgenous and more feminine female subjects. This characteristic of the data does not alter the findings within this study, but should be considered when

making comparisons between the gender role identities of the subjects in this all-woman sample and those of women whose gender-role identities were developed with the use of a male sample as well.

The literature regarding the relationship of gender role identity and mental health suggests that androgeny and, more specifically, the high masculinity that the androgeneous gender-role represents is associated with superior adjustment and high self-esteem for adolescent girls and women (Del Ray & Sheppard, 1981; Jones et al., 1978; Lamke, 1982; Wells, 1980). The results of this study which indicated that the predominately androgenous physically active and drop out group reported significantly better psychological adjustment than the predominantly undifferentiated physically inactive group on two of the psychological self-scales and all three of the coping self-scale lends support to the literature which associates androgeny and high psychological functioning for adolescent girls. In addition, the fact that the active group and the drop out group, in comparison to the inactive group, had significantly higher masculinity scores lends further support to the literature which reports the association of high masculinity and positive psychological functioning for adolescent girls.

These results indicate that physical activity in childhood and/or adolescence, in comparison with physical inactivity in childhood and adolescence is associated w th healthier emotional expression and emotional control and with higher levels of self-perceived mastery and coping skills for adolescent women. Consequently, this study indicates that physical activity may be inversely related to the mental health problems of fearfulness, depression, anxiety, and lack of self-confidence that women typically experience (Campbell, 1981; Chesler, 1971; National Center for Health Statistics, 1970); however, it would be premature to infer a causal relationship between these variables.

It also seems that a decrease of physical activity in adolescence does not necessarily result in psychological distress for adolescent women. In fact, in addition to having significantly higher scores than the inactive group on the psychological self and coping self-measures, the drop out group's scores were as high as the active and increaser groups' as well. The high psychological functioning of the drop out group may be understood when other characteristics of this group are examined. First, one-third of the drop outs are still physically active because they reported a very active past level of physical activity score of (6) and a slightly active present level of physical activity score of (4). In addition, the drop out group's means for physical activity level were higher than the physically active group's means for both present and past activity. Consequently, the drop out subjects are made up of a significant number of adolescents whose past and present physical activity could still be enhancing to their psychological functioning. Second, the majority of the drop out subjects reported an androgenous gender-role identity and, in comparison to the inactive group, had significantly higher masculinity scores. Consequently, a significant number of the drop out subjects report a high level of masculine personality attributes which are associated, in the literature, with high psychological functioning. Third, the drop out subjects reported that they had decreased physical activity due to a lack of time and the demands of other important activities in their lives, jobs, school work, chores, etc. Consequently, the drop out subjects seem to be making choices between activities which are important to them in adolescence and not between physical activity and inactivity. It is possible that the drop out subjects have translated their physical activity in childhood into other forms of instrumental and self-enhancing activities in adolescence.

None of the drop out subjects reported that she had to decrease her physical activity because of gender-role conflicts. Consequently, these subjects were not reporting any dissonance between their physical activity in childhood and their adolescent activities. It could again be interpreted, therefore, that the experience of physical activity in childhood had been personally rewarding and self-enhancing for the drop out subjects, and the self-esteem that was gained through their childhood physical activity could be understood as continuing to contribute to the healthy functioning of the drop out subjects in adolescence. This interpretation is supported by the fact that nearly all of the drop out subjects expressed positive feelings about physical activity on the physical activity level questionnaire. Finally, the drop out group subjects appear to be actually physically active adolescents who describe themselves as decreasers in terms of physical activity instead of drop outs.

Further examination of the significant comparisons between the physical activity level groups suggests the following additional associations between physical activity and psychological functioning for adolescent women.

1. The finding that the active group in comparison to the drop out group had significantly higher physical ability ratings and significantly later ages of menarche but had no significant differences on the psychological self or coping self-scales suggest that a high level of self-perceived physical ability and a later onset of puberty may differentiate between a group of adolescent women who continue to be physically active in adolescence and a group of women who decrease physical activity in adolescence. Also, the physiological characteristics represented by lower physical ability and/or earlier age of menarche may be causal factors in the translation of childhood physical activities into other psychologically healthy and self-fulfilling activities in adolescence by high school women. But these results do not indicate that the drop out group subjects experience any psychological distress due to the influence of these attributes on their physical activity level.

2. The finding that the drop out group in comparison to the increaser group reported significantly higher psychological functioning in terms of the expression and control of feelings, but no significant differences in terms of a sense of mastery or

> coping skills suggests that physical activity experienced in different stages of a woman's life may be associated with different aspects of psychological functioning. These findings suggest that an increase of physical activity in adolescence may be associated with positive feelings of mastery, but it may not be associated with a similarly high level of emotional expressiveness and emotional control that may be associated with physical activity experienced in childhood.

