

**Martial Arts Participation, Aggression, and Self-Control:
An Examination of the “Gentle Arts”**

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The recent emergence of mixed-martial arts (MMA) as a professional sport has led to an increased interest in martial arts in the United States. While the visibility of the violence that constitutes mixed martial arts might be cause of concern, MMA is not indicative of martial arts participation as a whole. The martial arts have become an increasingly popular form of leisure that draws a broad, diverse group of participants. This study explores the relationships between martial arts participation, aggression, and self-control. Using the Buss-Perry Aggression Questionnaire (BPAQ) (1992) and Tangney’s Brief Self-Control Scale (BSCS) (2004), my findings show that compared to non-participants, men who participate in martial arts training are less physically aggressive, less hostile, less angry, and exhibit more self-control.

Martial arts may seem foreign compared to “American sports” like baseball, basketball, and football, but the United States has had some form of martial art since at least the early 20th century. President Theodore Roosevelt received judo lessons while in the White House (1904-1906), and eventually became America’s first brown belt in Judo. The United States Air Force developed a Judo program for cadets in 1950, and in 1953 the first National Judo tournament was held in the United States. Navy Veterans brought karate to the United States after returning from Okinawa in the 1940s and 1950s, resulting in the emergence of American dojos offering karate classes. And, of course, martial arts legend Bruce Lee and the Kung Fu films in the 1970s lead to an explosion in popularity for martial arts in the United States. The recent emergence of mixed-martial arts (MMA) as a professional sport has led to a renewed interest in martial arts. Over the past two decades, the Ultimate Fighting Championship (the premier mixed-martial arts promotion) has gained immense popularity. By 2019, UFC broadcasts reached 1.1 billion households worldwide in 165 countries (ufc.com). The UFC was worth an estimated 2.4 billion dollars, and was ranked as the 8th most valuable sports business brand in the world (Tighe, 2021). This popularity has led to an increased visibility of and concern over violence in martial arts.

To the outside observer, martial arts appear to be more violent than other sports. Whereas aggressive behavior in other sports is often secondary to the main goal (that is, aggression is a means

to an end), violence and aggression are at the center of martial arts training and competition. There is relatively little research on the relationships between martial arts training, aggression, and self-control. This study seeks to examine these relationships; does participation in martial arts training make people more aggressive or violent, or is participation in martial arts associated with less aggression and better self-control? Put another way, are martial artists more aggressive than those who do not train martial arts? Do martial artists have more or less self-control than non-martial artists?

There are two general hypotheses on the relationship between sport and aggressive behavior. The *socialization* or *social learning hypothesis* suggests athletes are socialized into aggressive behavior through participation in aggressive sport (and through membership in an aggressive community organized around sport (Bandura, Ross, & Ross, 1961; Begg, 1996). From this perspective, athletes who are rewarded for aggressive play on the field may learn to value aggressive behavior (as a result of its continual reinforcement in the context of sport); this, in turn, can lead to increased aggressive behavior in everyday life. Alternatively, the *catharsis hypothesis* (also conceptualized as “surplus energy theory”) suggests sport and recreation reduce trait aggression in society by providing outlets for “tension reduction” (Seagrave, 1983); here, sport and recreation provide pro-social outlets that allow for the safe release of aggression, tension, and frustration. Landers and Landers (1978, p. 299) cite a “release from tension and aggressive impulses” through

participation in extracurricular activities, while Agnew (1989) suggested organized leisure and sports can provide “a socially acceptable outlet for the frustration generated in the non-leisure world” (p. 334).

Begg (1996) examined the two general theories of sport and aggression - sport as a pathway to learning aggressive behavior (socialization into aggression), and sport as a deterrent to aggressive behavior/delinquency (deterrence or catharsis) - and found no relationship (either positive or negative) between involvement in team sports and delinquency. Begg, however, observed an association between high involvement in “sporting activity” (any sporting activity, including individual sports and team sports) and increased involvement in delinquent behavior. Begg’s findings suggest the relationships between sport, delinquency, and aggression may vary based on participation in team sports (e.g. basketball, football) and individual sports (e.g. running, tennis, golf).

