

ABSTRACT

Title of Thesis: IS GENDER MEDIATING THE EFFECTS OF AFTER-SCHOOL PROGRAMS?

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Do gender differences exist in determining the effects of after-school programs as a crime prevention device? Using data from the 1999-2000 year of the Maryland After-School Community Grant Program, this study tests for an interaction between gender and participation in after-school programs in predicting self reported problem behavior. Separate analyses were conducted for elementary (n=358) and middle school students (n=440). In general, middle school students participating in the programs reported lower levels of problem behavior than comparison group students. Coefficients from a linear regression model failed to support the hypothesis that an interaction occurred between program participation and gender. This was true in both the elementary and middle school samples. Males and females received the same the benefits from participating in the after-school programs.

IS GENDER MEDIATING THE EFFECTS OF AFTER-SCHOOL PROGRAMS?

by

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Chapter 1: Introduction

After-school programs have become a popular remedy for a burgeoning population of children left on their own during the after-school hours. Twenty-eight million children in the United States live with a single working parent or in a dual-income household where parents are not available in the immediate after-school hours. Seventy-eight percent of mothers with children between the ages of 6-13 years work full-time and more than 15 million children are unsupervised from 3-8 pm (www.mott.org). The National Incident Based Reporting System indicates that shortly after dismissal from school, approximately 3 p.m., there is a peak in violent crime committed by juveniles. These unsupervised children may be at higher risk for drug use and other problem behaviors, as well as victimization (www.fightcrime.org). The 1999 National Victimization Survey shows that 10% of violent crimes occurred while the victim was in school compared to 27% of violent crime that occurred on the streets¹ (www.ojp.usdoj.gov).

The need for school aged childcare is a real concern for parents. Children's safety and lack of supervision after-school are two of the most important underlying factors for support of after-school programs. A national poll of registered voters conducted in 2000 found that 93% of respondents were in favor of making safe, daily enrichment programs available to children. Respondents also viewed after-school programs as being able to provide youth with access to technology and computers,

¹ As Gottfredson et al. (2001) note, the lower rate of violent crime during school hours may be due to a difference in jurisdiction and response to the offense. In schools, violent crime may be handled through school disciplinary action, while police are more likely to respond to crime that occurs in the streets. In fact, 64% of all crimes against 12-14 year olds occurred either during school or on the way to or from school. However, even if the increase in crime after-school is due to differential response to delinquency, the after-school hours are still a time of lower adult supervision and provide the opportunity for crime and victimization.

provide opportunities to learn and master new skills and prepare children for a productive future (www.mott.org).

However, support for after-school programs is driven by less than scientific evidence of the effectiveness of the programs for reducing substance use and problem behaviors such as delinquency. Gottfredson, Gottfredson and Weisman (2001) outline much of the existing research on after-school programs that exists in three varieties: evaluations of after-school programs that measure effects of participation on problem behaviors; survey research relating self-reports of adolescent problem behavior and involvement in extracurricular activities; and survey research relating measures of problem behavior to measures of the type of care children receive after school. Only a few experimental or quasi-experimental research designs exist and the majority of researchers have used survey methodology. The use of such methodology limits the extent to which their results can be used to draw causal inferences about the effects of participation in after-school programs (Gottfredson et al., 2001). Existing contradictions in the research continue to cloud what is known about after-school programs and their effects on problem behavior and academic performance. Even less is known about the effects of these programs on specific populations.

While some existing research has mentioned effects on low-income children in urban areas (Posner and Vandell, 1994; Marshall, Cox, Marx, McCartney, Keefe and Ruh, 1997), the majority of current studies has been more general in scope and has not attempted to tease out differences that may occur across race, age or gender (Baker and Witt, 1996; Fashola, 1998; Hahn et al., 1994; Richardson et al., 1989; Rodman et al., 1985; Smith and Kennedy, 1991). There is evidence in the childcare literature that

suggests a gender difference in outcomes might exist based on the amount and type of after-school care children are involved in (Pettit et al., 1997; Posner and Vandell, 1999; Pierce et al. 1999; Steinberg, 1986; Crouter et al., 1990; Woods, 1972; Galambos and Maggs; 1991; Richardson et al., 1993). While this literature focuses more on the effects of adult and self-care than participation in after-school programs, it provides a basis for expecting differential effects across gender. Even though these studies do not directly evaluate after-school programs, they indicate that boys and girls react differently to their after-school environments and supervision arrangements. Studies that have found gender differences in the effects of after-school programs have been more subjective in nature, relying on observations and ratings of the quality of the program or the quality of the interaction between the children and the staff members. While this data is instructive, it may not give us a complete understanding of gender differences if they do indeed exist.

Meanwhile, crime statistics are indicating that the gender gap for offense rates is narrowing. Between 1980 and 2000, the arrest rate for all offenses increased by 35% for juvenile females and declined 11% for juvenile males. During the period of 1991 to 2000, arrests of juvenile females generally increased more than male arrests in most offense categories including aggravated assault, simple assault, vandalism, and drug abuse violations. In 2000, girls were involved in one-third of all arrests of youth ages 13 to 15 (OJJDP, 2002).

Simultaneously, researchers have begun to investigate whether mixed-gender programs are appropriate for males and females alike (Calhoun, 2001; Bloom et al., 2002; Farrell et al., 1996). Traditionally, juvenile justice programs, research and

interventions have been focused on male delinquency without attempting to understand any possible gender specific needs of female offenders (Calhoun, 2001). The increasing prevalence of female offending is beginning to beg the question: Are mixed-gender programs capable of reducing problem behaviors in females?

The limited body of after-school research has not yet addressed the possibility of gender differences in the effectiveness of after-school programs as a crime prevention tool. Therefore, the goal of this research is to explore whether participation in an after-school program affects boys and girls differentially.