Several characteristics of the sample used in this study must be considered in the interpretation of the results. First, the large number of subjects who reported an active physical activity level in comparison to the other activity level groups resulted in very disparate group sizes. This characteristic does not negate the statistically significant findings, but it is difficult to interpret the effect of the independent variable given such large group differences. The small number of univariate differences in several of the significant between-group comparisons also makes interpretation of the results unclear. Secondly, the fact that one-third of the drop out subjects are still physically active adolescents resulted in physical activity level categories which were not mutually exclusive. Third, the a priori categorization of subjects into physical activity level groups forced an analysis of physical activity as a dichotomous variable. Consequently, even though the multivariate analysis of variance procedures indicated that the physical activity level groups were different on the dependent variables, the sizes and composition of the groups make the results difficult to interpret in terms of the effect of physical activity on the dependent measures.

Therefore, the step-wise multiple regression procedures were used in order to assess the effect of physical activity as a continuous variable (past and present physical activity level ratings) on the psychological self and coping self-scores, and because the physical activity groups were so disparate in group size and did not represent mutually exclusive physical activity level categories. The step-wise multiple regression procedures supported the association of the

masculinity variable with the high psychological functioning of active and drop out group subjects in comparison to the inactive group subjects. Past and present activity level ratings were shown not to be associated with the dependent variables, and the regression procedures also indicated that variables not addressed in this study accounted for the majority of the variance on the dependent variables. Within these limitations, therefore, this study indicates that for adolescent high school women, physical activity in childhood and/or adolescence in comparison to physical inactivity is associated with higher psychological functioning as measured by the Offer psychological self scales and coping self-scales and higher masculinity scores as measured by the Bem Sex Role Inventory.

Implications for Future Research

Further research is needed to establish the effect of physical activity on psychological functioning. The relationship of physical activity to psychological functioning suggested by this study needs to be substantiated and clarified by experimental studies that evaluate the causal relationships between specific physical activities and various specific psychological variables. For instance, more objective and behavioral measures of adolescent adjustment such as school achievement, peer relationships, teacher evaluations, and other psychological measures of adolescent functioning such as the California Psychological Inventory could be used to evaluate the psychological functioning and adjustment of adolescents whose physical activity could be determined by more specific and objective measures than the self-report measures used in this study.

Another research focus suggested by this study is the clarification of physical activity as an antecedent behavior or as a behavioral consequence of positive psychological functioning. The results of this study indicated that

physical activity at some point in an adolescent woman's life may be associated with different aspects of psychological well-being. It seems logical to assume, therefore, that at different stages of life, physical activity could be either the cause or result of various important psychological changes or attributes. However, the differential effects of various physical activities for girls and women at varying stages of life and with differing developmental needs remains to be substantiated by further research.

The results of this study also suggest that physical activity and traditionally masculine personality characteristics may be related to each other and to high psychological functioning for adolescent women. How these attributes interact and how they are related remains to be clarified.

In summary, the results of this study seem both a reflection and a prediction of tremendous changes in the gender roles of women in our society. The ramifications of these changes present a significant challenge to the social and political institutions of our culture and to researchers and providers of mental health services in the field of psychology who will be called upon by women and men to provide competent information and guidance for the enhancement of human life and interpersonal functioning in this time of significant flux and change.

APPENDICES

APPENDIX A

PERMISSION LETTER,

WILLIAMSTON HIGH SCHOOL PRINCIPAL

WILLIAMSTON
HIGH SCHOOL

3845 vanneter road, williamston, michigan 48895

High School Office – 655-2112
Central Administration – 655-4361
Community Education – 655-3580
Business Office – 655-1205

September 13, 1983

Mrs. Linda Covey
503 E. Middle St.
Williamston, MI 48895

Dear Linda:

Thank you for taking the time to talk with our teachers concerning the study you desire to do with some of our students.

After reviewing the information you presented to me and talking with the teachers I would encourage you to follow through with your plans to work with the students October 24 and 27. Your study appears to be very appropriate for our girls. We are interested in seeing the results that are generated.

Best of luck. I am looking forward to talking to you again soon.

Sincerely,

Larry F. Mason
Principal

bc

APPENDIX B

PERMISSION LETTER,

HUMAN SUBJECTS COMMITTEE

MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
238 ADMINISTRATION BUILDING
(517) 355-2186

EAST LANSING • MICHIGAN • 48824

September 16, 1983

Mrs. Linda A. Covey
503 E. Middle Street
Williamston, Michigan 48895

Dear Mrs. Covey:

Subject: Proposal Entitled, "The Role of Physical Activity in Selected Aspects of Adolescent Female Psychological Development"

I am pleased to advise that I concur with your evaluation that this project is exempt from full UCRIHS review, and approval is herewith granted for conduct of the project.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval prior to September 16, 1984.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,

Henry E. Bredeck
Chairman, UCRIHS

HEB/jms

cc: Kagan

APPENDIX C

PHYSICAL ACTIVITY LEVEL QUESTIONNAIRE

PHYSICAL ACTIVITY QUESTIONNAIRE

NUMBER _____

DATE _____

Please think about your physical activities for the last two weeks. List and describe them as indicated below:

