



The role of intention and attitudes in predicting aggressive behavior.

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THE ROLE OF INTENTION AND ATTITUDES
IN PREDICTING AGGRESSIVE BEHAVIOR

A Thesis Presented
by
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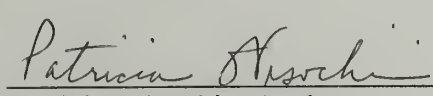
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CHAPTER 1

INTRODUCTION

Violence is apparent in almost every segment of American society, including the schools, the streets, the media, and the family. The most serious forms of violence (e.g., murder, rape and assault) are punished by our laws, but they are also graphically modeled and sometimes romanticized in our television shows, movies and video games. Our culture, then, sends mixed messages to people about the acceptability of violence and aggression.

Evidence suggests that when more serious violence occurs it has usually been preceded by less harmful forms of interpersonal aggression such as physical fighting, bullying and coercion (Loeber and Hay, 1997). Physical fighting and other less serious forms of aggression, then, are risk factors for more serious violence (Farrington, 1994), and intervention at this earlier point in the development of violent behavior might help reduce more serious forms of violence.

Physical fighting is a form of interpersonal aggression that involves malevolent intent to injure on the part of one or both fighters. Fighting that is not a confrontation between two or more participants is classified as assault and is not addressed in this study. Models of physical fighting for boys are common both in the media and on the schoolyards. Furthermore, physical fighting seems to be a tolerated coping strategy for boys involved in an interpersonal conflict, and those who fight tend to endorse more aggressive coping styles (Rauste-Von Wright, 1989).

Fighting may be a common human response to threatening situations as noted by the fight or flight response to fear theory. However, many of the fights that occur today

are not a matter of life and death. Fighting occurs in many situations in which the participants feel provoked by another person, but they do not feel their life is in danger. In fact, 75% of fighters in one study reported that another person verbally and/or physically provoked the fight (Archer, et. al.1995). Presumably, not everyone who feels provoked fights. Why do some people respond physically when they feel provoked and others not?

Theory of Planned Behavior

To begin to understand this question, we will draw on Icek Ajzen's Theory of Planned Behavior (Ajzen, 1991). Ajzen's theory posits that a behavior can be predicted by intention to perform that behavior and perceived control over that behavior. Intention, in turn, can be predicted by attitudes corresponding to the predicted behavior. Three specific categories of beliefs are used to measure attitudes and predict intention; behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs are expectations about the behavior and evaluations of these expectations, which taken together form an attitude toward the behavior. Normative beliefs are the perceived social desirability of a behavior which, in combination with the motivation to conform to those standards, comprises a subjective norm. Finally, control beliefs pertain to circumstances that act to either promote or deter a behavior which, in combination with the "perceived power" of these circumstances, comprise perceived behavioral control.

Many studies have linked fighting, especially persistent fighting, with negative outcomes. Few studies, however, have examined fighter's thoughts about aggression. Slaby and Guerra (1988) identified beliefs about aggression that differentiated antisocial, high-aggressive and low-aggressive adolescent groups (both male and female). More

aggressive adolescents tended to believe in the legitimacy of aggression and to believe that victims of aggression don't suffer. They tended to expect aggression to enhance their own self-esteem and to prevent a negative image. These behavioral beliefs when applied to a specific situation and integrated into the theory of planned behavior represent a piece of a fighter's behavioral intentions. The specific situation of interest in this study is responding physically to provocation. As stated earlier, most fighters believe that another person provoked the fight. The ability to resist fighting is a protective coping strategy that reduces the risk of injury, arrests and other negative consequences associated with fighting. Understanding the beliefs that form one's intention to respond physically to provocation will identify the specific attitudes we should target for change in order to help a person avoid fighting when provoked. Although many other environmental factors will affect physical responses to perceived provocation, cognitions are one area in which we can intervene and reasonably expect change. This thesis draws on three areas of literature: physical fighting, desistance from fighting and the relationship between beliefs and fighting behavior.

Physical Fighting

Physical fighting has been observed in children as young as five years old (Loeber, et. al. 1987, Haapasalo & Trembley, 1994). Loeber and colleagues followed a sample of kindergarten boys from a lower socioeconomic area for four years. They found that children who fought in any two years prior to grade three were more likely to fight in grade three. Fighting seemed to be one component of a profile of problematic behavior in this sample; persistent fighters were more likely to exhibit other oppositional

and anti-social behavior, and persistent fighting was linked to lying, stealing and truancy in the third grade.

Haapasalo and Tremblay (1994) looked at fighting in children at age 6 and then again at ages 10 through 12. These authors used categories similar to those of Loeber et. al. (1989) to describe the fighting patterns of children over time: stable high fighters, who fought at each assessment; desisting high fighters, who stopped fighting by a later assessment; variable high fighters, who showed fighting behaviors at some assessments and not others; initiating high fighters, who started fighting during a later assessment period; and non fighters, who were not rated high on fighting behavior at any time during the study. Haapasalo and Tremblay compared measures of family adversity and child ratings of parenting behavior between these groups. Stable fighters experienced more family adversity than any other group, while non-fighters experienced the least family adversity. Non-fighters perceived more parental supervision and less parental punishment than did any of the fighting groups, and parents of non-fighters seemed to take more pleasure in and be less exasperated by their child. Taken in combination these findings suggest a difficult home life for many children who fight, and their fighting behavior may in turn make their home life more difficult. A third variable such as lower socioeconomic status might influence the relationship between fighting and a difficult home life.

In addition to being indicative of later delinquency and fighting (Loeber et. al., 1989), persistent fighting has also been linked to poorer mental health outcomes (Loeber et. al., 2000). In a clinical sample of boys aged 7-12 who were followed by Loeber and colleagues for seven years, 90% of the boys who fought in year one continued to fight in

another assessment year. Persistent fighting was related to lower general functioning and more psychiatric diagnoses at a seven-year assessment (Loeber, et. al. 2000).

