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Predictors of Children's Violent Media Use

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Predictors of Children's Violent Media Use

by

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Dedication

To God. Your guidance and gracious love has enabled me go through all the difficult times and come out even stronger than before. Though, let me not forget that the real strength is in YOU, not in myself.

To my family. Sung-In, this would not have been possible without your love, sacrifice, and support. Moses and Ruby, you are the jewels, the true meaning, and the angels in my life. I'm so grateful to all of you for your wonderful support.

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Predictors of Children's Violent Media Use

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This study examined the predictors of children's violent media use. Predictors of violent television viewing and violent game playing were studied for children ages 6 to 12 from the Panel Study of Income Dynamics Child Development Supplement. This nationally representative dataset provides several measures of children's ecological contexts from questionnaires and of their violent media use from time-diaries.

Several levels of ecological contexts, including individual characteristics, family demographics, family dynamics, media parenting, peer and school factors, and community, were considered all together in comprehensive analyses. The results show that the factors predicted violent television viewing differ from the ones predicted violent game playing. Children's violent television viewing was predicted

by parental education and number of peers they have, while their violent game playing was predicted by parenting practices, including harsh discipline and media parenting. It cannot be assumed that what predicts children's violent media use is the same across medium.

In addition, different predictors of violent media use were found for different subgroups, such as boys and girls, younger and older children, and minorities and nonminorities. These differences highlight the need to examine violent media use and its predictors for each of these subgroups.

Although this study examined the predictors of children's violent media use, it is necessary to incorporate what is found here with the existing knowledge base of the effects of children's violent media use. Examining the predictors and the effects together will provide a more comprehensive picture of what attracts children to violent media and the consequences of their use.

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Statement of the Problem

It is generally accepted that media use is an influential contributor to children's development. Specifically, violent media use can negatively influence children's development. A large body of evidence exists on children's violent media use and its negative effects. Nonetheless, the factors that actually predict children's violent media use, including individual characteristics and the ecology of media use, have not been a key focus of the research in this area. In this study, factors that potentially predict children's violent media use are examined to achieve a more comprehensive understanding of children who use violent media and the ecology of violent media use.

Another limitation of current research is that the majority of studies examine descriptive aspects of violent media use without accounting for total media use. However, the proportion of time children engage in violent media use yields different results from the absolute amount of violent media use. A strength of this study is that the amount of children's violent media use is assessed while taking into account the total amount of their media use.

Few, if any, studies examine children's media use using a nationally representative sample. Rather, most studies analyze convenient samples to evaluate children's media use. A shortcoming of these studies is that their findings cannot be generalized to all American children. The findings presented here are based on a

nationally representative sample and thus apply to children across the nation. This nationally representative data set affords a rare opportunity to examine children's media use across geographic locations.

Children's violent media use has typically been examined with only one ecological level in mind. Many studies examine either individual, peer or family-level characteristics that are associated with violent media use; however, these ecological domains are often examined in isolation of each other. These studies do not address these characteristics simultaneously. Children's violent media use is not a product of just one of these ecological contexts; rather it occurs in the midst of all of these contexts. This study examined how a variety of ecological contexts are related to children's violent media use, including individual, family, peer, school, and community contexts. The purpose of this study is to contribute to existing knowledge about children's violent media use by providing the following: a) an analysis of the predictors of violent media use rather than a further examination of its effects; b) an assessment of the proportion of children's violent media use as opposed to the absolute amount of their violent media use; c) findings that apply to children across demographic backgrounds and geographic locations of residence; and d) a comprehensive picture of children's violent media use that examines multiple ecological contexts.

Media Use as a Primary Child Activity

Media can be defined broadly to include movies, television, video games, radio, computers, and the internet. However, in this study, the term media primarily refers to electronic media, especially television and electronic games. Electronic games include both video games and computer games. Concern about children's media use stems from the significant proportion of time children allocate to various forms of media. For children age 2 to 18 years old, the average time spent using media is five and a half hours per day, and for children 8 years and older the average is six hours forty-three minutes (Kaiser Family Foundation, 1999). According to another survey, children age 2 to 17 spend an average of almost six and a half hours on media each day (Woodard, & Gridina, 2000).

These findings have been supported by multiple studies indicating that children spend a substantial portion of the day engaging in various forms of media. Amazingly, American children spend the equivalent of a full-time work per week using media.

One mode of media delivery to children is via screens, including television, computers, and video games. Children reportedly spend over four and a half hours watching television or videotapes, playing video games, using the computer, or browsing the internet each day (Woodard, & Gridina, 2000). As young as two to three years old, children spend approximately four hours daily looking at a screen (Woodard, & Gridina, 2000). For children under 2, this amount of time only

declines to roughly 2 hours per day (Kaiser Family Foundation, 2003). The use of media at such an early and impressionable time in the life course and its consequences for later development should be examined more thoroughly (Jordan, & Woodard, 2001).

Of children's daytime activities, watching television accounts for the greatest amount of time spent by children (Huston & Wright, 1997). In fact, children spend about two and a half hours per day in front of the television (Woodard, & Gridina, 2000). According to another nationally representative study, American children under 12 years of age spend about two hours per day watching television (Wright et al, 2001). Watching television is a popular pastime around the world and the majority of the world's children spend most of their free time engaging in this activity (Groebel, 2001). However, the amount of television watching by American children far exceeds that of other children in other countries with the exception of the United Kingdom and Denmark. The children of these two nations devote comparable amounts of time to watching television (Livingstone, Holden, & Bovill, 1999).

In addition to the significant amount of time allocated to watching television, new forms of media continuously emerge and are becoming increasingly popular among children, including electronic games. Approximately 10% of children ages 2 to 18 play electronic games more than an hour per day (Kaiser Family Foundation, 1999). Although 2 to 7 year olds only spend about 8 minutes a day playing

electronic games, the average for 8 to 13 year old boys soars to more than an hour per day (Kaiser Family Foundation, 1999). According to another survey, preschoolers ages two to five spend 28 minutes per day, while school age children and teens spend almost an hour playing video games (Woodard, & Gridina, 2000). A nationally representative study with children under 12 years old showed that boys spend about 55 minutes per day playing video games, whereas girls only spend about 40 minutes (Wright et al., 2001).

Moreover, 9 % of children from birth to 6 years old play video games during a typical day. Further segmenting that group, we see that 50% of 4- to 6-year olds play video games while 3% of those age 2 years and younger play video games (Kaiser Family Foundation, 2003). These findings suggest a dramatic increase in video game use around four years of age.

As indicated by the substantial amount of time children devote to media, media serve as a significant source of information about the world. Such information is acquired as children absorb various types of images and emotions as well as norms and values (Gerbner, Morgan, & Signorielli, 1994). Furthermore, children are not simply passive receivers of information through media use. Rather, they actively choose the forms of media in which to engage and incorporate the messages from these sources into their own meaning systems (Brown & Cantor, 2000). As the total number of hours per day that children are exposed to media continues to increase (Subrahmanyam, Kraut, Greenfield, & Gross, 2001), the

resulting impact will likely magnify accordingly. With the introduction of more diverse and sophisticated forms of media into the marketplace, the influence of such media on children may potentially expand.

Prevalence of Violence in Media

An important fact of children's media use is the prevalence of violence on media that they use. By the time the average American child graduates from elementary school, he or she will see more than 8,000 murders and more than 100,000 other acts of violence on network television (Huston et al., 1992). Moreover, the National Television Violence Study (NTVS) found that about 60% of all programs analyzed contained violence. There was no increase or decrease in the overall prevalence of violence on television over the course of this three-year study. In addition, violence existed widely across types of programs. Unfortunately, children's programs were among those programs that contained high rates of violence. Specifically, the following forms of television media exhibited extremely high rates of violence: movies (89 to 91 %), drama series (72 to 75 %), and children's series (66 to 69%).

There are several studies indicating that most of children's programs contain violence (Gerbner, Gross, Morgan, & Signorielli, 1980; Greenberg, Edison, Korzenny, Fernandez-Collado, & Atkin, 1980; Kunkel, Farinola, Cope, Donnerstein, Biely, & Zwarun, 1998; Signorielli, 1990). Surprisingly, programs targeted to children aged 12 and younger contain more violence than do other types of

programming (Wilson et al, 2002). Gerbner and his colleagues (1980) revealed that children's programs were more violent than prime-time programs. On average, over 90% of children's programs contained violence. In addition, children's programming featured a higher rate of violent actions, with over 20 acts per hour versus about 5 per hour during prime time. According to the report by Kunkel et al. (1998), six out of every ten shows designed for children contained violence, averaging more than five scenes of violence per show. According to Greenberg et al. (1980), Saturday morning children's television featured 20 violent acts per hour. In fact, the rate of physical violence on Saturday morning cartoons (25.9 acts per hour) was even 40% higher than for the adult action adventure programs (18.3 acts per hour).

