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Locus of control and aggression

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Locus of Control and Aggression

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Abstract

The relationship between locus of control and aggression in children was investigated. Twenty-five students from grades 5 through 8 from a rural public school in southern West Virginia were involved in the research. The students completed the Children's Nowicki- Strickland Internal-External Locus of Control scale, and the students' teachers completed the Conners' Global Index for measuring psychopathology and hyperactivity. The Pearson Product-Moment Correlation was utilized to evaluate the relationship between the variables. Alpha was set at .05. There was no significant relationship between locus of control and aggression in the children. Research suggests that the expression of aggression is different for males and females. When controlled for gender, the results indicated a significant positive relationship between external locus of control and aggression among males. However, no significant relationship was found among females. The results of this research suggest that in designing programs for violence prevention, gender differences should be addressed and programs appropriate for males may not be appropriate for females. Recommendations for future research are made.

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Introduction

The dramatic increase in the number and intensity of aggressive acts committed by children over the past decade (cited by Dykeman, Daehlin, Doyle, & Flamer, 1996) implicates the need for a better understanding of personality variables that affect levels of aggressiveness. While researchers have hypothesized a positive correlation between external locus of control and aggression (Coleman, Pfeiffer, & Oakland, 1992; Hallorn, Doumas, John, & Margolin, 1999), research has not consistently supported this assertion. More research in this area is needed in order to determine the need to address issues of locus of control both in treating aggression in children and in designing programs for violence prevention in the schools. The purpose of this study is to show how attributions regarding locus of control affect the expression of aggression.

The construct, locus of control, was popularized during the 1960's by Rotter (Anastasi,1988). In conducting research in social learning, Rotter developed a scale designed to examine an individual's expectations regarding reinforcement. Individuals who attributed events in their lives to their own behavior or causes within themselves, were said to have an internal locus of control. On the other hand, people who attributed events in their lives to causes outside themselves, such as luck or fate, were said to possess an external locus of control. Powerful others and diverse or complex forces that made identification of the cause difficult or impossible to determine were also recognized. Research suggests that locus of control develops during the preschool years (Hegland &Galejs,1983;

Mischel, Zeiss, & Zeiss, 1974; Stephens & Delys, 1973, cited in Halloran, Doumas, John, & Margolin, 1999) and tends to fluctuate throughout the life span of the individual (Lefcourt, 1976; Steitz, 1982, cited in Halloran, Doumas, John, & Margolin, 1999). Research by Rotter and Strickland suggests that expectancy of reinforcement is related to effort. Since effort in different environments produces different results, different environments may produce different locus of control orientations (Yates, Hecht-Lewis, Fritsch, & Goodrich, 1994).

Social learning theory models such as those presented by Bandura (Halloran, Doumas, John, & Margolin, 1999; Kendall, 2000), suggest that aggression is a learned behavior, acquired through the observation of aggressive models. Family models are especially implicated in the development and maintenance of aggression, as are deficits in social problem solving ability and attributional biases. Unlike locus of control, aggression tends to remain relatively stable throughout the life span of the individual (Elder et al., 1983; Eron, Huesmann, & Zelli, 1991; Farrington, 1991; Huesmann, Eron, Lefkowitz, & Walder, 1984, cited in Halloran, Doumas, John, & Margolin, 1999).

While a number of researchers found little to no relationship between aggression and internal or external locus of control (De Maja, 1997; Yates, Hecht-Lewis, Fritsch, & Goodrich 1994), other researchers rated attributional distortions high on the list of cognitive impairments found in aggressive children (Coleman, Pfeiffer, & Oakland, 1992; Dykeman, Daehlin, Doyle, and Flamer, 1996; Halloran, Doumas, John, & Margolin, 1999; Oesterman, Bjorkqvist, Lagerspetz, Charpentier,1999; Romi & Itskowitz, 1990, cited in Dykeman,

Daehlin, Doyle, & Flamer; 1996; Storms & Spector, 1987, cited in Dykeman et al, 1996; Young, 1992; and Zainuddin & Taluja, 1990). Dodge and Newman (as cited in Kendall, 2000) suggested that aggressive boys, compared to non-aggressive boys, attend to fewer cues in the environment when attempting to interpret the meanings of the behaviors of others. The authors found a tendency in aggressive children to encode and consequently remember significantly more cues that might suggest hostile intentions. Dodge (as cited in Halloran, Doumas, John, & Gayla, 1999) noted a propensity in aggressive boys to attribute responsibility for conflict to environmental factors and to lack interest in finding non-aggressive solutions to problems. Coleman, Pfeiffer, and Oakland (1992) also observed tendencies to blame the environment when explaining hostile impulses, and to demonstrate less interest in generating non-aggressive solutions to problems than less aggressive peers. Some research suggests, however, that while external locus of control beliefs may predict aggression in boys, such may not be the case with girls (Halloran, Doumas, John, & Margolin, 1999).

Sandstrom and Coie (1999) identified level of aggression as the single greatest behavioral predictor of peer rejection. Aggressive-rejected children were less aware of their poor social standing than nonaggressive- rejected children. Failure to accept responsibility for their poor social standing tended to perpetuate the problem. Results were consistent with Bandura's (as cited in Kendall, 2000) emphasis on the need for self-efficacy and an internal locus of control in successfully changing behavior.

This study was designed to explore the relationship between locus of control and the expression of aggression in children. To date, research in this area has been limited and results have been contradictory. A better understanding of this relationship is needed in order to determine the need to address issues of locus of control in designing violence prevention programs and in treating aggressive individuals.

Method

Subjects

Twenty-five children were randomly selected from fifth through eighth grade classes at Spanishburg School to participate in the research. The group consisted of 17 females and 8 males. Spanishburg School, located in Mercer County in Southern West Virginia, is a rural public school with 311 students enrolled. All students are white. Most students are from nonprofessional, lower to middle class socioeconomic backgrounds. Parents of the students are employed in a variety of occupations. Many are displaced as a result of the closings of the coal- mines. Mercer County is largely a rural county with 9,516 students in the public school system. A large percentage of the adult population is retired.

Procedure

One hundred-nine students were given letters to take home, requesting parent consent for inclusion in the study. Students' teachers offered them bonus credit for returning the signed letter. Thirty-two of the letters were returned. Seven of the 32 parents requested that their children not be included in the study. The researcher administered the Nowicki-Strickland Locus of Control Scale to groups of two to twelve. The students' teachers completed the Conners' Global Index (CGI-T) within two days of completion of the Nowicki-Strickland. Tests were administered according to the directions in the manual.