How do early fighting experiences relate to later violent behavior? Early fighting seems to be the middle step in the development of coercive aggression (Loeber & Hay, 1997). Loeber and Hay propose that minor coercive aggression will first manifest itself in the form of bullying and other annoying acts. Minor aggression in some children will be followed by fighting, both group fighting and individual fighting. Some fighters will progress to even more violent behavior such as assault, rape or murder. This theory was supported by Loeber and colleague's data from the Pittsburgh Youth Survey, which showed a hierarchy of aggression development by age. Minor coercive aggression was usually the first to occur in coercively aggressive boys. Onset of physical fighting usually emerged around age 10 and continued to increase in prevalence until early adolescence. More serious violence tended to appear around age 11 and continued to increase until late adolescence. Physical fighting seemed to be a middle point in the development of violent behavior, an observation that again suggests that intervention at this point might prevent later fighting and progression to more violent behavior.

Even if boys haven't been in a fight when they were children, most adolescents have been exposed to models of fighting through peers, adults, and the media. Later exposure to aggressive peers may help explain the late onset of fighting in many adolescents who fight at this age for the first time. Both Loeber et. al. (1989) and Haapasalo and Tremblay (1994) included a late onset group in their classification of fighters and found just under 10% of their sample fit into this group. The significant

presence of this group signifies that the development of fighting behavior is not a uniform process and is probably heavily influenced by peers and other environmental factors.

Many children have been involved in a fight by the time they reach adolescence. In a sample of primarily African-American and low SES male and female middle school students, 37% reported having been in fights at school (Cotten et. al., 1994). Fighting at home was not investigated in this sample. There is some evidence from other research that aggression at home may generalize to aggression at school, but fighting in one setting is not necessarily indicative of fighting in the other (Loeber & Hay, 1997). The number of fights reported by Cotten et. al. (1994) seems fairly consistent with previous research done with a primarily Caucasian and low SES sample (Haapasalo & Trembley, 1994). It is unclear what the consequences of fighting were for adolescents in the latter sample, but in the former, 21% of the students reporting a fight had been suspended from school for fighting (Cotten et al., 1994.). This period of early adolescence may hold the first taste of serious consequences for fighters. As boys struggle for autonomy and spend more time outside of their family, the need for methods of coping with peer conflict may increase. If this is so, the importance of learning non-aggressive coping styles may become more necessary with boys at this point.

Loeber and colleagues (Loeber & Hay, 1997) have shown that prevalence of fighting declines as adolescents reach high school age, but that while prevalence declines, the consequences of physical fights among this age group may become more serious. In a sample of over four thousand high school students in South Carolina, 54% reported having been in a physical fight (Valois et. al., 1995). However, a more surprising finding may be that 11% (20.4% of those who fought) of male participants reported receiving

medical attention in the last thirty days due to a fight (Valois et. al., 1995). The increasing size and strength of adolescents in this age group intensifies the danger involved in physical fighting. These boys may still use fighting as a coping mechanism for interpersonal conflict, but they may not realize the amount of damage their developing bodies can now inflict.

Other evidence pointing to a large risk related to fighting during adolescence comes from a prospective study of adolescent medical records (Sege, 1999). Researchers used intake records to follow adolescents' violence-related injuries over a ten-year period. The researchers not only found that fighting in the past year predicted future violence-related injury, but they also found a significant positive relationship between number of fights and risk of injury resulting from violence. Youth at risk for future injury may be identifiable by looking at fighting behavior alone, since in this sample fighting was predictive of violence-related injury regardless of other factors. If this relationship holds, generally, interventions that are directed towards fight reduction may decrease the occurrence of future injuries.

We also know from epidemiological data that many boys have been in fights, but what do these fights look like? Archer et al. (1995) investigated fighting in a sample of 100 male undergraduate students in England. Sixty-one percent reported having been in a fight during the past three years. Interestingly, most fighters claimed that another person started the fight, either verbally or physically. It is possible that perceived instigation by another person and not necessarily actual instigation may evoke aggressive responses from fighters. The reasons for fighting listed by participants in this study included: loyalty to a male friend, public humiliation, insults to personal integrity, and

disputes over a woman. These reasons highlight the fact that many fights do not occur because of a real threat of physical danger but rather because of interpersonal conflict. The most common behavior exhibited by fighters in this sample was punching. Other fairly common behaviors included slapping, pushing, headbutting, and tearing clothes; non-bodily weapon use was very rare. Fighters noted that friends of one of the fighters broke up almost 50% of the fights. Other outcomes of fights included the reporting fighter's becoming bloodied (15%), the fighter's opponent becoming bloodied (11%), the fighter's opponent having his or her teeth or bones broken (15%), and (8%) arrests.

Seventy-seven percent of the reported fights were group fights (Archer et al., 1995), and group fights may be more serious in both behavior and consequences than individual fights (Farrington, 1994). Farrington (1994) described research looking at a group of "aggressive frequent group fighters." It appeared that this segment of fighters was not only involved in more fights but also more serious fights. A variety of negative outcomes from fighting were more likely with this group, including legal convictions.

There are a substantial number of boys who stop fighting before adulthood (Loeber & Stouthamer-Loeber, 1998). We can learn valuable information from these boys as well. What factors may have contributed to their desistance from violent behavior? How might adolescent fighting behavior still be manifest in later non-fighting but still destructive interpersonal strategies? What effect has the trauma of injuring or being injured in a fight had on a young man? The next section will review the literature on desistance from physical fighting.

Desistance

Desistance has been described, in terms of fighting, as the last time a fight occurs (Loeber et. al., 1997). Since we can't be certain that a behavior will not occur in the future, desistance is best defined as an extended period of time since the last offense, in addition to a stated intention not to fight in the future.

Loeber and Stouthamer-Loeber (1998) observed that high correlation coefficients between aggressive behavior over time obscure the large amount of desistance from fighting experienced by boys in childhood through adolescence. These authors note two important periods of desistance from aggressive behavior: preschool/kindergarten and adolescence/early adulthood.

In Haapasalo and Tremblay's (1994) study which looked at fighting in children at age 6 and then again at ages 10 through 12, over 12% of those categorized as fighters in the first assessment were not rated as fighters in any of the other assessments. The number of children who desisted from fighting in this study was greater than the number rated as high fighters during all of the assessments. It is not known whether children who desisted from fighting at a young age fought later.