Not only is violence prevalent in children's media, but the characteristics of the violence featured on children's media are also quite alarming. Analysis using NTVS data revealed that the violence in children's shows is just as likely to be glamorized as in nonchildren's shows, but the former are more sanitized and trivialized. Five subgenres of children's programming (slapstick, superhero, adventure/mystery, social relationship, and magazine) were dramatically different in violent content. The number of violent incidents per hour ranged from 29 for the slapstick category (e.g., *Animaniacs*, *Popeye*, *Road Runner*) to less than 2 for the magazine category (e.g., *Sesame Street*, *Barney*; Wilson et al., 2002). Surprisingly, leading characters in children's program were also involved in violence (Signorielli,

1990). A study by Liss and Reinhardt (1980) divided 24 Saturday morning cartoon scenes into two groups: “prosocial,” which featured heroes teaching the bad guys a lesson; and “regular,” which did not feature such heroes. There were no differences in the frequencies of violent acts between the prosocial and the regular cartoons.

For electronic games, it is difficult to count the violent incidents for each game due to their interactive nature. However, it is possible to judge the overall rate of violence in a certain game. In a study according to Provenzo (1991), 85% of the most popular video games were violent. Buchman and Funk(1996) asked in their study about kid’s favorite games for 900 fourth through eighth graders. They found that games involving fantasy and human violence accounted for 50% of students’ favorite games. Those containing violence in sports settings accounted for another 20% .

Violence on children’s media is widespread and somewhat commonly accepted. There is no indication that the violence in children’s media is decreasing. On the contrary, increased exposure to more diverse forms of media with violent content during this time of technological advancement enhances children’s vulnerability to such media (Subrahmanyam et al., 2001).

Research on the Negative Effects of Children's Violent Media Use

What is the significance of violent media use by children? Does exposure to such media actually have negative effects on children’s development, and if so, to what extent? Violent media has long been blamed for its negative consequences,

including its contribution to children's violent behavior (Huston, Zillman & Bryant, 1994). Studies over several decades have documented several negative effects of violent media use on children's behavior and emotional stability, including increased aggression, desensitization, and fear (for television, see Bushman & Huesmann, 2001; Cantor, 2000; Dill & Dill, 1998; Friedrich-Cofer & Huston, 1986; Huesmann & Eron, 1986; Huesmann & Miller, 1994; Huesmann, Moise-Titus, Podolski, & Eron, 2003; Johnson, Cohen, Smailes, Kasen, & Brook, 2002; Paik & Comstock, 1994; for games, see Anderson & Bushman, 2001; Anderson & Dill, 2000; Griffiths, 1999; Sherry, 2001). Accumulating scientific research suggests there is a strong connection between violent media and child development (Comstock & Scharrer, 1999; Murray, 1998; Smith & Donnerstein, 1998; Wood, Wong, & Chachere, 1991).

A major focus of the research on violent media use for several decades has been television due to the substantial amount of time children spend engaging in this form of media. Research on newer forms of media, including video games, arcade games, computer games, hand-held versions of computer games, and internet use, are in the beginning stages (Spark & Spark, 2002; Villani, 2001). Children's media use is rapidly changing as technology advances at a remarkable pace. As a result, it is difficult for research in this area to remain current. Despite this challenge, research on these types of newer media should be continued to provide more conclusive information on children's violent media use and its effects.

Predictors of Children's Violent Media Use

Multiple research studies have shown that violent media use affects children's aggression. However, we know very little about what attracts children to violent media. Why do children tune in to violent programs or play violent video games? Children do not watch violent programs solely because such programs are prevalent in the media. In fact, violent programming is not children's first preference for television programming (Stipp, 1993); rather, children prefer situational comedies. Nevertheless, some children choose to use many forms of violent media. It is important to understand the characteristics of children who are using violent media. It is likely that children who use a lot of violent media have certain characteristics that encourage them to use violent media. A comprehensive understanding of children who use violent media will enable us to develop more effective interventions and preventions to minimize the negative effects of the violent media use on children.

Ecological Contexts of Children's Violent Media Use

It is important to study children's violent media use within a broader context. The number of hours per day devoted to media generally exceeds those spent interacting with family members and friends, and the gap is widening (Larson & Verma, 1999). As a result, the increasing comparative influence of media on children demonstrates the importance of further studying this issue. However, the amount of time spent using media is not necessarily isolated from the time spent with

family or friends. It could be that a great portion of children's media use occurs in the family or peer context. To gain a more accurate picture of children's media use, attention should be paid to the various developmental contexts of their media use as well.

Theories that take external environments and individual characteristics into account emphasize personal characteristics of the children as well as other environmental contexts. For example, family system theory claims that an individual is embedded in the larger family system and can only be understood fully in that context (Cox, & Paley, 1997; Minuchin, 1985). Furthermore, ecological theory broadens the relevant context beyond the family unit, arguing that several other contextual factors also influence individual development (Bronfenbrenner, 1986), including family structure, school settings, the community environment, and social policy practices. He argued that development should be studied in the ecological context in which individuals live. Individuals' behavior or development is understood more fully when the ecological contexts in which that person lives are examined. Therefore, such environmental influences should be examined to understand children's violent media and its consequences.

To develop a more comprehensive picture of children's violent media use, relevant research should examine multiple individual and ecological factors. To begin, at an individual level, the following children's characteristics should be taken into account: personality, intellectual ability, ability to distinguish reality from

fantasy, gender, age, and ethnicity. In addition to individual traits, various family-related characteristics should also be considered, including parent-child relationship, family life, parents' social class, and parenting behaviors. Moreover, ecological factors within the broader context, such as, peers, and community environment, can also affect children's violent media use and should be examined accordingly.

Individual Characteristics of Children

Individual characteristics of children in media research have not been considered as primary predictors of violent media use. In many of the media effect research, individual characteristics are studied as either outcomes or moderators. Part of the unexplained variances in the violent media effect often stems from possible individual differences in media effects. Omitting the individual differences in media effect research designs can result in inaccurate conclusions such as no effect or small effect. It is also true that in most developmental research, these individual characteristics are used as dependent variables to measure developmental outcomes, and rarely are used as predictors of developmental outcomes (Bronfenbrenner, & Morris, 1998). Indeed, such individual variations can also serve as important predictors of media use (Oliver, 2002). In this study, individual characteristics are utilized as main predictors instead of treating them as moderators or omitted variables.

Age

Multiple research studies, both cross-sectional and longitudinal, demonstrate that the amount of television viewing is developmentally related to children's age. The amount of television viewing by children increases up to around 6 years old, and then decreases at the time of school entry followed by increases into early adolescence (Comstock, 1991; Huston, Wright, Marquis, & Green, 1999; Timmer, Eccles, & O'Brien, 1985). Several factors should be considered together when the relation between children's violent media use and their age is concerned. It would be unrealistic to expect young children to have the same level of understanding of media content as adults do. The ability to distinguish fantasy from reality, the ability to understand the story, skills to recognize camera techniques, and their preferences of certain programs are issues that are closely related to children's cognitive ability. Children's cognitive development is closely related to their age. Children's ability to process cognitively increases as they grow older. Therefore, the younger they are, the harder it is for them to comprehend if the plot of the program is more complicated. Thus, when children are watching or playing violent media, it is possible that younger children would be watching or playing violent media with less complicated plot. Children's use of computers and video games also changes as they mature.

Similar to television use, changes in media-use habits as children grow older seem to result from changes in their exposure to media as well as from cognitive and social developmental changes (Huston et al., 1992). Analyses of longitudinal time-

use data for children ages 2 to 7 show that video game play increased with age, especially for boys (Huston et al., 1999). Using a cross-sectional analysis of a nationally representative sample, Rideout et al. (1999) found that 2 to 7 year-olds spent an average of 40 minutes per day using computers for games and other purposes. Whereas they found that 8 to 18 year-olds averaged 1 hour and 40 minutes. Buchman and Funk (1996) examined fourth through eighth graders and found that total time playing interactive games decreased with age.

