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Psychological effects of martial arts training: Fear of physical assault and self-esteem

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PSYCHOLOGICAL EFFECTS OF MARTIAL ARTS TRAINING:
FEAR OF PHYSICAL ASSAULT AND SELF-ESTEEM

by

Robert C. Clanton, B.A., M.A., Ed.S.

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

COLLEGE OF EDUCATION
LOUISIANA TECH UNIVERSITY

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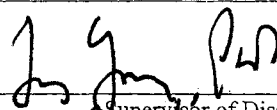
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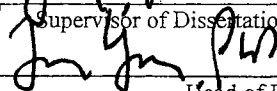
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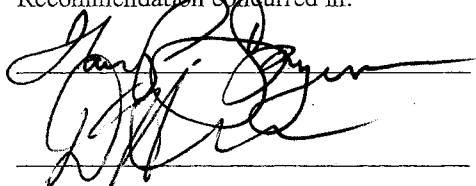


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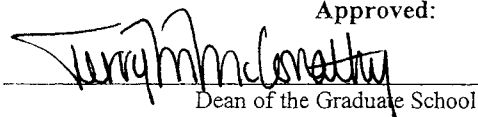
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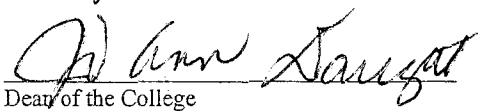


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ABSTRACT

The purpose of this study was to examine gender differences in the effects of martial arts training on self-esteem and fear of physical assault. Two studies were performed. The Fear of Physical Assault Scale was developed in the first study in order to measure individuals' perceived vulnerability to attack. Results indicated that the instrument was a reliable measure. Males scored significantly higher on the scale, indicating that they tend to perceive themselves as less vulnerable and more competent at defending themselves against physical assault. The second study examined the effects of martial arts training on the self-esteem and fear of assault of male and female college students. Multiple analysis of covariance revealed a significant difference in the improvement of self-esteem scores of men and women. Women displayed a significant increase in self-esteem scores while males did not. Change in self-esteem scores was found to correlate with fear of physical assault. These results support the hypothesis that males and females enter martial arts training with different preconceptions about self-defense ability and vulnerability. These differing expectations seem to contribute to the differences observed in the effects of martial arts training on the esteem of males and females.

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DEDICATION

I would like to take this opportunity to thank those who have supported me throughout my doctoral training. To my dissertation committee, I'd like to offer my sincere appreciate for your guidance and patience. Thanks to the professors who have served as my mentors rather than merely as my teachers. To my classmates I'd like to offer a special thank you. I'm not sure any of us could get to this point without having each other to lean on. Most importantly, I'd like to thank my family who has supported me in everything I do.

TABLE OF CONTENTS

List of Tables.....	viii
Chapter 1: Introduction.....	1
Correlates of Self-Esteem and Fear.....	4
Benefits of Increasing Self-Esteem.....	5
Physical Fitness and Mental Health.....	8
Martial Arts Training and Self-Esteem.....	11
Psychological Effects of Martial Arts Training.....	12
Gender Differences in the Effects of Martial Arts Training.....	17
Gender, Self-Esteem, and Fear of Assault.....	18
Martial Arts, Self-Esteem, and Fear of Assault.....	19
Development of the FOPAS.....	21
Research Hypotheses.....	23
Definitions.....	24
Summary.....	25
Chapter 2: Methodology.....	27
Study One.....	27
Research Hypotheses.....	27
Participants.....	28
Instrumentation.....	28
Procedures.....	30
Study Two.....	30
Research Hypotheses.....	31
Participants.....	31
Instrumentation.....	32
Procedures.....	33
Chapter 3: Results.....	35
Study One.....	35
Study Two.....	49

Chapter 4: Discussion.....	54
Study One.....	54
Study Two.....	56
Conclusions.....	59
Counselor Implications.....	61
Limitations.....	62
Recommendations for Future Research.....	64
Summary.....	66
References.....	67
Appendix A: Fear of Physical Assault Scale.....	80
Appendix B: Rosenberg Self-Esteem Scale.....	84
Appendix C: Generalized Self-Efficacy Scale.....	86
Appendix D: Locus of Control Scale.....	89
Appendix E: Coopersmith Self-Esteem Inventory.....	94

LIST OF TABLES

Table 1	
FOPAS Mean Scores.....	35
Table 2	
FOPAS Reliability (Full Sample).....	36
Table 3	
FOPAS Reliability (According to Gender).....	37
Table 4	
FOPAS Subscale Correlations (Full Sample).....	38
Table 5	
FOPAS Subscale Correlations (Male).....	39
Table 6	
FOPAS Subscale Correlations (Female).....	39
Table 7	
FOPAS Factor Analysis.....	40
Table 8	
FOPAS Full Scale Validity Data (Full Sample).....	42
Table 9	
FOPAS Control Scale Validity Data (Full Sample).....	43
Table 10	
FOPAS Vulnerability Scale Validity Data (Full Sample).....	44
Table 11	
FOPAS Full Scale Validity Data (Female).....	45

Table 12	
FOPAS Control Scale Validity Data (Female).....	46
Table 13	
FOPAS Vulnerability Scale Validity Data (Female).....	47
Table 14	
FOPAS Full Scale Validity Data (Male).....	48
Table 15	
FOPAS Control Scale Validity Data (Male).....	48
Table 16	
FOPAS Vulnerability Scale Validity Data (Male).....	49
Table 17	
SES and FOPAS Mean Scores.....	50
Table 18	
F-Table – Pretest Scores.....	51
Table 19	
F-Table – Posttest Scores.....	52
Table 20	
Correlation Between Change in SEI and FOPAS.....	53

CHAPTER 1

Introduction

Few concepts in the field of psychology have received more attention than that of the self-concept. Self-concept is generally defined as the overall image or awareness that an individual has of himself or herself (Hamachek, 1992). The self-concept includes all perceptions of “I” and “me,” as well as the feelings, beliefs, and values associated with them. In essence, self-concept is the core of an individual’s identity.

Self-esteem is the personal evaluation of self and the resulting feelings of worth associated with one’s self-concept (Wells & Marwell, 1976). It refers to one’s overall assessment of one’s worth as a person. Self-esteem is the evaluative component of the self. The self-concept describes who the person is, such as father, husband, teacher, or musician. Self-esteem is the individual’s perception that he or she is a “good” father, husband, or conversely, that he or she is a “bad” teacher or musician. As such, self-esteem is strongly related to personality characteristics such as confidence, self-efficacy, and optimism. A person who feels basically good about him or herself is usually said to possess high self-esteem.

Most recent theories addressing self-esteem view it as a hierarchical construct consisting of several domains (Fox, 2000). These domains may include several different

types of self-concept, such as the social self, the working self, and the physical self.

Sontroem and Morgan (1989) proposed that change in one or more domains results in change in the individual's global self-esteem.

Self-esteem is affected by a plethora of influences, including early childhood experiences. The basis of high or low self-esteem seems to be set very early in life, and the feedback that children receive from parents is strongly linked to the development of self-esteem (Guglielmo, Polak & Sullivan, 1985). Children raised by parents who use authoritarian parenting styles, characterized by acceptance, affection, and firm but reasonable rules tend to develop positive self-images and high self-esteem. Coopersmith (1967) found that children raised by strict, but not harsh or cruel, parents tend to develop higher levels of self-esteem. The children of parents that are overly strict, overly permissive, or inconsistent, tend to develop low self-esteem. Parents in these households tend to be more permissive, but are more harsh when they do administer discipline.

Experiences with success and failure also influence the development of self-esteem (Davis, 1966; Marsh & Parker, 1984). Individuals who experience successes tend to develop higher levels of self esteem. Conversely, the experience of failure often decreases self-esteem, creating a cycle for the individual because perception of success or failure is also influenced by self-esteem. Therefore, an individual who experiences success will increase his or her level of self-esteem and will also tend to perceive successes more positively and failures less negatively. The opposite occurs in low self-esteem individuals, creating a negative feedback loop. Coopersmith (1967) observed that, once established,

self-esteem seems to endure. People with high self-esteem tend to maintain positive perceptions of themselves, even after a failed endeavor. Low self-esteem may become a self-fulfilling prophecy.

Programs promoting increased self-esteem have attempted to address both of these paths to esteem development. Some programs have attempted to provide structured but caring environments to promote increased self-esteem (Kim, McLeod & Palmgren, 1989). Others have focused on the development of competencies to increase self-esteem (Murray, 1986; Ozer & Bandura, 1990). These programs seek to provide success experiences in order to foster the development of positive self-esteem but have met with limited success.

The purpose of this study was to examine possible gender differences in the effects of martial arts training on self-esteem and fear of physical assault. A previous study (Clanton & Kelly, 1997) reported that women enrolled in a college martial arts course improved on measures of self-esteem significantly more than men in the same course. This study sought to replicate those earlier findings and examine possible explanations for the observed difference between males and females. The Fear of Physical Assault Scale was developed during the initial portion of this study in order to examine at least one possible explanation for gender differences in the effects of martial arts training. The following literature review supports the rationale for attempting to elevate self-esteem and the use of martial arts training to do so.

Correlates of Self-Esteem and Fear

Coopersmith (1986) defined self-esteem as an attitude of approval or disapproval that indicates the extent to which a person believes him- or herself capable, significant, successful and worthy. Bandura (1991) defined self-efficacy as the degree to which a person is subjectively convinced of his or her ability to meet the demands of a situation.

Ozer and Bandura (1990) reported that perceived vulnerability and risk discernment are mediating variables in the overall construct of self-efficacy. Several others (Schoenberger, Kirsch & Rosengard, 1992; Riskind & Maddux, 1993; Hoffat, 1996; Slinger & Rudestam, 1997) have found significant relationships between self-efficacy and fear. This conclusion was supported by the findings of Mellstrom, Cicala, and Zuckerman (1976) that fear and situational anxiety serve as threats to self-esteem. These results lend support to the idea that fear of physical assault may play a role in the development of self-esteem.

Another variable often cited as a correlate of both self-esteem and fear is locus of control. Griffore, Kallen, Popovich and Powell (1991) observed a significant positive relationship between locus of control and self-esteem in both male and female college students. This relationship was confirmed by Philpot, Holliman, and Madonna (1996) although their results indicated that negative self-statements were more predictive of low self-esteem. Both of these studies indicated that internal locus of control is significantly correlated with higher levels of self-esteem.

The evidence linking locus of control to fear has been more inconsistent and contradictory. Emmelkamp and Cohen-Kettenis (1975) found a significant relationship between locus of control and phobic anxiety. More recent research (Killias, 1991; Rapee, 1997) reported that vulnerability and perceived threat were significantly related to fear. They found no significant relationship between locus of control and fear. It is possible that fear and locus of control are factors that independently impact self-esteem.