Instruments

The Nowicki-Strickland Locus of Control Scale (N-SLCS) was used to measure locus of control. Based on Rotter's Internal-External Locus of Control Scale for adults (Yates, Hecht-Lewis, Fritsch, & Goodrich,1994), the N-SLCS was the culmination of a series of studies on more than a thousand third through twelfth grade male and female children, mostly white, representing all socioeconomic levels (Fischer & Corcoran, 1994). The N-SLCS is comprised of 40 items requiring yes-no responses. Fair overall internal consistency was reported. Split-half reliabilities increase with age, with a .32 reported for grades three through five and a .68 reported for grades 6 through 8. A test-retest correlation of .66 for the seventh grade was reported. Significant correlation with three other measures of locus of control was reported. Concurrent validity was considered fair.

The Conners' Global Index (CGI-T) for measuring psychopathology and hyperactivity of the Conners' Rating Scales (CRS) was utilized to measure aggression. Reliability and validity for form CGI-T as a measure of behavior problems has been demonstrated (Hutton, 1994). Test-retest reliability coefficients at one- month intervals ranged from .72 to .91 on the various test scales. Normative samples consisted of individuals ranging in age from 3 to 17, representing diverse socioeconomic and racial groups from various geographic regions across the US and Canada.

Analysis

The research involved a within subject design. The independent variable was locus of control based on the scores on the Nowicki-Strickland Internal-External Locus of Control scale. The dependent variable was aggression based on the scores on the CGI-T on the Conners' Rating Scales. Since research indicates that the variables involved in aggression are different for males and females, the subjects were divided into two groups. The analysis involved ratio data and the Pearson Product- Moment Correlation was used to determine the strength of the relationship between locus of control and expression of aggression. The Pearson Product-Moment Correlation is a statistical test designed to measure the relationship between two interval-or ratio-scaled variables. Alpha was set at .05.

Results

The results of the Pearson Product- Moment Correlation yielded a coefficient of .778 for males, .010 for females, and .240 for both males and females. There was a significant positive relationship for males between locus of control and the expression of aggression at the .05 significance level (2-tailed sig. = .023). There was no significant relationship between locus of control and the expression of aggression among females. There was no significant relationship between the locus of control and the expression of aggression among the group of children. (See Table 1.) Mean scores on the Children's Nowicki- Strickland Internal-External Locus of Control (CNSIE) scale were approximately equal (difference =1.39) between the two groups. The mean score on the Conners'

Global Index (CGI-T) for aggression, was higher for males than females. (See Table 2.)

On the CNSIE, it was noted that females as a group scored higher than males on externality for persuasion when parents were eliminated from the equation. Thirty-two percent of males felt that they were persuasive with friends, while twenty-four percent of females believed themselves persuasive with friends. Females felt more persuasive with parents than males. Girls also felt more strongly than males that their parents would be willing to help them if they asked. Forty percent of females believed they could change their parents' minds, while twenty-six percent of males believed they could change their parents' minds. As a group, females indicated more often than males that they felt physically weaker than peers. Both groups felt strongly that when people were rude to them it was usually without reason, and that there was little they could do to gain the affection of a person who did not like them. Both groups strongly felt that doing homework affected grades, and that it was better to be smart than lucky. Males tended to lean somewhat more toward magical thinking than females. (See Table 3.)

Table 1

Pearson Correlation for locus of control and aggression

GROUPS	NUMBER	PEARSON CORRELATION	SIGNIFICANCE (2-TAILED)
MALES	8	.778	.023*
FEMALES	17	.010	.970
MALES AND FEMALES	25	.240	.247

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

Table 2

Descriptive statistics for locus of control and aggression

	MALE	FEMALE	MALE AND FEMALE
LOCUS OF CONTROL			
MEAN	16.625	15.235	15.680
STANDARD DEVIATION	4.077	3.90	3.959
AGGRESSION			
MEAN	9.000	5.294	6.480
STANDARD DEVIATION	3.000	2.300	2.545

Table 3

External responses on CNSIE

CNSIE	% male	% female
Do you believe that most problems will solve themselves if you just don't fool with them?	25	12
Do you believe that you can stop yourself from catching a cold?	50	51
Are some kids just born lucky?	50	44
Most of the time, do you feel that getting good grades means a great deal to you?	12	8
Are you often blamed for things that just aren't you fault?	87	80
Do you believe that if somebody studies hard enough he or she can pass any subject?	25	16
Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?	25	24
Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?	37	28
Do you feel that most of the time parents listen to what their children have to say?	57	48
Do you believe that wishing can make good things happen?	50	36
When you get punished , does it usually seem it's for no good reason at all?	50	36
Most of the time, do you find it hard to change a friend's (mind) opinion?	75	72
Do you think that cheering more than luck helps a team to win?	50	48
Do you feel that it's nearly impossible to change your parent's mind about anything?	75	60
Do you believe that your parents should allow you to make most of your own decisions?	12	16
Do you feel that when you do something wrong there's very little you can do to make it right:?	75	68
Do you believe that most kids are just born good at sports?	62	44
Are most of the other kids your age stronger than you are?	12	32
Do you feel that one of the best ways to handle most problems is just not to think about them?	25	24
Do you feel that you have a lot of choice in deciding who your friends are?	12	20
If you find a four leaf clover, do you believe that it might bring you good luck?	50	32
Do you often feel that whether or not you do your homework has much to do with what kind of grades you get?	12	12
Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?	25	32

Have you ever had a good luck charm?	37	52
Do you believe that whether or not people like you depends on how you act?	25	36
Will your parents usually help you if you ask them?	25	12
Have you felt that when people were mean to you it was usually for no reason at all?	62	76
Most of the time, do you feel that you can change what might happen tomorrow by what you do today?	50	52
Do you believe that when bad things are going to happen they just are going to happen no No matter what you try to do to stop them?	37	48
Do you think that kids can get their own way if they just keep trying?	50	40
Most of the time, do you find it useless to try to get your own way at home?	50	52
Do you feel that when good things happen they happen because of hard work?	25	20
Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?	50	52
Do you feel that it's easy to get friends to do what you want them to do?	62	80
Do you usually feel that you have little to say about what you get to eat at home?	37	28
Do you feel that when someone doesn't like you there's little you can do about it?	62	60
Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?	25	12
Are you the kind of person who believes that planning ahead makes things turn out better?	37	32
Most of the time, do you feel that you have little to say about what your family decides to do?	62	48
Do you think it's better to be smart than to be lucky?	12	12

Discussion

The results of this study indicated that external locus of control was significantly positively correlated with the expression of aggression in males but not in females. Given the many cognitive and behavioral differences documented by other researchers between males and females (cited in Bardwick, 1971), this is not surprising. It is interesting, however, that while cultures nurture different traits in males and females (cited in Mussen, Conger, & Kagan, 1979, pp.342-343), little evidence of discrimination in treatment planning exists. The results of this study suggest that in addressing issues of locus of control and aggression, and in designing programs for violence prevention, gender differences should be addressed and that programs appropriate for males may not be appropriate for females.