Young children's limited cognitive skills make it difficult for them to distinguish fantasy from reality (Eron, Huesmann, Brice, Fischer, & Mermelstein, 1983; Davies, 1997; Smith & Donnerstein, 1998; Taylor & Howell, 1973) and to comprehend the complexity of the storyline (Collins, 1983; Meadowcroft & Reeves, 1989). The cognitive ability to distinguish fantasy from reality improves with age. At age 5, children can recognize the factuality of programming by distinguishing fictional programs, such as cartoons and *Sesame Street*, from news or documentary (Wright, Huston, Reitz, & Piemyat, 1994). In another study (Smith, Anderson, & Fischer, 1985), as preschoolers can recognize and understand many of the camera techniques and editing formats that are essential cues to understanding the genres and reality status of programs. Children seem to acquire the ability to distinguish fantasy from reality at around the preschool years.

Research findings, however, are mixed as to the age at which children acquire the ability to comprehend the complexity of a story. Children retained little

of the information considered by adults to be essential to the plot prior to the age of 8 (Collins, 1983), and had difficulty remembering the central story content before the age of 7 (Meadowcroft & Reeves, 1989). According to another study, however, children as young as 4 were able to remember more “important” information than incidental information from *Sesame Street* stories (Lorch, Bellack, & Augsbach, 1987). In a study that involved watching *Power Rangers* (McKenna, & Ossoff, 1998), researchers found that even though all of the children demonstrated some understanding that the *Power Rangers* is “make believe”, the ability to distinguish fantasy from reality was significantly better for the older group (8-10) than the younger group (4-7). Younger children watched more frequently and remembered more of the fighting or karate moves of the main characters, while older children were significantly better in recognizing the themes and sequencing the story. Even though it is not conclusive, the ability to comprehend the complexity of the story seems to take a longer time for children to acquire. Therefore, young children are more likely to imitate simple actions from violent media without understanding the context in which the actions are embedded. According to a study by Potts et al., vivid production features, not violence, were responsible for children’s attention to cartoon violence (Potts, Huston, & Wright, 1986). When children’s limited ability to distinguish fantasy from reality and to comprehend the complex story line is considered, it is reasonable to think that young children are attracted to the media violence due to the way it is presented, not just due to what is presented.

Gender

In general, violent media consumption is greater for boys than girls. Girls watch less violent programming compared to boys (Ridley-Johnson, Chance, & Cooper, 1984), and boys watch mostly cartoons, westerns, crime, action-adventure, and sports programming (Comstock, 1991). Boys generally play more electronic games than girls. More boys than girls attend video game playing arcades (Braun & Giroux, 1989). A study with seventh and eighth-grade boys and girls revealed that boys played video games about twice as many hours as girls do (Funk, 1993), and in another study with fourth and fifth-grade students, boys also spent significantly more time playing electronic games and preferred violent games (Funk, Buchman, & Germann, 2000). A survey of 147 eleven-year-olds about their computer-game play also revealed that boys played significantly more and were more likely to play violent games than girls (Griffiths, 1997).

Although it is not entirely clear why boys prefer and use more of violent media, there are some theoretical hypotheses to explain it. In a society where gender stereotypes prevail, the expectation for children's behavior is different for boys and girls, who experience different socialization processes. In general, males are more aggressive and are more sensitive to aggressive cues than are females (Geen, 1990; Baron & Richardson, 1994). Furthermore, a meta-analytic review of gender differences found differences in the aggressive styles of males and females (Eagly & Steffen, 1986). Males are more likely to employ direct forms of aggression, such as

physical aggression, whereas females are more likely to use indirect forms of aggression, such as verbal or psychological aggression. A study with 16 fourth-grade students who constructed their own video games revealed that many girls were not attracted to the “kill features” that involve mostly direct forms of violence and dominate most video game interactions (Kafai, 1996). It seems like that children in this society are conforming to the social expectation about how they should behave as boys and girls.

In addition to such social expectations, children are provided with media materials that are reinforcing it. Media play an important role in children’s identity formation. According to a content analysis of 33 popular video games, traditional gender roles and violence were central to many games, and women were depicted as helpless victims of violent men or as sex objects in many instances (Dietz, 1998). The more children identify with media characters, the more they emulate those characters. Boys who strongly identify with aggressive media characters will be more aggressive. In an experimental study, boys committed significantly more aggressive acts than girls after watching *Power Rangers* (Boyatzis, Matillo, & Nesbitt, 1995). The authors interpreted the finding as a result of predominance of the male characters and their aggressive actions in the show. *Power Rangers* featured more role models for boys, so boys identified with and emulated those male characters.

In a social environment that endorses stereotypical traditional gender roles, therefore, boys are more likely to be attracted to media that feature more direct forms of violence and male characters using such violence. The recent trend that there are fewer differences in the effect of violent media between boys and girls may be due to the increased presence of aggressive female characters in media and society becoming more accepting of aggressive behaviors from females.

Aggressive Personality

Debate about whether repeated exposure to violent media leads to more aggressive personality or an aggressive person is attracted to violent media probably has truth on both sides. Both sides have research studies that can support their claim. Although the preference for violent media is related to other psychological and emotional problems (Funk et al, 2002), there are several studies suggesting that aggressive individuals are especially likely to choose violent media. While violent media have an effect on aggression in general, the effect is greater for those who are more aggressive (Comstock, 1977; Stein & Friedrich, 1975). A study using 227 college students found that the video game violence was related to aggression primarily among highly aggressive persons (Anderson, & Dill, 2000). Although the authors interpreted the result as evidence that exposure to violent media contributed to the creation of an aggressive personality, it is hard to determine the causal direction due to the cross-sectional nature of the study. The undeniable association between violent media use and aggression may be to some extent a function of both

an aggressive personality leading to a preference for violent media, as well as exposure to violence causing aggression (Gunter, 1983). A more comprehensive and reasonable view on the issue is that the relation between the violent media use and aggressive personality is not unidirectional, but rather a spiral process by which they can influence each other (Cantor, 2000; Roe, 1995).

Persons with low pro-social and highly aggressive personality tend to be heavy television viewers in general (Huesmann, Lagerspetz, & Eron, 1984; Persegani et al., 2002; Ridley-Johnson et al., 1984; Sprafkin & Gadow, 1986). Children with antisocial and aggressive tendencies are more likely to be drawn to violent media (Atkin, Greenberg, Korzenny, & McDermott, 1979; Cantor & Nathanson, 1997; Wiegman, Kuttschreuter, & Baarda, 1992). In a study that compared electronic game preferences of juvenile offenders and nonoffenders, juvenile offenders preferred more violent games than did nonoffenders (Hind, 1995). Another study using 278 seventh and eighth graders found that those who are rated as highly aggressive by peers preferred more violent games (Wiegman & Van Schie, 1998). Research also indicates that children with antisocial tendencies receive less monitoring from their parents (Patterson, DeBaryshe, & Ramsey, 1989). The combination of the lack of parental monitoring and their preference for violent media can lead children with antisocial tendencies enter a spiral path in which aggressive content is chosen and an aggressive worldview is reinforced (Cantor, 2000; Roe, 1995).

Intelligence

Children's intellectual ability is one of the strong predictors for viewing violent programming. Children with lower I.Q. watched more violent television than did those with higher IQs (Chaffee & McLeod, 1972). Compared to children with average intelligence, brighter children watched less violent television (Wiegman et al., 1992) and were more likely to watch educational programs than cartoons and entertainment programming (Abelman, 1987). Academically successful children preferred television content that was more likely to be beneficial than that preferred by low achievers, and low achievers preferred more violent programs and identified more with violent characters (Huesmann et al., 1984). The lower the children's intellectual ability, the more they watched television, identified with aggressive television characters, and believed the violence on media to be real (Eron, 1982). However, it is also possible that more intelligent children are drawn to violent media because the programming is more complicated and the resulting complex storylines tend to contain a large portion of violence. Furthermore, it is also possible that children with lower intellectual abilities have difficulty processing complicated story plots and in turn, are more attracted to simplistic and vivid violent actions in media (Potts et al., 1986).

Ecological Factors

Socioeconomic Status

Socioeconomic status, including income and education, and ethnicity are confounded in many instances. Children of lower socioeconomic class and ethnic minorities, including immigrant groups, tend to watch more hours of television and therefore are exposed to more violence (Berry, 2000; Chaffee & McLeod, 1972; Larson & Verma, 1999). Adolescents from lower socioeconomic backgrounds also preferred violent video programs (cited in Roe, 1995). Children from lower socioeconomic status and minority groups consume more violent media on regular basis. For these children, repeated regular exposure to violent media in the long-term can also foster a strong preference for such media.

There is an implication from the fact that children from lower socioeconomic and minority status are exposed to more media violence. That is, those children lack access to other economic and cultural resources. Because of their background, they are deprived of many other alternative activities, such as extracurricular activities and lessons in sports and other fields. Therefore, they are more likely to use more easily accessible and less expensive means, such as television and video, to entertain themselves and spend time.