Evidence for the later desistance period comes from Loeber and Hay (1997) who found a decline in the prevalence of physical fighting from age 15 to age 17. Desistance may be more common in less serious offenders (Loeber & Stouthamer-Loeber, 1998). It is unclear whether those who desist from fighting during this time period are still at greater risk for aggressive behavior later (Loeber & Hay, 1997). However, desistance from fighting, regardless of its permanence, may decrease the risk of serious injuries among young adults. Loeber and Hay (1997) suggest "desistance in violence presumably is facilitated by individuals' adoption of anti-violent rules and standards of conduct (p.

400)." Yet, it is unknown what fighters see as causes for their own desistance. It may be the case that interpretation of and attitudes about previous fights, fight consequences, and interpersonal conflict are as important in desistance as are the actual fight events.

Aggressive Attitudes and Fighting Behavior

Slaby and Guerra (1988) described cognitive processes and cognitive content that are related to aggressive behavior. They commented on the role beliefs play in aggressive behavior, "In addition to providing in individual with standards of conduct, beliefs can represent generalized response-outcome expectancies concerning the aggressor or the victim that support the use of aggression (p.581)." These authors also cited Dodge's (1986) five step sequential model describing the how cognitions affect behavior (in Slaby & Guerra, 1988). This model described disturbances, which might happen at any stage of social information processing, as an antecedent to aggressive behavior. Problem solving deficits have also been implicated as an antecedent to aggressive behavior. Aggressive adolescents interpreted situations as more hostile and generated fewer effective solutions to these situations. In terms of cognitive content, Slaby & Guerra (1988) found that incarcerated aggressive adolescents held more aggressive beliefs than non-aggressive adolescents. As mentioned earlier these aggressive adolescents believed that aggressive behavior was more acceptable, increased their own self-esteem, and helped maintain their public image when compared to non-aggressive adolescents.

In addition to these theories and findings, there is a theory that is not specific to aggression but that does have great relevance to the relationship between cognitions and behavior in general. Ajzen's (1991) Theory of Planned Behavior has been successfully

used to predict behavior from attitudes. It has not, however, been used to predict coping with circumstances that provoke aggressive behavior yet.

Little is known about the relationship between aggressive attitudes and fighting behavior in young children, but in one study, middle school children who fought endorsed more aggressive attitudes on a modified aggression scale from the Child Behavior Checklist (Cotton et. al. 1994). It is possible that the mechanism by which fighting behavior is maintained shifts from external reinforcement as a child to more internal regulation of behavior mediated by cognitive processes as an adult (Loeber & Hay, 1997). As fighters become more verbally and emotionally mature, we may be able to probe fighting experiences to examine attitudes common to particular subgroups of fighters. Do those who desist from fighting still hold aggressive attitudes or does a change in attitude precede, follow or coincide with a change in fighting behavior as Loeber and Hay (1997) propose? Farrington (1994) found that “aggressive frequent group fighters” at age 18 still held more aggressive attitudes at age 32. Loeber and Hay (1997) suggested that fighting in adolescence might manifest itself later in other contexts such as family violence for some fighters, while others adjust to adult roles without incidence of violence. Looking at attitudes related to fighting and aggression at the critical period between adolescence and adulthood may provide some indication as to what attitudes are related to a durable desistance in adulthood.

It is clear that fighting and other aggressive behavior is related to a variety of negative consequences. Some people desist from aggressive behavior during late adolescence, while others continue to act aggressively. Desistance may be related to adolescents’ changed cognitions. If this relationship exists, differences in cognition

should be observable between those who do and don't act aggressively. Difference in aggressive cognitions may be marked by a difference in intention to act aggressively.

This study will examine attitudes about responding physically when provoked to the behavior of responding physically when provoked using Ajzen's (1991) Theory of Planned Behavior. We predict that those who have responded physically when provoked at follow-up will express a greater intention to respond physically and more perceived behavioral control on an initial questionnaire. Also, we hypothesize that this intention can be predicted by attitude towards, social norms related to, and perceived behavioral control over responding physically when provoked. It is our belief that the relationships between beliefs towards and the behavior of responding physically when provoked will be mediated by intention.

CHAPTER 2

METHOD

Forty male undergraduate psychology students were recruited to participate in a pilot study. Students received extra credit in one of their psychology classes in exchange for participation.

The purpose of the pilot study was to identify the content of specific beliefs about what consequences, social pressures, and circumstantial influences were associated with responding physically to provocation. Following Ajzen (1991), open-ended questions were used to elicit these behavioral beliefs, normative beliefs, and control beliefs. To elicit behavioral beliefs participants were asked to list the advantages and disadvantages they believed were associated with responding physically to provocation. To elicit normative beliefs, participants were asked to list individual and groups they believed would approve or disapprove of their responding physically to provocation. To elicit control beliefs, participants were asked what circumstances would encourage them to or discourage them from responding physically to provocation.

Belief-based items for the initial questionnaire were constructed by extracting beliefs mentioned by a minimum of eight participants (20% of the participants). Eleven behavioral beliefs, six normative beliefs, and five control beliefs met this criterion and were included among the set of belief-based questions in the initial questionnaire. These items are listed in Tables 2, 3 & 4, respectively.

Participants

Two hundred and twenty participants, 160 females and 60 males, filled out the initial questionnaire for this study. All were enrolled in undergraduate psychology classes; in exchange for their participation they received extra credit in one of them. Participants ranged in age from 18 to 55 years old. The mean age was 20.18 years ($SD = 1.91$). One hundred and sixty-nine of the initial 220 participants, 128 females and 41 males, completed a follow-up questionnaire. One hundred and nine participants, 90 females and 19 males, indicated on this follow-up questionnaire that they were provoked more than once between the initial questionnaire and the follow-up questionnaire. Those participants were selected for this study due to their having had more than one experience of provocation. The decision was made to include only participants who had felt provoked more than once since it is difficult to believe that any individual would not feel provoked (when using the definition of provocation from the instructions below) more than once in a two-month period and persons who respond physically usually do so only when they have felt provoked. So, participants who indicated that they did not feel provoked or had only felt provoked once over a two-month period were regarded as not accurately reporting their experience or not having had sufficient opportunity to respond physically.