Be it a consequence of biology, culture, or both, males engage in more overt aggressive behaviors than females (Magid & McKelvey, 1987, p.35). Aggression need not be overt, however, to have fatal or destructive consequences. Subtle forms of aggression, such as sabotage, gossip, ostracism, arrogance, intentional inefficiency, using others, and feigned helplessness, may be observed in females at least as often as in males. Furthermore, females are more frequently than males diagnosed with certain illnesses with suspected links to anger and aggression, such as depression (Sue, Sue, and Sue, 1990, 325,336) and various somatoform disorders (Harvard Medical School, 1999). Covert or passive forms of aggressive behavior are often ignored or under-rated in tests designed to measure aggression.

In spite of an extremely small number of male participants in this study (N=8), a significant correlation between external locus of control and aggression was found in males. A study of a relatively larger sample of female participants (N=17) suggested no significant correlation between the two variables. A comparison of male and female responses to items on the Nowicki-Strickland yielded little insight into gender differences in thinking that might have accounted for different results. It was noted that, when parents were excluded from the equation, females as a group tended to think less of their ability to persuade others than did males. In addition, females more often perceived of themselves as physically weaker than their peers. Physically stronger individuals, or those who perceive themselves as such, would be more likely to attempt to manipulate obstacles in their environments through physical aggression than people who feel less physically capable than others. On the other hand, physically weaker people may feel more inclined to use subtle forms of manipulation. Any form of manipulation may be perceived as aggression, and it is possible that those who use subtle forms of manipulation contribute indirectly to more overt displays of aggression. An obvious physical assault can be countered or dealt with through legitimate sources of power. Subtle forms of aggression are harder to identify. An individual who is victimized by gossip, sabotage, or ostracism, for example, may have no means of proving that an assault or violation even occurred. In planning programs aimed at decreasing acts of violence in our culture, covert forms of aggression cannot be ignored.

Problems in sample size and demographics and the instrument used to measure aggression affect the applicability of specific findings within this study. Subjects were drawn from an all white rural community. Most of the students report limited interaction outside the community. Parents and students express hostility to beliefs and customs not common within the community, and suspiciousness regarding scientific research was demonstrated. Of 109 possible subjects, permission to participate in the study was obtained from the parents of only 25 students. This was in spite of an incentive in the form of a bonus grade, offered by the students' teachers. Although parents were advised in the letter that participation was not mandatory, several parents called the school and emphasized that they did not want their children included in the study. Seven of the 32 parents who returned the letter refused to allow their child to participate. Several others had reservations about allowing their children to participate, but consented after talking with the researcher. Most of the parents who allowed their children to participate had interacted previously with the researcher, and trust had been established.

In any study involving children, developmental issues must be considered. A larger sample may have enabled the researcher to compare findings across various ages or grade levels, leading to possible hypotheses regarding the stability of the relationship between locus of control and aggression over time, or the applicability of findings at various stages of development.

The reliance on rater observations may also be problematic. Teacher-student interaction is typically frequent and often intense. Teachers are not infrequently

prejudiced by knowledge of a student's behavior in a previous grade, observations or inferences regarding intellectual ability, and even gender related expectations. Conflict with a student's parents may influence a teacher's ability to objectively view a student's behavior. Pressures by school authorities or policies that leave teachers feeling that they are accountable for a student's level of achievement may affect a teacher's perception of a student's behavior. Inaccuracies in judgment may stem from differences in values, or approval or aversion regarding a student's choice of hairstyle, dress, or personal hygiene. Role conflict as the teacher seeks to maintain authority may create biases in ratings. Future researchers may wish to dilute these biases by expanding the sampling area and by utilizing both teacher and student measures and combining observation from several teachers or school authorities.

Both males and females could benefit from a better understanding of their responses to various triggers within the environment. The beliefs that trigger acts of aggression, however, and the methods used to express aggression, may differ between males and females. The development of an instrument for measuring aggression that taps subtle as well as overt forms of aggression may better equip professionals working with females. Program planning in violence prevention must go beyond simple identification of potential perpetrators of obviously violent acts. It must identify and address aggression at all levels. Further research that promotes an understanding of how both males and females perceive and respond to obstacles within their environment may help therapists, teachers, and program planners design more effective programs.

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Appendix A

Literature Review

Given the increase in the number and intensity of aggressive acts committed by children over the past decade (cited by Dykeman, Daehlin, Doyle, & Flamer, 1996), a number of researchers have attempted to identify variables that may affect levels of aggression. Locus of control is one of several personality variables currently under investigation. While researchers have hypothesized a positive correlation between external locus of control and aggression (Coleman, Pfeiffer, & Oakland, 1992; Halloran, Doumas, John, & Margolin, 1999), research has not consistently supported this assertion. Variables such as age, gender, social status, setting, health status, personality traits, education levels, nationality, motivation, intelligence, and economic status differed widely amongst the many groups and may have accounted for some of the differences in results. In addition, a wide variety of instruments were utilized for studying aggression and locus of control, which also may have influenced results. The review of the literature begins with a discussion of the locus of control and the expression of aggression, followed by the review of several studies that have attempted to link the locus of control and the expression of aggression. The section concludes with a review of literature that explores the impact of gender on behaviors.