Chapter 2: Literature Review

Traditionally, studies of after-school care have followed a very basic template. Some studies have compared children who are supervised or monitored after school to children who are on their own after school on various outcomes (Rodman et al., 1985; Woods, 1972; Richardson et al., 1989). Other studies have examined after-school childcare arrangements along a continuum from self-care to formal after-school programs (Posner and Vandell, 1994; Steinberg, 1986; Marshall et al., 1997; Vandell and Corasaniti, 1988; Galambos and Maggs, 1991; Richardson et al., 1993). Many of these studies place children in one category of after-school care and, thus, assume that children participate in only one type of after-school care. Pettit, Laird, Bates and Dodge (1997) attempted to address this problem and look not only at the different categories of care children may receive after school, but also the amount of time spent in each type of care. This study offers important information as to how different types of care in various quantities affect children who participate in them. Among the categories of after-school care studied by Pettit et al. (1997) were sibling/self-care, sitter/relative care, neighbor care, day care, school based care and activity oriented adult-supervised care (A-O care). Activity-oriented care was defined as non-parental after-school care that is supervised by an adult in which children are involved in enrichment activities in many diverse settings that are distinct from day care or formal school programs. Many after-school programs could also be defined in this way. Since they are less rigid than an extended school day, after-school programs can fall into such a category when they provide enrichment activities that are provided by qualified adults.

Activity-oriented after-school care is of interest in this study. This type of care may differ from other types of after-school care because it may focus on certain behaviors, activities or skills that children need. It is also distinct because it provides meaningful programming in addition to supervision. Activity-oriented after-school care can bridge the gap between the end of the school day for children and the end of the work day for parents while engaging children in enrichment activities to teach, reinforce and increase their abilities in areas they might not otherwise be involved. Simply providing a safe haven for children to go to after school may not be enough to prevent problem behavior in the future.

“But to the extent that such programs can attract youth who are at risk for engaging in delinquency, they have the potential to help these youths avoid engaging in delinquent activities by teaching them important social skills for resisting peer pressure, by establishing bonds with pro-social others and by increasing commitments to conventional pursuits” (Gottfredson et al., 2001: 81).

The success of after-school programs may then rest on their ability to attract and retain youths who are at-risk for problem behaviors and give them the necessary tools to succeed (Gottfredson et al., 2001).

What is currently known about after-school programs is derived mostly from survey research relating self-reports of problem behavior to measures of the type of care children receive after school and a handful of evaluations of after-school programs that directly measure the effects of participation to problem behaviors. While evaluations of after-school programs are rare, those that do exist have come in two varieties: area-level studies that compare measures of problem behaviors for communities served by an

after-school program and areas that are not served by a program, and individual-level studies that compare measures of problem behaviors for youths who do and do not participate in an after-school program (Gottfredson et al., 2001).

Area-level studies have shown some positive effects for after-school programs. Schinke et al., (1992) reported that 13% fewer police reports for criminal activity were filed in beats that included housing developments served by Boys and Girls Clubs compared to beats that were not served by Boys and Girls Clubs. Also, drug activity was 22% lower in areas served by Boys and Girls Clubs than those without the Clubs. An additional study (Jones and Offord, 1989) reported a 75% decrease in juvenile arrests during a 32 month after-school program and summer recreation program in a single housing project served by the program and a 67% increase in arrests in the comparison housing project that received only minimal services by a Boys and Girls Club. However, none of the community-level studies controlled for any selection artifacts or community and demographic factors that may have affected crime rates in the respective communities. These studies typically compared communities served by an after-school program (or Boys and Girls Club) to a community not served by such a program. Communities served by Boys and Girls Clubs (or any other program) may have been significantly different on many variables and the positive results cannot be attributed to the presence of the program alone. Therefore, while these studies suggest that after-school programs may reduce crime in areas they are located, without controls, claims that the presence of the programs is responsible for the reductions in crime are unjustified.

Among the individual-level studies, only two have used an experimental design in which students were randomly assigned to the program, a waitlist or a control group. Smith and Kennedy (1994) found positive effects for the “Friendly PEERsusaion program participants. The program significantly reduced the incidence of drinking among participants and the onset of drinking of participants who had not previously drunk alcohol. Hahn et al. (1994) also found evidence that after-school programs can reduce problem behaviors in their study of the Quantum Opportunities Program. However, this program is probably not typical of most after-school programs. Program participants in this study received 750 hours of educational, community service and development activities per year and monetary incentives were offered for participation (Gottfredson et al., 2001). Therefore, the positive results may not be indicative of the effects of more common after-school program given the rigorous nature of the program under study. Other individual-level studies have also found positive effects for participation in after-school programs.

Welsh et al. (1999) found that programs reduced recidivism over one and two-year periods with recidivism being lowest for students that attended more after-school sessions. However, this study failed to rule out any selection artifacts and, therefore, should not be used to demonstrate positive effects for after-school programs. Other studies have found positive program effects for academic outcomes but not for problem behaviors (Baker and Witt, 1996).

Of specific interest is a recent evaluation by Gottfredson and colleagues (In Press) using data from a statewide evaluation of after-school programs in Maryland. Researchers in this study found that participation in after-school programs reduced

problem behavior (delinquency and drug use) for middle school but not for elementary school-aged youths. However, these results were not achieved by decreasing the amount of time youths spent unsupervised or by increasing students' involvement in constructive activities, which would be expected according to popular opinion. Rather, the reductions in delinquency and drug use were obtained by decreasing peer drug models and increasing students' intentions not to use drugs. As discussed earlier, the time that children spend unsupervised after school and the availability of positive alternative activities are two popular explanations for the apparent rise in crime from 3-6 p.m. However, the effects of program participation on these variables did not affect students' problem behavior in this study (Gottfredson et al., 2001).

Consistent with previous research, these results were obtained in programs with a high emphasis on social skills and low emphasis on academic achievement, further suggesting that program quality is an important factor in whether or not after-school programs may have an effect on any desired outcomes (Pierce et al., 1999; Rosenthal and Vandell, 1996).

Together, the existing individual-level studies demonstrate that intensive after-school programs that provide incentives for participation such as the Quantum Opportunities Program or programs that rely heavily on social competency skills are effective at reducing problem behaviors (Gottfredson et al., 2001). Programs may also be more effective for older students. This, combined with knowledge from area-level studies, seems to suggest that after-school programs may in fact have positive effects for individuals and communities in reducing crime and related problem behaviors.