Procedure

Participants in the main study obtained the initial questionnaire during undergraduate psychology classes. The questionnaire took about 30 minutes to complete and inquired about experiences of provocation and responses to them over the past year,

and most importantly assessed reported attitudes directly related to responding physically to provocation. A fight history was also taken. Some participants filled out the questionnaire in class, while others took the questionnaire home and returned it within one week. The following instructions were included at the beginning of the initial questionnaire: *In this study, we are trying to understand people's reactions to provocation. When people are involved in fights they usually report that they were provoked. So, in fact, we are investigating a component of fighting. Provocations can take many forms, and different individuals feel provoked by different events. Some feel provoked by an insult or being pushed, while others feel provoked if a person spills a drink on them or hits them. And responses to provocation differ. Some people react physically to provocation while others don't. A physical response to provocation might include pushing the person who provoked you, throwing an object at them, hitting them, spitting at them, and so forth. Our main interest is in **physical responses to provocation**. On the pages below please tell us what you think about responding physically when you are provoked.*

Approximately two months later, all participants who completed the initial questionnaire were asked to complete a follow-up questionnaire. The purpose of the follow-up questionnaire was to determine whether participants had felt provoked and/or had responded physically since their completion of the initial questionnaire. The following instructions introduced the follow-up questionnaire: *In this study, we are trying to understand people's reactions to provocation. When people are involved in fights they usually report that they were provoked. Provocations can take many forms, and different individuals feel provoked by different events. Feeling provoked can*

*generally be thought of as being angry towards a person or group of people who you feel have done something wrong. Some feel provoked by an insult or being pushed, while others feel provoked if a person spills a drink on them or hits them. And responses to provocation differ. Some people react physically to provocation while others don't. A physical response to provocation might include pushing the person who provoked you, throwing an object at them, hitting them, spitting at them, and so forth. Our main interest is in **physical responses to provocation**, but we are also interested in other responses as well. On the pages below please tell us about situations in which you felt provoked (and may have responded physically) in the past two months since you filled out the first part of this questionnaire.*

Questionnaire

Demographic information including age, sex, year in college, ethnicity, and religion was collected at the beginning of the initial questionnaire. The instructions (noted above) followed. The participants were then asked to describe two or three situations in which they had responded physically to provocation. This procedural element was included to remind participants of actual past experiences, the recollection of which would hopefully inform their responses in the body of the questionnaire. The body of the questionnaire began by asking participants to recall the number of times they had felt provoked during the past month and the past year. Participants were then asked to indicate how many of those times they responded physically in the past month and the past year.

The body of the questionnaire was comprised of items intended to measure the main constructs in the theory of planned behavior. In addition, participants were asked to

indicate how many fist fights they had been in during elementary school, middle school, high school, and college. Participants were also asked to include their heights and weights. Since this study is focused on the theory of planned behavior, and the prediction of intentions and physical responses to provocation, analyses investigating fighting history and height and weight were not included in this study. Three direct items were used to measure the four primary theoretical constructs of the theory of planned behavior; intention to respond physically to provocation, attitude toward the behavior, subjective norm and perceived behavioral control. The direct items were constructed in accordance with the theory of planned behavior (Ajzen, 2001).

Direct Measures

Intention. Three items were used to assess intention to respond physically to provocation. Participants indicated on a 7-point scale to what extent they intend to (might respond physically to definitely would not respond physically), might (definitely true to definitely untrue), and plan to (strongly agree-strongly disagree) respond physically when provoked in the next few months. The mean of the scores on these three items was the intention score. So, the scores could range from 1 to 7, and actual scores ranged from 1 to 6. This scale had an internal consistency of .85, as indicated by Cronbach's Alpha.

Attitude. Three semantic differential scales were used to measure attitude toward "Responding physically when provoked." The end points of these scales were: harmful – beneficial, good – bad, worthless – valuable. The positive end of each scales were assigned higher scores. Direct attitude was measured by averaging the scores of the three

items. Scores ranged from 1 to 5.00. The scale had an internal consistency of .88, as indicated by Cronbach's Alpha.

Subjective norm. Subjective norms related to responding physically when provoked were measured using three items. The following items were scored on a 7-point scale. "Most people who are important to me think that (I should - I should not) respond physically when provoked in the next few months," "The people in my life whose opinions I value would (Approve - Disapprove) of my responding physically when provoked in the next few months," "When they themselves are provoked, the people in my life whose opinions I value (Resist responding physically - Respond physically)." The scores on these three items were averaged to form the direct measure of subjective norm. The coefficient alpha for this measure was .80. Scores ranged from 1 to 5.67.

Perceived behavioral control. Three items were used to assess perceived control over responding physically when provoked. Participants indicated on 7-point *true-untrue* scales the extent to which they believed they could resist responding physically when provoked, had complete control over responding physically when provoked, the extent to which it was completely up to them whether or not they responded physically to provocation. The scores on these three items were averaged to form the direct measure of perceived behavioral control. The scale had an internal consistency of .68, as indicated by Cronbach's Alpha. The scores ranged from 2.33 to 7.

Beliefs

Beliefs were also assessed in this study, as they are assumed represent the cognitive underpinning of attitude toward the behavior, subjective norm, and perceived behavioral control. The beliefs were elicited in the pilot study as described earlier.

Behavioral beliefs. Participants were asked to respond to two items for each of the eleven outcomes identified in the pilot study (see Table 2 for a list of behavioral beliefs). Participants first indicated the likelihood that each outcome would occur using a 7-point *extremely likely – extremely unlikely* scale. Next, participants evaluated each outcome using a 7-point *extremely good – extremely bad* scale. For example, participants were asked to rate how likely it was that they would get injured if they responded physically to provocation. Then participants were asked to rate how good or bad getting injured is. To produce the belief-based estimate of attitude, likelihood and evaluation were multiplied and summed over the eleven items. Based on an optimal scaling analysis (Ajzen, 1991), likelihood and evaluation were both score on a unipolar scale from 1 (extremely unlikely, extremely bad) to 7 (extremely likely, extremely good).