Parental Regulation of Children's Media Use

Parents play an important role in children's media use (Hogan, 2001). A significant amount of research indicates that direct parental mediation and intervention of children's television viewing influence children's viewing patterns (Heald, 1980; Lyle & Hoffman, 1972), interpretation of television content (Chaffee

& McLeod, 1972), and learning social behavior seen on television (Korzenny, Greenberg, & Atkin, 1979). The establishment and enforcement of explicit rules and practices about children's media use are the most effective ways to mediate and influence their media use.

Parents' ability to regulate children's media use depends on several things, such as the age and number of children, the availability of media in children's bedrooms, opportunities for use at friends and relative's houses, family structure (e.g., single-mother vs. two-parent homes), parent's emotional stability, and mother's working status. Parents with multiple factors that may constrain them from supervising and monitoring their children's activities are more likely to be ineffective in regulating their children's activities. Nowadays it seems more difficult for parents to monitor and regulate children's media use when more children have TV sets, electronic games, and computers in their bedrooms (Jordan, 2001).

Active parental coviewing of television programming with children can be used as an opportunity to discuss the content and reconstruct meaning (Hogan, 2001). In a research study with 47 second-grade students, it was found that adult's comments made a significant difference in children's understanding of the implicit content of the program watched (Collins, Sobol, & Westby, 1981). Simply coviewing the programming does not guarantee such benefits. When specific and direct involvement such as a parent-child discussion takes place, positive outcomes can be expected. It may seem likely that every parent can practice this, however in

actuality, even when coviewing does occur with children, it only takes place a quarter of the time. It seems like parents coview child audience programming with their children for supervisory purposes rather than trying to share their opinion about the content and influencing children (St. Peters, Fitch, Huston, Wright, & Eakins, 1991). It is commonly believed that parents' inability to participate in children's media use is the primary cause for children's exposure to inappropriate programming. Parents' viewing preferences and habits often determine the degree of children's exposure to inappropriate programming. Young children are more likely to watch situation comedies, crime shows, soap operas, and news with their parents than by themselves (St. Peters et al., 1991).

For games, there is no research so far on this issue specifically. However, it would be hard for parents to be involved directly other than playing the game together, because discussing about the content of the game is not practical.

What parents regulate seems very important to understanding how the regulation works. Some parents regulate the total amount of time in viewing because they are concerned about how much time their children spend viewing overall. Most parents, however, regulate specific programs or categories of program because they are concerned about the content their children are viewing (Kotler, Wright & Huston, 2001). Whether restrictive regulation results in the desired outcome is not always clear. Children may respond in accordance with parents' regulation or may react against it. In a study with fifth and tenth-graders in middle- and upper-class

households, greater restriction was associated with viewing R-rated movies and late-night viewing, even though parents' restriction reduced the total television viewing (Atkin, Greenberg, & Baldwin, 1991). It seems like that parents' restriction is not very effective on children's viewing in their own room late at night. Whether parents regulate viewing due to their children's unhealthy viewing diet or parents' regulation results in children's viewing patterns is unclear, but probably both effects operate simultaneously (Kotler et al., 2001). Either way, to have a desired outcome, a harmonious parent-child relationship is essential. Parents cannot supervise their children at all times. When parents are not physically present to monitor their children, their relationship with their children will determine whether children follow the viewing rules.

Parenting Attitudes

Parenting attitude is one of the strong indicators of the parent-child relationship. Without a positive parent-child relationship, an effective parenting is difficult and therefore the possibility of positive child outcomes is decreased. Parents who punish their children physically and are dissatisfied with their children's accomplishments and characteristics are most likely to have aggressive children (Eron, 1982).

Parenting attitudes that promote good relationships in the family and assist children's development in a positive way are needed for children to develop healthy media habits. Family communication pattern predicted child's violence viewing in a

research study with seventh and tenth-grade students (Chaffee & McLeod, 1972). Parental encouragement of socio-oriented communication pattern, in which maintaining harmonious interpersonal relations, avoiding controversy, and repressing the inner feelings, resulted in high viewing of violence. For adolescents who struggle with autonomy and independence issues (Ritchie, 1991), it makes sense that concept-oriented communication pattern—which emphasizes expression of inner feelings and ideas, being exposed to controversy, and challenging the views of others—is a more effective way of communication. The finding, however, was only true for junior high students, and not for the high school students. For senior high students, how much they watch and how intelligent they are were the only predictors of violence viewing, and none of the parenting factors were predictive. It seems like that the direct parental influence on child's media habit is minimal when they are in adolescence. Other researchers found that parental mediation had little or no effect on adolescents' media use and aggression (Nathanson, 2001). This, however, does not dismiss the importance of parental influence on children's media use. It implies that parental influence is stronger when children are younger.

Children in a family with a lot of tensions watch more of television in total (Rosenblatt & Cunningham, 1976). Furthermore, negative parenting attitudes, such as a lack of parental empathy, sensitivity, and unrealistic role expectations for children, were related to high violent and fantasy-oriented content viewing (Tangney, 1988). According to Tangney (1988), children in such family

environments may avoid programs that show a positive family relationship because they may be emotionally too difficult and uncomfortable for them to watch, and they therefore were drawn to violent and fantasy-oriented programming.

While a lack of positive parenting attitudes leads children to more violent viewing, parental approval of aggression also predicts children's violent viewing. In families with a more positive attitude toward aggression, children tended to watch more of violent television, to be willing to use violence as a solution to conflict, and to perceive it as effective (Dominick & Greenberg, 1972).

Peer Relationships

When children reach adolescence, the solitary use of the media increases, and media use with peers rather than parents is more of interest. It is possible that children use media as an activity they do with their peers as they grow older. In this case, children's media use can be as a part of their social activities rather than as an isolated activity. However, when there are problems in peer relationships, a child can be alienated. For example, aggressive children are unpopular and watch more television violence (Eron, 1982). Children's unpopularity indicates that their relationships with their peers are not satisfying, and thus they turn to other agencies such as television instead. In adolescence especially, the peer group becomes a relatively strong influential reference group for children (Pearl, 1987). Attenuation of bonding with family is expected to a certain degree for a normative development as children move into adolescence. When the transition into a more salient reference

group is problematic, children face the alienation. Alienation stems from the weak bonds between a child and the normal prosocial agencies, such as family and school. Weak bonds with normative agencies may increase the likelihood of children's bonding with deviant peer groups as well as put them in isolation (Oetting & Donnermeyer, 1998).

Research findings about the peer influence on adolescents' media use suggest mostly negative effects. In a research study, it was found that peer mediation of antisocial television was more frequent and was more powerful than parental mediation (Nathanson, 2001). The study used college students' retrospective reports on their media use and on peer influences in their high school period. Indeed, peers promoted more positive perspectives on antisocial television and thus more aggression. For the most part, children and especially adolescents seek out the connection with their peers and media are used as a means to acquire that connection. When peers coview or discuss antisocial and violent television, it is more likely that they focus on the interest and excitement of the material to facilitate the connection. Problematic media use with deviant peer groups may reflect failures or problems at school, and in turn, antisocial media can promote the connection with deviant peer group (Roe, 1995). In fact, children who tend to be involved in physical fights, argue with teachers, and perform poorly at school are more likely to expose themselves to more violent video games (Lynch, Gentile, Abbie, & Van Brederode, 2001). Without strong intervention, the negative spiral effects between the school, media use, and

delinquency may result in exacerbated media habits and behavioral outcomes of children.

Community Violence

Exposure to the real life violence in the community is not a rare incident for children who live in urban inner cities. The data from a study, in which 175 children of 9 to 12 years old at pediatric primary care clinic of large urban hospital were involved, showed that all children had been exposed to media violence, and 97 % of them had been exposed to more direct forms of violence (Purugganan, Stein, Silver, & Benenson, 2000). In addition to the fact that children in urban or inner-city areas are commonly exposed to community violence, their exposure to the violence is composed of multiple incidents, and sometimes confounded with the exposure to the violence in the family.

The impact of exposure to community violence is generally negative on children's emotional and behavioral outcomes. Children are emotionally more involved with media events and the characters when their real life experience is related (Sapolsky & Zillmann, 1978). Whether children's exposure to violence makes them withdraw from or increase the aggression depends on various factors (Osofsky, 1999). Interestingly, in a study with inner-city high school students, high exposure to community violence results in increased fear, anxiety, and internalizing behavior, but not aggression (Cooley-Quille, Boyd, Frantz, & Walsh, 2001). Even though it was not exactly community violence, watching film violence led children

to greater desensitization in a famous research study (Drabman & Thomas, 1974), and the results were confirmed by another study (Molitor & Hirsch, 1994). While experiencing violence clearly impacts children emotionally and behaviorally, whether desensitized children would seek out violent media or avoid it is not clear. Groves (1997) suggested that children who witness violence feel overwhelmingly helpless and terrified and they turn to aggression as a means of coping with such vulnerability. For them, being aggressive is better than being helpless and terrified. A survey found that children's violent behavior was significantly related to real violence exposure, unhealthy television viewing habits, and lack of parental monitoring, and among those predictors, violence exposure was most powerful in predicting children's violent behavior (Singer et al., 1999).