	Activity	Circle number of times each week					Circle number of hours each time				
a.		1	2	3	4	5	½	1	1½	2	2½
b.		1	2	3	4	5	½	1	1½	2	2½
c.		1	2	3	4	5	½	1	1½	2	2½
d.		1	2	3	4	5	½	1	1½	2	2½
e.		1	2	3	4	5	½	1	1½	2	2½
f.		1	2	3	4	5	½	1	1½	2	2½
g.		1	2	3	4	5	½	1	1½	2	2½
h.		1	2	3	4	5	½	1	1½	2	2½
i.		1	2	3	4	5	½	1	1½	2	2½

Examples: walking, bike riding, jogging, swimming, dancing, sport games, exercising, hiking, sports practice, dance practice, playing catch, walking to school every day, walking to town etc.

Are you active in any of your school's varsity or junior varsity sports teams? (Circle yes or no.)

YES

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you have participated:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you meet each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you participate a week, circle how many hours you meet:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

NO

If no, have you been involved in such an activity in the past (include middle school or before)? (Circle yes or no.) YES NO

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you were involved:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you participated each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you met each week, circle how many hours you participated:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

Please explain why you are no longer involved (circle best answer(s).)

a. I lost interest

b. I began to feel uncomfortable about participating

c. I didn't make the team.

d. I saw I wasn't as good as the others, so I dropped out.

e. No one in my family supported my involvement in these activities, so I dropped out and got into activities my family supported.

f. My friends were involved in other things, so I dropped out of these activities to have more time with my friends.

g. Other (please use back of sheet to explain).

Are you involved in any after school sports program (intramurals), a community-sponsored sports program, private sports lab, exercise class, or any other type of organized physical activity?

YES

If yes, please name each activity:

a.

b.

c.

d.

e.

(Please use back of page if necessary.)

For each activity, circle how many years you have participated:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you meet each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you participate a week, circle how many hours you meet:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

NO

If no, have you been involved in such an activity in the past (include middle school or before)? (Circle yes or no.)

YES NO

If yes, please name each activity:

a.

b.

c.

d.

e.

(Please use back of page if necessary.)

For each activity, circle how many years you were involved:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you participated each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you met each week, circle how many hours you participated:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

Please explain why you are no longer involved (circle best answer(s).)

a. I lost interest

b. I began to feel uncomfortable about participating

c. I didn't make the team.

d. I saw I wasn't as good as the others, so I dropped out.

e. No one in my family supported my involvement in these activities, so I dropped out and got into activities my family supported.

f. My friends were involved in other things, so I dropped out of these activities to have more time with my friends.

g. Other (please use back of sheet to explain).

Are you involved in any other type of organized physical activity; for instance, an exercise class, dance class, karate class, self-defense class, etc. (Circle yes or no.)

YES

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you have participated:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you meet each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you participate a week, circle how many hours you meet:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

NO

If no, have you been involved in such an activity in the past (include middle school or before)? (Circle yes or no.) YES NO

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you were involved:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you participated each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you met each week, circle how many hours you participated:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

Please explain why you are no longer involved (circle best answer(s).)

a. I lost interest

b. I began to feel uncomfortable about participating

c. I saw I wasn't as good as the others, so I dropped out.

d. No one in my family supported my involvement in these activities, so I dropped out and got into activities my family supported.

e. My friends were involved in other things, so I dropped out of these activities to have more time with my friends.

f. Other (please use back of sheet to explain).

Are you involved in any of your school's intramural (after school) sports programs? (Circle yes or no.)

YES

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you have participated:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you meet each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you participate a week, circle how many hours you meet:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

NO

If no, have you been involved in such an activity in the past (include middle school or before)? (Circle yes or no.) YES NO

If yes, please name each activity:

a.

b.

c.

(Please use bottom of page if necessary.)

For each activity, circle how many years you were involved:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each activity, circle how many times you participated each week:

Activity a: 1 2 3 4 5

Activity b: 1 2 3 4 5

Activity c: 1 2 3 4 5

For each time you met each week, circle how many hours you participated:

Activity a: ½ 1 1½ 2 2½

Activity b: ½ 1 1½ 2 2½

Activity c: ½ 1 1½ 2 2½

Please explain why you are no longer involved (circle best answer(s).)

a. I lost interest

b. I began to feel uncomfortable about participating

c. I didn't make the team.

d. I saw I wasn't as good as the others, so I dropped out.

e. No one in my family supported my involvement in these activities, so I dropped out and got into activities my family supported.

f. My friends were involved in other things, so I dropped out of these activities to have more time with my friends.

g. Other (please use back of sheet to explain).

Are you exercising regularly as a part of your normal, personal schedule? (Include any sport or dance practice, physical therapy, as well as regular calesthenics.) (Circle yes or no.)

YES

If yes, please name the exercise(s):

a.

b.

c.

(Use bottom of page if necessary.)