Locus of Control

Popularized by a treatise published by Rotter in 1966, the concept termed "locus of control" refers to the source to which an individual attributes events in his or her life (Anastasi, 1988). Internal locus of control implies that the individual believes that he or she may control life events by choosing certain behaviors or

responses. On the other hand, an individual who attributes events in his or her life to chance, fate, or powerful others over which he or she feels no control, is said to have an external locus of control. In an attempt to establish a method of determining the extent to which an individual recognizes reward as a consequence of behavior, Rotter utilized social learning theory to develop a locus of control scale (I-E Scale). Research suggests that locus of control develops during the preschool years (Hegland & Galejs, 1983; Mischel, Zeiss, & Zeiss, 1974; Stephens & Delys, 1973, cited in Halloran, Doumas, John, & Margolin, 1999) and tends to fluctuate throughout the life span of the individual (Lefcourt, 1976; Steitz, 1982, cited in Halloran, Doumas, John, & Margolin, 1999).

Locus of control is considered one of three major aspects of causal attribution (Anastasi, 1988). The second, stability, refers to the permanence or lack thereof of various causes of events. Health, for example, generally fluctuates throughout the life span of an individual and is therefor less stable than an attribute such as ability. The third major aspect of causal attribution, controllability, refers to the extent to which an event is under the control of an individual. For example, failure due to lack of effort is generally viewed differently than failure due to illness, since it is commonly believed that an individual has more control over lack of effort than over illness.

A number of demographic, ability, achievement, constitutional, and personality characteristics have been studied in relationship to locus of control as measured with the Nowicki-Strickland Internal-External Locus of Control Scales (Nowicki, 1986). A 1973 study by Nowicki and Strickland indicated a moderate but

significant positive relationship between higher social class and internality. Ludwigsen and Rollins (1970, cited in Nowicki, 1986), also found this relationship. Studies of racial groups indicated higher externality amongst blacks than whites (Marcus, 1975; Nowicki, 1976; Frye & Carlson, 1976, cited in Nowicki, 1986). While whites become more internal with age, blacks show no such movement. On the contrary, many blacks develop more of an external orientation with age, a fact that could be influenced by lower social class. Native Americans also score more externally on measures of locus of control than whites (Tyler & Holsinger, 1975; Hawk & Parsons, 1976, cited in Nowicki, 1986). No consistent differences in responses were found between males and females regardless of race or age.

A 1973 study by Nowicki and Strickland indicated significant correlations between internal locus of control and higher academic achievement amongst children in grades three through 12. Similar findings for Danish children (Afedo & Fonsbol, 1975, cited in Nowicki, 1986), Hungarian children (Rupp & Nowicki, 1976, cited in Nowicki, 1986), and Mexican Americans (Cervantes, 1976a, b, cited in Nowicki, 1986) have been documented. Nowicki (1986) cites studies by Gordon (1976), Short (1976), Bloodworth ((1975), Weiner (1975), and Waters (1970) that indicate higher levels of persistence for internals than externals. A 1975 study by Strickland (cited in Nowicki, 1986) indicated a positive correlation between internality and competence behaviors.

Nowicki (1986) also reported various constitutional variables that correlate positively with external locus of control. These include mental retardation

(Zaman & Gordon, 1976), cerebral palsy (Eggland, 1973); dyslexia (Hill, 1971) physical handicaps (Sylvan, Branes & Crim, 1974), chronic illness (Tavormina, Kastner, Slater & Watt, 1975), deafness (Young, 1974), emotional disturbances (Kendall, Finch, Little, & Ollendick, 1976), blindness (Davidson, 1975) and delinquency (Kendall, Finch, Little & Ollendick, 1976; Hendrix, 1975; Elenewski, 1974; Fenhagen, 1973; Stein, 1974; Ludwisgsen & Haskins, 1976). Nowicki also cites a 1974 study by Thomas positively correlating psychological maladjustment with externality. Thomas's research involved the comparison of scores on the Nowicki-Strickland Internal-External Locus of Control scale (CNSIE) of 2000 institutionalized children (all of the institutionalized children in the state of Georgia) with 1500 controls. Other variables reported by Nowicki that correlated positively with external locus of control were vulnerability to illness and injury (Stone, 1976), cleft palate (Brantley, 1976), and hyperactivity and aggressiveness in boys (Loney, 1976).

Finally, Nowicki (1986) reported a number of personality variables that correlated positively with internality. These included higher self-esteem (Gordon & Wilbur, 1973; Gordon, 1976; & Roberts, 1971), higher self-concept (Cervantes, 1976; Morris, 1976; & Gordon, 1976), higher moral development (Grotsky, 1973), greater popularity (Nowicki, 1973, Nowicki & Barnes, 1973) greater honesty (Grotsky, 1973), leadership (Hawk & Parsons, 1975), lower anxiety (Kendall, Keardorff, Finch & Graham, 1976), less interpersonal distance (Duke & Nowicki, 1974; Morris, 1975; & Ude, 1975), and shorter delay of gratification (Strickland, 1973). Various parent behaviors (i.e. warmth, nurturance, and consistency)

were also positively associated with internality (Nowicki & Segal, 1972; Michern & Nowicki, 1975; Wichern, Gordon & Nowicki, 1976; Gordon, 1976, as cited in Nowicki, 1986).

Aggression

Aggression is characterized by abusive, intrusive, and or violent physical or verbal behaviors that are disruptive and or hurtful to other people or objects (Bandura,1973; Lochman, 1984, cited in Kendall. 2000). It is associated more often with male than female behavior (Magid & Mckelvey, 1987; Barlow & Durand, 1995; Malchiodi, 1997). Unlike locus of control, aggression tends to remain relatively stable throughout the life span of the individual (Elder et al., 1983; Eron, Huesmann, & Zelli, 1991; Farrington, 1991: Huesmann, Eron, Lefkowitz, & Walder, 1984, cited in Halloran, Doumas, John, & Margolin, 1999).

Aggression often involves abuses of power or influence, with stronger individuals, or individuals in positions of authority or affluence, taking advantage of weaker or less powerful ones (Malchiodi, 1997). In discussing family violence, Gil (1979, cited in Malchiodi, 1997) pointed to the fallacy of viewing aggressiveness as an isolated act. Gil utilized the phrase "structural violence" to describe a kind of violence created by societal structures that block human potential and diminish development, resulting in conditions such as poverty, unemployment, and discrimination. The influence of certain rock performers and violent sports figures (Wilson, 1990, cited in Malchiodi, 1997) has been positively associated with aggressive behaviors. A 1996 study by Wann and Wilson,

however, failed to show a hypothesized increase in aggression in externally oriented subjects after exposure to aggressive rock music videos.