Benefits of Increasing Self-Esteem

Few would dispute the fact that increasing an individual's level of self-esteem is beneficial. Numerous correlates of self-esteem have been studied. One of these relationships that has been well documented is the link between depression and self-esteem (Overholser, 1993; Overholser, 1996; Reynolds, 1991; McPherson & Lakey, 1993). Wong and Whitaker (1993) reported a significant correlation between depressed mood states and self-esteem problems among college students. Maynard (1993) reported similar findings in a female population and the findings of Metalsky, Joiner, Hardin, and Abramson (1993) support the link between depression and self-esteem. This relationship between low self-esteem and depression has also been documented by other researchers (Kernis, Grannemann, & Mathis, 1991; McPherson & Lakey, 1993; Whisman & Kwon, 1993; Reynolds, 1991). It is unclear, however, whether low self-esteem is a cause of depression, or that depression is a cause of low self-esteem.

Another area that has been studied is the relationship between self-esteem and loneliness. Jackson and Cochran (1991) found a relationship between low self-esteem and loneliness in both men and women. Overholser (1993) observed that college students high in self-esteem reported lower levels of depression, loneliness, and self-criticism. In a cross-cultural study, Wilson and Lavelle (1990) reported a significant relationship between low self-esteem, depression, and anxiety among Zimbabwean college students. Again, due to the correlational nature of these studies, it is impossible to determine causation. Low self-esteem may increase isolation and, therefore, loneliness. It is also possible that loneliness is a factor that decreases levels of self-esteem.

A relationship between self-esteem and academic achievement has been reported by several researchers (Gadzella & Williamson, 1984; Aspinwall & Taylor, 1992; Queen, 1994). Gadzella and Williamson (1984) and Queen (1994) reported a correlation between self-concept, study skills, and academic achievement. Aspinwall and Taylor (1992) found a significant relationship between increased levels of self-esteem and adjustment to college, motivation, and performance in school. In the conclusion of their article, Gadzella and Williamson (1984) suggested that "changing students' performances through effective study skills and positive self-concepts would be a worthwhile and practical implication for educational programs" (p. 928).

Low self-esteem is often cited as a correlate of substance abuse (Miller, 1988; Kim, McLeod, & Palmgren, 1989; Guglielmo, Pollack, & Sullivan, 1985). Low self-esteem increases vulnerability to peer pressure, and peer pressure is a major reason

cited by young people for using drugs and alcohol (Fox & Forbing, 1991). Many drug prevention programs, such as the Kick Drugs Out of America program (Slezak, 1996), seek to increase self-esteem as a method of insulating children against peer pressure. Kaskutas (1996) reported that the Women for Sobriety program focuses on improving self-esteem to help members achieve sobriety. This program was founded in 1975 and serves as an alternative to Alcoholics Anonymous.

Furthermore, O'Dea and Abraham (2000) found that increasing self-esteem may be an effective way to prevent the development of eating disorders. They developed a program focusing on self-esteem, body image, and eating attitudes designed to decrease risk of such disorders. Marsh (1998) also included low self-esteem as a predictor of relapse in the treatment of eating disorders and found that a program successful in eliminating symptoms of eating disorders also increased self-esteem.

Hicks, Hicks, and Bodle (1992) characterized a youth with high self-esteem as assertive, independent, creative, flexible, and possessing an internal locus of control. Such youth listen to themselves and meet demands through effective risk-taking, decision-making, and problem-solving strategies. On the other hand, youth with low self-esteem may experience many situations as threatening, leading to a lack of faith in themselves and expectations of failure. Low-self esteem youth often work to minimize controversy and tend to rely on pleasing others for feelings of success (Hicks et al., 1992). The decreased independence among youth with low self-esteem discussed in these studies supports the theory that increasing self-esteem would decrease gang-related behavior as

well. Youths with higher levels of self-esteem would be less reliant on others for feelings of worth and, therefore, less likely to feel the need to belong to a gang (Hicks et al., 1992).

Obviously, increased self-esteem is beneficial in many different ways. The question then becomes, “Can an individual’s level of self-esteem be increased?” One possible answer involves increasing levels of physical fitness.

Physical Fitness and Mental Health

Current theories tend to emphasize the multidimensionality of self-esteem with the physical self as one of these dimensions. Ratings of physical appearance, body image, perceived fitness, and physical health contribute to the physical self and demonstrate a moderately strong correlation with global self-esteem (Fox, 2000). Some theorists (Sonstoem & Potts, 1996) believe that physical self-perceptions have mental well-being properties in their own right.

The link between physical fitness and self-esteem has been examined by several researchers (Folkins & Sime, 1981; Palmer, 1995; Plummer & Kohp, 1987) and interest in the contribution of exercise in the treatment of mental illness and promotion of well-being is increasing (Fox, 2000). The International Society of Sport Psychology (ISSP) has, in fact, issued a position statement that exercise brings about both short and long term psychological benefits, including increased self-esteem (ISSP, 1992). In their review of theory and research that attempt to relate physical fitness training to improvements in

psychological variables, Folkins and Sime (1981) found support for a relationship between self-concept and exercise. Plummer and Kohp (1987) also reported that physical fitness training, in this case aerobics, increased the self-esteem of college-age women. Alfermann and Stoll (2000) observed that a six month exercise program increased physical self-concept and decreased psychosomatic complaints among middle-aged adults. Sonstoem and Morgan (1989) proposed that exercise increases an individual's feelings of competence and self-acceptance and thereby increases self-esteem. This theory of self-esteem development through increases in perceived physical competence is supported by the findings of Sonstroem, Harlow, Gemma, and Osborne (1991). Their study used confirmatory factor analysis to support the hypothesis that exercise impacts global self-esteem through development of physical competence.

Taylor, Sallis, and Needle (1985) reported that a combination of therapy and physical exercise has been used to treat depression, anxiety, lack of assertiveness, and alcohol abuse. Joiner and Tickle (1998) also found that high self-reported levels of exercise was associated with increases in self-esteem and decreases in depressive symptoms. Donaghy and Mutrie (1999) provided a review of literature related to physical exercise and the treatment of alcohol abuse. They concluded that exercise is associated with physical self-perceptions, self-esteem, depression, anxiety, and levels of drinking. Ratcliff, Farnworth, and Lentin (2002) observed that female survivors of childhood abuse may select physical occupations and activities as part of the recovery process. Ochberg (1991) suggested using physical activity, nutrition, spirituality, and humor, along with

education, social support, and therapy in the treatment of post-traumatic stress disorder. Burling, Tarvydas, and Maki (1994) recommended using a holistic model, including mental, affective, physical, and social dimensions, in rehabilitation counseling. McAuley, Mihalko, and Bane (1997) also report increased self-esteem among middle-aged adults who participate in exercise programs. Older adults participating in aerobic exercise classes were also found to increase on measures of self-esteem (Moore, 1995). All of these studies have documented positive psychological benefits of physical exercise in combination with traditional psychotherapy.

These findings follow a trend begun several years ago toward holistic counseling which addresses the whole person concept, including the physical, intra-psyche, and social aspects (Philipchalk & McConnell, 1994). Holistic approaches involve physical, social, psychological, and environmental factors that affect well-being (Murray, 1986). Seeman (1989) has proposed a model that views the mind and body as an interactive system. Such a holistic systems model maintains that human beings are complex networks, made up of biochemical, physiological, cognitive, perceptual, social, and cultural systems, which interact to form the whole person (Palmer, 1995). According to these theories, a healthy body leads to a healthy mind, and vice versa. Therefore, making the body more fit should result in better mental health. One recreational activity that may provide this physical dimension is karate.

Martial Arts Training and Self-Esteem

The study of martial arts, including such arts as karate, tae kwon do, and judo, began over a thousand years ago as a way for warriors to improve their fighting skills (Lewis, 1992). As time passed, the philosophy of martial arts changed from one of simply developing better warriors to developing better human beings. The martial arts became a way to develop not only the body, but the mind and spirit as well (Son & Clark, 1968). Martial arts masters claim that martial arts training provides psychological and spiritual benefits for its practitioners (Duthie, Hope, & Barker, 1978). One suggested psychological benefit of martial arts training is increased self-esteem (Finkenbergh, 1990, Richman & Rehberg, 1986). Although martial arts practitioners claim that an increase in self-esteem is achieved through martial arts training, little research has been done to support this belief. Only recently has Western science begun to examine the proposed benefits of martial arts training (Wilkinson, 1996). A review of the literature revealed that the studies that have been performed have tended to focus on competitive martial artists or cross-sectional studies of individuals at various levels of proficiency (Kurian, Caterino & Kulhavy, 1993; Duthie, Hope & Barker, 1978). These studies have not examined changes that occur during martial arts training.

Studies examining the effects of martial arts training in a physical education setting have been even more sparse. The majority of these studies have examined the effects of training on the self-esteem of women (Donaldson, 1979; Smith-Devorah, 1983; Lidsker, 1991; and Rowe, 1993), but no studies were found examining the effects on men. More

importantly, almost no research examining gender differences in the effects of martial arts training on self-esteem could be found in any refereed journal. Clanton and Kelly (1997) examined possible gender differences and found that women enrolled in martial arts classes tended to demonstrate larger changes in self-esteem than men enrolled in the same courses. To date, Clanton and Kelly (1997) is the only research found documenting gender differences in the effects of martial arts training.

Psychological Effects of Martial Arts Training

Several researchers have studied the psychological effects of martial arts training. Duthie et al. (1978) compared average and superior martial artists using the Adjective Checklist. The sample investigated in their study included 52 people classified as superior martial artists and 100 people categorized as average martial artists. Discriminant analysis indicated that the superior group scored higher on the scales, Defensiveness, Self-confidence, Achievement, Dominance, Endurance, Affiliation, Heterosexuality, Exhibition, Autonomy, and Favorable Adjectives Checked. The same individuals scored lower on Succorance, Abasement, and Counseling Readiness.

In another study, Madden (1990) reported that in a sample of 41 college students, a standard, semester-length beginners' karate and self-defense course enhanced students' feelings of control over physical assault. Course participation was also associated with reduced depression, perceived vulnerability, and likelihood of being attacked. Madden (1990) concluded that such a course is effective in altering students' reported perceptions.

The instrument on which the Fear of Physical Assault Scale is based was developed by Madden for use in this study. A later study by the same author (Madden, 1995) found the opposite results immediately following a martial arts course. Martial arts students, drawn from a population of students at 10 different universities, scored lower on measures of control and higher on measures of vulnerability while enrolled in the course. However, one year later, the same students were found to have higher perceptions of control and lower perceived vulnerability to attack, whether or not they had continued martial arts training. In contradiction to the previous study, more recent findings suggest that martial arts training does not have immediate effects of perceived vulnerability and control, but may have an effect after a certain amount of time has passed. Vaselakos (1999) also observed that women who take a self-protection program increase on measures of belief of perceived control.

Another study examined the relationship between personality characteristics and duration of Tae Kwon Do training (Kurian, Caterino & Kulhavy, 1993). Results indicated that groups having longer Tae Kwon Do training time scored significantly lower on measures of anxiety and higher on measures of independence. The researchers also found that leadership scores increased as the amount of training increased, although these differences did not reach significant levels. In their conclusions, the authors suggested that since lower scores on anxiety and higher scores on independence often accompany improved mental health, participation in Tae Kwon Do training may be useful as part of therapeutic programs. High-ranking martial artists tend to score lower on measures of

neuroticism (Layton, 1988). Foster (1997) also reported decreased levels of anxiety among students enrolled in a karate course. No differences in self-esteem were observed in this study.