For parents who live in an environment where exposure to community violence is rather normative, protecting their children from the harmful effects of exposure to violence may be extremely difficult when they themselves are exposed to it (Osofsky, 1999). In highly violent areas, parents may demand their children to be at home watching television or playing games rather than to be outside where they can be easily exposed to or sometimes be a victim of violence (Purugganan, et al., 2000). The majority of children in those dangerous environments tend not to have supervision when they are at home, and such unsupervised media use may increase their probability watching or playing with violent media.

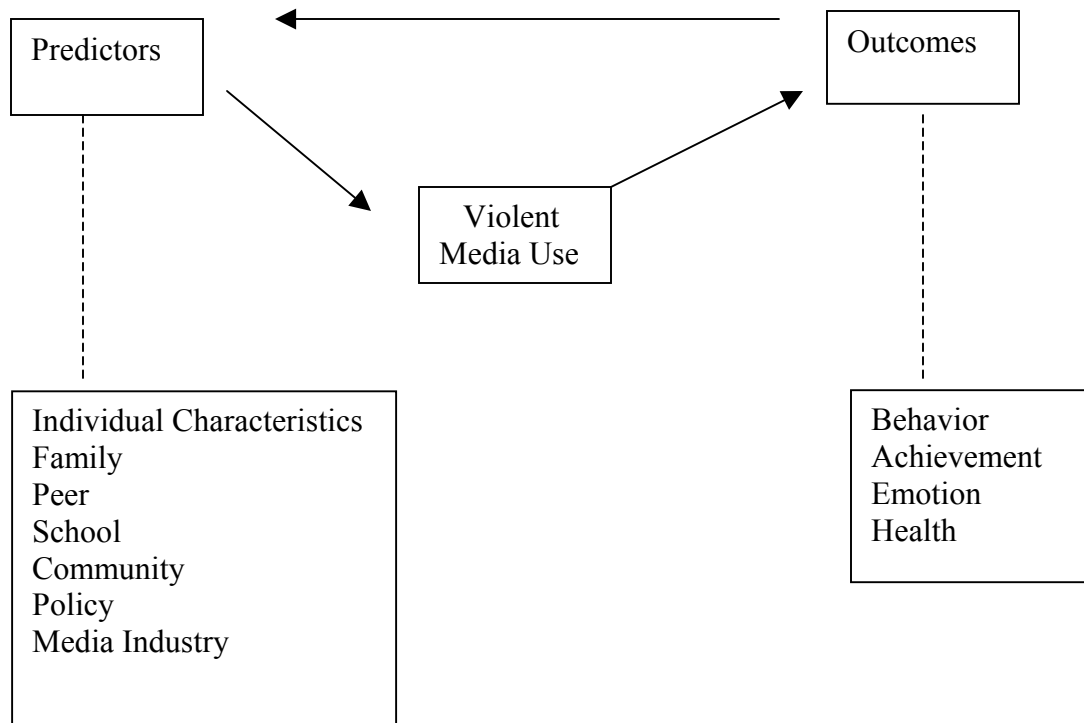
Conclusion

Decades of research on children's violent media use have provided us with ample information about its negative effects on child outcomes. Exposure to violent media is associated with increased aggression, decreased emotional stability, desensitization, and increased fear.

In light of our understanding of the negative effects of violent media use, we must next examine the factors that attract children to such media in the first place. As of yet, little research has been conducted to evaluate the predictors of children's violent media use. However, if we are to fully comprehend the relationship between violent media use and child outcomes, it is necessary to determine what individual and contextual factors are associated with children who seek out violent media. Identifying these factors will enable researchers to have a more complete understanding of children's violent media use. The comprehensive research paradigm is delineated in figure 1.

Investigating the predictors of children's media use provides us with new research direction. When considering possible predictors, an ecological approach that evaluates both individual and contextual factors related to children is needed. Ecological theory broadens the relevant context beyond the family unit, arguing that several other contextual factors also influence individual development (Bronfenbrenner, 1986), including family structure, school settings, the community environment, and social policy practices. Such environmental influences should be

Figure 1. Research in Children's Violent Media Use



examined to understand why children interact with violent media and its consequences. Using such a comprehensive framework will provide a more comprehensive picture of the overall circumstances surrounding children's violent media use. In addition, such a comprehensive understanding of children who use violent media will enable us to develop more effective interventions and preventative strategies to minimize the negative effects of the violent media use on children.

The limited amount of literature available considering predictors of violent media use largely focuses on the individual characteristics of media users. However, individual differences among media users have been more often evaluated as moderators rather than as predictors of media effects. It is important to realize the role of individual characteristics of children as they pertain to their media use. These individual factors include age, gender, aggressive personality, and intelligence. Examining these and other factors will allow us to have a greater understanding of the various types of violent media users.

Even well designed longitudinal studies focus primarily on individual characteristics and fail to provide information about other contexts that potentially influence violent media use (Gerbner et al., 1994). Contextual factors that are associated with children's media use have been relatively understudied, even though a fair amount of information is available about them (Potter, 1999). These factors include family, peer networks, school, and community. Each of these contexts is

likely to influence children's attraction to and use of violent media and their influences should be evaluated.

The present study uses an ecological approach to delineate a comprehensive picture of children's violent media use. It examines the relevant associations between the individual and contextual factors to violent media use. The purpose of this evaluation is to contribute to the field of media research by providing knowledge about the significant predictors of children's violent media use.

CHAPTER 2: METHOD

PSID-CDS Characteristics

The present analyses examine data from the Child Development Supplement (CDS), a component of the Panel Study of Income Dynamics (PSID). The PSID has been an ongoing longitudinal study of a nationally representative sample of U.S. households since 1968. The PSID evaluates demographic data related to the families' social and economic resources. In 1997, the CDS was initiated to examine family functioning and child development. Every PSID family with children under age 12 was asked to participate in the CDS and data for up to two children per family was obtained, resulting in a sample of 3,562 children from 2,380 families. In gathering this sample, the CDS over-sampled low-income, minority, and immigrant families to remain nationally representative. The CDS conducted a collection of questionnaires and tests to assess the children of the families in the PSID sample. These questionnaires were administered to the primary caregiver, the child's teacher, and other caregivers where applicable to gather the most comprehensive data for each child.

Time Diary Sample Characteristics

An important method of data collection involved "time-use" diaries to examine the daily activities of the children (see Appendix A for the example of "time-use" diary). These diaries provided data regarding children's media use, including the content of the media and the amount of time allocated to its use. The

primary caregivers of participating children were asked to complete two diaries on one randomly chosen weekday and one randomly chosen weekend day for each child. The children for whom at least one of the two time-use diaries was completed are considered to be a part of the time-use diary subsample. The time-use diary subsample consists of 2,902 children.

Each participant in the PSID was assigned a weight based on various demographic characteristics (e.g., minority and immigrant status, income level) to reflect PSID's oversampling of minority, immigrant, and low-income groups. The weights applied adjusted each observation up or down to reflect national statistics about various economic, geographic, and social demographics.

The analysis weights for the CDS sample were reconstructed using the following three factors: "1) a family selection weight which is the inverse of the family's probability of selection; 2) a post-stratification factor which adjusts the sample family totals to the 1997 CPS estimated totals for forty-eight demographic/geographic cells; and 3) a within family selection weight which is the inverse of the probability of selection of the child from the set of children age 0-12 in the family" (Institute for Social Research, 1999). Thus, the weighted CDS data is nationally representative on a variety of factors including race, education level, urban classification of hometown, and geographical location. For more information regarding the creation of these weights, online documentation is available (Institute for Social Research, 1999).

Considering these weights, the diary subsample is composed of the following groups: 67.4% Caucasian American, 15.4% African American, 12.3% Hispanic American, and 4.9% "Other". The median income of the diary subsample is \$38,000.

Sub-samples

Two sub-samples of school-aged children (6 to 12 year-olds) were used to analyze violent electronic-media use and its ecology. The purpose for using only children ages 6 to 12 is to examine school-aged children separate from preschool aged children. There are two reasons for isolating this age group: 1) developmental and time use differences exist between school-age and before school-age children; and 2) several measures used in this study were only collected for children age 6 and older. The sample for violent television viewing analyses included respondents who had two time diaries reported and had any television viewing and complete data for all other relevant variables ($n= 830$). Specifically, analyses of violent electronic game use were performed for children who completed two diaries, reported any electronic game play, and had complete data on the other variables included ($n= 346$).