Aggression has been strongly correlated with attention-deficit/hyperactivity disorder, substance abuse, and depression ((Kendall, 2000). Barlow and Durand (1995) summarized a 1992 review by Lilienfeld, linking aggression with somatization disorder. Several hypotheses were offered explaining this link, all stemming from observations that somatization disorder shares many features with antisocial personality disorder. Research by Cloninger (1987b) and Gorenstein and Newman (1980) included in Lilienfeld's review, implicated a weak behavioral inhibition system (BIS), incapable of over-riding the behavioral activation system (BAS). It was noted that somatization disorder occurs more often among females than males, while antisocial personality disorder is more commonly diagnosed in males. The two disorders are not mutually exclusive, however, and somatization is not infrequently diagnosed in men with antisocial personality (Harvard Medical School, 1999). Social and cultural expectations were cited as possible explanations for discrepancies in male and female behaviors resulting in different diagnoses (Widom, 1984; Cjloninger, 1987b, cited in Barlow and Durand, 1995).

Like somatization disorder, depression is more commonly diagnosed in females than males (Sue, Sue, & Sue, 1990). McCullough (2000) discusses the frustration and anger often experienced by the therapist when treating depressed individuals. He states that the patient usually is oblivious to the effects of his or

her hostile behavior upon the therapist. Often, the patient does not even recognize his or her hostile intent or that he or she is behaving aggressively.

A number of theories addressing the etiology of aggressive behavior have been proposed. These include biological theories, family-behavioral and social theories, and psychodynamic theories.

While biological theories are still in the elementary stages, the search for chemical links to behavior has produced compelling results. A number of studies have indicated significant associations between aggression and decreased levels of 5-HIAA (a product of the breakdown of serotonin) in the spinal fluid (e.g., Depue & Spoont, 1986, cited in Hedaya, 1986). Moffit and Henry (1989, cited in Kronenberger & Meyer, 1986) found a relationship between frontal lobe functioning and delinquency. As the seat of thinking and reasoning, the frontal lobe enables the individual to interpret the behaviors of those in his or her social environment and respond appropriately (Barlow & Durand, 1995). If frontal lobe functioning is impaired, the individual demonstrates difficulty planning and carrying out tasks (Hedaya, 1996) and is consequently more likely to behave impulsively. Other studies (cited in Kronenberger & Meyer, 1986) suggest a relationship between heart rate and conduct problems, and a tendency for conduct disordered children to react less and recover faster from laboratory stimuli.

Social learning theorists such as Rotter and Bandura emphasized the role of reinforcement in shaping aggressive behavior (Kendall, 2000). Rotter suggested that maladjustment occurred when an individual valued a particular goal or need,

yet harbored little expectation of achieving or satisfying it ((Phares, 1992). If the value placed on the need was high and the probability of attaining it through socially acceptable means low, the individual would rationally resort to behaviors that were not socially sanctioned to obtain goal satisfaction (Kendall, 2000). The choice to engage or not engage in a given behavior was influenced by perceived positive or negative consequences.

While Rotter stressed behavior choices, Bandura emphasized behavior acquisition (Phares, 1992) and expectation (Kendall, 2000). The principle of reciprocal determinism was based on the proposal that the behavior, the person, and the situation should not be viewed independently but that each of the variables played on the others (Phares, 1992). Bandura did not believe that direct reinforcement was a necessary component of the learning process, and demonstrated that aggression could be acquired through the observation of aggressive models (Halloran, Doumas, John, & Margolin, 1999; Kendall, 2000). The observer's estimate of the model's status influenced his or her decision to imitate the behavior, as did the observance of consequences for the aggressive behavior. Family models were especially implicated in the development and maintenance of aggression.

Kendall (2000) reviewed the work of social-cognitive researchers who documented differences between aggressive and non-aggressive children in the way environmental cues are perceived and encoded. After viewing a series of hostile, benevolent, and neutral situations portrayed by child actors, aggressive

children recalled fewer important cues than non-aggressive children. The children recalled less of the actor's final statements.

A 1981 study by Dodge and Newman (cited in Kendall, 2000) indicated that aggressive boys attended to fewer cues in their environments when trying to understand the behavior of others. When given the opportunity to listen to an unlimited number of tapes concerning a child's intentions, the aggressive boys chose to listen to 40% fewer cues before making a judgement about the child's motivations than non-aggressive boys. Aggressive boys also attributed more of the child's behaviors to hostile intent. Attributional biases have been documented in a number of other studies involving both males and females (Dodge et al., 1986; Guerra & Slaby, 1989; Milich & Dodge, 1984; Steinberg & Dodge, 1983; Waas, 1988, cited in Kendall, 2000).

While aggressive boys overestimate the hostile intent of others, they tend to underestimate hostile intent in themselves (Lochman, 1987; Lochman & Dodge, 1998, cited in Kendall, 2000). Due to the distorted perceptions, aggressive boys tend to attribute responsibility for conflict to the behavior of others, thus, in their own minds, justifying their own aggressive behavior. Dodge (as cited in Halloran, Doumas, John, & Gayla, 1999) noted a propensity in aggressive boys to attribute responsibility for conflict to environmental factors and to lack interest in finding non-aggressive solutions to problems. Coleman, Pfeiffer, and Oakland (1992) also observed these tendencies to blame the environment when explaining hostile impulses, and to demonstrate less interest in generating non-aggressive solutions to problems than less aggressive peers.

In addition to cognitive distortions, aggressive children demonstrate deficits in social problem solving ability. Kendall (2000) reports that children generate fewer solutions to problems than non-aggressive children, and that they demonstrate less awareness of consequences. In addition to generating fewer solutions to problems, aggressive children identify lower quality solutions to problems than their non-aggressive peers. Aggressive children are more likely than non-aggressive children to believe that aggression will result in reward.

Patterson's coercion theory (Kronenberger and Meyer, 1986) outlines a popularly accepted model of how parents inadvertently foster aggressive or non-compliant behavior in children. Beginning in infancy, when the child expresses distress, the ineffective parent fails to respond to legitimate needs or demands. The demands become more severe as the child matures, and the parent utilizes harsh disciplinary techniques to squelch them. The child becomes more hostile, which results in even harsher responses from the parent, which in turn, creates even more hostility in the child. Eventually, the child's hostile responses become so intense that the parent begins to pacify him or her by giving in to his or her every demand and or modifying or dropping demands made on the child. This results in a power struggle, with the child generally in control because he or she has learned to persist in the defiant or aggressive behavior until the exhausted parent acquiesces.