While evaluations of after-school programs may be the most useful way to gain knowledge about these programs, survey research about after-school child-care can also be helpful. Several studies have compared different types of after-school care and their relationship with problem behaviors. Posner and Vandell (1999) showed that third-grade students who were better adjusted in the third grade spent more time in after-school activities between third and fifth grade than did the less well-adjusted students. Likewise, students who participated in more after-school activities between third and fifth grade were better adjusted than students who spent less time in these activities. They also found that third-grade students who attended programs had fewer anti-social behaviors than did students in other forms of after-school care including self-care, mother care, and informal adult supervision.

Other studies have found that program participation is unrelated to child adjustment (Baker and Witt, 1999; Marshall et al., 1997²) or related to negative outcomes (Vandell and Corasaniti, 1988) such as more negative peer nominations, poorer grades and test scores. Vandell and Shumow (1999) argue that these inconsistent results may be due to moderator variables. They explain that the discrepancy in program findings may be because after-school programs are more beneficial for children in low-income families and high crime neighborhoods than children in suburban areas and middle-class families as evidenced by several already mentioned studies (Posner and Vandell, 1994; Marshall et al., 1997). Selection of program participants may also be important in understanding these inconsistent findings.

² Although, lower-income children in after-school programs had fewer internalizing problems such as shy-anxious or psychosomatic problems than children in other after-school care situations.

None of these studies used an experimental design or a comparison group. Rather, studies were based on the type of after-school care they received. Additional parent, teacher and student surveys were used along with school and test scores to measure developmental and behavioral outcomes. Again, it is unclear if the type of after-school care alone is responsible for positive or negative findings in any of these studies.

Pettit et al., (1997) attempted to clear up some of these inconsistencies in their longitudinal study that more precisely measured the amount and type of after-school activities in which children were involved. As previously mentioned, they created six categories of after-school care: sibling/self care, sitter/relative care, neighbor care, daycare, school-based programs and activity-oriented adult supervision. Findings indicated that a high amount of self-care (four or more hours per week) in early grades (grade 1 and grade 3) was related to higher levels of problem behavior in grade 6 when controlling for early adjustment. This negative effect of self-care was especially heightened for lower SES children, children already displaying higher levels of problem behaviors prior to being in self-care and children not participating in extracurricular activities. They also found that medium levels (one to three hours per week) of adult-supervised activity-oriented care was associated with more social competency and less externalizing behavior compared with none or larger amounts of this type of care. This was especially true for girls, suggesting that in addition to the moderator variables discussed by Vandell and Shumow (1999) gender may also act in a similar manner. However, the extent and directionality of the possible relationship is unclear.

Further indicating a gender interaction, Pierce, Hamm and Vandell (1999) conducted detailed observations of 150 first-grade students in 38 after-school programs. Three aspects of their program experiences (emotional climate, quality of peer interactions, and program curriculum) were associated with students' adjustment in school. The results indicated that boys who attended programs in which the staff provided a positive environment displayed fewer problem behaviors in their first-grade classrooms, whereas boys who attended programs with more negative emotional climates had poorer academic performance. Also, program structure was related to boys' adjustment. Boys who attended programs that allowed more choices and autonomy had better social skills with their first-grade classmates than did boys from more rigid programs. Some of these factors also influenced girls, but to a much lesser extent. These results are consistent with Rosenthal and Vandell (1996) who found that boys seemed to be more sensitive to the environment of the after-school program than girls in the study.

Pierce and colleagues (1999) showed that program quality might be of equal or greater importance than just program participation. It is reasonable to argue that being in a well-structured program with qualified, positive providers might be more effective than programs that do not provide opportunities for children to interact with positive adult figures in a safe, structured environment. However, evaluations relating program quality to behavioral outcomes are rare and program quality is difficult to assess in an objective manner. Nonetheless, program quality could be one of the ways that after-school programs effect boys and girls differently, as shown by Pierce, Hamm and Vandell (1999).

Currently, no other study addresses the possibility of a gender interaction with after-school programs. But there is support for a gender interaction in other studies of childcare. Posner and Vandell (1999) found that the after-school activities that students self-selected differed by race, gender and family structure, as well as age and grade in school. Specifically, boys were more likely to be involved in coached sports while girls were more likely to be in academic and enrichment activities. If there is such a difference in the type of activities that boys and girls seek out on their own, then there could also be a difference in how these activities affect them.

Numerous studies have examined the effects of direct and indirect supervision on various outcomes. The idea of distal supervision is important and has been related to gender in many studies. Steinberg (1986) found in his study of susceptibility to peer pressure that girls who were unsupervised and were farther removed from adult supervision were more susceptible to peer pressure. Boys' susceptibility to peer pressure was a function of whether their parents knew of their whereabouts.³ Other studies have discovered a similar pattern.

Consistent with Steinberg (1986), Richardson et al. (1993) found that boys were more likely to be risk takers and girls were more likely to get better grades in school. When supervised, girls were less likely to use alcohol, cigarettes and marijuana and reported being less depressed. But when unsupervised, girls were more likely than boys to exhibit these problem behaviors as parental knowledge of their whereabouts decreased. These findings are consistent with earlier research that suggests that girls are more susceptible to problem behaviors when they are unsupervised or as distal

³ Self-care students in this study could be separated into two groups: those whose parents knew where they were after school and those whose parents did not know where they were after school.

supervision decreases and their parents are less aware of their whereabouts (Woods, 1972; Galambos and Maggs, 1991).

There is also evidence that the amount of time in various after-school arrangements is linked to problem behaviors. Richardson et al., (1989) found 11+ hours per week of self-care put 8th graders in the study at twice the risk of substance use than 8th graders who did not take care of themselves after-school. Also, related to gender differences, Pettit et al. (1997) found that boys in high amounts (4+ hours per week) of A-O care had more externalizing problems than boys in no A-O care. For girls, small amounts of A-O care (1-3 hours per week) were beneficial, while no or high amounts of A-O care were related with more problem behaviors. Boys in this study also spent significantly more time in non-parental care than girls. So it may not be only the type of care that children receive, but also the amount of various types of care. Moderate amounts of activity-oriented care may be more beneficial than large or small amounts of structured care after-school (Pettit et al., 1997).