The Sociological Perspective

The two competing hypotheses on the relationship between sport and aggression – socialization and catharsis - may be too narrow, and are not necessarily mutually exclusive. From a sociological perspective sport and recreation are a form of social organization and therefore provide participants with a source of social integration (social identity) and social regulation (guidelines for behavior). Emile Durkheim’s (1895) classic work on anomie established a clear connection between inadequate social integration into the larger society and disorganized, unstructured behavior.

Following Durkheim, involvement and commitment to organized sport and recreation can protect against anomie - feelings of normlessness and lack of or loss of structure - by becoming a salient part of our identity. From this perspective we learn more than just the “rules of behavior” associated with a particular identity or role; if the identity is (or becomes) salient we may develop a self-concept around this social identity. These social-identities provide us with structure – scripts and guidelines for behavior – as well as notions of “who we are,” what we stand for, and how we ought to behave (or not behave)(Thoits, 1991).

Hirschi’s (1969) social bond theory (social control theory) offers a framework for understanding the relationship between organized leisure activities (such as sport and recreation) and disordered behavior. Social bonds serve as restraints against disordered or deviant behavior, that is, they may “hold us back” from drifting into deviant or criminal behavior. Organized sport, recreation, and leisure allow for individuals to develop a stronger commitment to both the goals associated with sport and leisure and the sport/leisure community itself. This commitment to conventional goals and attachment to conventional others (coaches, teammates) provides a rationale for restraint, giving the individual a stronger “stake in conformity.” In this sense the *socialization hypothesis* – which suggests participants are socialized into aggressive behavior - may not account for the possibility of socialization into conventional norms; through participation in organized sports and recreation,

individuals may learn to better control aggression and may develop better self-control and restraint.

So, sport and leisure may not just allow for the release of aggression, hostility, or tension (catharsis hypothesis), but may also socialize participants into how to control and appropriately manage these feelings and impulses. The type of sport or recreation matters, as some activities – such as high contact, aggressive sports – would seem to have a greater impact on aggression and self-control than non-combat sports. For example, Segrave et al. (1985) observed higher levels of “violent delinquency” among ice-hockey players compared to non-athletes, and connected this to the “structurally and culturally institutionalized deviant behavior in the form of sanctioned violence, aggression, and rule infractions” found within the sport of ice hockey (p. 282).

The purpose of this study is to examine the impact of participation in an aggressive form of recreation and sport - martial arts – on participants. The martial arts are, at their core, organized around principles of self-defense and combat. While aggression may be found in other forms of sports and recreation, aggression is often at the center of martial arts training. Weiser (1995) suggests the confrontation between self and other at the heart of martial arts has an additional effect on the participants - one that goes beyond the physical and mental health benefits associated with traditional sports participation.

Literature Review

Self-Control

The focus of this study is the impact of martial arts training on self-control and aggression. Self-control can be conceptualized as self-regulation, or the ability to resist impulses, whims, and the drive for immediate gratification - “the process by which people initiate, adjust, interrupt, terminate, or otherwise alter actions to promote attainment of personal goals, plans, or standards” (Heatherton & Baumeister, 1996, p. 91). On the other end of the spectrum, low self-control can be likened to impulsiveness - being more prone to risk-taking and having an inability to delay gratification. Gottfredson and Hirschi’s (1990) landmark work identified low self-control as a major risk factor for criminal behavior, substance abuse and misuse, risk-taking sexual activity, and other behaviors “analogous to crime.” Pratt and Cullen’s (2000) meta-analysis found “fairly impressive support” for Gottfredson and Hirschi’s self-control theory, establishing self-control as “one of the strongest known correlates of crime” (p. 952). Tangney et al. (2004) found low self-control to be “a significant risk factor for a broad range of personal and interpersonal problems” (p. 271), while high self-control was associated with higher grade point averages (undergraduates), higher self-esteem, better impulse control (measured as less alcohol abuse and less eating disorders), and better interpersonal skills. Baumeister and Heatherton (1996) claimed low self-control can be traced to many social problems, including “crime, teen pregnancy, alcoholism, drug addiction, vene-

real disease, educational underachievement, gambling, and domestic violence,” as well as less-threatening problems like “eating binges, spending sprees, procrastination, and inappropriate goal setting” (p. 1).