Measures

Time Diary

Using time-use diaries for data collection results in high-quality, reliable data without expending considerable amounts of time or monetary resources.

Although observational methods typically offer more accurate data concerning children's time use, they are more costly and time intensive. The simplest form of data to collect is summative data, which constitutes parent-reported summaries of how their children allocate their time to specific activities. However, this method is prone to social bias causing parents to report higher estimates of positive behaviors and lower estimates of negative behaviors (Hofferth, 1999). After evaluating the advantages and disadvantages of each of these methods, using time-use diaries for data collection offers the highest validity and reliability (Juster & Stafford, 1985), requiring a minimal time commitment from participants and researchers. Furthermore, various comparisons of time-use diary and observational data indicate that these methods report very similar data (Anderson & Field, 1991).

Time-use diaries provided most of the media use data reported in the present analyses. The primary caregiver of each child recorded all activities that the child engaged in for each 24-hour period on one weekday and one weekend day. When appropriate, older children participated in the completion of their own diaries. The following information was recorded in the diaries: starting and ending time of each primary activity, location of the activity, who else was present during the activity, and whether a secondary activity occurred simultaneously. For example, if a child were watching television while playing with toys, watching television would be coded as the primary activity and playing with toys as the secondary activity. For a

more complete description of the diary procedures, see Hofferth and Sandberg (2001).

Media Use Variables

The title of the program or game was recorded when the child's primary activity was "watching television," "playing a video game" (on a game console such as Nintendo and Sony Playstation), or "playing a computer game" (on a computer CD-ROM). When television viewing or electronic-game play was a secondary activity, the titles were not recorded.

Total television minutes. All television viewing is reported for two days per week: one weekday and one weekend day. Whenever the child's primary activity was reported to be television watching, the title and duration of the program were recorded. The sum of each day's television minutes was used to calculate total television minutes.

Total game playing minutes. All electronic game playing is reported for two days per week: one weekday and one weekend day. Whenever the child's primary activity was reported to be game playing, the title and duration of the electronic game were recorded. The sum of each day's game playing minutes was used to calculate total game playing minutes.

Violent television minutes. An extensive number of programs were reported by the CDS sample participants. To classify these television programs as violent or nonviolent, coders judged programs on the basis of their own understanding of the

programs as well as knowledge provided by television-based internet sites. All television programs were categorically coded as violent or nonviolent. Criteria for coding television programs as violent consisted of the following: 1) violence was a central and integral part of the plot, 2) the main characters' occupations involve aggression and violence, such as police officers and superheroes, 3) the lead characters' main purpose was to fight or flee from violence, or 4) there was more violence in the program than would be expected in the everyday life of a child. Examples of such programs were *Power Rangers*, *X Files*, and *Cops*. An average Kappa estimate of inter-rater reliability was .81 among three coders. The number of minutes per week of violent television viewing was obtained by summing the weekday and weekend day violent television viewing minutes (see Appendix B for the violent television coding).

Violent electronic game minutes . Similar to the coding of television programs, electronic games were coded according to coders' knowledge of games and the internet resources available to them. All electronic games were coded as nonviolent, mildly violent, or severely violent. Electronic games were coded *mildly violent* if they contained comedic or slapstick violence, mild acts of aggression toward inanimate objects, non-graphic physical acts against humans or animals (without blood or gore), or unsafe, hazardous, and/or conflicting behavior. Examples included *Super Mario Brothers*, *Legend of Zelda*, and *Pat Riley Basketball*. Games were coded as *severely violent* if they contained serious acts against humans, vicious

acts against animals, actions resulting in injury or death, deliberate vehicular violence, sexual violence or aggression, explosives, blood, gore, or mutilation of body parts. Examples of such games were *Mortal Combat*, *Tomb Raider*, *Street Fighter*, and *Mighty Morphin Power Rangers*. Examples of *nonviolent* games include *Reader Rabbit* and *Tetris*. The inter-rater reliability between coders was .94. The *mildly violent* and *severely violent electronic-game play* variables were then collapsed into *violent electronic-game play*. The number of minutes of *violent electronic-game play* per week was calculated in the same way as for television viewing (see Appendix C for the violent game coding).

Individual Characteristics

Child's age. The ages of the children in the analyses, as reported by the primary caregiver, ranged from 6 to 12 years.

Child's gender. The gender of the child was included as either boy or girl in the analyses.

Minority status. The child's race was entered as the indicator of ethnicity. Ethnicity was coded as "Caucasian American", "African American", "Hispanic", and "Others". For the purpose of these analyses the following three categories: African American, Hispanic, and Other, were collapsed to represent children's minority status. Children who are reported as one of these three groups are coded as minority. Children who were reported as Caucasian American are coded as non-minority.

Child's intelligence. Digit Span Recall Task from the Wechsler Intelligence Scale for Children (WISC) was used to assess children's short-term memory. In addition to primary purpose of measuring children's short-term memory, the task is also commonly used as a measure of other aspects of intellectual ability due to its high correlation with other subtests that measure intellectual ability (e.g., Otis-Lennon School Ability Test, Differential Ability Scales; Wechsler, 1974). A series of digits were read to children, and then children were asked to repeat them. Children were asked to repeat the digits in reverse order also. The sequence increased in length until the child can no longer repeat the sequence correctly. The score was standardized based on chronological age.

Aggression. Aggressive behavior was measured by the aggressive subscale of the behavior problem index. The behavior problem index was developed to measure children's behavior problems in a survey setting (Peterson & Zill, 1986). Most of the items are from the Achenbach Behavior Problems Checklist (Achenbach & Edelbrock, 1981). The primary caregiver reported the degree to which a particular statement about the child's behavior was true. The exact question reads as follows: "How true are the following statements about your child?" The answer choices were one of the following: often true, sometimes true, or not true. Child's aggressive behaviors (e.g. bullying, disobedience) were measured using a 16 item-subscale of the behavior problem index (see Appendix D for each of these items included). Items in the scale were recoded with the reverse direction so that a higher score on

this index indicates greater levels of aggressive behavior problems. The Cronbach alpha for this scale was .86. Reliability over time has been highly stable when measured over one week ($r=.90$) and across a four year time span ($r=.60$) (Achenbach & Edelbrock, 1981; Cooksey, Menaghan, & Jekielek, 1998).

Family Demographic Characteristics

Parent education. The years of education completed by the head of each child's household was used as the index for parental education.

Income-to-needs ratio. Households' income for 1996 was reported by the primary caregiver. Income-to-need ratio, which is the value of family income divided by the federal poverty threshold for that family composition (Census Bureau, 1996), was used as an indicator of the families' economic resources

Family structure. The status of family structure was coded as a single-parent or as a two-parent family by collapsing several categories. Married and cohabiters were coded as two-parent families, while single never married, divorced, widowed, and separated were coded as single-parent families.

Mother's working status. Mothers were categorized as working full-time (30 hours and more), part-time (less than 30 hours), or not working, based on the hours they worked per week.

Family Dynamics

Parental depression. The short form of the Composite International Diagnostic Interview (CIDI), which is a 10-item measure, was used to assess the

primary caregiver's depressive affect (Kessler & Mroczek, 1995). On a 5-point scale ranging from 1 "all of the time" to 5 "none of the time", the primary caregiver answered questions such as how often they felt "nervous", "hopeless", "worthless", and so on, during the past 30 days. The items were recoded in reverse direction so that a higher score indicates more depressive symptoms. The average of the 10 items was used to calculate the scale. The reliability of the scale was .89 (see Appendix E for the items). Thus, this is a reliable and commonly used indicator of parent's psychological well-being. This measure has been consistently used across multiple studies to gauge individuals' psychological well-being.

Aggravation in parenting. The aggravation in parenting scale was developed by Child Trends, Inc., for the JOBS child outcomes study to measure the degree of parenting stress that parents may feel. Adapted from the JOBS study, parents were asked 5 questions about whether they experienced aggravated or irritated feelings in parenting. The primary care giver responded to these statements about raising their child using a 5 point scale that ranged from 1 "not at all true" to 5 "completely true". The items include the following: 1) child seems to be harder to care for than most children; 2) there are some things that child does that really bother me a lot; 3) I find myself giving up more of my life to meet child's needs than I ever expected; 4) I often feel angry with child; and 5) I would be doing better in my life without child. The average of the 5 items was used as a scale. The reliability of the scale was .67 (see Appendix F for the items).