Lamarre and Nosanchuk (1999) examined the effects of judo training on aggression. They found that traditional judo training was associated with decreased levels of aggression, and Skelton, Glynn, and Berta (1991) observed similar results among 6 — 11 year old Tae Kwon Do students. Ziven et al. (2001) reported a decrease in violence among middle school children taking school-linked martial arts. Adler and Pace (2003) replicated these results and further noted that the traditional martial arts components of kata and respect were most significantly related to decreases in aggression.

Several studies have been reported focusing specifically on the link between self-esteem and martial arts training. Richman and Rehberg (1986) assessed sixty martial artists for levels of self-esteem, as measured by the Rosenberg Self-Esteem Inventory, prior to their competition in a karate tournament. Self-esteem was found to be significantly lower for beginning belt level students than for upper belt level students. It is interesting to note that the research demonstrated that the novice's self-esteem is lower than the intermediate, advanced, and expert martial artist, but training beyond the novice level had little effect on self-esteem. Prince (1996) obtained similar results using the Tennessee Self-Concept Scale. These findings suggest that one to two months of martial arts training may be sufficient to improve the typical student's level of self-esteem.

Finkenberg (1990) reported similar findings with women who were enrolled in an eight-week Tae Kwon Do class. These women scored higher (i.e., in the direction of more adequate self-esteem) on the Tennessee Self-Concept scale than a control group enrolled in general health classes. They found that women enrolled in the martial arts class scored significantly higher on the Physical, Personal, Social, Identity, and Satisfaction subscales, as well as on the total self-esteem measure. Nonsignificant results were obtained on the Moral-Ethical, Family, Behavior, and Self-Criticism subscales. The study supports the findings of Duthie, et al. (1978). The study also provides support for the conclusion (Richman & Rehberg, 1986) that one to two months of training would be sufficient to improve self-esteem. Cox (1999) also reported that individuals participating in martial arts and self-defense training increase on measures of self defense self-efficacy, interpersonal self-efficacy, and activity self-efficacy. In another study Nosanchuk (1981) also found that a martial arts training program increased self-esteem.

To explore the relationship of mental health and martial arts training, Trulson (1986) randomly divided juvenile delinquents into three groups that were tested before and after interventions. Group I received traditional martial arts training, which involves kata (or patterns), respect, and discipline. Group II received "modern" or nontraditional martial arts training (i.e. self-defense training). Group III served as a control group, participating in solely physical activity. On post-test measures, Group I students showed decreased aggressiveness, lowered anxiety, increased self-esteem, increased social skills, and an increase in value orthodoxy as measured by the Jackson Personality Inventory.

Group II students showed a large increase in aggressiveness, and generally opposite effects of Group I. Group III students showed no significant changes. These data suggest that training in traditional martial arts may be effective in reducing juvenile delinquent tendencies. It also suggests that less traditional self-defense classes should not be taught to some at-risk youth. This conclusion is an important distinction in light of the findings of Yang (1996) that although many people perceive martial arts training as a philosophical and spiritual discipline, that is rarely the case in practice. Twemlow and Sacco (1998) also report benefits of traditional martial arts training in the treatment of violent adolescents.

There are several possible explanations for the reported correlation between martial arts training and increased mental health. The martial arts instructor may provide a positive authority figure and as a competent role model for the student. The intense physical conditioning may also provide a counter for stress and outlet for frustration. Most training sessions, in fact, integrate psychological and philosophical conditioning into the workouts (Trulson, 1986). Martial arts training teaches concentration, relaxation, assertiveness, and direct and honest communication (Weiser, Kutz, Kutz & Weiser, 1995). Lantz (2003) proposed that martial arts training promotes awareness, freedom, and self-transcendence, and recommended martial arts training as an adjunct to logotherapy. Finally, self-defense training may lower feelings of vulnerability and increase the student's sense of control over physical assault (Clanton & Kelly, 1997). This final hypothesis becomes even more salient when examining gender differences in the development of self-esteem.

Gender Differences in the Effects of Martial Arts Training

There is a limited amount of research concerning gender differences in the psychological effects of martial arts training (Clanton, 1997; Clanton & Kelly, 1997; Madden, 1990). Madden (1990) observed that martial arts training is related to changes in a person's perceived vulnerability to and control over attack. In that same study, the author reported a significant gender difference in these perceptions. Clanton and Kelly (1997) examined gender differences in the effects of martial arts training on self-esteem and found a significant difference in the improvement of women's self-esteem as compared to men's.

In an unpublished thesis, Clanton (1997) observed no significant differences in the self-esteem scores of men and women enrolled in a martial arts course. This study was limited by an extremely small sample size that virtually eliminated the possibility of finding statistical significance. A trend toward increased self-esteem in females, but not in males, was noted. It is possible, nonetheless, that males enter the class with lower perceived vulnerability and higher perceived control over physical assault than females. Therefore, women receive more psychological benefits from training than men. Ozer and Bandura (1990) reported that self-efficacy in women was mediated by perceived vulnerability and risk discernment when applied to concept of empowerment. Interventions that physically, as well as mentally and spiritually, empower women may be more effective in producing personal change than cognitive strategies alone (Guthrie, 1995). These observations

support the hypothesis that decreasing fear of physical assault would increase self-esteem. Further research in this area is needed.

Gender, Self-Esteem, and Fear of Assault

It has been proposed that self-esteem is related to the degree to which an individual compares oneself to culturally mandated, gender-appropriate norms. These norms tend to be quite different for males and females (Josephs, Markus & Tatarodi, 1992). Men's self-esteem is most often related to personal achievements while women's self-esteem is linked to attachments to significant others (Josephs, Markus & Tatarodi, 1992). Feminist theories focus on the culturally prescribed norms as a type of social control over women (Day, 1994).

Feminist theories also emphasize fear of assault, not only as a negative factor in the development of self-esteem, but as a method of social control. This hypothesis is supported by discrepancies between women's fear and actual sexual assault (Day, 1999). It should not be assumed, however, that these fears are not based in reality. Women's fear of violence often results from actual physical abuse by husbands, boyfriends, or other significant male figures. This abuse creates a generalized fear of male violence (Smith, 1988). This generalized fear is especially true of sexual assault (Ferraro, 1996), and fear of sexual assault has a large impact on overall fear of personal crime, as well as property offenses. Sexual assault is also related to poor subjective health in general (Golding, Cooper & George, 1997). In fact, fear of violence is one of the three most common

complaints of women in psychotherapy (Price, 1988). Rapee (1997) found that fear of physical assault was predicted primarily by the general probability of the threat occurring.

Kelly and Dekeseredy (1994) reported that women who had been victimized by male dating partners felt more fearful in their own homes. Women are more likely than men to be assaulted by dating partners and tend to sustain more serious injuries (Langley, Martin & Nada-Raja, 1997). Individuals who have been physically assaulted tend to report more symptoms of anxiety and depression, as well as lower job satisfaction (Driscoll, Worthington & Hurrell, 1995). They are also more likely to develop substance abuse problems (Kilpatrick, et al., 1997). This pattern of substance abuse and assault tends to become a vicious cycle in which one perpetuates the other. In spite of the increased risk and fear of physical assault among women, only 1 in 5 college women enroll in self-defense classes (Easton, et al., 1997). This study also reported that only half of women surveyed would resist sexual assault by a stranger. Recommendations from this research include an increase in the number of women taking self-defense classes and change in women's perceptions about resisting assault.

Martial Arts, Self-Esteem, and Fear of Assault

The primary purpose of this study was to replicate Clanton and Kelly's study (1997) using a more diverse sample. The current study examined the effects of martial arts training on college students enrolled in four separate karate classes at two different universities.

A second purpose of this study was to examine possible explanations for the observed gender difference in the Clanton and Kelly (1997) studies. One of the possible explanations proposed in the research was that men tend to be socialized to perceive themselves as competent to protect themselves from attack. They may be more likely to enroll in martial arts courses in order to confirm this belief rather than to develop new skills. If this confirmation is lacking, they will show no increases in self-esteem as a result of martial arts training. In fact, some men may actually decrease on measures of self-esteem if their competency in self-defense is called into question.

Women enrolling in self-defense courses may be more likely to do so in order to develop self-protection skills rather than to confirm that those skills already exist (Clanton & Kelly, 1997). This difference in beliefs is likely to bring about differential amounts of change on measures of self-esteem. This study examined differences in mens' and womens' beliefs about their ability to protect themselves and the impact of fear of physical assault in the development of self-esteem.

One complication that arose in developing this study was the lack of measures of fear of physical assault. Instruments measuring general levels of fear, such as the Fear Survey Schedule (Rubin, Katkin & Weiss, 1968), were not specific enough for the purposes of this research. Additionally, these surveys tend to consist of more than 100 items, making them very obtrusive instruments to administer in physical education settings. A survey of the literature revealed one instrument developed by Madden (1990) to measure perceived competency in self-defense situations and perceived likelihood that

the individual would be attacked. This scale had no normative data or estimates of reliability and validity. Madden developed the measure as a survey to be administered along with measures of depression but did not report any statistical information about the instrument. Her findings indicated that students developed increased feelings of control in self-defense situations following martial arts instruction.

In order to evaluate these changes more effectively and their effect on self-esteem, a new instrument was developed to measure changes in fear of physical assault. The reliability and validity of this instrument were examined in Experiment I of the current study. This new instrument was titled the Fear of Physical Assault Scale (FOPAS).

Development of the FOPAS

The Fear of Physical Assault Scale (FOPAS) consists of ten items answered on a 10 point Likert scale. The first four items assess the individual's perceived control over self-defense situations. The remaining six items measure perceived vulnerability to attack. Preliminary item selection assumed that lower levels of perceived control and increased amounts of perceived vulnerability would yield an overall feeling of fear of physical assault. This two factor measure of fear was suggested by the findings of Rapee (1997). In this study the author analyzed and obtained significant results using perceived threat and perceived control as predictors of fear. Perceived threat was found to be the most powerful predictor. Items were selected to measure these factors, with perceived vulnerability (threat) making up 60% of the items. Factor analysis of FOPAS items

revealed a two factor structure with the control and vulnerability items clustering as predicted. Reliability data were collected using participants enrolled in university courses other than martial arts classes and of a similar age range of those taking the karate courses. No practical and ethical criterion measure of fear of assault could be developed so validity measures focused on convergent validity with other constructs thought to be related to fear of assault. Among these were self-efficacy, self-esteem and locus of control. Measures of these constructs were administered, along with the FOPAS, to the same sample of participants discussed above. Previous research (Emmelman & Cohen-Kettenis, 1975; Hoffat, 1996; Killias, 1991; Mellstrom, Cicala & Zuckerman; 1976) indicated that these factors have been significantly correlated with fear.