Normative beliefs. Participants were asked to respond to two items for each of the six normative referents identified in the pilot study (see Table 3). Participants first indicated how much each referent would approve of their responding physically when provoked using a 7-point *approve – disapprove* scale. Next, participants evaluated the degree to which they cared about the approval of each normative referent using a 7-point *a lot – not at all* scale. For example, participants were asked to rate how much their male friends approved or disapproved of their responding physically when provoked. Then participants were asked to rate how much they cared about their male friend's approval or disapproval. To produce the belief-based estimate of subjective norm, approval and evaluation were multiplied and summed over the six items. Based on an optimal scaling analysis (Ajzen, 1991), likelihood and evaluation were both scored on a bipolar scale from -3 (disapprove, not at all) to 3 (approve, a lot).

Control beliefs. Participants were asked to respond to two items for each of the five circumstances that were identified in the pilot study as important making it easier or more difficult to respond physically (see Table 4). Participants first indicated the likelihood that each circumstance would occur when they felt provoked using a 7-point *strongly agree – strongly disagree* scale. Next, participants evaluated the degree to which each circumstance would make responding physically when provoked easier or more difficult using a 7-point *easier – more difficult* scale. For example, participants were asked to rate how likely it was that they would have many supporters around when they felt provoked. Then participants were asked to evaluate how much easier or difficult it would be to respond physically when provoked if they had many supporters around. To produce the belief-based estimate of perceived behavioral control likelihood and power were multiplied and summed over the five items. Likelihood and power were both scored on a unipolar scale from 1 (strongly agree, easier) to 7 (strongly disagree, more difficult).

Target Behavior

The target behavior in this study was responding physically to provocation as indicated earlier. Two months after the initial questionnaire participants indicated how often they responded physically when provoked on two separate items. One of these items used a five point scale: *Every time, most of the time, half the time, rarely, never*. The other item used a 9-point graphic scale from *always to never*. The items had a correlation of .76. Scores on each item were converted to z-scores and combined to form a behavior score for each participant. Behavior scores ranged from -1.63 to 2.86. The same behavioral measure was also given on the initial questionnaire to gauge physical

responses to provocation in the month preceding the initial questionnaire. Previous behavior scores were calculated in the same way as follow-up behavior scores. Previous behavior scores ranged from $-.43$ to 4.4 .

CHAPTER 3

RESULTS

Descriptive Statistics and Correlations

Descriptive statistics and correlations among the major variables of interest are presented in Table 1. Participants in this sample held relatively negative attitudes towards responding physically when provoked, did not feel strong social pressure to do so, and had relatively high perceived behavioral control over responding physically when provoked. In addition, participants reported a low intention to respond physically when provoked and they also reported relatively few physical responses to provocation at follow-up. The correlation between reported physical responses to provocation in the month preceding the initial questionnaire and physical responses to provocation at follow-up was significant, but rather low. The low test-retest reliability of this behavior suggests that physical responses to provocation may be sporadic. Some studies have suggested that prior behavior is the best predictor of future behavior (e.g. Mossman, 1994). However, in this study intention had a stronger correlation than past behavior with behavior at follow-up.

Compared to female participants, male participants, in general, had more positive attitudes ($F = 10.58$), felt more social pressure ($F = 10.58$) and had less perceived behavioral control ($F = 19.02$) over responding physically when provoked. Furthermore, male participants had a stronger intention to respond ($F = 7.50$) physically when provoked, and also reported more physical responses to provocation at follow-up ($F = 7.27$). All of the aforementioned differences were statistically significant ($p < .01$).

Predicting Behavior

In accordance with the theory of planned behavior (Ajzen, 1991), linear regression was used to determine if intention and perceived behavioral control predicted responding physically when provoked. That regression analysis indicated a significant relationship between the predictors and the criterion ($F = 11.82, p < .01$). Perceived behavioral control was not a significant predictor of responding physically when provoked ($t = .26, p = .53$). Intention accounted for nineteen percent of the variability in responding physically when provoked in this sample. Figure 1 provides a visual representation of the theory of planned behavior showing the relation among the hypothesized predictors (intention and perceived behavioral control) and behavior (also see Table 1).

Predicting Intention

Intention to respond physically when provoked was regressed on the three direct measures of attitude towards the behavior, social norm, and perceived behavioral control. In accordance with the theory of planned behavior (Ajzen, 1991), the regression indicated a significant relationship between the predictors and intention ($F = 42.84, p < .01$). Attitude towards the behavior ($t = 7.48, p < .01$) and perceived behavioral control ($t = 3.58, p = .01$) were significant predictors of intention to respond physically when provoked, but social norms ($t = .19, p = .85$) was not. Attitude toward the behavior and perceived behavioral control accounted for fifty-six percent of the variance in intention to respond physically when provoked in this sample. Figure 1 provides a visual representation of the theory of planned behavior showing the relationship among the

hypothesized predictors (attitude, subjective norm and perceived behavioral control) and intention (also see Table 1).

Behavioral, Normative and Control Beliefs

The theory of planned behavior was used successfully to predict intention to respond physically when provoked and it accounted for a modest but significant amount of the variance in actual physical responses to provocation. Attitude toward responding physically when provoked and perceived control over that behavior were good predictors of intention. The individual beliefs that form attitude and perceived behavioral control (and predict intention /behavior) are quite important as they provide an understanding of the specific content that is related to intention to respond physically when provoked in this sample. However, before probing these beliefs it important to examine whether the belief-based measures correlate with the corresponding direct measures.

Correlations between direct attitude and corresponding belief-based attitude measures were examined in order to test whether the two sets of scales could be regarded as measuring the same attitudes. There was a statistically significant relationship between the direct and belief-based measure of attitude towards the behavior ($r = .68$, $p < .05$), subjective norms ($r = .42$, $p < .05$), and between direct and perceived behavioral control ($r = .42$, $p < .05$). There were some significant correlations between direct measures and non-corresponding belief-based measures. However, in no case did any of these non-corresponding correlations exceed correlations observed between corresponding measures.