Sandstrom and Coie (1999) identified level of aggression as the single greatest behavioral predictor of peer rejection. Aggressive-rejected children in this study were less aware of their poor social standing than

nonaggressive-rejected children. Failure to accept responsibility for their poor social standing tended to perpetuate the problem. These results are consistent with Bandura's (as cited in Kendall, 20000) emphasis on the need for self-efficacy and an internal locus control in successfully changing behavior.

Locus of Control and the Expression of Aggression

Various studies designed to study the relationship between locus of control and aggression have produced different results. Methodology, coupled with diverse characteristics of subjects, may account for some of these differences.

Researchers finding no significant relationship between locus of control and aggression include De Moja (1997), and Yates, Hecht-Lewis, Fritsch, and Goodrich (1994). In a study designed to examine correlation between drug use and personality, De Moja investigated locus of control and aggression in 60 male subjects, 20 of who were addicts, 20 users, and 20 nonusers. The subjects each completed the Rotter Locus of Control Scale and the Questionnaire for Measuring Spontaneous Aggression. While drug addicts and users obtained higher scores than nonusers on both measures, no statistically significant correlation between locus of control and aggression was obtained for any of the three groups.

Yates et al found no overall relationship between locus of control and aggression in severely disturbed adolescents. Results of this study pointed to the need, however, for analyzing various components of locus of control in addressing the needs of this population, since significant relationships were

found on various factors. The Nowicki-Strickland Locus of Control questionnaire was used to measure locus of control. From this test, the researchers identified five components or factors of locus of control. These included locus of control for peers, parents, achievement, relationships, and problems.

Researchers finding a relationship between locus of control and aggression include Halloran, Doumas, John and Margollin, 1999; Zainuddin and Taluja, 1990; Osterman, Bjorkqvist, Lagerspetz, Charpentier, Caprara, and Pastorelli, 1999; Romi and Itskowitz, 1990; Storms and Spector, 1987; Coleman, Pfeiffer, and Oakland, 1992; and Young, 1992. Findings varied, however, with some studies indicating relationships between aggression and external locus of control, and others pointing to a relationship between aggression and internal locus of control. A difference in direction, too, was noted. A negative relationship was found in one study, while positive relationships were found in the others.

A 1999 study by Halloran, Doumas, John, and Margolin, resulted in the finding of a positive correlation between internal locus of control and aggression for girls. This association was especially strong in situations where females took responsibility for failure. The authors suggested that a belief that others controlled their ability to succeed (powerful- other orientation), coupled with low self-esteem, may have resulted in increased aggression. The same study resulted in different findings for males. Aggressive behavior in males negatively correlated with external locus of control beliefs. The sample for this study consisted of 59 girls and 55 boys, 8 to 11 years old, from diverse socioeconomic groups in the Los Angeles area. The Child Behavior Checklist Teacher Report

Form (CBCL-TRF) was used to assess aggression. and the Connell Multidimensional Measure of Children's Perception of Control (MMCPC) was used to measure locus of control.

Zainuddin and Taluja (1990) obtained different results in their study of aggression and locus of control among undergraduate students. An investigation of the relationship among socioeconomic status, aggression, and locus of control, revealed a positive relationship between external locus of control and aggression in both males and females.

A positive correlation between external locus of control and aggression was also found in a 1999 study conducted by Oesterman, Bjorkquist, Lagerspetz, Charpentier, Gian, and Pastorelli. Seven hundred twenty-two Finnish and Italian adolescents of 11 and 15 years of age were studied to determine if external locus of control is related to three different types of aggression (physical, verbal, and indirect). Results indicated a significant positive correlation among all three kinds of aggression in males. Similar results were obtained when both male and female groups were combined. For females, however, no significant relationship was found between either external or internal locus of control and aggression.

Dykeman, Daehlin, Doyle, and Flamer (1996) cite the results of a 1990 study by Romi and Itskowitz, and a 1987 study by Storms and Spector, both of which point to a positive relationship between locus of control and aggression. Romi and Itskowitz's study focused on relationships among frustration, locus of control, and aggression. Results suggested that children with an external locus of control experience more frequent feelings of frustration and powerlessness when

confronting frustrating situations than do children with an internal locus of control. These feelings of frustration led to greater negative expressions of aggression.

Storms and Spector's research involvement an examination of anger and aggression resulting from the frustration of interruption or lack of attainment of personal goals. Reactions included withdrawal, sabotage, and interpersonal aggression. Individuals with an internal locus of control tended to blame themselves, while individuals with an external locus of control placed the blame on conditions or people outside themselves. Externals were consequently less likely to find solutions to problems than internals.

In a study of the results of an aggression replacement training program with behaviorally disordered adolescents (Coleman, Pfeiffer, & Oakland, 1992), researchers hypothesized that adolescents with an internal locus of control orientation would show greater improvement than those with an external locus of control orientation. Researchers utilized The Behavior Incident Report (BIR) to collect data on incidents of aggressive behavior 3 weeks before treatment began. After treatment, the same measure was utilized on a weekly basis to collect data for 13 weeks. Treatment focused on promoting social skills, anger control, and moral reasoning. Locus of control did not have a significant affect on outcome with this population. Treatment resulted in increased knowledge of social skills in subjects but resulted in no significant changes in observable behavior in any of the groups.

Young (1992) correlated the relationship between locus of control and beliefs about human aggression. One hundred- sixteen undergraduate students

completed Goldstein's human aggression scale, along with Duttweiler's Internal Locus of Control Index. A negative correlation was found between the number of misconceptions about human aggression and internal locus of control.

Gender Differences

Researchers continue to dispute the source of cognitive and behavior differences between males and females. While some studies point to biology, others point to culture (Bardwick, 1971). That differences exist, however, is indicated by some of the research on locus of control and aggression (Halloran, Doumas, John, and Margolin, 1999; Oesterman, Bjorkquist, Laperspetz, Charpentier, Gian, & Pastorelli (1999).

Erikson (1963) describes a 1938 study he conducted at the University of California, which suggested differences in spatial tendencies in 11 year- old males and females. When presented with a random selection of toys and invited, one at a time, to come into a room and create an imaginary movie set, dramatic differences in arrangements occurred. Males tend to build upward, creating tall, slender structures. Streets, towers, and buildings appeared in their creations, and the drama of falling buildings, blocked streets, and fallen figures at the base of structures was a common theme. Females rarely built towers, but when they did, they tended to be near or leaning against the background. Most females created the interiors of houses. Furnishings tended to be enclosed, circular in position, giving impressions of closure. Walls were usually thick. A common theme for females was intrusion. For example, in one scenario, a pig had

entered the house, upsetting the family, and forcing the girl to hide behind the piano.