The FOPAS and Coopersmith Self-Esteem Inventory (SEI) were then administered to students enrolled in four separate martial arts courses at two different universities. Sample sizes were too small to allow for meaningful analysis of differences between classes. Pretest measures were obtained during the first day of class, before students began martial arts training. Eight weeks later, both instruments were re-administered and scores were compared using multiple analysis of covariance in order to examine differences in score change between male and female participants. Pretest scores on the FOPAS and SEI were used as covariates. Significant changes were observed on both measures, with females demonstrating greater gains in self-esteem and decreased levels of fear. These results support the earlier research by Clanton and Kelly (1997) which found gender differences in the effects of martial arts training on self-esteem. The

results also support the hypothesis that fear of physical assault plays a role these observed gender differences.

Research Hypotheses

In study one a new instrument, the FOPAS, was developed. Its development was necessary due to the lack of applicable instruments available to measure fear of physical assault. The following research hypotheses were developed to evaluate the scale's psychometric properties:

1. Test-Retest scores on the Fear of Physical Assault Scale will be consistent when administered to college students enrolled in university courses.
2. Measures of internal consistency will yield high scores when the Fear of Physical Assault Scale is administered to college students.
3. Fear of physical assault will be moderately related to self-esteem.
4. Fear of physical assault will be moderately related to self-efficacy.
5. Fear of physical assault will be moderately related to locus of control.

Participants in Study II completed the FOPAS and Coopersmith Self-Esteem Inventory prior to, and after the completion of, college martial arts courses to determine the effects of martial arts training on self-esteem and fear of assault. The following hypotheses were tested:

1. Martial arts training will be related to increased self-esteem in female college students more than in male college students.

2. Martial arts training will be related to decreased fear of physical assault, particularly in women.
3. Changes in self-esteem scores and fear of assault scores will be related.

Definitions

For the purposes of Study One, fear of physical assault was operationally defined as the participant's score on the Fear of Physical Assault Scale (FOPAS) with higher scores indicating lower levels of fear. The purpose of this study was to establish preliminary reliability and validity data for the FOPAS.

Self-esteem was operationally defined as the participant's score on the Rosenberg Self-Esteem Scale (SES). Higher scores on the SES indicated higher levels of self-esteem.

Self-efficacy was operationally defined as the participant's score on the Generalized Self-Efficacy (GSE) Scale developed by Tipton and Worthington (1984). Higher scores indicated increased levels of perceived self-efficacy.

Locus of control was operationally defined as the participant's score on Rotter's Locus of Control (LOC) Scale. Higher scores on the LOC indicated a more external locus of control.

For the purposes of Study Two, martial arts training was operationally defined as any college physical education class in the martial arts.

Self-esteem was operationally defined as the participant's score on the Coopersmith Self-Esteem Inventory (SEI). Higher scores indicated increased levels of self-esteem.

Fear of physical assault was defined as the participant's score on the FOPAS. On the FOPAS higher scores indicated lower levels of fear of physical assault.

Summary

The studies cited demonstrate a relationship between high self-esteem (among other benefits) and martial arts training. However, there are noticeable limitations to the research that has been conducted.

One limitation concerns the term "martial arts," which is a term that applies to many different kinds of training. The degree of emphasis on mental and physical aspects of the martial arts varies tremendously among styles. Therefore, caution must be used in generalizing findings to all martial arts (Madden, 1990). This variation is demonstrated in the study by Trulson (1986) which reported that non-traditional self-defense training actually had negative psychological effects on juvenile delinquents.

Other limitations of these studies include the repeated use of competitive martial artists as participants. Research is needed using participants drawn from a more diverse population to make the results more generalizable. There is also a need for more research of martial arts training in a physical education setting.

Finally, there is virtually no research relating gender to the effects of martial arts training on self-esteem. The limited research that has been done suggests that women receive more psychological benefits from the martial arts than men.

The purpose of this study was to address two of these limitations: 1) the need for research concerning gender differences in the effects of martial arts training on self-esteem, and 2) the need for more research on the effectiveness of martial arts training in a physical education setting. Additionally, the role of fear of physical assault in the development of self-esteem will be examined as a possible explanation for gender differences in the effects of martial arts training. To analyze this construct a new instrument, the Fear of Physical Assault Scale, was developed.

CHAPTER 2

Methodology

Study One

The primary purpose of study one was to establish preliminary reliability and validity data for the Fear of Physical Assault Scale (FOPAS). The instrument was administered to college undergraduates and analyzed to determine test-retest and split-half reliability, as well as Cronbach's Alpha, a measure of internal consistency.

Convergent/discriminant validity was examined by correlating the FOPAS with measures of self-efficacy, self-esteem, and locus of control. Factor analysis was also performed in order to determine whether the factor structure was consistent with theoretical expectations.

Research Hypotheses. The following research hypotheses were developed to evaluate the psychometric properties of the FOPAS:

1. Test-Retest scores on the Fear of Physical Assault Scale will be consistent when administered to college students enrolled in university courses.
2. Measures of internal consistency will yield high scores when the Fear of Physical Assault Scale is administered to college students.
3. Fear of physical assault will be moderately related to self-esteem.

4. Fear of physical assault will be moderately related to self-efficacy.
5. Fear of physical assault will be moderately related to locus of control.

Participants. Participants in this study consisted of 208 college students enrolled in undergraduate psychology courses at a southern university. Of the 208 participants, 72 were male and 136 were female. One female participant's survey was incompletely answered and was dropped from the subject pool, reducing the number of participants to 207. One hundred fifty-four of the participants were Caucasian, 49 were African-American, and 4 were Asian-American. The age of participants ranged from 17 to 48 years with a mean age of 22.1 years. Of the male participants, 53 were Caucasian, 18 were African-American, and 2 were Asian-American. The age of male participants ranged from 17 to 31 with a mean age of 20.2 years. Among female participants, 101 were Caucasian, 31 were African-American, and 2 were Asian-American. The age of female participants ranged from 17 to 48 with a mean age of 23.1 years. Only 76 participants, consisting of 26 males and 50 females, participated in the test-retest portion of the study.

Instrumentation. The Fear of Physical Assault Scale (FOPAS) is a ten item scale designed to measure the individual's perceived likelihood of being attacked and confidence in their ability to defend themselves if an attack occurs. Participants respond to each item according to a 10 point Likert scale. Items were chosen by expanding the survey developed by Madden (1990). Madden's original survey included only one item to measure vulnerability and one to measure control over assault. Further, items were added to provide more detail and consistency. Four items address the individual's perceived

control in an attack situation, and the remaining six measure the person's perceived vulnerability to attack in various situations. These sub-scores are totaled to yield an overall fear of attack score, with higher scores indicating lower levels of fear. The purpose of this study was to generate reliability and validity information about the instrument.

The Self-Esteem Scale (SES) is a ten item scale developed by Morris Rosenberg (1965). It is designed as a general measure of self-esteem and is one of the more commonly used instruments used in self-esteem research (Palmer, 1995; Cole, 2001). Higher scores on the SES indicate increased levels of self-esteem. This instrument is often used as the standard by which new tests of self-esteem are measured. Additionally, it is brief enough to minimize interference with the normal activities of the classes surveyed and to prevent fatigue when it is included in a battery of tests.

The Generalized Self-Efficacy Scale (GSE) is a ten item scale developed by Tipton and Worthington (1984). Questions are answered according to a seven point Likert scale. The scale was chosen because it is one of the only general measures of self-efficacy in existence. The authors reported significant correlations between the GSE scale and behavioral measures of self-efficacy. Higher scores on the instrument indicate higher levels of self-efficacy.

The Locus of Control Scale (LOC) was developed by Rotter (1966). The scale consists of 29 forced choice items, of which 25 are actually scored. Higher scores on the LOC indicate a more external locus of control. This scale was chosen because it has been used in more research studies than any other instrument of its kind (Khayer & Alborzi,

2001; Lester, 1999; Stuart, 2001), and therefore, has extensive support as a valid and reliable instrument.

Procedures. The Fear of Physical Assault Scale, Self-Esteem Scale, General Self-Efficacy Scale, and Locus of Control Scale were administered to college students enrolled in various psychology courses. The FOPAS was readministered eight weeks later in order to assess stability of test scores over time. This time period was chosen in order to correspond with the interval at which the test would be used in subsequent studies of the effects of martial arts instruction. Split-half and Cronbach's Alpha were used to measure the internal consistency of the scale. The Pearson Product-Moment Correlation procedure was used to assess the test-retest reliability to the instrument. Additionally, the Pearson Product-Moment Correlation procedure was used to assess the relationship between the FOPAS and the other instruments that were administered in order to establish convergent/discriminant validity. As an additional measure of construct validity, factor analysis of the scale items was also performed.

Study Two

The primary purpose of study two was to examine gender differences in the effects of martial arts training on self-esteem. A gender difference had been found in an earlier study by this author and a colleague (Clanton & Kelly, 1997) which found that women enrolled in a college martial arts course increased on measures of self-esteem significantly more than males enrolled in the same course. This study sought to replicate those earlier findings on a larger and more diverse sample. A second purpose of the study was to

examine possible explanations for this gender difference, primarily the hypothesis that differential effects are produced by gender differences in fear of physical assault prior to martial arts training. It is hypothesized that gender differences in self-esteem are related to differences in the socialization of males and females. It is further hypothesized that males are socialized to believe themselves more capable of defending themselves from physical assault. Because of these beliefs, college-age males may receive fewer benefits than females. The study also provided further validation of the Fear of Physical Assault Scale developed in experiment one. If improvement in self-esteem during martial arts training is related to the participants' beliefs about their ability to defend themselves against assault, change in scores on the FOPAS and on measures of self-esteem should be highly correlated among martial arts students.

Research Hypotheses. The following hypotheses were tested in Study Two:

1. Martial arts training will be related to increased self-esteem in female college students more than in male college students.
2. Martial arts training will be related to decreased fear of physical assault, particularly in women.
3. Changes in self-esteem scores and fear of assault scores will be related.

Participants. The FOPAS and SEI were initially administered to 112 college students enrolled in martial arts physical education courses. Fifteen of those participants either dropped out of the course or were unavailable during the time that the posttests were administered. The remaining 97 participants made up the sample that was examined.

During statistical analysis, one male participant was identified as an outlier on posttest measures of self-esteem. Due to the sensitivity of MANCOVA to outliers this case was dropped. Analysis of the test data for the participants unavailable for the posttest revealed no significant differences from students that completed both measures. The group of students that dropped out of the study consisted of ten men and six women. The final sample was made up of 49 male and 47 female participants. Of the 96 participants, 71 were Caucasian, 19 were African-American, and 6 were Asian-American. The mean age of the participants was 21.4 with ages ranging from 18 to 26 years. Among male participants, 38 were Caucasian, 10 were African-American, and 1 was Asian-American. Ages ranged from 18 to 24 with a mean of 21.3 years. Of the female participants, 23 were Caucasian, 9 were African-American, and 5 were Asian-American. The mean age of female participants was 21.7 years with ages ranging from 18 to 26. Participants were drawn from four martial arts classes offered at two different universities located in the Midwest. Sample sizes were too small to allow for meaningful analysis of differences between classes. Mean scores were consistent between classes.