Research on after-school programs is still at a very basic stage. Almost all of the existing studies suffer from selection bias. The fact that many programs are voluntary also makes evaluations difficult and interpreting results complex. Although there are methodological solutions to account for this problem, most studies currently have not employed them (Fashola, 1998). For instance, only two evaluations utilized an experimental design in which participants were randomly assigned to either participate in the program or remain on a waiting list or control group (Smith and Kennedy, 1991; Hahn et al., 1994). Other studies of after-school programs have compared communities served by programs, but have not measured the programs' delinquency and drug

prevention effects on the participants (Jones and Offord, 1989; Schinke, Orlandi and Cole, 1992).

Evaluations of formal after-school programs and the current child-care research have provided mixed results in understanding program participation. Evaluations have shown that participation can be a positive influence on individuals and communities (Smith and Kennedy, 1994; Hahn et al., 1994; Schinke et al., 1992, Welsh et al., 1999; Gottfredson et al., 2001). Research on various types of after-school child-care have found positive effects for students that participate in after-school programs or Activity-Oriented Adult Supervision (Posner and Vandell, 1994; Posner and Vandell, 1999; Pettit et al., 1997), while others have found negative (Vandell and Corasaniti, 1988) or no effects on behavioral outcomes (Baker and Witt, 1999; Richardson et al., 1997). Also, a few studies have suggested that gender differences exist in type of after-school care and parental supervision whether distal or direct (Woods, 1972; Steinberg, 1986; Galambos and Maggs, 1991; Crouter et al., 1990; Richardson et al., 1993). Research has further indicated that after-school program quality and regulatable features may also have differential effects by gender (Pierce et al., 1999; Rosenthal and Vandell, 1996).

While only a few studies find support for after-school programs as a drug and crime prevention tool, there is still much to be learned. Current research is warranted to study various aspects of these programs including program quality, program staff, socioeconomic factors, as well as child and family characteristics. Gender is one variable that has come into focus for further research (Pierce et al., 1999). The current child-care literature suggests that the effects of program participation may be different for males and females. It is reasonable to argue that if there are differences in the

effects of adult supervision and distal adult supervision, then there may also be a difference in how boys and girls are affected by program participation. Pierce, Hamm and Vandell (1999) have shown that program quality (quality of interaction, social climate and program curriculum) affects boys and girls differently. However, the nature of the study does not allow researchers to draw firm conclusions about the effects of the program. Pettit et al., (1997) also found gender interactions for Activity-Oriented Adult Supervision further suggesting that gender is important in understanding how children respond to after-school care.

Given the results of these studies it is difficult to ascertain which gender may benefit more from these programs. Table 1 presents the current literature on after-school programs and child-care as it relates to gender. The overall conclusion from this research is that there might be an interaction between gender and program participation. However, the after-school literature is not alone in uncovering the differences that may exist in program results.

Given the increase in female delinquency and arrest rates in the last decade or so, some studies have arisen to highlight the special needs of female offenders. While men and juvenile boys are still committing more delinquent acts than females, the female crime rate is increasing and the subsequent burden on the justice system is quite real (OJJDP, 2002; NCJRS, 2004). Some studies have begun to reveal that boys and girls are susceptible to and respond to their environments in significantly different ways.

For instance, Crosnoe et al. (2002) found that peer deviance was a consistent risk factor for boys but was less salient for girls. Girls were impacted by peer influence,

but the influence was significantly greater for boys (Crosnoe et al., 2002). Herrera and McCloskey (2001) reported that girls with a history of child abuse victimization were arrested for more violent offenses (mainly domestic violence) than boys with similar histories.

Bloom and colleagues (2003) conducted focus groups with juvenile and youthful female offenders and found that family problems, running away from home, abuse issues and drug use were common problems among female offenders. Calhoun (2001) argues that there is a real need for differential treatment planning in addressing the needs of the female offender. She found that among a group of juvenile probationers, females reported more stress, anxiety, depression and poorer relationships with their families than males. If the risk/protective factors that are at work differ significantly by gender, how does this affect the programs that are designed to prevent delinquency?

Criminological theory and, subsequently, criminal justice programs have focused almost entirely on male offenders and may not be designed to target the specific needs of the female offender (Calhoun, 2001; Rhodes et al., 1993; Bloom et al., 2002). Farrell and colleagues (1997) found that boys who participated in a school-based curriculum designed to reduce violence among urban sixth grade students reported significantly less violent and deviant behavior after the intervention. However, it was also found that girls were unaffected by the program. In tandem with what has been discovered in the childcare literature, gender appears to be a mediator in understanding why some programs are working or not working. It has been acknowledged that males and females are affected by differential risk factors (Crosnoe, 2002; Calhoun, 2001; Herrera and McCloskey, 2001; Bloom et al., 2001; Bloom et al., 2003).

Given what is known about childcare, after-school programs and the increased awareness in gender-specific programming needs, it is expected that the effects of after-school programs will also be mediated by gender. Specifically, the purpose of this paper is to explore whether there is an interaction between gender and participation in after-school programs. With what we currently know, it is expected that males will benefit from program participation more so than their female counterparts.

Chapter 3: Methods

The subjects for this study were all participants in the 1999-2000 cohort of the Maryland After-School Community Grant Program (MASCGRP), a multi-year evaluation of after-school programs funded through the Maryland Governor's Office of Crime Control and Prevention with funds from the Safe and Drug Free Schools and Communities Act of 1994. In total, 14 programs participated in the 1999-2000 evaluation of the MASCGRP programs, which required programs to recruit a comparison group in addition to their program participants.