For each type of exercise, circle how many years you have been doing it:

Exercise a:	1	2	3	4	5	5+
Exercise b:	1	2	3	4	5	5+
Exercise c:	1	2	3	4	5	5+

For each type of exercise, circle how many times a week you do it:

Exercise a:	1	2	3	4	5	5+
Exercise b:	1	2	3	4	5	5+
Exercise c:	1	2	3	4	5	5+

For each time you exercise a week, circle how many hours you exercise:

Exercise a:	¼	½	1	1¼	1½	2
Exercise b:	¼	½	1	1¼	1½	2
Exercise c:	¼	½	1	1¼	1½	2

NO

If no, have you exercised in the past? (Circle yes or no.)

YES NO

If yes, please name the exercise(s):

a.

b.

c.

(Please use back of page if necessary.)

For each exercise, how many years did you do it?

Exercise a:	1	2	3	4	5	5+
Exercise b:	1	2	3	4	5	5+
Exercise c:	1	2	3	4	5	5+

For each exercise, circle how many times a week you did it:

Exercise a:	1	2	3	4	5	5+
Exercise b:	1	2	3	4	5	5+
Exercise c:	1	2	3	4	5	5+

For each time you exercised, circle how many hours you did it:

Exercise a:	¼	½	1	1¼	1½	2
Exercise b:	¼	½	1	1¼	1½	2
Exercise c:	¼	½	1	1¼	1½	2

Please explain why you are no longer exercising. (Circle best answer(s).)

a. I lost interest. Exercise became less important to me.

b. As I got older, exercising became too much hard work.

c. I didn't feel good enough at it to continue.

d. No one in my family thought exercising was very important, so I gradually stopped it.

e. None of my friends exercised regularly, so I just gradually stopped.

f. Other (please use back of page to explain).

When you get together with your friends, do you typically become involved in activity-oriented things like taking walks, bike riding, playing catch, sport games, include any exercise you do on your own as part of your normal personal schedule.

YES

If yes, please name the activities:

a.

b.

c.

d.

e.

f.

(Use bottom of page if necessary.)

Circle how many years you have been active in these kinds of activities:

1 2 3 4 5 5+

Circle how many times a week you participate in these kinds of activities:

1 2 3 4 5 5+

Circle how many hours you participate each time in each activity:

½ 1 1½ 2 2½ 3 3+

NO

If no, have you been active in these kinds of activities in the past? (Circle yes or no.)

YES NO

If yes, please name the activities:

a.

b.

c.

d.

e.

f.

(Use back of page if necessary.)

Circle how many years you were active in these kinds of activities:

1 2 3 4 5 5+

Circle how many times a week you participated in such activities:

1 2 3 4 5 5+

Circle how many hours you participated each time in each activity:

½ 1 1½ 2 2½ 3

Please explain why you are no longer involved in these activities. (Circle best answer(s).)

a. I lost interest.

b. My friends were doing other things.

c. I was never very good at these kinds of activities, so I gradually stopped doing them as I got older.

d. My family was doing other things.

e. Other (please use back of page to explain).

How would you rate your current level of physical activity compared to other girls your age? (Circle one.)

VERY INACTIVE	INACTIVE	SLIGHTLY INACTIVE	SLIGHTLY ACTIVE	ACTIVE	VERY ACTIVE

Why do you think your level of physical activity is at this current level? (Circle one.)

a. It's primarily due to my physical abilities.

b. It's primarily due to my interest in physical activity.

c. It's primarily due to the influence of my friends.

d. It's primarily due to the influence of my family.

e. It's primary doing what's appropriate for my age.

f. Other (use this space to explain your answer further).

How would you rate your past level of physical activity compared to other girls your age? (Circle one.)

VERY INACTIVE	INACTIVE	SLIGHTLY INACTIVE	SLIGHTLY ACTIVE	ACTIVE	VERY ACTIVE

Why do you think your past level of physical activity was at the level you indicated? (Circle one.)

a. It was primarily due to my physical abilities.

b. It was primarily due to my interest in physical activity.

c. It was primarily due to the influence of my family.

d. It was doing what was appropriate for my age.

e. Other (use this space to explain your answer further).

If your past level of physical activity is different from your current level, how would you explain the change? (Circle one.) (If the levels are the same, go to the next question.)

a. It's primarily due to my physical abilities.

b. It's primarily due to my interest in physical activity.

c. It's primarily due to the influence of my friends.

d. It's primarily due to the influence of my family.

e. It's primarily doing what's appropriate for my age.

f. Other (use this space to explain your answer further).

How do you feel about being physically active compared to other girls your age? (Circle one.)

STRONGLY NEGATIVE FEELINGS	NEGATIVE FEELINGS	SLIGHTLY NEGATIVE FEELINGS	SLIGHTLY POSITIVE FEELINGS	POSITIVE FEELINGS	STRONGLY POSITIVE FEELINGS

Please explain:

Do you have any special physical history or experience which might influence your involvement in physical activities (for instance, being too tall, too short, too heavy, too light, lack of coordination, etc.)?