Aggression, Anger, and Masculinity

Bandura (1973) defines aggression as “dominance through physical and verbal force” (p. 2), which includes any behavior “that results in personal injury [or in] destruction of property” (p. 5). A key element in the concept of aggression is its intentional nature; Keeler (2007) framed aggression as “intentional physically or psychologically harmful behavior that is directed at another living organism” (p. 58), while Klimczak, et al. (2014) defined it as any “behavior aimed at causing damage or pain” (p. 273). The intent behind aggressive behavior may be to accomplish a goal (aggression as a means to an end, or “instrumental aggression”), or the act of aggression may be an end in and of itself – the end goal *is* the harm done (hostile aggression) (Anderson & Bushman, 2002; Bandura, 1973). Psychiatrist James Gilligan connects aggression and violence to feelings of anger, shame, and humiliation, stating that in his twenty-five years of work as a prison psychiatrist he has “yet to see a serious act of violence that was not provoked by the experience of feeling shamed and humiliated, disrespected and ridiculed” (Gilligan, 1996, p. 110).

Any analysis of violence and aggression must consider the role of masculinity and the cultural scripts attached to it. Bandura (1973) draws a clear connection between violence and the performance

of masculinity: “In societies that provide extensive training in aggression and make it an index of manliness or personal worth, people spend a great deal of time threatening, fighting, maiming, and killing each other” (p. 112). This is the notion of proving masculinity through “overwhelming violence” and violence as a “restorative agent” (Klein, 2012; Newman, 2004). School shooters often talk about their actions as responses to “challenges to their masculinity” (Klein, 2012; Newman, 2004). The Virginia Tech shooter was angry at the “perceived unjust school hierarchy” (Klein, 2012, p. 11), while the Columbine shooters “blamed everyone in the school for their own degraded social status” (Larkin, 2007, p. 124). The Pearl Mississippi shooter dismissed attention to his mental health by saying “I am not insane, I am angry” (Klein, 2012, p. 1). These boys used violence as a way to restore their masculinity, to “redefine their identities and assert their masculinity” before the community (Newman, 2004, p. 126). This relationship – challenges to masculinity followed by aggressive acts as a means to restore masculine status – has been captured in laboratory settings. Bosson and Vandello’s (2011) study placed men into two groups: one group engaged in a gender-neutral task (rope braiding), while the other group of men engaged in a “stereotypically feminine task” (hair braiding). All participants were then given an option of either completing a puzzle or hitting a punching bag. The men completing the “feminine task” were much more likely to choose the punching bag option – a possible

declaration or reassertion of their masculinity in the face of a potential challenge.

Martial Arts Training

Research on martial arts training and aggression has primarily sought to examine the impact of training on aggression and mental health. Vertonghen and Theeboom's (2010) meta-analysis of 350 studies found "in general, longer [martial arts] training was associated with lower levels of aggression" (p. 532). Rothpearl's (1980) examination of karate students found an association between increased training in martial arts and lower levels of hostility and anxiety. Daniels and Thornton (1992) observed a decrease in "feelings of assaultive and verbal hostility" over time for martial arts participants. Weiser et al. (1995) pointed to multiple studies indicating martial arts training and practice are associated with mental health benefits such as "increased esteem and self-confidence, better management of both feelings of aggression and feelings of vulnerability, and decrease in sleep disturbance and depression" (p. 119). So, it is paradoxical that participation in a sport which is, at its core, focused on violence and aggression may actually be associated with less aggression and hostility.