All MASCGRP programs were given the choice of using either a randomized control design or a comparison group design. Three programs chose to utilize a randomized design in which a large pool of interested students was recruited and surveyed by University of Maryland staff at the beginning of the 1999-2000 school year. Following completion of the survey, University of Maryland staff randomly assigned the students into three study groups using a random numbers table. Students were selected to either participate in the programs immediately (treatment group), remain on a waitlist and possibly participate in the program later in the year as students withdrew from the program, or act as part of a control that would never receive regular services from the after-school program during the 1999-2000 school year. Students who were originally part of the randomly ordered waitlist and later joined the program were transferred to the treatment group, while students that were never selected from the waitlist became part of the control group.

The remaining programs chose to use a comparison group design, in which students were non-randomly assigned to one of the three groups: treatment, waitlist, or

comparison group. Programs that wanted to allow students who had been active in the program during the previous year to remain in the program used this method. Also, programs that were unable to recruit a large enough pool of students from their population to randomly assign them to groups used the comparison group design.

The after-school programs served elementary (grades 4-5) and middle (grades 6-8) school students. Table 2 illustrates the demographic characteristics of students in both the younger and older sample. The younger group (elementary school sample) consisted of 164 after-school program participants and 194 comparison group students. The after-school program participants were 44% male and 64% non-white. The average age was 9.7 years old. The elementary comparison group was 47% male and 67% non-white and the average student was 9.7 years old. The treatment group and comparison group students in the elementary sample were similar in terms of age, race and gender.

The middle school sample was made up of 239 program participants and 201 students from the comparison group. The older program participants were 56% male and 76% non-white and were on average 11.9 years old. In contrast, the comparison group of the middle school sample was 50% male and 53% non-white. The average age of students in this comparison group was 11.9 years. The program participants in the middle school sample were significantly more non-white ($p < .01$) than the comparison group youths.

Measures

Participants completed the *What About You?* (Gottfredson and Gottfredson, 1999) survey at the beginning and end of the school year. University of Maryland staff read each of the survey questions and response choices aloud to all students

participating in the study. Students circled their answers on the survey, which was labeled with a student identification code for confidentiality. The survey measured students' rebellious and delinquent behavior, drug use and also included items that measured unsupervised time after school. The following scales were created from individual items on the survey.

The Delinquent Behavior scale (alpha reliability = .74) included 13 items about whether or not the subject engaged in any of thirteen different crimes during the past twelve months. These crimes include damaging property, carrying a concealed weapon, stealing, being in a gang fight, selling drugs, hitting or threatening to hit teachers or students, joyriding, breaking into a building or car, and using strong-arm methods to get things from a person. The delinquency scale represents the average of these thirteen individual items. For cases in which more than four of these items were missing, the scale was declared as missing.

The Rebellious Behavior scale ($\alpha = .82$) was created as an average of 10 items such as "How often do you talk back to the teacher" or "cheat on a test" or "break other people's things." The response choices were "often", "sometimes", or "never". If more than two of the individual items were missing, the scale was also considered missing.

The Last-Month Frequency of Drug Use scale ($\alpha = .76$) was created by averaging three questions in which respondents report how often they used cigarettes, alcohol, and marijuana in the past month on a four-point scale ranging from "not at all" to "every day".

Finally, the Last Year Variety of Drug Use scale ($\alpha = .60$) contained four questions asking if the respondents used tobacco, marijuana, alcohol, or smokeless tobacco in the past twelve months.

The number of valid cases for the scales ranged from 390-397 at pre-test and 359-365 at post-test for the treatment group. Valid scales for the comparison group ranged from 381-387 at pre-test and 345-353 at post-test.

The correlations among these variables are demonstrated in Table 3 (pre-test) and Table 4 (post-test). At pre-test, all four variables were significantly correlated at either 95% or 99% confidence ($p < .05$, $p < .01$) while at post-test all correlations were significant 99% confidence ($p < .01$). Following the model of Gottfredson et al., (In Press), these four scales were combined to form one measure of problem behavior⁴. In order to have all scales within the same range, the rebellious behavior scale was divided by two and the last-month frequency scale was divided by three to make all four scales range from 0-1. The four newly computed scales were then summed and divided by four to give a composite measure of problem behavior. Table 5 illustrates the means and range for each of the above-mentioned scales, as well as the created problem behavior variable.

The response rates for the both the elementary and middle school groups are demonstrated in Table 6. At the beginning of the school year, 164 and 239 treatment group students from the elementary and middle school samples, respectively, completed a pre-test survey. At the post-test, 141 (86%) elementary and 220 (92%) middle school participants returned to complete the survey. In the comparison group, 194 and 201

⁴ Factor analysis indicated that these four scales represented one factor and, therefore, the scales were combined to form one scale of problem behavior.

students from the elementary and middle school groups participated in the pre-test survey. Of these students, 174 (90%) elementary students and 169 (84%) middle school students completed a post-test survey.

As in early studies (Gottfredson et al., In Press), the students that were at higher risk tended to not be present at post-test. Regardless of age, students that were missing at post-test exhibited more problem behavior at pre-test (although not statistically significant). In other words, the students that may have received the greatest benefit from program participation were more likely not to stay in the program or in the comparison/control group for the duration of the year. A more in-depth analysis of attrition from after-school programs is offered by Weisman (2000).

Analysis

As stated earlier, it is expected that there will be a significant interaction between gender and program participation on students' self-reported levels of problem behavior. Previous studies using the 1999-2000 MASCGP data (Gottfredson et al., 2001; Gottfredson et al., In Press) have found that positive outcomes were associated with programs serving older students. Specifically, Gottfredson and colleagues (In Press) found that programs serving older (middle school) students had a significant effect on reducing delinquency compared to programs that served younger (elementary school) students. It is reasonable to expect students in grades 4-5 to be much less delinquent than older students. Following the model of Gottfredson et al., separate analyses will be executed for elementary and middle school students in the current study as well.

A linear regression model will be used for each age group. Problem behavior measured at post-test will be the dependent variable of interest. Among the independent variables will be gender (as reported at pre-test), a dummy variable for program participation, and the interaction term between gender and program participation. Problem behavior at pre-test will be added to the model as a control for prior levels of problem behavior. Also, for the middle school group, race will be added as a control variable due to the significant race difference that exists between the treatment and comparison students in that age group.