YES NO

If yes, please explain:

Do you have any special medical history which might influence your involvement in physical activities (for instance, asthma, heart murmur, diabetes, other physical handicaps)?

YES NO

If yes, please explain:

APPENDIX D

OFFER SELF-IMAGE QUESTIONNAIRE:

PSYCHOLOGICAL SELF

PS-I. Impulse Control. This scale measures the extent to which the ego apparatus of the adolescent is strong enough to ward off the various pressures that exist in his internal and his external environments.

Example 1. Even under pressure, I manage to remain calm. (+)

Example 2. I carry many grudges. (-)

A low standard score suggests a person whose defensive structure is poorly organized. He has low frustration tolerance and often acts on impulse. A high standard score suggests a person with a well-developed ego apparatus that enables him to delay gratification.

Psychological Self (PS-I): Impulse Control

1.[1] I carry many grudges. (-)[2]

8. I "lose my head" easily. (-)

17. At times I have fits of crying and/or laughing that I seem unable to control. (-)

34. I can take criticism without resentment.

50. I get violent if I don't get my way. (-)

59. Even under pressure I manage to remain calm.

69. I keep an even temper most of the time.

81. I fear something constantly. (-)

123. Usually I control myself.

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

PS-2. Emotional Tone. This scale measures the degree of affective harmony within the psychic structure, the extent to which there is fluctuation in the emotions as opposed to feelings that remain relatively stable.

Example 1. I enjoy life. (+)

Example 2. I am so very anxious. (-)

A low standard score shows poor affective control or great emotional fluctuation. A high standard score shows that the individual has an ability to experience many affects satisfactorily.

Psychological Self (PS-2): Emotional Tone

12.[1] I feel tense most of the time. (-)[2]

23. I feel inferior to most people I know. (-)

32. Most of the time I am happy.

38. My feelings are easily hurt. (-)

44. I feel relaxed under normal circumstances.

54. I am so very anxious. (-)

66. I feel so very lonely. (-)

68. I enjoy life.

100. Even when I am sad I can enjoy a good joke.

130. I frequently feel sad. (-)

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

PS-3. Body and Self-Image. This scale indicates the extent to which the adolescent has adjusted to or feels awkward about his or her body.

Example 1. I am proud of my body. (+)

Example 2. I frequently feel ugly and unattractive. (-)

A low standard score shows continuing confusion about body boundaries or awkwardness about body changes taking place in adolescence. A high standard score shows a well-structured self-concept with well-defined body boundaries.

Psychological Self (PS-3): Body and Self-Image

6.[1] The recent changes in my body have given me some satisfaction.

27. In the past year I have been very worried about my health. (-)[2]

42. The picture I have of myself in the future satisfies me.

57. I am proud of my body.

72. I seem to be forced to imitate the poeple I like. (-)

82. Very often I think I am not at all the person I would like to be. (-)

90. I frequently feel ugly and unattractive. (-)

94. When others look at me they must think that I am poorly developed. (-)

99. I feel strong and healthy.

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

APPENDIX E

OFFER SELF-IMAGE QUESTIONNAIRE:

COPING SELF

CS-1. Mastery of the External World. This scale demonstrates how well an adolescent adapts to the immediate environment.

Example 1. When I decide to do something, I do it. (+)
Example 2. I feel that I have no talent whatsoever. (-)

A low standard score shows an inability to visualize oneself finishing a task. A high standard score shows a well-functioning adolescent who is able to deal with frustration.

Coping Self (CS-1): Mastery of the External World

3.[1] Most of the time I think that the world is an exciting place to live in.

19. If I put my mind to it I can learn almost anything.

35. My work, in general, is at least as good as the work of the guy next to me.

41. When I want something I just sit around wishing I could have it. (-)[2]

76. When I decide to do somthing, I do it.

103. I find life an endless series of problems without solution in sight. (-)

105. I feel that I am able to make decisions.

109. I feel that I have no talent whatsoever. (-)

128. I am fearful of growing up. (-)

129. I repeat things continuously to be sure that I am right. (-)

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

CS-2. Psychopathology. This scale identifies overt or severe psychopathology.

Example 1. No one can harm me just by not liking me. (+)

Example 2. I am confused most of the time. (-)

A low standard score points to severe psychopathology on a clinical level. A high standard score points to relative lack of overt symptomatology.

Coping Self (CS-2): Psychopathology

2.[1] I am afraid that someone is going to make fun of me. (-)[2]

22. I am confused most of the time. (-)

29. I often blame myself even when I'm not really at fault. (-)

36. Sometimes I feel so ashamed of myself that I just want to hide in a corner and cry. (-)

45. I feel empty emotionally most of the time. (-)

61. I often feel that I would rather die than go on living. (-)

78. Other people are not after me to take advantage of me.

93. Even though I am continuously on the go I seem unable to get things done. (-)

96. I believe I can tell the real from the fantastic.

108. When I enter a new room I have a strange and funny feeling. (-)

111. When I am with people I am bothered by hearing strange noises. (-)

126. I do not have many fears which I cannot understand.

127. No one can harm me just by not liking me.

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

CS-3. Superior Adjustment. This scale measures how well the adolescent copes with himself, significant others, and his world. This scale could also be defined as a measure of ego strength.