Data and Sample

My primary research question is "how do martial arts participants compare to non-participants in terms of aggression and self-control?" To explore this relationship, I conducted an online survey of martial artists. I recruited re-

spondents through a convenience/snowball sample by contacting local gyms/dojos and asking if they would be willing to pass the survey on to their members. Additionally, I asked participants if they would forward the link to martial artists at other academies/dojos. I included a skip question in the survey - "do you participate in martial arts" - that allowed for the creation of a control group of non-participants. Respondents selecting "yes" to the item "do you participate in martial arts" were directed to questions related to martial arts participation, while respondents selecting "no" were directed past these questions and completed all other items in the survey. The result was a sample of 190 martial artists from 31 different states, with 33% of the respondents residing in South Carolina. I created a control group by administering the survey to undergraduate students at a mid-size, public university in South Carolina. The control group was mostly female (65.5%), and White (76.7%). 12.1% were Black, 2.6% were Hispanic, .9% were Asian, and 7.8% identified as multi-racial. Control group ages ranged from 19-69, with a median age of 22 (SD 10.47). In order to account for significant differences in gender and age between the martial artists and the control group, I created a subsample that consisted only of respondents who identified as men and as 30 years old or younger. Table 1.1 details the demographic data for the subsamples of both the martial artists and the control group.

Table 1.1
Descriptive Statistics

Martial Arts?		Yes	No
		51	29
Race			
	White	40 78.4%	18 62.1%
	Black or African-American	2 3.9%	4 13.8%
	Spanish, Hispanic, or Latino	1 2.0%	1 3.4%
	Asian	4 7.8%	0 0.0%
	Native American	3 5.9%	0 0.0%
	From multiple races	1 2.0%	6 20.7%
Region			
	U.S. South	37 72.5%	27 93.1%
Age			
	Median	28	22.59
	Range	12	8
	SD	3.68	2.23

Independent Variable

While there are a variety of styles of martial arts to consider, the range is too broad to cover in this particular study. There is merit in considering the differential effects of particular martial art styles on participants, and I will leave such considerations for future research. For this study I compare those who have participated in any martial arts training to those who have not; the independent variable for the current study is martial arts participation.

Dependent Variables

Aggression

I used the Buss-Perry Aggression Questionnaire (1992) for my measure of aggression. The Buss-Perry Aggression Questionnaire (BP-AQ) was designed to measure trait aggression – defined as a “stable predisposition distinguishing people who tend to behave more aggressively than others in everyday life” (Kalmoe, 2015, p. 171). Buss and Perry (1992) suggested the concept of aggression should be broken down into four sub-

traits: physical aggression, verbal aggression, anger, and hostility. While physical and verbal aggression are the visible, active elements of aggression (the “instrumental components”), hostility and anger are often not readily visible (that is, they are more concealed). Hostility is the cognitive aspect of aggression, and consists of “feelings of ill will and injustice” (Buss & Perry, 1992, p. 457). Buss and Perry (1992) position anger as bridge between hostility (the cognitive component) and physical and verbal aggression (the instrumental or action components). This four-factor model of the BP-AQ is considered the “gold standard for the measurement of aggression” (Gerevich, et al., 2007, p. 124). The BP-AQ has been used in research on federal offenders (Diamond & Magaletta, 2006), mentally ill offenders (Diamond, et al., 2005), the impact of violent video games (Anderson & Bushman, 2001), bullying among imprisoned male offenders (Palmer & Thakordas, 2005), and has been shown to have reliability with more general populations (Kalmoe, 2015; Gerevich, et al., 2007).

The original Buss-Perry Aggression Questionnaire consisted of a five-point Likert scale with responses ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). Higher scores on the scale indicate higher levels of aggressive disposition. Both question wording and response category wording for the BP-AQ vary across the literature, including “false” – “true” (Bushman, 1995), “untrue or uncharacteristic of me” - “true or characteristic of me” (Becker, 2007), “unlike me - like me”

(Diamond & Magaletta, 2006), “never or hardly applies to me - very often applies to me” (Archer & Webb, 2006), “strongly disagree-strongly agree (Lee, 2017). While most applications of the BP-AQ consist of a five-point response category, some studies utilize six-point response scales (Bryant & Smith, 2001; Kalmoe, 2013) or seven-point response scales (Severance, et al., 2013).

In order to maintain consistency with other response categories in the present survey and to thus minimize response fatigue, the response categories for aggression items were adjusted to a 4-point Likert scale, ranging from strongly disagree to strongly agree (from the original 5-point scale ranging from “least characteristic of me” to “most characteristic of me”). Additionally, the question prompt was rephrased from “please rate each of the following items in terms of how characteristic they are of you” to “how do you feel about the following statements.”