Instrumentation. The Coopersmith Self-Esteem Inventory Form C (SEI, Coopersmith, 1986) was used to measure self-esteem. The SEI consists of twenty-five items in a forced choice (Like Me/Not Like Me) format. The SEI is appropriate with persons age sixteen and above. Reliability data indicate coefficients ranging between .74 and .92 using Kuder-Richardson reliability estimates (KR20s) for internal consistency. Test-retest reliability coefficients of .80 for males and .82 for females was found when administered to college students. Validity studies indicate a significant relationship

between the Self-Esteem Inventory and the Behavior Rating Form (Coopersmith, 1986). Hence, the psychometric characteristics were deemed appropriate for use in this study.

The Self-Esteem Inventory was chosen for several reasons. It is a widely used instrument, allowing comparability of results with other studies. It is brief enough (administration rarely exceeds 10 minutes) not to disrupt unnecessarily the normal schedule of the classes being studied and can be efficiently hand scored. The SEI was also the most cost effective of the instruments examined.

The Fear of Physical Assault Scale (FOPAS) was developed for this study by the author. It yields two sub-scores: Perceived Control Over Attack and Perceived Vulnerability to Attack. Normative data for this instrument are presented in the previous experiment.

Procedures. Students enrolled in a martial arts course were asked to participate in a research study. The SEI, the FOPAS, and a survey collecting demographic data were administered to those who agreed to participate at the beginning of the course, during the initial meeting, by completing a consent form. All students present at the time of testing agreed to participate in the study. The SEI and FOPAS were readministered after eight weeks of instruction. Scores on the SEI and FOPAS were analyzed to determine the relationship between self-esteem and fear of assault among students enrolled in martial arts classes. Scores on the pretests and posttests were compared using multiple analysis of covariance. Gender differences were assessed by comparing the scores of males and

females in both groups. Changes in self-esteem and fear of assault scores were compared to examine the relationship between these two constructs.

CHAPTER 3

Results

Study One

Sample means for the FOPAS were as follows (Table 1). The full scale mean score on the FOPAS for the entire sample was 64.06 (SD = 14.84). The mean for female participants was 59.97 (SD = 14.15). Male participants received a mean score of 71.74 (SD = 13.03). Subscale scores for the entire sample included a mean of 25.80 (SD = 6.23) on the Control Scale and 38.27 (SD = 10.35) on the Vulnerability Scale. Subscale scores for female participants included a Control Scale mean of 23.95 (SD = 5.72) and a Vulnerability Scale mean of 36.02 (SD = 10.25). Male subscale scores included a mean Control Scale score of 29.25 (SD = 5.68) and mean Vulnerability Score of 42.49 (SD = 9.22).

Table 1

FOPAS Mean Scores

<u>Gender</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>
Combined			
Total	207	64.06	14.84
Control	207	25.79	6.23
Vulnerability	207	38.27	10.35
Male			
Total	72	71.74	13.03
Control	72	29.25	5.68
Vulnerability	72	42.49	9.22
Female			
Total	135	59.97	15.15
Control	135	23.95	5.72
Vulnerability	135	36.02	10.25

Measures of reliability on the FOPAS yielded the following results. When the entire sample was examined the resulting test-retest reliability was found to be 0.84. Internal measures of consistency included a split-half reliability of 0.82 and an Alpha of 0.89. Analysis of subscore reliability revealed a test-retest reliability of 0.80, split-half reliability of 0.80, and an alpha of 0.81 on the Control Scale. Obtained reliability measures on the Vulnerability Scale included test-retest reliability of 0.72, split-half reliability of 0.84, and an alpha of 0.87. All of these measures indicated that the FOPAS is a consistent and reliable instrument (Table 2).

Table 2

FOPAS Reliability (Full Sample)

	Full Scale	Control Scale	Vulnerability Scale
Test-Retest	.84	.80	.72
N	76.00	76.00	76.00
Split-Half	.82	.80	.84
N	207.00	207.00	207.00
Cronbach's Alpha	.89	.81	.87
N	207.00	207.00	207.00

Examination of gender differences in the reliability coefficients yielded the following results (Table 3). Measures of the total score reliability for males included a test-retest reliability of 0.80, split-half reliability of 0.80, and an alpha of 0.87. Analysis of FOPAS subscales in males indicated Control Scale reliabilities of 0.78 (test-retest), 0.71 (split-half), and 0.76(Cronbach's Alpha). Vulnerability Scale reliabilities included a test-retest reliability of 0.68, split-half reliability of 0.89, and an Alpha of 0.88.

Table 3

FOPAS Reliability (According to Gender)

	Male	Male	Male	Female	Female	Female
	Full	Control	Vulnerable	Full	Control	Vulnerable
Test-Retest	.80	.78	.68	.78	.71	.66
N	26.00	26.00	26.00	50.00	50.00	50.00
Split-Half	.80	.71	.89	.80	.81	.81
N	72.00	72.00	72.00	135.00	135.00	135.00
Cronbach	.87	.76	.88	.87	.80	.85
N	72.00	72.00	72.00	135.00	135.00	135.00

Measures of total score reliability (Table 3) for females in the study indicated a test-retest reliability of 0.78, split-half reliability of 0.80, and an Alpha of 0.87. Subscale measures of reliability include Control Scale reliabilities of 0.71 (test-retest), 0.81 (split-half), and 0.80 (Cronbach's Alpha). Vulnerability scale reliabilities included test-retest reliability of 0.69, split-half reliability of 0.81, and an Alpha of 0.85.

Analysis of the relationship between subscales and total score on the FOPAS (Table 4) indicated a correlation of 0.82 between the Control Scale and total score, and a correlation of 0.94 between the Vulnerability Scale and total score. A correlation of 0.58 was found between the Control and Vulnerability subscales.

Table 4

FOPAS Subscale Correlations (Full Sample)

	Control	Vulnerability
Control		
Person Correlation	1.00	.58**
N	207.00	207.00
Vulnerability		
Pearson Correlation	.58**	1.00
N	207.00	207.00
Total		
Pearson Correlation	.82**	.94**
N	207.00	207.00

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

Examination of the relationships between these variables across gender yielded a correlation between the Control Scale and total score of 0.79 in both males and females. In males the correlation between the Vulnerability Scale and total score was 0.93, with a correlation of 0.94 among females sampled. The correlation between Control and Vulnerability subscales was found to be 0.50 among men and 0.53 among women. These results indicate that the reliability data on the FOPAS are consistent for both men and women that were surveyed (Tables 5 & 6).

Table 5

FOPAS Subscale Correlations (Male)

	Control	Vulnerability
Control		
Person Correlation	1.00	.50**
N	72.00	72.00
Vulnerability		
Pearson Correlation	.50**	1.00
N	72.00	72.00
Total		
Pearson Correlation	.79**	.93**
N	72.00	72.00

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

Table 6

FOPAS Subscale Correlations (Female)

	Control	Vulnerability
Control		
Person Correlation	1.00	.53**
N	135.00	135.00
Vulnerability		
Pearson Correlation	.53**	1.00
N	135.00	135.00
Total		
Pearson Correlation	.79**	.94**
N	135.00	135.00

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

Factor analysis of the FOPAS items using the varimax method of rotation yielded a two-factor structure (Table 7). This factor structure was examined using Kaiser's (1960) traditional criterion of retaining eigenvalues greater than one, as well as the more stringent criteria proposed by Stone and Clubb (1992) and Lautenschlager (1989). Stone and Clubb (1992) proposed that factors be retained if the eigenvalue is greater than one and the factor accounts for more than ten percent of the variance. Lautenschlager (1989) indicated that parallel analysis using tabulated eigenvalues would provide a more accurate solution. The two-factor solution was supported according to each of these criteria. This finding supports the construct validity of the instrument.

Table 7

FOPAS Factor Analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.05	50.53	50.53	5.05	50.53	50.53
2	1.36	13.55	64.08	1.36	13.55	64.48
3	.93	9.30	73.39			
4	.63	6.30	79.68			
5	.52	5.24	84.93			
6	.48	4.83	89.76			
7	.31	3.11	92.88			
8	.28	2.77	95.65			
9	.23	2.26	97.91			
10	.21	2.10	100.00			

Note. Extraction Method: Principal Component Analysis

Table 7 (Continued)

FOPAS Factor Analysis

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.54	35.43	35.43
2	2.87	28.65	64.08
3			
4			
5			
6			
7			
8			
9			
10			

Note. Extraction Method: Principal Component Analysis

FOPAS Factor Analysis (Continued)

	Component Matrix		Rotated Component Matrix	
	Component		Component	
	1	2	1	2
Item 1	.62	.35	.26	.66
Item 2	.54	.61	3.22E-02	.82
Item 3	.73	.32	.36	.71
Item 4	.76	.47	.28	.85
Item 5	.58	-.51	.77	-1.72E-02
Item 6	.80	-.26	.78	.31
Item 7	.74	-.20	.69	.32
Item 8	.71	-.29	.73	.23
Item 9	.77	-.31	.79	.25
Item 10	.80	-6.71E-02	.66	.46

Note. Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

a. 2 components extracted

b. rotation converged in 3 iterations

Analysis of the relationship between the FOPAS and several other instruments yielded the following results (Table 8). A correlation of 0.25 was found between the FOPAS total

score and the General Self-Efficacy Scale. The correlation between the FOPAS and Rosenberg's Self-Esteem Scale was 0.30. Both of these results were significant at the 0.05 level. However, the -0.04 correlation between Rotter's Locus of Control Scale and the FOPAS did not reach significance. Comparisons of scores on the FOPAS subscales and the GSE revealed a correlation of 0.27 with the Control Scale (significant at the 0.05 level) and 0.19 with the Vulnerability Scale (did not reach significance).

Table 8

FOPAS Full Scale Validity Data (Full Sample)

	Total	Efficacy	Locus
FOPAS			
Pearson Correlation	1.00	.25*	-.04
N	76.00	76.00	74.00
Efficacy			
Pearson Correlation	.25*	1.00	-.24*
N	76.00	76.00	74.00
Locus			
Pearson Correlation	-.04	-.24*	1.00
N	74.00	74.00	74.00
Esteem			
Pearson Correlation	.30*	.46**	-.16
N	75.00	75.00	74.00

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

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

Analysis of the relationship between the SES and the Control Scale indicated a correlation of 0.27, again significant at the 0.05 level (Table 9).

Table 9

FOPAS Control Scale Validity Data (Full Sample)

	Total	Efficacy	Locus
Control			
Pearson Correlation	1.00	.27*	-.06
N	76.00	76.00	74.00
Efficacy			
Pearson Correlation	.27*	1.00	-.24*
N	76.00	76.00	74.00
Locus			
Pearson Correlation	-.06	-.24*	1.00
N	74.00	74.00	74.00
Esteem			
Pearson Correlation	.27*	.46**	-.16
N	75.00	75.00	74.00

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

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

The correlation between the SES and Vulnerability Scale was 0.26, which was also significant at the 0.05 level (Tables 10).

Table 10

FOPAS Vulnerability Scale Validity Data (Full Sample)

	Total	Efficacy	Locus
Vulnerability			
Pearson Correlation	1.00	.19	-.01
N	76.00	76.00	74.00
Efficacy			
Pearson Correlation	.19	1.00	-.24*
N	76.00	76.00	74.00
Locus			
Pearson Correlation	-.01	-.24*	1.00
N	74.00	74.00	74.00
Esteem			
Pearson Correlation	.26*	.46**	-.16
N	75.00	75.00	74.00

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

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

Among women who participated in the study (Table 11), correlations between the FOPAS total scores and the GSE and SES were 0.32 and 0.33, respectively.