Chapter 4: Results

As shown in Table 7, program participants among the older students reported significantly less problem behavior than their comparison group counterparts (.079 vs. .098) at post-test. There were no differences between these groups in the younger sample. In fact, in the younger group the program participants reported slightly more problem behavior at the end of the year than their comparison group counterparts. This is consistent with previous research that indicated program participation reduced delinquency for older youths but not for younger students (Gottfredson et al., In Press).

Analysis of males and females indicated that males were, in each age group, reporting more problem behavior than females (Table 8). At pre-test, males in the younger and older group reported significantly more problem behavior. This difference was not apparent at post-test.

Also of interest was that there were no significant differences within gender for either the older or younger students (Table 9). In the younger group, the program participants consistently reported higher levels of problem behavior than students in the comparison group at post-test. This was not true among the older students.

Older males in the programs reported a decrease in problem behavior (although small and not significant) while males in the comparison group experienced an increase in negative behavior. Females in the older group, regardless of program participation, reported higher levels of problem behavior at post-test. Again, the comparison group reported more of an increase than the treatment students (although not significant). Males and females in the older group who participated in the programs reported less problem behavior at post-test.

The lack of significant differences in Table 9 may be attributed to low power in the tests. The mean differences in Table 9 are at least as large as those found Table 7. In the older group, the mean difference between treatment and comparison students was 0.19 ($p < .10$). Table 9 shows that the mean difference between program participants for males and females was 0.13 and 0.27, respectively. But these differences do not approach significance. This is likely due to the decreased power of the gender specific test and the reduction in cases.

While the above results are interesting, they only reaffirm what is already known about program participation. As shown in Table 10 and Table 11, regression analysis revealed that none of the predictor variables were significant in the younger group (with the exception of the control variable for pre-test problem behavior). The older group revealed a similar pattern. None of the predictor variables in either model were statistically significant or approached significance. There was no evidence to support a gender-program participation interaction. As expected, in the middle school sample, program participation was the only independent variable to approach significance ($p < .15$), excluding the control variables.

Since the independent variable of interest was not significant in either sample, an F-Test was conducted to determine if the inclusion of the interaction term was significant to the model as a whole. Results indicated that the interaction term was not an important predictor in this model. When the term was excluded, the results reflected the findings of Gottfredson and colleagues (2003) in that program participation was significant in the middle school sample only. Therefore, it is concluded that age may be of more importance than gender in understanding the effectiveness of these programs.

Chapter 5: Discussion

Previous research on after-school programs has indicated that a difference may exist between boys and girls in the way program participation affects their attitudes and behavior (Pettit, et al., 1997; Pierce et al., 1999). Child care research has shown that boys and girls may select different types of after-school activities (Posner and Vandell, 1999) and that their level of supervision after school may be important in understanding problem behavior (Steinberg, 1986; Crouter et al., 1990; Woods, 1972; Galambos and Maggs, 1991; Richardson et al., 1993). Gender and crime research has shown that males and females are susceptible to different risk/protective factors (Calhoun, 2001; Herrera and McCloskey, 2001; Bloom et al., 2001; Crosnoe, 2001; Bloom et al., 2003) and may be more or less responsive to general programming that does not target gender-specific needs (Farrell et al., 1997). Therefore, the current study was designed to determine if a gender difference (interaction) existed among youths in the Maryland After School Community Grant Program during the 1999-2000 school year.

There is no evidence of a gender interaction with program participation in predicting self-reported problem behavior. The interaction terms in both the elementary and middle school samples were not statistically significant and also did not add significantly to the ability of their respective models to explain the variance in the dependent variable. Removal of the interaction terms produced a significant coefficient for program participation, but only for the middle school group (as reported in Gottfredson et al., In Press).

Table 7 may give the impression that the after-school programs are not reducing delinquency and drug use among program participants since the levels of these

behaviors increase from the beginning to the end of the year. This result alone does not indicate that after-school programs are ineffective. Relative to their comparison group counterparts, participants in the programs performed better at the end of the year.

Although the levels of problem behavior increased, they increased less than they would have if they were not in the programs (as evident by the comparison group scores).

While the regression model does not indicate that program participation is related to reductions in behavioral outcomes, this is due to the inclusion of the interaction term, which, as previously discussed, did not add significantly to the model. As evident in Gottfredson, et al. (In Press), the MASCGP after-school programs *do* decrease delinquency among older youths compared to older students who did not participate in the programs.

As a whole, the MASCGP students reported relatively low levels of problem behavior. Only older females in the comparison group (at post-test) had a score on the problem behavior scale above 0.1 on a scale of 0-1. This indicates that, as a whole, the MASCGP students were not a very delinquent group before or after participation in the programs.

Among the elementary students, it is unlikely that they would be involved in delinquency and drug use simply due to their age. However, this does not mean that after-school programs should not target this age group. As mentioned earlier, the middle school age students also reported somewhat low levels of problem behavior (although more than the younger students). The activities and experiences offered by a positive after-school environment could be far reaching in scope. By involving younger youths,

it is hoped that a framework can be developed that will assist these youths in staying trouble-free as they grow into adolescence.

It was expected that the middle school-aged children might have more or less to gain from their participation in the programs. At the middle school age, it seems more reasonable that delinquency and rebellious attitudes or beliefs may be more prevalent and pervasive. This is consistent with the findings of the current study. Older students did report higher levels of problem behavior (although not statistically different). It might be more realistic to expect any interactions with program participation to occur in this age group. However, the null finding for the interaction term suggests that whatever benefits exist from program participation are not being moderated or altered by the gender of the participant in this study.

So what does this study lend to the growing body research on after-school programs? Previous studies have indicated that gender might play a significant role in moderating the effects of program participation and that boys and girls after school experiences and vulnerabilities differ, indicating a need for more gender specific programming. However, these prior studies have been only exploratory in nature and have not directly tested whether gender is a significant moderator variable. While these studies have assisted researchers in understanding the nominal choices of school-aged youth and their gender-specific preferences, they rely too heavily on observational data and correlations between gender and the desired outcomes.