Behavioral beliefs. Participants behavioral beliefs were examined in order to better understand the attitudinal content of intention and behavior. Table 2 highlights that

participants on average thought that most outcomes were unlikely or neither likely nor unlikely to occur when responding physically to provocation. Furthermore, as would be expected, participants rated positive outcomes (e.g. stopping the provocation from continuing) more positively than negative outcomes (e.g. getting the police involved). The product of the likelihood of a given outcome occurring (belief or b) and the evaluation (e) of that outcome were also correlated with intention and behavior. Correlations were considered significant at the alpha level .01 given the large number of coefficients. All of the behavioral beliefs listed in Table 2 were significantly correlated with intention, except the two outcomes related to “getting in trouble” (get in trouble, get the police involved).

Normative Beliefs. The means and standard deviations for the five normative beliefs and their corresponding correlations with intention and behavior are presented in Table 3. An inspection of the means of the normative beliefs and motivation to comply suggests that participants thought most of their normative references at least moderately disapproved of their responding physically when provoked (except male friends), and they were at least moderately motivated to comply with most of these normative references (except male friends and onlookers). Correlations among individual normative beliefs and intention and behavior are reported in Table 2 (again, a $p < .01$ alpha level was adopted for statistical significance). Although direct subjective norms did not predict intention several individual normative beliefs were related to intention. Participants’ normative references in their own cohort (i.e. male friends, female friends, and other male family members) were significantly related to their intended physical

responses to provocation, while older normative references (i.e. mother and father) were not.

Control Beliefs. The means and standard deviations for the five control beliefs and their corresponding correlations with intention and behavior are presented in Table 4. Overall, participants believed that the individual factors that contributed to their control over responding physically when provoked were neither likely nor unlikely to occur. However, they did believe, in general, that these factors would make it easier for them to respond physically when provoked. The three factors that were significantly related to intention to respond physically were having many supporters around, having to come to the defense of another person, and feeling threatened or insulted (all at $p < .01$). Being drunk and being stronger than the provoker were not significantly related to intention to respond physically when provoked. Feeling threatened or insulted was the only belief that predicted behavior moderately well.

CHAPTER 4

DISCUSSION

Intention was found to be a significant predictor of responding physically when provoked among a sample of college students. Also, attitude towards the behavior and perceived behavioral control, predicted their intention. These findings generally support the utility of the theory of planned behavior (Ajzen, 1991). As expected, intention was the most important predictor of aggressive behavior. However, contrary to our expectation perceived behavioral control was not a significant predictor of aggressive behavior. The failure of perceived behavioral control to predict this behavior could have resulted from the fact that responding physically when provoked was an uncommon behavior in this sample, perhaps because the follow-up period in this study was only two months. These limitations may have also contributed to the modest intention-behavior relationship and may explain why there was a low test-retest reliability of physical responses to provocation.

Two of the three factors measured in this study were significant predictors of intention. As expected, attitudes toward the behavior and perceived behavioral control predicted intention moderately well. Subjective norms were not a significant predictor of intention. It is unclear why subjective norms did not predict intention, but it is possible that adolescents who were striving for independence may have minimized the influence of older normative referents on their behavior.

The sample examined generally exhibited relatively non-aggressive attitudes, intention, and behavior. However, significant relations between attitudes, intention, and

behavior were found notwithstanding the obstacles of measuring a low frequency behavior among a low aggression population.

Participants' behavioral beliefs and evaluations regarding 9 of the 11 outcomes included in this study were related to intention to respond physically when provoked. Beliefs and evaluations concerning these outcomes represent participants' expectations of the consequences of responding physically to provocation. Positive outcomes included appearing strong, releasing anger and stopping the provocation from continuing. Several negative outcomes were also related to intention to respond physically when provoked including getting injured, appearing immature, and making the conflict worse. It seems as though both positive and negative outcomes are important considerations in one's intention to respond physically to provocations.

The sum product of normative beliefs and motivation to comply was not related to intention to respond physically to provocation in this study. However, beliefs about and motivation to comply with male and female friends and male family members (other than the father) were significantly related to intention to respond physically. These male family members, presumably brothers and cousins, and friends represent normative influences of similar age to participants in this study. Conversely, participants' normative beliefs about and motivation to comply with their parents was not related to their intention to respond physically when provoked. In comparison to their parents, it seems as though normative references in one's cohort are more important considerations in participant's intention to respond physically when provoked.

Overall, control beliefs and the perceived power of those beliefs were related to intention to respond physically when provoked in this study. Having many supporters

around, needing to come to the defense of another person, and feeling threatened or insulted were significantly associated with participants' intention to respond physically to provocation. Feeling threatened or insulted was also a significant predictor of actual physical responses to provocation. It seems as though the needs and the support of friends are important factors in intention to respond physically when provoked, while feeling threatened or insulted may be the most important singular consideration in actual physically responses to provocation.

The theory of planned behavior framework, used to understand the relationship between attitudes and aggression in this study, can be adapted to work with any population. It is probable that a sample of juvenile offenders would have different salient beliefs related to aggression, but those beliefs would presumably still predict intention, which would in turn predict behavior. The theory of planned behavior operates under the assumption that the content of attitudes will be population and behavior specific, but that the framework of the relationships among these attitudes, intention, and behavior will remain relatively constant when trying to predict most behaviors. If one wishes to intervene in a behavior, the theory of planned behavior framework provides a method of investigating specific attitudes that predict intention to perform that behavior. Aggressive behavior is one such behavior that is often the subject of intervention efforts. Those who act aggressively have been found to have more deficits in problem solving and more beliefs that support the use of aggression (Slaby & Guerra, 1988). While most aggressive people probably hold beliefs that support the use of aggression, there is no evidence that these beliefs are the same among different groups of aggressive people (e.g. batterers, juvenile offenders, soldiers). If we expect to reduce aggressive behavior through

changing attitudes, it seems wise to attempt to change the aggressive attitudes that are salient for the specific person or people we are trying to change. The theory of planned behavior allows us to investigate which specific beliefs a given group of aggressive people is likely to have.