Reliability analysis for all 29 items in the Buss-Perry Aggression Questionnaire generated a Cronbach’s alpha of .892. The four scales measuring the sub-traits of aggression also demonstrated good internal consistency with this sample. The nine items composing the scale for physical aggression yielded an alpha of .670. After excluding the item “I can think of no good reason for ever hitting a person” the alpha increased to .748. The five items composing the scale for verbal aggression generated an alpha of .738. After excluding the item “I tell my friends openly when I disagree with them” the alpha increased to .786. The

seven items composing the scale for anger yielded an alpha of .776. Finally, the eight items composing the scale for hostility generated an alpha of .832.

Self-control

I used Tangney’s (2004) Brief Self-Control Scale (BSCS) for my measure of self-control. In order to maintain consistency with the response categories for other items in this survey and to thus reduce survey fatigue, I adjusted the response categories for the BSCS from the original 5-point scale (ranging from “not at all” to “very much”) to a 4-point Likert scale, ranging from “strongly disagree” to “strongly agree”. The question prompt was rephrased from “using the scale provided, please indicate how much each of the following statements reflects how you typically are” to “how do you feel about the following statements.” The BSCS demonstrated good reliability with the current sample ($\alpha = .875$).

Control Variables

One of the gaps in the current literature on martial arts and aggression is the lack of control for variables known to be related to aggression and self-control (namely age and gender, with age being inversely related to aggression and men generally being more aggressive than women). To address the issue with gender I focused only on respondents who were men (and will return to women in martial arts for future research). Additionally, I created a dummy variable - “Southern” - to account for possible regional differences that scholars attribute to a “Southern culture of violence”

and “Southern masculinity.” Briefly, the Southern culture of violence connects the long-observed higher levels of violence in the Southern United States to “an ideology justifying violence for self-protection and for maintaining ‘honor,’ or a reputational toughness” (Cohen & Nisbett, 1994, p. 551). Compared to Northern men, Southern men participate in an “insult-aggression cycle,” where challenges to status, self-esteem, and “masculine reputation” may be met with violence and aggression (Cohen et al., 1996; Lee, et al., 2007). Simply put, in a culture or society where violence is an acceptable or even encouraged response to threats to honor, family, and property, violence and aggression may be used as a means to restore lost honor or status (Lee, et al., 2007).

For the dummy variable “Southern,” respondents were asked to indicate their current state of residence. Respondents residing in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and West Virginia were coded as “Southern.” Dummy variables were also created for race (White, Black, Hispanic, Asian, Native American, and Multi-racial). Age was coded as a continuous variable, with a range of 18-30.

Analysis

To examine the relationship between martial arts participation, aggression, and self-control, I conducted multiple linear regression analysis for each of my dependent variables while controlling for relevant demographic variables. The

following sections detail these results.

Self-Control

Table 1.2 presents the results for the multiple linear regression analysis of self-control with participation in martial arts as the independent variable. Martial arts training was associated with more self-control among participants as compared to non-participants. This relationship was significant at the $p < .05$ level.

Table 1.2

Regression Results for the Effects of Martial Arts Participation on Self-Control

Self-Control	β	s.e.
Independent Variables		
Martial Arts Participation	5.061 *	2.243
Control Variables		
Age	0.133	0.294
Black	0.508	3.463
Asian	-1.186	4.352
Native American	-1.874	4.452
Multi-racial	4.702	3.888
South	-2.130	2.412
Constant	39.419	7.593
R ²	0.146	

* $p < .05$

** $p < .01$

*** $p < .001$

N= 67

Physical Aggression

Table 1.3 presents the results for the multiple linear regression analysis of physical aggression with participation in martial arts as the independent variable. Martial arts training was associated with less physical aggression among participants as compared to non-participants. This relationship was significant at the $p < .05$ level.