Table 11

FOPAS Full Scale Validity Data (Female)

	Total	Efficacy	Locus
FOPAS			
Pearson Correlation	1.00	.32*	.06
N	50.00	50.00	50.00
Efficacy			
Pearson Correlation	.32*	1.00	-.28*
N	50.00	50.00	50.00
Locus			
Pearson Correlation	-.06	-.28*	1.00
N	50.00	50.00	50.00
Esteem			
Pearson Correlation	.33*	.54**	-.17
N	50.00	50.00	50.00

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

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

Correlations between the Control Scale and these measures were 0.39 for the GSE and 0.35 for the SES (Table 12). All of these results were significant at then 0.05 level except for the correlation between Control and Self-Efficacy, which was significant at the 0.01 level.

Table 12

FOPAS Control Scale Validity Data (Female)

	Total	Efficacy	Locus
Control			
Pearson Correlation	1.00	.39**	-.05
N	50.00	50.00	50.00
Efficacy			
Pearson Correlation	.39**	1.00	-.28*
N	50.00	50.00	50.00
Locus			
Pearson Correlation	-.05	-.28*	1.00
N	50.00	50.00	50.00
Esteem			
Pearson Correlation	.35*	.54**	-.17
N	50.00	50.00	50.00

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

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

Comparisons of the Vulnerability Scale to the GSE and SES yielded nonsignificant correlations of 0.21 and 0.25 (Table 13). No significant correlations were obtained between Locus of Control and the FOPAS.

Table 13

FOPAS Vulnerability Scale Validity Data (Female)

	Total	Efficacy	Locus
Vulnerability			
Pearson Correlation	1.00	.22	.11
N	50.00	50.00	50.00
Efficacy			
Pearson Correlation	.22	1.00	-.28*
N	50.00	50.00	50.00
Locus			
Pearson Correlation	.11	-.28*	1.00
N	50.00	50.00	50.00
Esteem			
Pearson Correlation	.25	.54**	-.17
N	50.00	50.00	50.00

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

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

More importantly, no significant relationships were obtained between the FOPAS and any of the other instruments administered among males who participated in the study (Table 14).

Table 14

FOPAS Full Scale Validity Data (Male)

	Total	Efficacy	Locus
FOPAS			
Pearson Correlation	1.00	.15	-.33
N	26.00	26.00	24.00
Efficacy			
Pearson Correlation	.15	1.00	-.14
N	26.00	26.00	24.00
Locus			
Pearson Correlation	-.33	-.14	1.00
N	24.00	24.00	24.00
Esteem			
Pearson Correlation	.27	.27	-.16
N	25.00	25.00	25.00

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

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

There were no significant relationships between the FOPAS Control Scale and any other instruments among male participants (Tables 15).

Table 15

FOPAS Control Scale Validity Data (Male)

	Total	Efficacy	Locus
Control			
Pearson Correlation	1.00	.14	-.16
N	26.00	26.00	24.00
Efficacy			
Pearson Correlation	.14	1.00	-.14
N	26.00	26.00	24.00
Locus			
Pearson Correlation	-.16	-.14	1.00
N	24.00	24.00	24.00
Esteem			
Pearson Correlation	.15	.27	-.16
N	25.00	25.00	25.00

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

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

There were also no significant relationships observed between male scores on the FOPAS Vulnerability Scale and any other instrument (Table 16).

Table 16

FOPAS Vulnerability Scale Validity Data (Male)

	Total	Efficacy	Locus
FOPAS			
Pearson Correlation	1.00	.13	-.37
N	26.00	26.00	24.00
Efficacy			
Pearson Correlation	.13	1.00	-.14
N	26.00	26.00	24.00
Locus			
Pearson Correlation	-.37	-.14	1.00
N	24.00	24.00	24.00
Esteem			
Pearson Correlation	.29	.27	-.16
N	25.00	25.00	25.00

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

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

Study Two

Examination of the mean scores among participants yielded the following results (Table 17). On the pretest, male participants obtained a mean score of 76.53 (SD = 15.90) on the SES and a mean score of 86.08 (SD = 12.54) on the FOPAS. Female participants obtained a SES mean score of 73.45 (SD = 17.86) and a FOPAS mean score of 71.34 (SD = 11.49) on pretest measures. Posttest means on the SES included 75.71 (SD 14.19) for males and 80.81 (SD = 17.32) among females. FOPAS posttest mean

scores included 86.61 (SD = 10.33) among males and 78.40 (SD = 11.00) among females.

Table 17

SEI and FOPAS Mean Scores

Gender	N	Mean	SD
Male			
Pre-SEI	49	76.53	15.94
Post-SEI	49	75.71	14.19
Pre-FOPAS	49	86.08	12.54
Post-FOPAS	49	86.61	10.33
Female			
Pre-SEI	47	73.45	17.86
Post-SEI	47	80.81	17.32
Pre-FOPAS	47	71.34	11.49
Post-FOPAS	47	78.40	11.01

Analysis of the relationship between self-esteem and fear of assault in male participants indicated a correlation of 0.47 and 0.48 on pretest and posttest measures. Among female participants, correlations of 0.49 and 0.46 were obtained. These correlations are higher than those indicated in validation studies of the FOPAS, particularly in male participants. Possible explanations for this difference will be addressed in the discussion.

In order to examine differences in pretest measures, a MANOVA was performed (Table 18). Examination of the assumptions of MANOVA revealed no violations. No significant difference was found between males and females in levels of self-esteem, but a significant gender difference was obtained on the Fear of Physical Assault Scale, with women reporting higher levels of fear.

Table 18

F-Table – Pretest Scores

Source	Type III Sum of Squares	df	Mean Square	F	Significance
Corrected Model					
PRESEI	228.14 ^a	1	228.14	.80	.37342839
PREFOPAS	5213.01 ^b	1	5213.01	35.97	.00000004
Intercept					
PRESEI	539603.14	1	539603.14	1891.81	.00000000
PREFOPAS	594502.76	1	594502.76	4101.76	.00000000
Gender					
PRESEI	228.14	1	228.14	.80	.37342839
PREFOPAS	5213.01	1	5213.01	35.97	.00000004
Error					
PRESEI	26811.82	94	285.23		
PREFOPAS	13624.23	94	144.94		
Total					
PRESEI	567340.00	96			
PREFOPAS	615921.00	96			
Corrected Total					
PRESEI	27039.96	95			
PREFOPAS	18837.24	95			

Note. a. R Squared = .008 (Adjusted R Squared = -.002)

b. R Squared = .277 (Adjusted R Squared = .269)

MANCOVA of the posttest scores following eight weeks of martial arts instruction indicated a significant gender difference in both self-esteem and fear of assault (Table 19). Pretest measures of self-esteem and fear of assault were used as covariants in order to determine gender differences in improvement of self-esteem and fear scores. These results indicated that females scores on both the SEI and FOPAS increased significantly more than those of males in the study.

Table 19

F-Table – Posttest Scores

Source	Type III Sum of Squares	df	Mean Square	F	Significance
Corrected Model					
POSTSEI	18119.84 ^a	3	6039.95	93.17	.00000000
POSTFOPAS	10016.62 ^b	3	3338.87	113.76	.00000000
Intercept					
POSTSEI	725.33	1	725.33	11.19	.00119 217
POSTFOPAS	770.02	1	770.02	30.85	.00000 027
PRESEI					
POSTSEI	13788.70	1	13788.70	212.70	.00000 000
POSTFOPAS	125.18	1	125.18	5.02	.02754 139
PREFOPAS					
POSTSEI	4.93	1	4.93	.08	.78328 224
POSTFOPAS	5583.51	1	5583.51	223.68	.00000 000
Gender					
POSTSEI	888.05	1	888.05	13.70	.00036 531
POSTFOPAS	127.05	1	127.05	5.09	.02644 017
Error					
POSTSEI	5963.99	94	64.83		
POSTFOPAS	2296.54	94	24.96		
Total					
POSTSEI	611272.00	96			
POSTFOPAS	667199.00	96			
Corrected Total					
POSTSEI	24083.83	95			
POSTFOPAS	12313.16	95			

Note. a. R Squared = .752 (Adjusted R Squared = .744)

b. R Squared = .813 (Adjusted R Squared = .807)

The distribution of scores on the SES posttest was negatively skewed. Although this violates the assumption of normality, the non-normal distribution is consistent with the predicted outcome of increased self-esteem scores following martial arts training. While performing nonlinear transformations to correct for normality would be statistically justified, it would not be theoretically sound. Additionally, multiple analysis of variance is robust in regard to violations of this assumption. Levene's test of equality of error variances indicated no violation of the assumption of homogeneity of variance. Examination of the assumptions of independence and linearity also failed to reveal any violations. No transformations were necessary.

Multiple analysis of variance examining gender differences in difference, or improvement, scores yielded similar results. Women in the study improved on both measures significantly more than men. Analysis of the relationship between these changes in scores indicated correlation of 0.37 between changes in self-esteem and fear of assault (Table 20).

Table 20

Correlation Between Change in SEI and FOPAS

	SEI	FOPAS
SEI		
Pearson Correlation	1.00	.37**
N	96.00	96.00
FOPAS		
Pearson Correlation	.37**	1.00
N	96.00	96.00

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

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

CHAPTER 4

Discussion

Study One

Test-retest, split-half and Cronbach's Alpha reliability coefficients obtained in this study suggest that the FOPAS is a consistent measure. Analysis indicates a high degree of internal consistency and stable scores over time. The reliability estimates demonstrated no significant gender differences. These results support the validity of the first two research hypotheses and therefore the null hypotheses were rejected.

Measures of validity, in contrast, were more variable. Due to the difficulty in establishing criterion validity, this study sought to establish at least preliminary evidence for the construct validity of the Fear of Physical Assault Scale. Factor analysis yielded a two-factor structure as would be predicted by the content of the test. Significant, though modest, correlations were obtained between the Fear of Physical Assault Scale and measures of self-efficacy and self-esteem. At first glance it would appear that these results strongly support the third and fourth research hypotheses. Further analysis revealed, however, differential relationships between male and female participants.

Among women participating in the study, modest but significant correlations were observed between the Fear of Physical Assault Scale and measures of self-esteem and self-

efficacy. These results provide evidence of convergent validity for the construct of fear of assault. They also provide partial support for the third and fourth research hypotheses.

No significant correlations were obtained between the FOPAS and any other measure among the male participants in the study. These results indicate the possibility of differential validity of the FOPAS according to gender. These findings could result from a true lack of relationship between these variables. They could also be the result of constriction of range in male responses to the FOPAS questionnaire. Male participants obtained significantly higher scores on the FOPAS than females who participated in the survey. These consistently high scores may indicate that, for the men surveyed, fear of assault does not impact self-image. Fear of assault is more prominent in the women surveyed, and therefore, has more impact on overall perception of self-image. These results indicate partial support for research hypotheses three and four. The null hypotheses was rejected in regard to female participants but not for males.