In addition to informing intervention, the theory of planned behavior can also be used to assess attitude change. For, example a pre and post-test questionnaire could be used with an anger management group to investigate a change in attitudes and/or intention. Although intention does not perfectly predict future behavior, in most theory of planned behavior studies it accounts for a significant amount of the variance in short-term future behavior. This might be especially useful for assessing intention, when juvenile offenders (or adult offenders for that matter) are released from a secure facility back into the community. Assessing intention upon release into the community can identify offenders who might be at high risk for recidivism.

Interestingly, there was not a significant relationship among the number of times participants' felt provoked and how often they responded physically when provoked. This does not seem to lend support to the well-established finding that those who act more aggressively perceive their environment as more threatening (Slaby & Guerra, 1988). There was at least one possible explanation for why this finding was not observed in this sample. The students in this sample presumably experience less provocation or hassles in their environment than high school, middle school or juvenile offender samples. This is due to their relatively high SES and the relatively low amount of crime and violence that occurs in the rural area where this study was done. Lower level of

hassles in their environment may lead them to perceive less threat, be less irritable, and hence only respond physically when the perceived threat is relatively serious.

Many theorists posit that past behavior is the best predictor of future behavior (e.g. Mossman, 1994). In this study that was not true. Intention was a better predictor of future behavior than past behavior was. When both intention and past behavior were entered into a regression equation predicting the behavior at follow-up, past behavior only slightly improved the amount of variance intention accounted for alone.

Adolescence is a dynamic time of change in behavior and attitudes. Many adolescents desist from aggressive behavior during late adolescence (Loeber & Hay, 1997). For those who desist, it is reasonable to expect that we might see a change in intention that resulted from actually changing their beliefs, or from changing their behavior which in turn changed their beliefs. Furthermore, it is possible that some adolescents who have apparently desisted from aggressive behavior will act aggressively in the future if they still intend to act aggressively, hold aggressive attitudes, and feel provoked. Desistance may better predict the extinction of undesired behavior when both the length of time since performing the past behavior and attitudes/intention are taken into account. Investigating intention and attitudes is especially important with low frequency, high cost behaviors such as aggression and violence. Although some participants may not report the extent of their aggressive intention or attitude due to social desirability, many aggressive people may report their true attitudes and intention if they don't see their behavior as wrong or deviant.

It is clear that there are many costs to aggressive behavior including health problems (Sege, 1999), future mental health difficulties (Loeber et al., 2000), and legal

problems. Fortunately, many adolescents desist from this type of behavior for a variety of reasons. This study, in particular, and the theory of planned behavior, in general, provide a framework for investigating those who haven't desisted from aggressive behavior, with whom we wish to intervene. Through understanding the salient attitudes that form the intention to act aggressively we can target those attitudes for intervention in an attempt to prevent future behavior.

Targeting these attitudes directly is only one way to change them. Teaching adolescents to become more efficient at problem solving in difficult situations can change general aggressive attitudes as well (Slaby & Guerra, 1990). Unfortunately, a general change in aggressive attitudes may not be an accurate indicator of intention. However, understanding the specific attitudes that predict intention, which in turn predict behavior in a given person, may provide a more accurate measure of attitude change and a more precise predictor of future behavior.

Limitations

This study is limited in many ways. First, there are several issues related to the low amount of provocation and aggressive behavior reported by participants. A significant number of participants in this study were excluded because they did not report experiencing provocation more than once in a two-month period. There are at least two explanations for this phenomenon. Participants may have truly experienced little provocation given the relatively low rate of crime on the campus on which most of them lived. Another possible explanation is there may have been a strong pressure for socially desirable responses among psychology students who comprised this sample.

Among the participants who were included in the study, many did not report engaging in any aggressive behavior. Most of the participants in this study were female which may have contributed to the low amount of aggressive behavior reported in this study. Also, the previously mentioned explanations for the low amount of reported provocation might also explain the low amount of reported aggressive behavior.

This study is also limited because responding physically to provocation may not necessarily be an aggressive, objectionable behavior. A physical response may take the form of horsing around or self-defense. We were unable to measure fighting, which is surely an aggressive and destructive behavior, because of the low base rate of fighting in this sample.

Another limitation in this study involved the measurement of normative beliefs. In contrast with prior research and theory (Ajzen, 1991) social norms were not related to intention in this study. It is possible that important normative references were not included in this study, or that the inclusion of extraneous normative references may have in some way biased participant's responses.

Future Directions

Although this study was limited in many ways, it did demonstrate the utility of the Theory of Planned Behavior in predicting aggressive behavior. This study provided initial evidence that beliefs and intention are significantly related to aggressive behavior. However, it is unknown if changing these beliefs would change intention, which might than presumably lead to behavior change. If this framework were used to predict aggressive behavior in a more aggressive population, such as high school students or juvenile delinquents, the results might inform interventions with these populations.

Interventions with aggressive populations based on salient beliefs for that population should be implemented to determine if in fact attitude change might lead to behavior change in aggressive people.

Table 1

Means and Standard Deviations for the Theory of Planned Behavior.

	M	SD	A	SN	PBC	I	B
Attitude (A)	1.95	1.15		.50*	-.37*	.71*	.23*
Subjective Norm (SN)	2.09	1.10	.50*		-.13	.33*	.02
Perceived Behavioral Control (PBC)	6.30	.97	-.37*	-.13		-.46*	-.17
Intention (I)	2.33	1.36	.71*	.33*	-.46*		.44*
Physical Response to Provocation (B)	.00	.94	.23*	.02	-.17	.44*	
Previous Behavior	.02	.93	.42*	.22*	-.15	.44*	.38*

*p < .05.

Table 2

Means and Standard Deviations for Behavioral Beliefs.