The current study provides a direct test of the implied interaction between gender and program participation. While it may be true anecdotally that considering

gender is crucial to the success of these programs, this sample and study finds no empirical evidence as such.

For practical purposes, these findings indicate that programs may not need to provide gender specific programming. In other words, based on this data, it seems unnecessary to segregate programs by gender. It is to be expected that boys and girls self-select different leisure time activities. However, all components of programming need not be structured by gender restraints. While girls may be more interested in enrichment activities than boys (Posner and Vandell, 1999), this does not indicate that only girls will benefit from these activities. Rather, focusing on age-appropriate activities may be a better way to maximize the benefits of participation in after-school programs.

In light of the current study, gender does not appear to be a mediating factor in determining the effectiveness of after-school programs in reducing delinquency. Whatever the benefits of MASCGP program participation were, they were equally distributed to males and females alike.

However, it should be noted that the 1999-2000 MASCGP programs were somewhat typical programs. The programming offered was general in nature. While all programs offered academic achievement, social skills training and recreational activities, they did not attempt to target any gender-specific needs. These programs were not designed with gender differences at the core of their goals. The findings support the call for better theory about gender and crime and the types of programming that may generate results for males and females.

As theory about gender and crime improves, it will guide research and programming by further identifying specific needs and strategies to address those needs. As Rhodes and colleagues (1993: 880) assert: “Ultimately, theoretical approaches that encompass both gender-specific and general influences will offer the most promise in accounting for the complexity of adolescent behavior. Before proceeding to develop such theories, however, factors that exert a gender-specific influence need to be further isolated and tested.”

APPENDIX A: Tables

Table 1.
Studies of Gender and the Effects of After-School Care

| Study | Sample | Type of After-School Care | Outcomes by Gender |
|---------------------------------|---|--|---|
| Pettit et al. (1997) | 466 sixth grade students | Sibling/self care, sitter/relative, neighbor, daycare, school-based, Activity-Oriented adult supervised | Boys in 4 or more hours of A-O care had more externalizing problems than boys in no A-O care but not those in 1-3 hours of A-O care. Girls in small amounts (1-3 hours) of A-O care had less externalizing problems than girls in high levels or no A-O care. |
| Posner and Vandell (1999) | 194 African-American and White low-income children from grade 3-5 | Formal after-school programs, mother care, adult supervised, self-care | Girls more likely to be involved in academic and enrichment activities while boys were more likely to be involved in sports. |
| Pierce, Hamm and Vandell (1999) | 150 first grade students after-school programs | Formal after-school program | Staff positivity more negatively associated with boys externalizing and internalizing problems compared to girls. Number of available activities more highly associated with externalizing, internalizing and lower GPA for boys. |
| Steinberg (1986) | 865 students in grade 5-9 | Home with supervision, neighbor/relative supervised, supervised at friend's house, supervised at school, unsupervised at home, unsupervised at friend's home, unsupervised "hanging out" | Unsupervised girls were more susceptible to peer pressure as distal supervision decreased. Unsupervised boys were more susceptible as a function of their parents knowing of their whereabouts. |

| Study | Sample | Type of after-school care | Gender Outcomes |
|---------------------------|--|---|--|
| Crouter et al. (1990) | 77 dual and 75 single earner families with oldest child between 9 and 12 years old | Quality of monitoring | Less well-monitored boys had poorer grades, self-perceived school competence and conduct and more parent perceived learning problems than other children. This group also had poorer parent rated behavior problems than girls. |
| Woods (1972) | 108 students in grade 5 | Whether or not child was supervised after school | Girls more likely to be unsupervised. This group had lower school achievement and intelligence scores than supervised girls. Unsupervised girls also had more difficulty with school relations. |
| Galambos and Maggs (1991) | 112 students in grade 6 | Adult care, self care at home, self care at friend's home, self care "hanging out" | Girls more distant from supervision had more problem behavior, more contact with deviant peers and poorer self-image in relation to other girls and to boys. |
| Richardson et al. (1993) | 3993 students in grade 9 | Supervised, unsupervised, unsupervised-parents always know whereabouts, unsupervised-parents never know whereabouts | When supervised, girls less likely to use alcohol and marijuana, less depressed, took less risk and received better grades in school. When unsupervised, girls were more likely to exhibit problem behaviors as parental knowledge of their whereabouts decreased. |

Table 2.
Demographic Characteristics of Treatment and Comparison Group Members, by
Grade Level

| Demographic Characteristics | Treatment | Comparison |
|-----------------------------|----------------|--------------|
| | Younger Youths | (Grades 4-5) |
| | N= 164 | N= 194 |
| Proportion Male | .44 | .47 |
| Proportion Non-white | .64 | .67 |
| Average Age | 9.74 | 9.74 |
| | Older Youths | (Grades 6-8) |
| | N= 239 | N= 201 |
| Proportion Male | .56 | .50 |
| Proportion Non-White | .76** | .53 |
| Average Age | 11.97 | 11.94 |

**p<.01

Table 3.
Correlations Between Outcomes Variables at Pre-Test

| <u>Pearson Correlations</u> | | | | |
|----------------------------------|-------------|---------------------|----------------------------------|-------------------------------|
| | Delinquency | Rebellious Behavior | Last-Month Frequency of Drug Use | Last-Year Variety of Drug Use |
| Delinquency | 1.0 | .373** | .119* | .137* |
| Rebellious Behavior | .433** | 1.0 | .091 | .316** |
| Last-Month Frequency of Drug Use | .235** | .205** | 1.0 | .149* |
| Last-Year Variety of Drug Use | .309** | .332** | .496** | 1.0 |

Note: Correlations in the top of the matrix are for the younger sample. The bottom of the matrix represents the older sample.