Example 1. Dealing with new intellectual subjects is a challenge for me. (+)

Example 2. I am certain that I will not be able to assume responsibilities for myself in the future. (-)

A low standard score indicates that the adolescent does not deal adequately with his environment. A high standard score indicates a well-functioning coping system.

TABLE I

Coping Self (CS-3): Superior Adjustment

11.[1] If I would be separated from all the people I know, I feel that I would not be able to make a go of it. (-)[2]

25. I do not like to put things in order and make sense of them. (-)

39. When a tragedy occurs to one of my friends I feel sad too.

43. I am a superior student in school.

49. Our society is a competitive one and I am not afraid of it.

53. I find it very difficult to establish new friendships. (-)

56. Working closely with another fellow never gives me pleasure. (-)

84. If I know that I will have to face a new situation I will try in advance to find out as much as is possible about it.

89. Whenever I fail in something I try to find out what I can do in order to avoid another failure.

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

TABLE I

Coping Self (CS-3): Superior Adjustment (cont'd)

107. I am certain that I will not be able to assume responsibilities for myself in the future. (-)

110. I do not rehearse how I might deal with a real coming event. (-)

114. I do not enjoy solving difficult problems. (-)

121. Worrying a little about one's future helps to make it work out better.

125. Dealing with new intellectual subjects is a challenge for me.

---

1. Item number corresponds to item number on the OSIQ.

2. Minus (-) indicates item is reversed for scoring.

APPENDIX F

INTERNAL CONSISTENCY OF EACH OSIQ SCALE SCORE FOR FOUR SEPARATE NORMAL POPULATIONS

INTERNAL CONSISTENCY OF EACH OSIQ SCALE
SCORE FOR FOUR SEPARATE NORMAL POPULATIONS

	Younger Males[1] n=326	Older Males[2] n=192	Younger Females[3] n=278	Older Females[4] n=154
Psychological Self (PS)				
PS-1 Impulse Control	.52	.69	.76	.70
PS-2 Emotional Tone	.40	.79	.78	.81
PS-3 Body and Self-Image	.38	.62	.66	.56
Social Self (SS)				
SS-1 Social Relationships	.61	.76	.78	.71
SS-2 Morals	.60	.51	.56	.36
SS-3 Vocat.-Educ. Goals	.57	.69	.61	.61
Sexual Self (SxS)				
SxS Sexual Attitudes	.43	.55	.67	.48
Family Self (FS)				
FS Family Relationships	.57	.83	.87	.88
Coping Self (CS)				
CS-1 Mastery of the External World	.48	.58	.60	.63
CS-2 Psychopathology	.66	.73	.75	.68
CS-3 Superior Adjustment	.52	.60	.60	.61

1. Sample collected in Chicago suburbs in 1962.
2. Sample collected in Chicago area in 1966.
3. Sample collected in Chicago suburbs in 1969.
4. Sample collected in Chicago area in 1966.

APPENDIX G

COMPARISON OF YOUNG AND OLD, MALES AND FEMALES FOR EACH SCALE FOR OFFER SELF-IMAGE QUESTIONNAIRE

Comparison of Young and Old, Males and Females for Each Scale																
	Means								P-Values							
Scales	YM	YF	OM	OF	O	Y	M	F	Y vs O	M vs F	YM vs YF	OM vs OF	YM vs OM	YF vs OF	YM vs OF	YF vs OM
I Impulse control	2.20	2.67	2.20	2.44	2.32	2.33	2.20	2.53	NS	<.05	NS	NS	NS	<.05	NS	NS
II Emotional tone	2.25	2.39	2.38	2.41	2.39	2.29	2.30	2.40	<.05	NS	NS	NS	NS	NS	NS	NS
III Body and self-image	2.30	2.77	2.44	2.38	2.41	2.44	2.35	2.53	NS	<.05	<.05	NS	NS	NS	NS	NS
IV Social relationship	2.38	2.26	2.13	2.04	2.09	2.35	2.29	2.13	<.05	<.05	NS	NS	NS	NS	NS	NS
V Morals	2.49	2.19	2.21	1.94	2.08	2.41	2.38	2.04	<.05	<.05	NS	NS	NS	NS	NS	NS
VI Sexual attitudes	2.43	3.11	2.76	2.87	2.82	2.62	2.55	2.97	<.05	<.05	NS	NS	NS	NS	NS	NS
VII Family relationship	2.67	2.26	2.14	1.94	2.04	2.55	2.47	2.07	<.05	<.05	NS	NS	NS	NS	NS	NS
VIII Mastery of external problems	2.44	2.31	2.26	2.14	2.20	2.40	2.37	2.21	<.05	<.05	NS	NS	NS	NS	NS	NS
IX Vocational educational goals	2.24	1.81	1.81	1.72	1.76	2.12	2.08	1.75	<.05	<.05	NS	NS	NS	NS	NS	NS
X Psychopathology	2.25	2.50	2.27	2.39	2.33	2.32	2.26	2.43	NS	<.05	NS	NS	NS	NS	NS	NS
XI Superior adjustment	2.33	2.48	2.40	2.32	2.36	2.37	2.36	2.38	NS	NS	NS	NS	NS	NS	NS	NS