Table 1.3*Regression Results for the Effects of Martial Arts Participation on Physical Aggression*

Physical Aggression	β	s.e.
Independent Variables		
Martial Arts Participation	-2.657 *	1.156
Control Variables		
Age	-0.210	0.144
Black	-2.082	1.751
Hispanic	0.370	2.883
Asian	-3.396	2.890
Native American	-0.959	2.417
Multi-racial	-1.482	1.933
South	-0.553	1.295
Constant	24.669	3.784
R ²	0.202	

* p<.05

N= 67

** p < .01

***p<.001

Table 1.4*Regression Results for the Effects of Martial Arts Participation on Verbal Aggression*

Verbal Aggression	β	s.e.
Independent Variables		
Martial Arts Participation	-1.136	0.746
Control Variables		
Age	-0.117	0.093
Black	-0.289	1.133
Hispanic	2.042	1.869
Asian	0.709	1.540
Native American	0.353	1.570
Multi-racial	-2.206	1.250
South	1.159	0.812
Constant	11.687	2.425
R ²	0.174	

* p<.05

N= 67

** p < .01

***p<.001

Verbal Aggression

Table 1.4 presents the results for the multiple linear regression analysis of verbal aggression with participation in martial arts as the independent variable. Participation in martial arts training was not associated with less verbal aggression.

Anger

Table 1.5 presents the results for the multiple linear regression analysis of anger with participation in martial arts as the independent variable. Martial arts training was associated with less anger among participants as compared to non-participants. This relationship was significant at the p<.01 level. Identifying as multi-racial was also associated with less anger (p<.05).

Table 1.5*Regression Results for the Effects of Martial Arts Participation on Anger*

Anger	β	s.e.
Independent Variables		
Martial Arts Participation	-2.775 **	0.983
Control Variables		
Age	-0.152	0.125
Black	-1.087	1.414
Hispanic	-1.578	3.295
Asian	-2.198	2.313
Native American	0.262	1.939
Multi-racial	-4.140 *	1.571
South	1.892	1.053
Constant	18.604	3.223
R ²	0.307	

* p<.05

N= 67

** p < .01

***p<.001

Table 1.6
Regression Results for the Effects of Martial Arts Participation on Hostility

Hostility	β	s.e.
Independent Variables		
Martial Arts Participation	-2.794 *	4.287
Control Variables		
Age	-0.387 *	0.166
Black	-1.277	1.873
Hispanic	5.543	4.387
Asian	1.294	3.079
Native American	-2.311	2.581
Multi-racial	-1.229	2.079
South	1.168	1.400
Constant	27.094	
R ²	0.285	

* p<.05
 ** p < .01
 ***p<.001

N= 67

Hostility

Table 1.6 presents the results for the multiple linear regression analysis of hostility with participation in martial arts as the independent variable. Martial arts training was associated with less hostility among participants as compared to non-participants. This relationship was significant at the $p<.05$ level. Age was also associated with less hostility ($p<.05$).

Conclusion

While it seems paradoxical that men participating in a “violent sport” demonstrate lower levels of physical aggression, hostility, and anger, as well as higher levels of self-control, my findings suggest there may be something inherent in martial arts training that has this effect. The broader literature offers multiple explanations for these relationships.

Weiser et al. (1995) suggested martial arts students “learn to understand and deal with resistance, their own and others’, to manage both evasion and confrontation, and to cope with aggression and vulnerability” (p. 120). Konzack and Boudreau (1984) suggested “appropriate” martial arts training “can act as a highly effective form of self-help or resocialization agent, as a means of personal development, or as an inoculation against stress and anomie encountered elsewhere in daily life” (p. 321). Returning to the social learning perspective on aggression, which tells us that we are “not born with performed repertoires of aggressive behavior” and we must “learn them one way or the other” (Bandura, 1973, p. 61), it follows that aggression can also be “unlearned,” or “reduced through exposure to models who behave in a restrained, nonaggressive fashion in the face of provocation” (Bandura, 1973, p. 126). Perhaps martial arts training is one avenue towards the reduction and management of anger, aggression, and for bolstering of self-control.