* Significant at $p < .05$

** Significant at $p < .01$

Table 4.
Correlations Between Outcomes Variables at Post-Test

| Pearson Correlations* | | | | |
|----------------------------------|-------------|---------------------|----------------------------------|-------------------------------|
| | Delinquency | Rebellious Behavior | Last-Month Frequency of Drug Use | Last-Year Variety of Drug Use |
| Delinquency | 1.0 | .460 | .355 | .369 |
| Rebellious Behavior | .565 | 1.0 | .309 | .253 |
| Last-Month Frequency of Drug Use | .300 | .354 | 1.0 | .629 |
| Last-Year Variety of Drug Use | .422 | .411 | .553 | 1.0 |

Note: Correlations in the top half of the matrix are for the younger sample. The bottom of the matrix represents the older sample.

*All correlations significant at $p < .01$

Table 5. Means and Standard Deviations on All Measures

| Outcomes | Pre-Test | | | | Post-Test | | | |
|---------------------|----------------|--------|------|------|-----------|-------|------|------|
| | N | Range | Mean | SD | N | Range | Mean | SD |
| | Younger Youths | | | | | | | |
| Delinquent Behavior | 349 | 0-1.0 | .034 | .092 | 316 | 0-.62 | .036 | .081 |
| Rebellious Behavior | 343 | 0-1.8 | .274 | .343 | 309 | 0-1.8 | .322 | .316 |
| Variety Drug Use | 341 | 0-.1.0 | .014 | .080 | 307 | 0-.50 | .029 | .095 |
| Frequency Drug Use | 342 | 0-3.0 | .025 | .181 | 311 | 0-1.0 | .032 | .133 |
| Problem Behavior | 333 | 0-.48 | .048 | .068 | 303 | 0-.46 | .059 | .070 |
| | Older Youths | | | | | | | |
| Outcomes | N | Range | Mean | SD | N | Range | Mean | SD |
| Delinquent Behavior | 433 | 0-1.0 | .042 | .095 | 400 | 0-1.0 | .064 | .121 |
| Rebellious Behavior | 431 | 0-1.9 | .310 | .302 | 400 | 0-1.7 | .386 | .335 |
| Last-Year Variety | 433 | 0-.75 | .044 | .133 | 395 | 0-1.0 | .059 | .163 |
| Frequency Drug Use | 432 | 0-3.0 | .087 | .380 | 396 | 0-3.0 | .109 | .363 |
| Problem Behavior | 428 | 0-.63 | .068 | .090 | 385 | 0-.61 | .088 | .108 |

Table 6. Number of Surveys and Response Rates, Pre- and Post-Test

| | Pre-Test | Post-Test |
|------------|---------------|-----------|
| | Elementary | |
| Treatment | 164 (98%) | 141 (86%) |
| Comparison | 194 (99%) | 174 (90%) |
| | Middle School | |
| Treatment | 239 (97%) | 220 (92%) |
| Comparison | 201 (96%) | 169 (84%) |

Table 7. Mean Problem Behavior by Program Participation

| Outcomes | Pre-Test | | | Post-test | | |
|------------------|----------------|------|------|-----------|-------|------|
| | Younger Youths | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 157 | .048 | .075 | 134 | .063 | .081 |
| Comparison | 176 | .046 | .061 | 169 | .055 | .061 |
| | Older youths | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 231 | .071 | .089 | 213 | .079* | .095 |
| Comparison | 197 | .065 | .091 | 172 | .098 | .121 |

*Treatment and comparison groups differ at $p < .10$

Table 8. Mean Problem Behavior by Gender

| Outcomes | Pre-Test | | | Post-test | | |
|------------------|----------------|--------|------|-----------|------|------|
| | N | Mean | SD | N | Mean | SD |
| | Younger Youths | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Males | 148 | .055* | .068 | 134 | .065 | .063 |
| Females | 185 | .042 | .068 | 169 | .053 | .075 |
| | Older youths | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Males | 224 | .077** | .095 | 212 | .089 | .104 |
| Females | 203 | .058 | .084 | 173 | .085 | .113 |

*Males and females differ at this point, $p < .10$

**Males and females differ at this point, $p < .05$

Table 9. Problem Behavior Within Gender for Treatment and Comparison Groups

| Outcome | Pre-Test | | | Post-Test | | |
|------------------|----------------|------|------|-----------|------|------|
| | Younger Youths | | | | | |
| | Males | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 69 | .054 | .067 | 55 | .073 | .075 |
| Comparison | 79 | .055 | .069 | 79 | .060 | .052 |
| | Females | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 88 | .045 | .081 | 79 | .056 | .083 |
| Comparison | 97 | .040 | .054 | 90 | .052 | .068 |
| | Pre-Test | | | Post-Test | | |
| | Older Youths | | | | | |
| | Males | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 127 | .085 | .102 | 121 | .084 | .093 |
| Comparison | 97 | .067 | .084 | 91 | .097 | .117 |
| | Females | | | | | |
| Problem Behavior | N | Mean | SD | N | Mean | SD |
| Treatment | 104 | .053 | .068 | 92 | .073 | .098 |
| Comparison | 99 | .064 | .097 | 81 | .100 | .126 |

Table 10. Regression Coefficients and p-values for Younger Sample

| Independent Variable | Problem Behavior w/Interaction | Problem Behavior w/o Interaction |
|---------------------------------|-----------------------------------|-------------------------------------|
| Program Participation | .005 (.66) | .008 (.32) |
| Gender | .005 (.65) | .009 (.29) |
| Gender*Participation | .008 (.62) | -- |
| Problem Behavior T ₁ | .32* (.000) | .32* (.000) |
| R-Squared | .108 | .107 |

*Significant at $p < .05$

Table 11. Regression Coefficients and p-values for Older Sample

| Independent Variable | Problem Behavior w/Interaction | Problem Behavior w/o Interaction |
|---------------------------------|-----------------------------------|-------------------------------------|
| Program Participation | -.021 (.15) | .024* (.02) |
| Gender | -.004 (.76) | .008 (.41) |
| Gender*Participation | -.006 (.74) | -- |
| Race | .007 (.49) | .007 (.48) |
| Problem Behavior T ₁ | .74* (.000) | .73* (.000) |
| R-Squared | .356 | .356 |

*Significant at $p < .05$

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