APPENDIX H

COMPARISON OF NORMAL AND DISTURBED, MALE AND FEMALE FOR OFFER SELF-IMAGE QUESTIONNAIRE

Comparison of Normal and Disturbed, Male and Female

	Scales	Means				*P*-Levels	
		MD	FD	MN	FN	MD vs MN	FD vs FN
I	Impulse control	2.81	2.97	2.25	2.53	<.05	<.05
II	Emotional tone	2.88	3.14	2.35	2.40	<.05	<.05
III	Body and self-image	2.97	2.74	2.42	2.53	<.05	NS
IV	Social relationship	2.65	2.44	2.31	2.13	<.05	<.05
V	Morals	2.42	2.61	2.33	2.04	NS	<.05
VI	Sexual attitudes	2.81	2.48	2.57	2.97	NS	<.05
VII	Family relationship	2.95	3.11	2.40	2.07	<.05	<.05
VIII	Mastery of external problems	2.58	2.67	2.34	2.21	NS	<.05
IX	Vocational and educational goals	2.12	2.47	1.99	1.75	NS	<.05
X	Psychopathology	2.76	2.87	2.29	2.43	<.05	<.05
XI	Superior adjustment	2.73	2.73	2.35	2.38	<.05	<.05

APPENDIX I

BEM SEX-ROLE INVENTORY

MODIFIED FOR HIGH SCHOOL ADOLESCENTS

BEM INVENTORY

Developed by Sandra L. Bem, Ph.D.

Identification no. _____ Age _____ Sex _____

Years in school _____

DIRECTIONS

On the opposite side of this sheet, you will find listed a number of personality characteristics. We would like you to use those characteristics to describe yourself; that is, we would like you to indicate, on a scale from 1 to 5, how true of you each of these characteristics is. Please do not leave any characteristics unmarked.

Example: HAPPY

(1) Always or almost always true
(2) Usually true
(3) Occasionally true
(4) Usually not true
(5) Never or almost never true

Thus, if you feel that you are usually happy, you would rate yourself as:

happy	2

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1	2	3	4	5
always or almost always true	usually true	occasionally true	usually not true	never or almost never true

Defend my own beliefs		Have leadership abilities	
Affectionate		Eager to soothe hurt feelings	
Conscientious		Secretive	
Independent		Willing to take risks	
Sympathetic		Warm	
Moody		Adaptable	
Assertive		Dominant	
Sensitive to needs of others		Tender	
Reliable		Conceited	
Strong personality		Willing to take a stand	
Understanding		Love children	
Jealous		Tactful	
Forceful		Aggressive	
Compassionate		Gentle	
Truthful		Conventional	

Definitions for BEM Inventory

CONSCIENTIOUS: Upright, faithful, careful, particular; someone who is careful to do their homework everyday is being conscientious about doing their homework.

ASSERTIVE: To state or affirm or declare oneself firmly and positively.

RELIABLE: Trustworthy and dependable.

COMPASSIONATE: To feel sorrow or sympathy for someone else who is suffering.

ADAPTABLE: Able to adjust or fit into new situations.

TACTFUL: Having a sense of how to say or do things in difficult situations carefully and with sensitivity.

CONVENTIONAL: Conforming to accepted ways of doing things; going by what is generally agreed to be "in" or correct.

APPENDIX J

COEFFICIENT ALPHA FOR THE FEMININITY SCORE, THE MASCULINITY SCORE, AND THE DIFFERENCE SCORE FOR BEM SEX-ROLE INVENTORY

Coefficient Alpha for the Femininity Score, the Masculinity Score, and the Difference Score

	Fem.		Masc.		F minus M Difference F−M	
	F	M	F	M	F	M
Original BSRI						
Stanford, 1973	.75	.78	.87	.86	.78	.84
Stanford, 1978	.78	.78	.86	.87	.82	.82
Short BSRI						
Stanford, 1973	.84	.87	.84	.85	.85	.90
Stanford, 1978	.84	.87	.86	.85	.89	.88

APPENDIX K

CORRELATION BETWEEN FEMININITY AND MASCULINITY FOR TWO SAMPLES OF UNDERGRADUATES FOR BEM SEX-ROLE INVENTORY

Correlation Between Femininity and Masculinity for Two Samples of Undergraduates

	Female		Male	
	1973 N=279	1978 N=340	1973 N=444	1978 N=476
Original BSRI	−.14	.00	.11	−.05
Short BSRI	.10	.19	.33	.12