Positive parenting. A composite score was created to represent positive parenting using items from both the “parental warmth” and “parental monitoring” scales. These two scales are very highly related constructs and each represent positive modes of parenting. This combined scale indicates how well parents know their child and exhibit positive affection toward him or her, simultaneously. First, z score variables were made for each of the items for both scales as parental warmth and parental monitoring were originally measured on two slightly different scales (parental warmth: 5-point scale, parental monitoring: 4-point scale). The z scores resulted in each item being on the same scale in that they have a mean of zero and standard deviation of one. Then, once each item was standardized, the average of the items was used to create the composite variable. The Cronbach Alpha among these items was .82.

Parental warmth. Adapted from the JOBS study, this scale measured parental affective warmth toward their children. Parents were asked 6 items to gauge how often they showed physical affection, told their child that they love and appreciate him or her, spent time with their child engaging in the child’s favorite activities, talked with the child about things the child is interested in, and joked or played with the child. Parents responded to these 6 questions on a 5-point scale ranging from 1 “not in the past month” to 5 “everyday” (see Appendix G for items).

Parental monitoring. The Parental Monitoring Scale from the National Longitudinal Survey of Children & Youth (Baker, Keck, Mott, & Quinlan,

1993) was used to assess how things were going in general in the child's life. On a 4-point scale from 1 "excellent" to 4 "poor", parents rated 10 statements about the following topics: their child's health; their relationships with parents, siblings, friends, and teachers; and the child's self-esteem and prospects for the future. The parents were also asked how many of their child's close friends they knew. On a 4-point scale ranging from all of them to none of them, parents were asked how many of child's close friends they knew by sight and by first and last name. They were also asked whether they knew who the child was with when not at home on a 4-point scale from 1 "all of the time" to 4 "only rarely". To indicate that a higher score represents higher parental monitoring the items were recoded in reverse direction (see Appendix H for items).

Family conflict. Family conflict scale is a 6-item measure (Sweet, Bumpass, & Call, 1988) of the level of overall conflict in the family. The scale is a robust measure of the family's tendency to exhibit both physical and verbal aggression. Primary caregivers responded on 4-point scale ranging from *completely agree* to *completely disagree*. Questions include items such as "family members often criticize each other," "we fight a lot in our family," and "family members sometimes get so angry they throw things." Some items reflected to maintain one direction of the scale. The final score used was the average of 6 items and the reliability was .68 (see Appendix I for items).

Harsh discipline. This scale was obtained by using several items extracted from the widely-used instrument H.O.M.E. (Caldwell & Bradley, 1984). The primary caregiver was asked how many times in the past week they grounded child, spanked child, took away TV or other privileges, took away child's allowance, and sent child to his/her room? The scale was composed of an average of 5 items asked of children ages 6 years and older. A higher score indicates harsher discipline. The reliability coefficient for this scale was .63 (see Appendix J for items).

Media Parenting

Parental regulation of children's television use. Parents responded to a set of questions designed to measure child-rearing values and rules (Alwin, 1990). The questions included two items about parental limits of children's television use. One item was about setting limits on the amount of time their children may watch television in a day, and the other was specifically about setting limits on the kind of programs their children are allowed to watch. Responses were measured on a 5-point scale from "never" to "very often". Questions like these are effective as television regulation indices (Atkins et al., 1991; Weaver & Barbour, 1992). In the analyses presented here, these two items are labeled as "regulation of television amount" and "regulation of television content" respectively. These measures are reported separately because they provide information about two different media parenting practices that influence children's media use differently.

Playing game together. “Household Tasks” scale was intended to evaluate parental interaction with children. From that scale, a single-item question asked whether the parent worked or played on a computer or played video games with the child in the past month. The response scale ranged from 1 “not in the past month” to 5 “every day”. This measure is a quality indicator of parent’s direct involvement in their children’s game playing. This measure was included only for the analyses related to violent game playing.

Discussion of television. A single, dichotomous item from the H.O.M.E scale asked whether the parent discussed TV programs with the child when the family watched TV together. The question was answered with either yes or no and was only asked of parents of children aged 6 years and older. This measure was included only for the analyses related to violent television watching.

Peer/School Measures

Quality of friendship. Each of the items from the “general peer relationship” and “the quality of peer relationship” scales were combined to create the quality of friendship composite scale. These two scales are very highly related constructs and each represent the quality of peer relationships. This combined scale indicates parents’ evaluation of their children’s interactions with their peers as both general acquaintances and as closer friends according to their parents. First, z score variables were made for each of the items for both scales as general peer relationship and quality of peer relationship and were originally measured on two slightly

different scales (general peer relationship: 5-point scale, quality of peer relationship: 4-point scale). The z scores resulted in each item being on the same scale in that they have a mean of zero and standard deviation of one. Then, once each item was standardized, the average of the items was used to create the composite variable. The Cronbach Alpha among these items was .73.

General peer relationship. Two items from the Positive Behavior scale were used to assess the child's relationship with other children. "Gets along well with other children" and "is admired and well liked by other children" were specific items to capture child's peer relationships in general. The questions used the following format: thinking about child, please tell me how much each statement applies to child on a scale from 1-5, where 1 means "not at all like child," and 5 means "totally like child".

The quality of peer relationship. As part of the parental monitoring scale, primary caregivers were asked to rate the quality of their child's friendships. This single item asked about the quality of the child's friendship on a 4-point scale, ranging from excellent to poor. The quality of friendship as well as the number of friends in child's life is an important factor that is related to psychological well-being of the child (Bagwell, Schmidt, & Newcomb, 2001; Bukowski, 2001).

The number of friends. This measure is a single-item question, which is a part of the parental monitoring scale (adopted from the scale used by the National

Longitudinal Survey of Youth, NLSY). Primary caregivers reported the number of close friends their child has.

Problems at school. This scale examines two items that assess the quality of child's school life. The primary caregivers were asked whether the child was disobedient at school and had trouble getting along with teachers on a 3-point scale from 1 'often true' to 3 'not true'. The items were recoded in reverse direction so that a higher score indicates more problems at school. The reliability coefficient of the scale was .69.

Community Characteristics

Quality of neighborhood. A composite score was created to represent quality of neighborhood using items from the following scales: “neighborhood satisfaction”, “community ties”, and “neighborhood safety”. These scales are very highly related constructs and each represent quality of neighborhood. This combined scale indicates parents’ perceptions of: 1) how good the neighborhood is as a place to raise children; 2) the tendency of neighbors to monitor and sanction conduct in the neighborhood; and 3) the safety of the neighborhood to live in. First, zscore variables were made for each of the items for the three scales as they were originally measured on slightly different scales (neighborhood satisfaction: 5-point scale, community ties and neighborhood safety: 4-point scale). The z-scores resulted in each item being on the same scale in that they have a mean of zero and standard deviation of one. Then, once each item was standardized, the average of the items was used to create the

composite variable. The Cronbach Alpha among these items was .90.

Neighborhood satisfaction. The neighborhood satisfaction measure used is based on Sampson's research (Sampson, 1991), which was also used by the National Longitudinal Survey of Youth. The primary caregivers were asked how they perceive their neighborhood as a place to raise their children by rating the neighborhood. This is a single item rated on a 5-point scale ranging 1 excellent to 5 poor. The scale was recoded in reverse direction to indicate that a higher score means the parent is more satisfied with the neighborhood.

Community ties. This measure was drawn from Delbert Elliott's Denver Youth Survey (Elliott, Hamburg, & Williams, 1998) to measure neighborhood cohesion. Eight questions were asked on a 4-point scale ranging 1 very likely to 4 very unlikely to assess the closeness of the community. The question read: "How likely is it that a neighbor would do something if?" Examples include items such as someone was breaking into your home in plain sight, someone trying to sell drugs to your children in plain sight, and your kids were getting into trouble. The items were recoded in reverse direction so that a higher score indicates better community ties as perceived by parents (see Appendix K for items).

Neighborhood safety. This item is drawn from the Hispanic neighborhood Study. The question asked about how safe it is to walk around alone in their neighborhood after dark on a 4-point scale from 1 'completely safe' to 4 'extremely dangerous'. The scale was recoded in reverse direction to indicate that a

higher score means a safer neighborhood. Description of the variables used in the analyses and their correlations for each sub-sample are shown in Table 1 through Table 3.