Erikson pointed to a number of problems with interpreting these arrangements in terms of cultural expectation. He concluded that differences in male and female arrangements more likely suggested innate differences.

In all cultures, gender differences in interests, abilities, conceptualization, and activities are observed (Mussen, Conger, and Kagan, 1979). Young boys are observed to engage in rougher and more aggressive play than girls, while girls, at least during the first few years of life, surpass boys in language development. Preadolescent boys in Western countries outperform girls in tests of visual, spatial, and mathematical abilities. Males also outperform females on tests of field independence and sexual initiative. Females outperform males on tests measuring characteristics such as anxiety level, expressed fears, suggestibility, and social interests. Despite years of research, it is still difficult to know where biology stops and culture begins.

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Appendix B

Tests

EMORY UNIVERSITY
Department of Psychology

532 North Kilgo Circle
Atlanta, Georgia 30322-2470
Phone: 404/727-7438
Fax: 404/727-0372

Dear Fellow Locus of Control Researcher:

I appreciate your interest and hope these materials will be of use to you. Please send $10 to offset the cost of producing these manuals. Checks can be made payable to Emory University Department of Psychology and mailed to the above address, to the attention of Steve Nowicki. Also, I would be interested in any information concerning the results of the research you are doing in this area.

Thank you,

Stephen Nowicki, Jr., Ph.D.
Professor of Psychology

CNSIE

YES	NO	
____	____	1. Do you believe that most problems will solve themselves if you just don't fool with them?
____	____	2. Do you believe that you can stop yourself from catching a cold?
____	____	3. Are some kids just born lucky?
____	____	4. Most of the time, do you feel that getting good grades means a great deal to you?
____	____	5. Are you often blamed for things that just aren't your fault?
____	____	6. Do you believe that if somebody studies hard enough he or she can pass any subject?
____	____	7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
____	____	8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?
____	____	9. Do you feel that most of the time parents listen to what their children have to say?
____	____	10. Do you believe that wishing can make good things happen?
____	____	11. When you get punished, does it usually seem it's for no good reason at all?
____	____	12. Most of the time, do you find it hard to change a friend's (mind) opinion?
____	____	13. Do you think that cheering more than luck helps a team to win?
____	____	14. Do you feel that it's nearly impossible to change your parent's mind about anything?
____	____	15. Do you believe that your parents should allow you to make most of your own decisions?
____	____	16. Do you feel that when you do something wrong there's very little you can do to make it right?
____	____	17. Do you believe that most kids are just born good at sports?
____	____	18. Are most of the other kids your age stronger than you are?
____	____	19. Do you feel that one of the best ways to handle most problems is just not to think about them?
____	____	20. Do you feel that you have a lot of choice in deciding who your friends are?
____	____	21. If you find a four leaf clover, do you believe that it might bring you good luck?