Anger and Masculinity

In consideration of the four sub-traits of aggression, Buss and Perry (1992) highlight the importance of anger, noting anger is the “physiological arousal and preparation for aggression” (p. 457). Anderson and Bushman (2002) support this framework, observing that anger “allows a person to maintain an aggressive intention over time” by increasing attention “to the provoking events, [increasing] the depth of processing of those events, and therefore [improving]

the recall of those events” (p. 45). Anger, it follows, is a critical factor in our understanding of aggressive behavior: we can seek to reduce aggressive behavior by addressing the development of anger - the “preparation for aggression” and the emotion that “reduces inhibitions against aggressing” (Anderson and Bushman, 2002). My findings indicate martial artists exhibited lower levels of anger and hostility than did non-martial artists. This finding is consistent with Kostoryv and Sas-Nowosielski’s (2021) study of Polish men and women who trained in martial arts and combat sports, which found participation was associated with lower levels of hostility (which works in tandem with anger, building towards possible aggressive action). One explanation for this effect may be found within the practice of martial arts itself; participants may gain experience in the management of fear, anger, frustration, and vulnerability. Daniels and Thornton (1992) believe the “negative sanctioning of hostile behavior” common in martial arts training lessens “assaultive and verbal hostility, despite factors that may be expected to increase hostility through rehearsal” (p. 119).

Another explanation may be found in the notion of Southern masculinity and aggression. Perhaps young men are more confident in their masculinity with “martial artist” as one of their social identities; men who train martial arts, therefore, may be less likely to feel the need to repeatedly “prove their masculinity” through aggressive acts, and, in cases where they encounter slights or challenges to their masculinity, perhaps they feel

less of a need to rely on violence and aggression as “restorative agents” (Klein, 2012; Kimmel, 2013; Newman, 2004) or to engage in “flamboyant heterosexuality” (Klein, 2012, p. 88). While this is a possibility, we cannot and should not expect *any* martial arts training to have this effect; some styles of martial arts are more immediately congruent with traditional masculinity – such as competitive, combat-oriented martial arts that feature sparring or “rolling” (e.g. Muay Thai, Brazilian Jiu Jitsu, judo). Other martial art styles are less connected to traditional masculinity due to their “soft nature” and lack of immediate physicality and combat (e.g. tai chi, capoeira), and, as such, should not be expected to meet the identity standards of “masculinity.” Further research is necessary to examine these possible effects.

But perhaps the effect is less about having a “masculine identity” as a martial artist, and simply about occupying a valued social-identity that provides meaning and purpose, and a sense of pride and self-respect. This is consistent with Durkheim’s concepts of adequate social integration (who we are) and social regulation (what we do, and what we do not do) - the social forces intricately connected to mental health. Gilligan (2001) argues for prioritizing efforts to reduce violence that involve developing, maintaining, or broadening access to “non-violent means by which to restore feelings of pride, self-esteem, and self-respect (2001, p. 37), and points to outlets such as “education, knowledge, skills, and achievements that are honored and

respected by others” (p. 37) as possibilities for fulfilling this need.

A Final Note on Self Control

On the ultimate importance of self-control to the individual and to society at large, Tangney et al. (2004, p. 275) proclaim “people are happiest and healthiest when there is an optimal fit between self and environment,” and self-control is critical in establishing and/or maintaining this fit. Baumeister et al. (2007) likened self-control to a muscle that must be trained; exercise of and practice in self-control helps us build that muscle. If, as my findings suggest, participation in martial arts can lead to greater self-control, this implies martial arts participation may be an invaluable outlet for strengthening or building self-control and self-regulation.

Limitations

The findings here should be interpreted with caution: one should not expect the benefits of “martial arts participation” found in this study to apply equally across different martial art styles. Future research should focus on both the style of martial art (judo, jiu-jitsu, aikido, karate, etc.) and manner of martial arts instruction (traditional instruction vs. modern instruction). Lamarre and Nosanchuk (1999) suggested the type of training, and not necessarily the style of martial art, may be the most important variable, with “traditional martial arts training” being associated with less aggressiveness. Nosanchuk and MacNeil (1989) concluded that the meditative aspects of training (such as “kata) have

an effect on aggressiveness and self-control; their findings noted an increase in aggressiveness when these elements were deemphasized or altogether absent, but a decrease in aggressiveness when these elements were present. Similarly, Trulson (1986) observed an increase in aggressiveness over time when the meditative and philosophical aspects of training were absent and only the actual techniques were emphasized. So, what seems to matter most is whether or not the individual, through their participation in martial arts, is socialized into restraint and taught to acknowledge and manage emotional states such as fear, frustration, and anger.