Hypothesis five predicted that there would be a significant relationship obtained between fear of physical assault and locus of control. This hypothesis was not supported and, therefore, the null was accepted. No significant correlation was obtained between the FOPAS and Rotter's Locus of Control Scale. These findings support the earlier results obtained by Killias (1991) and Rapee (1997) demonstrating that no relationship exists between these constructs. This lack of significant relationship between fear and locus of control contradicts the findings of Emmelkamp and Cohen-Kettenis (1975). The results did not contribute to the convergent validity of the construct of fear of physical assault.

However, they do provide discriminant validity in that the FOPAS is free from the influence of locus of control. It is possible that fear of physical assault is a factor of self-esteem, at least in women, that is independent of locus of control.

The results of this experiment indicate that the FOPAS is a reliable instrument for the assessment of both male and female participants. Analysis of construct validity indicates the possibility of differential validity between men and women with the instrument being a more valid measure among female participants. These results provide evidence, therefore, that may help explain the gender differences in the effects of martial arts training on self-esteem obtained by Clanton and Kelley (1997). It is possible that the differential impact of fear of assault on self-esteem contributes to their findings indicating that the self-esteem of women enrolled in martial arts classes increases more than that of men in the same classes. This hypothesis will be examined in Study Two.

Study Two

The first issue that must be addressed in Study Two pertains to the correlations found between fear of physical assault and self-esteem. The correlations obtained in this study were higher than those obtained in the validation studies cited above, particularly among male participants. One possible explanation for these differences is the instruments used to measure self-esteem. In Study One, the Rosenberg Self-Esteem Scale was used to measure participants' level of self-esteem. In Study Two the Coopersmith Self-Esteem Inventory was used. It is possible that the instruments measure self-esteem in slightly different ways

and that the Coopersmith is more sensitive to the effects of fear of assault on self-esteem.

Different instruments were chosen for a variety of reasons.

The SES was used in validation studies because it is a shorter measure of self-esteem with similar reliability and validity data. The brevity of this instrument was beneficial in constructing the battery of tests used to validate the FOPAS. Additionally, the use of different self-esteem measures would increase the construct validity of the FOPAS.

The SEI was used in Study Two to facilitate ease of comparison with previous studies that examined the gender differences of martial arts training on self-esteem. One of the purposes of this study was to replicate the findings of Clanton and Kelly (1997), as well as to examine possible explanations for any gender difference that was obtained.

Another possible explanation for the higher correlations found in this study may arise from the experimental conditions themselves. Fear of assault may be more salient for students enrolled in a martial arts course and, therefore, have more impact on self-esteem.

Multiple analysis of variance was performed on pretest measures of the FOPAS and SES in order to examine gender differences that existed before martial arts training was begun. There were no significant differences found between the self-esteem scores of men and women enrolled in the courses. There was a significant gender difference obtained on the Fear of Physical Assault Scale with women scoring significantly lower than men (with lower scores indicating higher levels of fear). These results are consistent with those obtained during the validation study of the FOPAS. They are also consistent with the hypothesis that males tend to view themselves as less vulnerable to assault.

After eight weeks of martial arts instruction the participants were retested. A Multiple Analysis of Covariance was used to examine gender differences on the effects of martial arts training on self-esteem and fear of assault. Pretest measures of both constructs were used as covariates to compare changes in male and female scores. On both scales, women's scores increased significantly more than those of men surveyed indicating an increase in self-esteem and a decrease in fear of attack. These findings support both hypotheses one and two and lead to rejection of the null hypotheses. They also support previous findings by Clanton and Kelly (1997) that martial arts training has a differential effect on men and women enrolled in college martial arts courses. The differences obtained support the conclusion that brief martial arts training is beneficial for the enhancement of self-esteem in female participants. The results suggest no such benefit for males.

A correlation of difference scores on the SES and FOPAS revealed a significant positive relationship between improvement on both measures, supporting research hypothesis three. As stated previously, these findings contradict those of the FOPAS validation study. The validation study found a significant relationship between self-esteem and fear of physical assault only among female participants. Various possible explanations for these results are discussed above.

Conclusions

Initial reliability and validity results reported in study one suggest that the Fear of Physical Assault Scale is a highly reliable instrument. Factor analysis supports the validity of its construction, but preliminary validity measures indicate possible differential validity for men and women. Analysis revealed convergent validity of the scale with measures of self-efficacy and self-esteem for females but not males. The extremely high scores obtained on the FOPAS almost universally by male participants made significant correlations impossible. This range restriction is troublesome statistically, but is consistent with the hypothesis that males tend to perceive themselves as much less vulnerable to attack than females. This finding was contradicted in Study Two, which demonstrated a significant relationship between self-esteem and fear of assault among both male and female participants. The observed changes in FOPAS scores after martial arts training also supports the validity of the instrument as a measure of fear of physical assault. Increases in FOPAS scores were consistent with the findings of Rapee (1997) that perceived threat and perceived control are predictors of fear in physical and social situations. Further research is needed in order to clarify the relationship between these variables in male participants.

Although these conflicting results prevent generalizability of FOPAS validity to other settings, they are still useful for the purposes of this study. The FOPAS was developed primarily to help explain gender differences in the effects of martial arts training on self-esteem. The observed difference in the relationship between fear of physical assault and self-esteem among men and women supports the hypothesis that fear of assault contributes

to differences in the effects of self-defense training. These results support the possibility that differences in mens' and womens' perceptions of assault fear may differentially impact self-esteem.

The results obtained in Study Two also support the "fear of assault" hypothesis. Significant differences were observed in the effects of martial arts training on the self-esteem of men and women. Women improved on self-esteem measures significantly more than men. It is possible that, for men with overly inflated perceptions of self-defense ability, martial arts training actually decreases self esteem. In both studies, men achieved significantly higher scores on the Fear of Assault Scale than women. It is possible that men are socialized to see themselves as less fearful than women. This belief system may lead to extremely elevated scores on the FOPAS and a lack of impact of fear of assault on self-esteem. This socialization process does not seem to occur in women. In fact, it is likely that the socialization of women leads to increased perceptions of vulnerability and lack of control in self-defense situations. This socialization effect could explain the observed difference in the effect of self-defense training on self-esteem. Analysis of the correlation between changes in fear of assault and self-esteem revealed a significant relationship between these two variables. This relationship further supports the hypothesis that fear is a component of self-esteem that is differentially impacted in men and women.

Counselor Implications

Normative data for the FOPAS are still in the developmental stage at this time, and it would be premature to suggest any counselor implications related to the scale. Further research is required before the instrument is used in practice, if indeed, such use is ever warranted. The FOPAS was developed as a research instrument for use in this study. While it could possibly be used for later research, it is unlikely that it will prove applicable for use as a therapeutic assessment device.

Results from Study Two, however, clearly have therapeutic implications. As has been suggested by several previous studies (Finkenber, 1990; Clanton & Kelly, 1997), martial arts training does seem to provide the benefits of increased self-esteem in women. The fear of assault explanation presented here is one possible explanation for self-esteem increases observed in female participants. Regardless of the mechanism of change, however, the research has consistently found self-esteem increases among women who train in the martial arts. As an adjunct to therapy, it would appear that martial arts training could be beneficial in any number of situations as presented in the literature review. Low self-esteem has been linked to depression, loneliness, poor academic performance, and substance abuse. Counselors seeking more holistic approaches to helping may consider referral of clients to martial arts training if any of these problems are evident.

Among male participants there was no observed increase in self-esteem scores. This result would seem to indicate that referral to self-defense courses would not be appropriate for men as a therapeutic intervention. It should be noted that these results

were obtained using a college population and should not be assumed to generalize to younger males. If the socialization theory for differential changes in self-esteem is indeed accurate, it is likely that early enrollment in martial arts training would have an increased impact on male participants. Further research with younger participants is necessary.

Limitations

The most notable limitation of Study One involves the need for more validation studies for the FOPAS. The differential validity suggested between males and females requires further study. Additionally, the inconsistent findings regarding the relationship between self-esteem and fear of assault in males needs to be examined. Replication studies are needed, as with any new instrument.

Additional studies are also needed using a more diverse sample, and normative information needs to be developed for various ethnic groups and age ranges. The FOPAS was developed as an exploratory instrument for use in the current study. As such, no attempts to generalize the results obtained with the Fear of Physical Assault Scale would be prudent at this time. If the FOPAS is to be used in future research or as a clinical instrument, further development is necessary.

Several limitations should be noted in Study Two. Although the sample in this study was more diverse than previous studies (Clanton & Kelly, 1997), the ethnicity of participants was predominately Caucasian. The current study was also limited to college students enrolled in physical education classes; therefore, the results of this study cannot

be generalized to people who receive martial arts instruction in other settings.

Additionally, the results cannot be generalized to populations consisting of different chronological ages. The effects of martial arts training on children, for instance, cannot be inferred from the current study.

The current study was time-limited due to the brevity of the college courses from which participants were selected. While the positive effects of this short-term treatment have been previously documented (Nosanchuk, 1981; Clanton & Kelly, 1997), there have been no controlled studies examining long-term effects of such training. Although the results of Study Two support the previous findings, in the case of female participants, no conclusions can be drawn about long-term effects of martial arts training.

Although Study Two attempts to explore possible explanations for gender differences obtained in the study, no true cause-and-effect relationship can be established. In fact, no concrete cause-and-effect relationship can be established between martial arts training and changes in self-esteem. The current study, like those before it, is a quasi-experimental design. Random assignment to martial arts training is problematic. As a result, intact groups were used. The participants in Study Two self-selected themselves by choosing to enroll in a martial arts course. It is, therefore, possible that the results obtained in this study were affected by this selection bias. True experimental research with random assignment would be required to establish a cause-and-effect relationship.

Similarly, without the presence of a randomly assigned control group, the effects of maturation could not be controlled. It is possible that changes in the variables measured occurred due to these effects rather than to training in the martial arts.

Finally, the obtained correlation between self-esteem and fear of assault in Study Two must be considered tentative, at best. As stated above, further validation studies of the Fear of Physical Assault Scale need to be conducted to establish the statistical properties of the scale. Until this occurs, any results obtained using the FOPAS should be examined closely. The current study used the FOPAS as an exploratory instrument and it should be considered as such.

Recommendations for Future Research

Several areas of future research are indicated by the results of this study. More comprehensive normative data for the Fear of Physical Assault Scale need to be developed. The reliability and validity data presented here were appropriate for use in the current study but cannot be generalized into any other population. Further analysis of the scale validity is vitally important. Items may need to be modified to help correct for the extremely elevated scores obtained by male participants. The instrument also needs to be normed on a much more diverse sample.

The results of this study indicate a gender difference in the effects of martial arts training on the self-esteem of college students. It is important to constrict generalizations to that specific population. Initial interest in this area was generated by claims of martial

artists and self-defense instructors that karate training increases self-esteem. The results of this study do not generalize to children and adolescents. Many of the programs designed to increase self-esteem are targeted at these younger individuals. If the socialization explanation of gender differences is valid, then it is likely that younger males will not display that same pattern of beliefs. It is possible that martial arts training would have the same effects in both male and female children and adolescents. No research was found, published or unpublished, examining the effects of martial arts training on children. It is likely that this lack of research stems from difficulty in finding large enough samples for study. With growing numbers of programs becoming established in schools, such as the Kick Drugs Out of America Program, this is no longer the case. Future research definitely needs to examine the effects of these programs on the self-esteem of children.