Outcome	<u>Belief</u> <u>Strength</u>		<u>Outcome</u> <u>Evaluation</u>		<u>Correlation</u>	
	<u>M</u>	<u>(SD)</u>	<u>M</u>	<u>(SD)</u>	<u>b_{e_i} with intention</u>	<u>b_{e_i} with behavior</u>
If I respond physically when provoked I will.....						
get injured	4.21	1.85	1.79	.99	.33*	.09
appear to be immature	2.44	1.51	1.57	.88	.42*	.29*
make the conflict worse	2.12	1.51	1.48	1.08	.42*	.11
get in trouble	3.36	1.86	1.68	.95	-.04	-.01
appear strong	2.94	1.70	4.93	1.35	.42*	.23
release anger	4.18	1.93	5.10	1.52	.43*	.08
stop the provocation from continuing	2.92	1.78	6.31	.91	.34*	.07
not appear to be a wimp	3.82	1.85	4.98	1.32	.34*	.14
get the police involved	4.31	2.26	1.38	.88	.07	.02
hurt another person	3.84	2.11	1.52	.95	.31*	.11
get revenge	3.64	1.87	3.33	1.60	.26*	.19

*p < .01.

Table 3

Means and Standard Deviations for Normative Beliefs.

Normative Referent	<u>Belief Strength</u>		<u>Outcome Evaluation</u>		<u>Correlation</u>	
	M	(SD)	M	(SD)	$b_{i,i}$ with intention	$b_{i,i}$ with behavior
male friends	.57	1.85	.11	1.86	.27*	.15
mother	-2.46	1.16	2.08	1.34	.01	.03
father	-1.57	1.68	2.00	1.52	.08	.07
other male family members	-.87	1.74	1.42	1.69	.26*	.11
onlookers	-1.13	1.45	-1.23	1.60	-.02	.00
female friends	-1.02	1.66	1.41	1.59	.25*	.13

* $p < .01$.

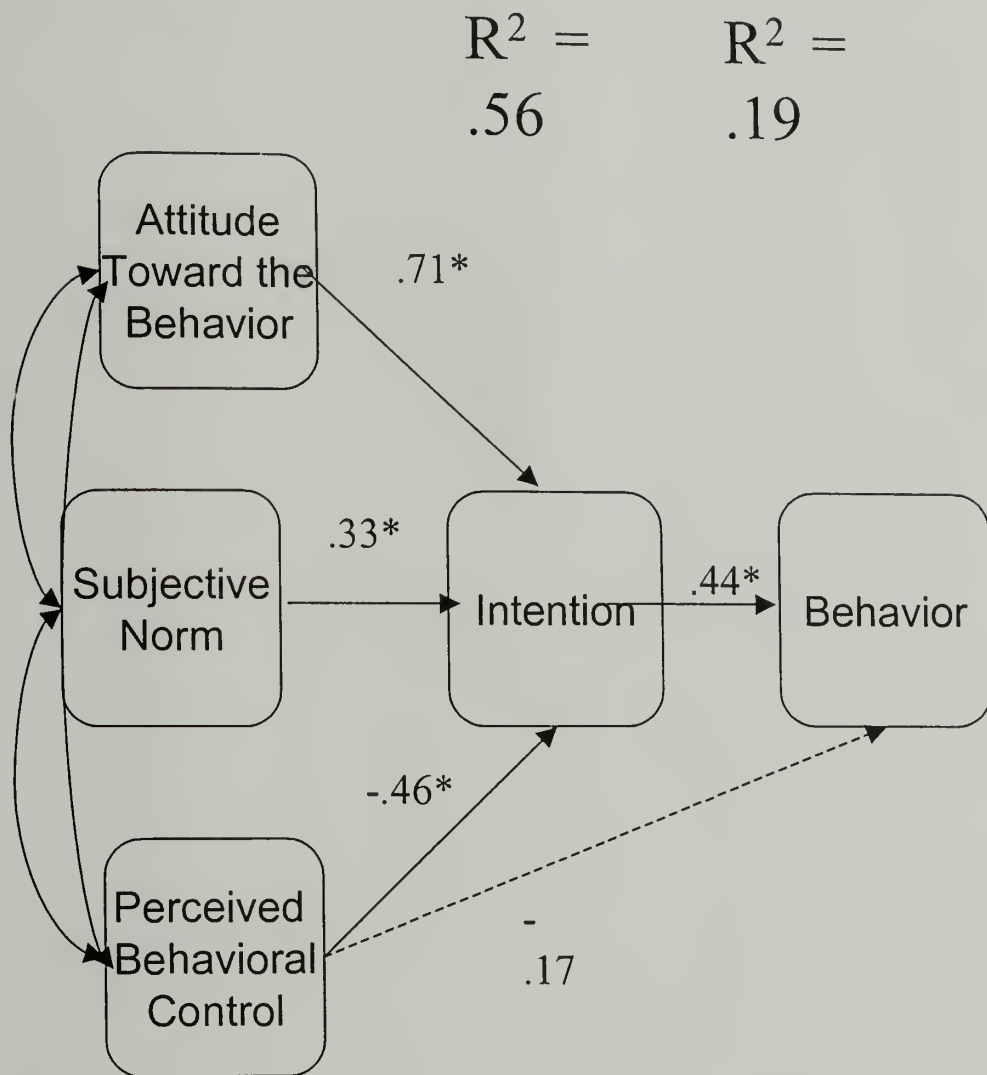
Table 4

Means and Standard Deviations for Control Beliefs.

Control Factor	Belief Strength		Outcome Evaluation		Correlation	
	M	(SD)	M	(SD)	$b_{i e}$ with intention	$b_{i e}$ with behavior
having many supporters around	4.45	1.80	4.59	1.70	.45*	.14
being stronger than the provoker	3.77	1.75	5.10	1.70	.21	-.02
being drunk	3.39	1.93	4.50	2.14	.23	.19
need to come to the defense of	3.73	1.76	5.44	1.32	.38*	.14
another person						
feel threatened or insulted	3.96	1.86	5.06	1.30	.28*	.34*

* $p < .01$

Figure 1. Correlation coefficients for the theory of planned behavior.



$*p < .01.$

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