Another shortcoming has to do with potential selection effects of the sample in this study. It is possible that aggressive students may have been “naturally filtered out” through the negative sanctioning of overly-aggressive behavior (Lamarre & Nosanchuk, 1999). Thus, the appearance of less aggression among practitioners is not due to the training itself, but the removal of aggressive students from the population/community. Segrave et al. (1985) proposed this possibility (but in the opposite direction) in their analysis of ice hockey participants, noting the positive relationship between participating in ice hockey and violent delinquency might be “due to the fact that players not predisposed toward violent behavior [were] weeded out” (p. 290). So, again, the relationship between participation and aggression comes down to the of the particular environment, whether it be a certain sport (rugby vs golf), a specific style within martial arts

(striking vs. grappling arts), or even the culture of a particular dojo/gym.

To address these considerations, it is necessary to conduct a longitudinal examination of aggression and self-control across the roles of non-participant, beginner, intermediate, and experienced/expert martial artist. This approach would, for example, follow participants before martial arts training, 6 months into training, and 5 years into training, and after 10 years of training. How do participants change over time? How do they compare to non-participants at each stage? Do physical aggression, anger, and hostility continue to decrease over time with additional martial arts training, or is there a threshold? Likewise, does self-control continue to increase over time with additional martial arts training, or is there a threshold? How do experienced martial artists compare to novice martial artists in terms of aggression and self-control?

Additionally, it would be beneficial to compare martial artists to those who follow an exercise routine (both as individuals and those who participate in group exercise) and/or those who participate in other sports; this would help isolate the effects of martial arts training as a unique form of sport and leisure. Finally, future iterations of this study will seek a broader sample for both the martial artists and non-martial artists. A broader, non-collegiate sample would be beneficial for the control group. The impact of education, social class, and geographic region should also be considered as important demographic variables.

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Appendix I: Tangney's Brief Self Control Scale (2005)

1. I am good at resisting temptation
 2. I have a hard time breaking bad habits
 3. I am lazy
 4. I say inappropriate things
 5. I do certain things that are bad for me, if they are fun
 6. I wish I had more self-discipline
 7. People would say that I have iron self- discipline
 8. Pleasure and fun sometimes keep me from getting work done
 9. I have trouble concentrating
 10. I am able to work effectively toward long-term goals
 11. Sometimes I can't stop myself from doing something, even if I know it is wrong
 12. I often act without thinking through all the alternatives
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Appendix II: Buss-Perry Aggression Questionnaire (1992)

Physical Aggression

- 1) Once in a while I can't control the urge to strike another person.
- 2) Given enough provocation, I may hit another person.
- 3) If somebody hits me, I hit back.
- 4) I get into fights a little more than the average person.
- 5) If I have to resort to violence to protect my rights, I will.
- 6) There are people who pushed me so far that we came to blows.
- 7) I can think of no good reason for ever hitting a person.
- 8) I have threatened people I know.
- 9) I have become so mad that I have broken things.

Verbal Aggression

- 10) I tell my friends openly when I disagree with them.
- 11) I often find myself disagreeing with people.
- 12) When people annoy me, I may tell them what I think of them.
- 13) I can't help getting into arguments when people disagree with me.
- 14) My friends say that I'm somewhat argumentative.

Anger

- 15) I flare up quickly but get over it quickly.
- 16) When frustrated, I let my irritation show.
- 17) I sometimes feel like a powder keg ready to explode.
- 18) I am an even-tempered person.
- 19) Some of my friends think I'm a hothead.
- 20) Sometimes I fly off the handle for no good reason.
- 21) I have trouble controlling my temper.

Hostility

- 22) I am sometimes eaten up with jealousy.
- 23) At times I feel I have gotten a raw deal out of life.
- 24) Other people always seem to get the breaks.
- 25) I wonder why sometimes I feel so bitter about things.
- 26) I know that "friends" talk about me behind my back.
- 27) I am suspicious of overly friendly strangers.
- 28) I sometimes feel that people are laughing at me behind me back.
- 29) When people are especially nice, I wonder what they want.