Future research is further indicated examining the impact of martial arts training on more ethnically diverse populations. Although the current study examined the effects of such training at several universities, most of the participants surveyed were Caucasian. Further studies are needed using more diverse samples.

Additional research is also needed examining the effects of long-term martial arts training. The current study was time-limited due to the brevity of the college courses surveyed. Practitioners of the martial arts maintain that psychological benefits occur as a result of the philosophy of the martial arts rather than merely from proficiency at self-defense. Long-term studies of martial arts practitioners are needed to examine the veracity of this claim.

To date, no research examining the psychological effects of martial arts training has used an experimental design. Experimental research using random assignment is required to establish cause-and-effect relationship between martial arts training and any psychological benefits that may occur.

Summary

This study sought to examine psychological effects of martial arts training on college students. Specifically, the effects of such training on self-esteem and fear of physical assault were examined. Gender differences in the impact of martial arts training on these variables were also examined. Results supported previous findings by this author and a colleague (Clanton & Kelly, 1997) that the self-esteem of female college students increases significantly more than that of male students enrolled in such courses. It is suggested that differences in the expectations of males and females enrolling in martial arts courses might explain the observed differences in self-esteem change. It is proposed that males are more socialized to believe that they are capable of defending themselves against physical assault and enroll in karate courses to verify this belief. It may be that the positive effects of such training on self-esteem is negated for these males when their beliefs about defense efficacy are challenged. Significant observed relationships between self-esteem and fear of assault in female students, but not among male students, support this theory. Implications for application of these findings include the use of martial arts training to bolster the self-esteem of college age women.

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APPENDIX A
Fear of Physical Assault Scale

Fear of Physical Assault Scale

SEX: ___MALE ___FEMALE

AGE: _____

RACE: _____

CLASSIFICATION (Fr., So, Jr., Sr., Grad.): _____

Answer the following questions, rating yourself on a scale from one to ten (circle your answer).

1. How much control do you have over avoiding being attacked by someone who wanted to harm you?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 no a great
 control deal of
 control

2. If you were attacked by someone who was smaller than you, how much control would you have over preventing serious injury to yourself?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 no a great
 control deal of
 control

3. If you were attacked by someone who was larger than you, how much control would you have over preventing serious injury to yourself?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 no a great
 control deal of
 control

4. If you were attacked by someone who was your same size, how much control would you have over preventing serious injury to yourself?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 no control a great deal of control

5. How vulnerable do you feel you are to being attacked by someone who wants to harm you at home?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 extremely vulnerable not at all vulnerable

6. How vulnerable do you feel you are to being attacked by someone who wants to harm you at work/school?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 extremely vulnerable not at all vulnerable

7. How vulnerable do you feel you are to being attacked by someone who wants to harm you in public places?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 extremely vulnerable not at all vulnerable

8. How vulnerable do you feel you are to being attacked by someone who wants to harm you in secluded places?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 extremely vulnerable not at all vulnerable

9. How vulnerable do you feel you are to being attacked by someone who wants to harm you at night?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
extremely not at all
vulnerable vulnerable

10. How vulnerable do you feel you are to being attacked by someone who wants to harm you during the day?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10
extremely not at all
vulnerable vulnerable

APPENDIX B

Rosenberg Self-Esteem Scale

Rosenberg Self-Esteem Scale

The following statements concern attitudes and feelings you might have about yourself and a variety of situations. You are asked to indicate how strongly you agree or disagree with each of these statements by placing a number (1 through 4) in the blank to the left of each statement. The numbers correspond to the following levels of agreement.

- 1 = Strongly Agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly Disagree

- _____ 1. On the whole, I am satisfied with myself.
- _____ 2. At times I think I am no good at all.
- _____ 3. I feel that I have a number of good qualities.
- _____ 4. I am able to do things as well as most other people.
- _____ 5. I feel I do not have much to be proud of.
- _____ 6. I certainly feel useless at times.
- _____ 7. I feel that I am a person of worth, at least on an equal plane with others.
- _____ 8. I wish I could have more respect for myself.
- _____ 9. All in all, I am inclined to feel that I am a failure
- _____ 10. I take a positive attitude toward myself.

APPENDIX C

Generalized Self-Efficacy Scale

Generalized Self-Efficacy Scale

The following statements concern attitudes and feelings you might have about yourself and a variety of situations. You are asked to indicate how strongly you agree or disagree with each of these statements by placing a number (1 through 7) in the blank to the left of each statement. The numbers correspond to the following levels of agreement.

- | | |
|-------------------------------|-----------------------|
| 1 = Strongly Agree | 5 = Slightly Disagree |
| 2 = Agree | 6 = Disagree |
| 3 = Slightly Agree | 7 = Strongly Disagree |
| 4 = Neither Agree or Disagree | |

- _____ 1. I find it extremely unpleasant to be afraid.
- _____ 2. I sometimes avoid difficult tasks.
- _____ 3. I am a very determined person.
- _____ 4. Once I set my mind to a task almost nothing can stop me.
- _____ 5. I have a lot of self-confidence.
- _____ 6. I am at my best when I am really challenged.
- _____ 7. I believe that it is shameful to give up something I start.
- _____ 8. I have more than the average amount of self-determination.
- _____ 9. Sometimes things just don't seem worth the effort.
- _____ 10. I would rather not try something that I'm not good at.
- _____ 11. I have more fears than most people.
- _____ 12. I find it difficult to take risks.
- _____ 13. Man has a lot of problems but none he won't eventually be able to solve.

- _____ 14. I can succeed in most any endeavor to which I set my mind to it.
- _____ 15. Nothing is impossible if I really put my mind to it.
- _____ 16. I feel I am better off to rely on myself for a solution when things are looking really bad.
- _____ 17. When put to the test I would remain true to my ideals.
- _____ 18. If a person believes in himself, he can make it in this world.
- _____ 19. I feel that chances are very good that I can achieve my goals in life.
- _____ 20. In general I agree that "If at first I don't succeed, I'll try again".
- _____ 21. When I have difficulty getting what I want, I just try harder.
- _____ 22. I excel at few things.
- _____ 22. I have often burned the midnight oil to finish a task before a deadline.
- _____ 23. I have more willpower than most people.
- _____ 24. I become frustrated when I experience physical discomfort.
- _____ 25. Nothing is worth subjecting myself to pain for if I can avoid it.
- _____ 26. I would endure physical discomfort to complete a task because I just don't like to give up.

APPENDIX D

Locus of Control Scale

Locus of Control Scale

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered "a" or "b". Please select the one statement of each pair (and only one) which you most strongly believe to be the case as far as you are concerned. Be sure to select the one you actually believe to be true, rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. Be sure to find an answer for every choice. In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you are concerned. Also, try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1. A. Children get into trouble because their parents punish them too much.
B. The trouble with most children nowadays is that their parents are too easy with them.
2. A. Many of the unhappy things in people's lives are partly due to bad luck.
B. People's misfortunes result from the mistakes they make.
3. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
B. There will always be wars, no matter how hard people try to prevent them.
4. A. In the long run, people get the respect they deserve in this world.
B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. A. The idea that teachers are unfair to students is nonsense.
B. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. A. Without the right breaks, one cannot be an effective leader.
- B. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. A. No matter how hard you try, some people just don't like you.
- B. People who can't get others to like them don't understand how to get along with others.
8. A. Heredity plays the major role in determining one's personality.
- B. It is one's experience in life that determine what they're like.
9. A. I have often found that what is going to happen will happen.
- B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. A. In the case of the well prepared student there is rarely, if ever, such a thing as an unfair test.
- B. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. A. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- B. Getting a good job depends mainly on being in the right place at the right time.
12. A. The average citizen can have an influence in government decisions.
- B. This world is run by the few people in power, and there is not much that the little guy can do about it.
13. A. When I make plans, I am almost certain that I can make them work.
- B. It is not always wise to plan to far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. A. There are certain people who are just no good.
B. There is some good in everybody.
15. A. In my case, getting what I want has little or nothing to do with luck.
B. Many times we might just as well decide what to do by flipping a coin.
16. A. Who gets to be the boss often depends on who was lucky to be in the right place first.
B. Getting people to do the right thing depends on ability, luck has little or nothing to do with it.
17. A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
B. By taking an active part in political and social affairs, the people can control world events.
18. A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
B. There really is no such thing as "luck."
19. A. One should always be willing to admit mistakes.
B. It is usually best to "cover up" one's mistakes.
20. A. It is hard to know whether or not a person really likes you.
B. How many friends you have depends on how nice a person you are.
21. A. In the long run, the bad things that happen to us are balanced by the good ones.
B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. A. With enough effort we can wipe out political corruption.
B. It is difficult for people to have much control over the things politicians do in office.
23. A. Sometimes I can't understand how teachers arrive at the grades they give.
B. There is a direct connection between how hard I study and the grades I get.
24. A. A good leader expects people to decide for themselves what they should do.
B. A good leader makes it clear to everyone what their jobs are.
25. A. Many times I feel that I have little influence over the things that happen.
B. It is impossible for me to believe that chance or luck plays an important role in my life.
26. A. People are lonely because they don't try to be friendly.
B. There's not much use trying too hard to please people; if they like you, they like you.
27. A. There is too much emphasis on athletics in high school.
B. Team sports are an excellent way to build character.
28. A. What happens to me is my own doing.
B. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. A. Most of the time I can't understand why politicians behave the way they do.
B. In the long run, the people are responsible for bad government on a national as well as on a local level.

APPENDIX E

Coopersmith Self-Esteem Inventory

Coopersmith Self-Esteem Inventory

Below you will find a list of statements about feelings. If a statement describes how you usually feel, put an X in the column "Like Me." If a statement does not describe how you usually feel, put an X in the column "Unlike Me." There are no right or wrong answers. Begin at the top of the page and mark all 25 statements.

- | Like
Me | Unlike
Me | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Things usually don't bother me. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. I find it very hard to talk in front of a group. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. There are lots of things about myself I'd change if I could. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. I can make up my mind without too much trouble. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. I'm a lot of fun to be with. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. I get upset easily at home. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. It takes me a long time to get used to anything new. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. I'm popular with persons my own age. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. My family usually considers my feelings. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. I give in very easily. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. My family expects too much of me. |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. It's pretty tough to be me. |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Things are all mixed up in my life. |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. People usually follow my ideas. |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. I have a low opinion of myself. |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. There are many times when I would like to leave home. |
| <input type="checkbox"/> | <input type="checkbox"/> | 17. I often feel upset with my work. |
| <input type="checkbox"/> | <input type="checkbox"/> | 18. I'm not as nice looking as most people. |
| <input type="checkbox"/> | <input type="checkbox"/> | 19. If I have something to say, I usually say it. |

- 20. My family understands me.
- 21. Most people are better liked than I am.
- 22. I usually feel as if my family is pushing me.
- 23. I often get discouraged with what I am doing.
- 24. I often wish I were someone else.
- 25. I can't be depended on.

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