____ ____ 22. Do you often feel that whether you do your homework has much to do with what kind of grades you get?

____ ____ 23. Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?

____ ____ 24. Have you ever had a good luck charm?

____ ____ 25. Do you believe that whether or not people like you depends on how you act?

____ ____ 26. Will your parents usually help you if you ask them to?

____ ____ 27. Have you felt that when people were mean to you it was usually for no reason at all?

____ ____ 28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

____ ____ 29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?

____ ____ 30. Do you think that kids can get their own way if they just keep trying?

____ ____ 31. Most of the time, do you find it useless to try to get your own way at home?

____ ____ 32. Do you feel that when good things happen they happen because of hard work?

____ ____ 33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?

____ ____ 34. Do you feel that it's easy to get friends to do what you want them to?

____ ____ 35. Do you usually feel that you have little to say about what you get to eat at home?

____ ____ 36. Do you feel that when someone doesn't like you there's little you can do about it?

____ ____ 37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?

____ ____ 38. Are you the kind of person who believes that planning ahead makes things turn out better?

____ ____ 39. Most of the time, do you feel that you have little to say about what your family decides to do?

____ ____ 40. Do you think it's better to be smart than to be lucky?

Appendix C

Scatter Plots

Male

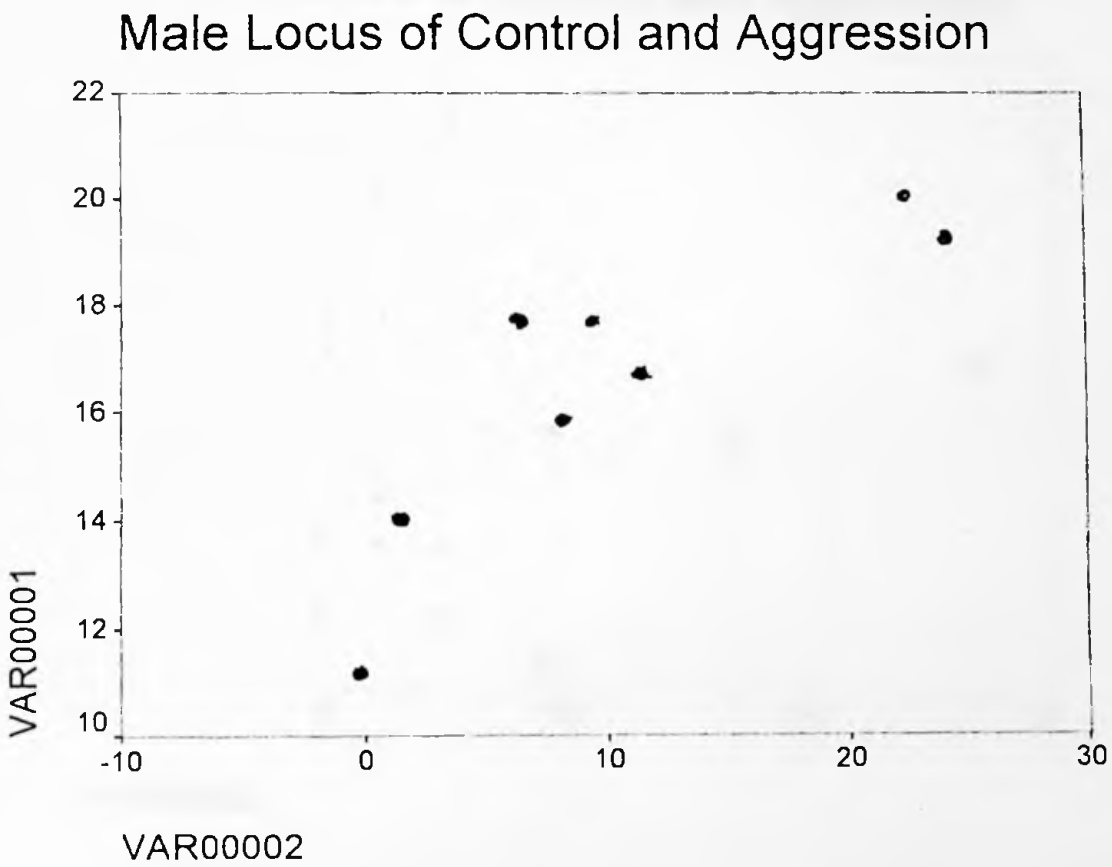
Correlations

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1.000	.778*
	Sig. (2-tailed)	.	.023
	N	8	8
VAR00002	Pearson Correlation	.778*	1.000
	Sig. (2-tailed)	.023	.
	N	8	8

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

Graph



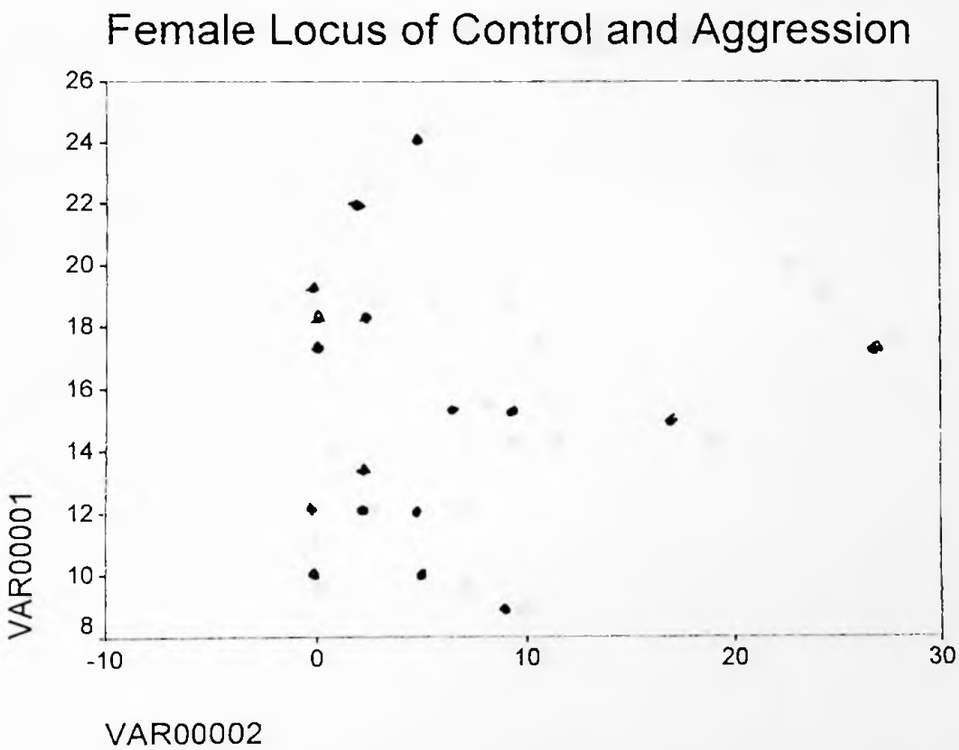
Female

Correlations

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1.000	.010
	Sig. (2-tailed)	.	.970
	N	17	17
VAR00002	Pearson Correlation	.010	1.000
	Sig. (2-tailed)	.970	.
	N	17	17

Graph



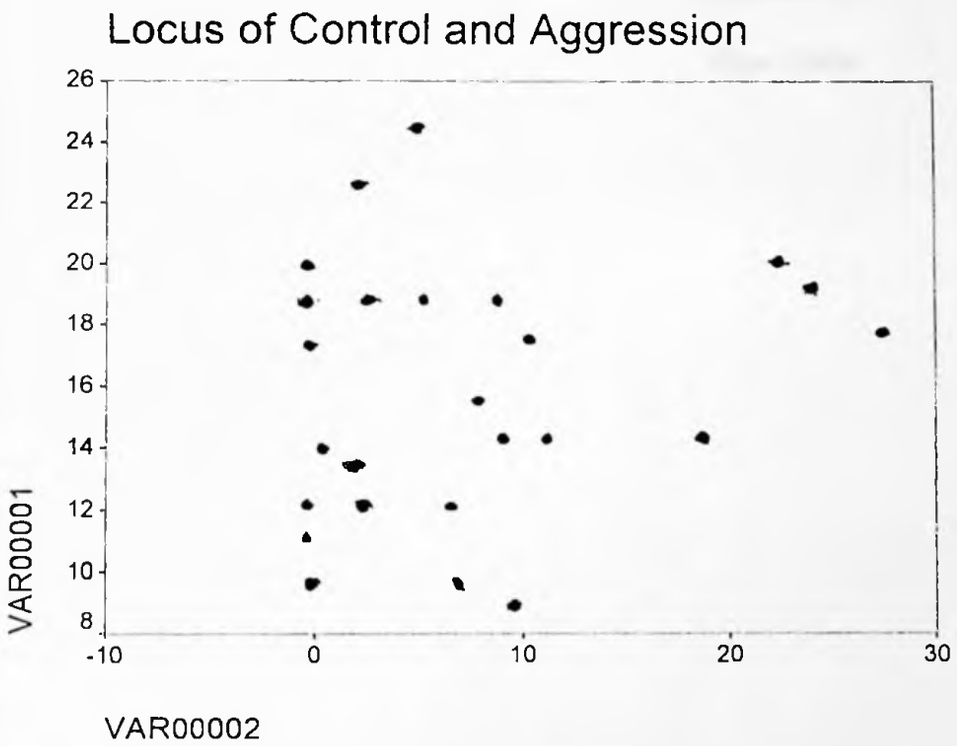
Male and female

Correlations

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1.000	.240
	Sig. (2-tailed)	.	.247
	N	25	25
VAR00002	Pearson Correlation	.240	1.000
	Sig. (2-tailed)	.247	.
	N	25	25

Graph



Appendix D

Raw Data