APPENDIX L

TEST-RETEST RELIABILITIES FOR THE FEMININITY, MASCULINITY, AND F-MINUS-M DIFFERENCES SCORES FOR BEM SEX-ROLE INVENTORY

Test-Retest Reliabilities for the Femininity, Masculinity, and F-minus-M Difference Scores

	Females	Males
Original BSRI		
Femininity	.82	.89
Masculinity	.94	.76
F−M	.88	.86
Short BSRI		
Femininity	.85	.91
Masculinity	.91	.76
F−M	.88	.85

APPENDIX M

MEAN SCORES FOR PHYSICALLY ACTIVE AND PHYSICALLY INACTIVE GROUPS

MEAN SCORES FOR PHYSICALLY ACTIVE AND INACTIVE GROUPS

Dependent Variables	Physically Active Group	Physically Inactive Group
Psychological Self		
Impulse Scale	48.84	49.00
Emotion Scale*	55.31	42.45
Body and Self Image Scale*	52.01	39.74
Coping Self		
Mastery Scale*	53.89	41.62
Psychopathology Scale*	52.98	45.05
Superior Adjustment Scale*	53.88	45.97
Bem Sex-Role Inventory		
Masculinity*	2.35	2.84
Femininity*	1.70	1.94
Self Perceived Physical Ability*	4.85	3.35
Self Perceived Attractiveness	4.10	3.65
Age	16.46	16.56
Age of Menarche	12.69	12.35

*statistically significant contrast

APPENDIX N

MEAN SCORES FOR PHYSICALLY ACTIVE AND DROP OUT GROUPS

MEAN SCORES FOR PHYSICALLY ACTIVE AND DROP OUT GROUPS

Dependent Variables	Physically Active Group	Drop Out Group
Psychological Self		
Impulse Scale	48.84	56.24
Emotion Scale	55.31	59.97
Body and Self Image Scale	52.01	56.83
Coping Self		
Mastery Scale	53.89	53.42
Psychopathology Scale	52.98	54.50
Superior Adjustment Scale	53.88	58.39
Bem Sex-Role Inventory		
Masculinity	2.35	2.30
Femininity	1.70	1.70
Self Perceived Physical Ability*	4.85	4.30
Self Perceived Attractiveness	4.10	4.20
Age	16.46	16.31
Age of Menarche*	12.69	12.00

*statistically significant contrast

APPENDIX O

MEAN SCORES FOR INCREASER AND PHYSICALLY INACTIVE GROUPS

MEAN SCORES FOR INCREASER AND INACTIVE GROUPS

Dependent Variables	Increaser Group	Physically Inactive Group
Psychological Self		
Impulse Scale	44.01	49.00
Emotion Scale	41.92	42.45
Body and Self Image Scale	41.17	39.74
Coping Self		
Mastery Scale	48.79	41.62
Psychopathology Scale	42.46	45.05
Superior Adjustment Scale	45.89	45.97
Bem Sex-Role Inventory		
Masculinity	1.48	2.84
Femininity*	2.50	1.94
Self Perceived Physical Ability*	4.33	3.35
Self Perceived Attractiveness	3.56	3.65
Age	16.10	16.56
Age of Menarche	12.44	12.35

*statistically significant contrast

APPENDIX P

MEANS FOR DROP OUT AND PHYSICALLY INACTIVE GROUPS

MEAN SCORES FOR DROP OUT AND INACTIVE GROUPS

Dependent Variables	Drop Out Group	Physically Inactive Group
Psychological Self		
Impulse Scale	56.24	49.00
Emotion Scale*	59.97	42.45
Body and Self Image Scale*	56.83	39.74
Coping Self		
Mastery Scale*	53.42	41.62
Psychopathology Scale*	54.50	45.05
Superior Adjustment Scale*	58.39	45.97
Bem Sex-Role Inventory		
Masculinity*	2.30	2.84
Femininity	1.70	1.94
Self Perceived Physical Ability*	4.30	3.35
Self Perceived Attractiveness	4.20	3.65
Age	16.31	16.56
Age of Menarche	12.00	12.35

*statistically significant contrast

APPENDIX Q

MEANS FOR DROP OUT AND INCREASER GROUPS

MEAN SCORES FOR DROP OUT AND INCREASER GROUPS

Dependent Variables	Drop Out Group	Increaser Group
Psychological Self		
Impulse Scale	56.24	44.01
Emotion Scale*	59.97	41.92
Body and Self Image Scale*	56.83	41.17
Coping Self		
Mastery Scale	53.42	48.79
Psychopathology Scale	54.50	42.46
Superior Adjustment Scale	58.39	45.89
Bem Sex-Role Inventory		
Masculinity	2.30	1.48
Femininity	1.70	2.50
Self Perceived Physical Ability	4.30	4.33
Self Perceived Attractiveness	4.20	3.56
Age	16.31	16.10
Age of Menarche	12.00	12.44

*statistically significant contrast

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