Analysis Plan

To examine the factors that predict children's violent media use, Ordinary Least Square regression was used. Separate analyses were performed for the amount of violent television use and the amount of violent game playing. For predictors, contextual factors related to family, peers, school, and community were included as well as individual factors like age, gender, and intelligence. The dependent variables examined were the amount of violent media use (in minutes). Total amount of media use (in minutes) were used as a covariate to control its association to the amount of violent media use. Because several investigations suggest that children's violent media use differs by gender, age, and ethnicity, children's violent media use were examined according to these groups to understand whether the predictors work the same way for different groups.

There are specific data issues pertaining to the analyses using PSID-CDS data. One is the non-independence of data. CDS data included information for up to two children from each family. Family level information for these siblings is the same (e.g. family income, parental education, parental well-being), and individual data for each of these siblings are from the same reporter. Analyses using non-independent data can result in deflated error estimates that increase the type 1 error

Table 1. Means and Standard Deviations for All Variables

	TV (n=830)		Game (n=346)	
	Mean	SD	Mean	SD
Dependent Variables				
Violent Television Viewing ^a	77.99	90.93	---	---
Violent Game Playing ^a	---	---	65.44	99.11
Covariates				
Total Television Watching ^a	272.32	171.61	---	---
Total Game Playing ^a	---	---	124.09	117.25
Individual Characteristics				
Age	9.13	2.07	9.21	2.01
Gender ^b	.48	.50	.35	.48
Minority Status ^c	.49	.50	.45	.50
Intelligence	.02	.98	.09	1.02
Aggression	1.42	.34	1.41	.34
Family Demographics				
Income-to-Needs Ratio	3.20	4.44	3.59	5.76
Parental Education (years)	12.88	2.66	13.32	2.45
Family Structure ^d	1.66	.47	1.68	.47
Mother's Work Status ^e	2.33	.83	2.32	.82
Family Dynamics				
Parental Depression	1.64	.59	1.56	.51
Parenting Aggravation	1.69	.69	1.65	.63
Positive Parenting	-.09	.52	-.10	.52
Family Conflict	2.05	.46	2.05	.45
Harsh Discipline	.44	.85	.47	.71
Media Parenting				
Regulation of Television amount	3.43	1.12	3.4	1.16
Regulation of Television content	3.92	1.02	3.92	1.01
Discussion of Television	1.89	.32	---	---
Playing Game Together	---	---	2.21	1.25
Peer/School				
Quality of Friendship	-.01	.81	-.05	.85
Number of Peers	4.94	5.4	4.63	5.99
Problem at School	1.23	.43	1.25	.42
Community				
Quality of Neighborhood	.05	.69	.08	.67

^a minutes; ^b 0=boys, 1=girls; ^c 0=nonminority, 1=minority;

^d 1=single parent, 2=two parents; ^e 1=not working, 2=part time, 3=full time

Table2. Bivariate Correlations among Television Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Total Television Watching	--										
2. Violent Television Watching	.57***	--									
3. Age	.05	.00	--								
4. Gender	-.04	-.06	.05	--							
5. Minority Status	.13***	.04	.04	-.07*	--						
6. Intelligence	-.05	-.03	.10**	.04	-.12***	--					
7. Aggression	.06	.03	.00	-.13***	.06	-.11**	--				
8. Income-to-Needs Ratio	-.13***	-.09*	.02	.05	-.27***	.13***	-.11**	--			
9. Parental Education	-.11**	-.01	.02	.04	-.33***	.23***	-.08*	.35***	--		
10. Family Structure	-.11**	-.06	.01	.08*	-.38***	.13***	-.17***	.28***	.18***	--	
11. Mother's Work Status	-.07*	-.03	-.02	.01	.04	.03	-.07	.03	.08*	.04	--
12. Parental Depression	.17***	.04	.01	.02	.06	-.07*	.37***	-.11**	-.12***	-.18***	-.08*
13. Parenting Aggravation	-.02	-.04	.04	-.07	.08*	.00	.60***	-.04	-.02	-.12**	-.11**
14. Positive Parenting	-.16***	-.09*	-.19***	.10**	-.21***	.07	-.36***	.16***	.16***	.24***	.02
15. Family Conflict	.07*	.05	.06	-.03	.02	-.05	.27***	-.10**	-.06	-.15***	-.08*
16. Harsh Discipline	.00	.01	-.14***	-.14***	.09**	-.09**	.34***	-.09*	-.08*	-.15***	-.01
17. Regulation of Television amount	-.14***	-.09*	-.10**	-.05	.01	-.02	-.06	.07	.09**	.04	-.06
18. Regulation of Television content	-.18***	-.12**	-.15***	-.03	-.03	-.01	-.03	.01	.06	.09**	-.01
19. Discussion of Television	.07	-.04	.01	.03	-.01	.06	-.02	.04	.05	-.02	-.04
20. Quality of Friendship	-.01	-.04	.01	.07*	.06	.01	-.42***	.02	-.02	.07*	-.03
21. Number of Peers	.01	.02	.04	-.02	.04	.01	-.05	-.05	-.03	-.05	.00
22. Problem at School	.01	.03	.08*	-.21***	.15***	-.02	.50***	-.08*	-.09**	-.18***	.02
23. Quality of Neighborhood	-.16***	-.06	.02	-.03	-.24***	.13***	-.10**	.16***	.18***	.19***	.01

Table continues

Table 2. Continued

	12	13	14	15	16	17	18	19	20	21	22
1. Total Television Watching											
2. Violent Television Watching											
3. Age											
4. Gender											
5. Minority Status											
6. Intelligence											
7. Aggression											
8. Income-to-Needs Ratio											
9. Parental Education											
10. Family Structure											
11. Mother's Work Status											
12. Parental Depression	--										
13. Parenting Aggravation	.26***	--									
14. Positive Parenting	-.18***	-.30***	--								
15. Family Conflict	.32***	.20***	-.26***	--							
16. Harsh Discipline	.22***	.25***	-.11**	.12**	--						
17. Regulation of Television amount	-.12**	-.04	.18***	-.11**	.08*	--					
18. Regulation of Television content	-.11**	-.06	.21***	-.16***	.03	.54***	--				
19. Discussion of Television	.01	-.02	.08*	.00	-.01	.05	.02	--			
20. Quality of Friendship	-.14***	-.32***	.43***	-.14***	-.16***	.04	-.01	.03	--		
21. Number of Peers	-.04	-.04	.00	.00	-.03	-.04	-.01	-.04	.16***	--	
22. Problem at School	.17***	.37***	-.30***	.15***	.28***	-.02	-.03	-.05	-.28***	.01	--
23. Quality of Neighborhood	-.15***	-.08*	.24***	-.19***	-.11**	.04	.11**	-.01	.10**	-.032	-.08*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Bivariate Correlations among Game Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Total Game Playing	--										
2. Violent Game Playing	.68***	--									
3. Age	.05	.08	--								
4. Gender	-.27***	-.28***	.01	--							
5. Minority Status	.13*	.10	-.04	-.14**	--						
6. Intelligence	-.03	-.05	.03	.11*	-.21***	--					
7. Aggression	.12*	.11*	.06	-.10	.14**	-.07	--				
8. Income-to-Needs Ratio	-.03	.01	.00	.06	-.25***	.08	-.10	--			
9. Parental Education	-.06	-.03	.04	.06	-.28***	.29***	-.09	.29***	--		
10. Family Structure	-.10	-.02	-.03	.01	-.39***	.13*	-.21***	.25***	.19***	--	
11. Mother's Work Status	.01	-.01	-.08	-.06	.11*	.04	-.06	.02	.00	-.03	--
12. Parental Depression	.06	.06	-.01	.03	.03	.03	.41***	-.08	-.03	-.12*	-.07
13. Parenting Aggravation	.10	.09	.07	-.04	.13*	-.03	.63***	-.07	-.08	-.21***	-.11*
14. Positive Parenting	-.22***	-.21***	-.18**	.18**	-.22***	.09	-.42***	.13*	.16**	.22***	.04
15. Family Conflict	.10	.09	.02	-.08	.06	-.08	.29***	-.13*	-.15**	-.12*	-.06
16. Harsh Discipline	.03	.08	-.07	-.10	.19***	-.10	.39***	-.11*	-.12*	-.14**	.00
17. Regulation of Television amount	-.04	-.04	-.09	-.07	.04	-.10	-.02	.02	.08	-.10	-.02
18. Regulation of Television content	-.10	-.12*	-.17**	-.02	.04	-.08	-.07	-.03	.01	-.01	-.01
19. Playing Game Together	-.05	-.08	-.11*	.10	-.07	.00	-.08	.06	-.02	-.06	-.06
20. Quality of Friendship	-.12*	-.07	-.02	.10	.03	.01	-.41***	.01	.01	.08	-.02
21. Number of Peers	.01	.03	.09	-.04	.04	.08	-.07	-.04	-.01	-.09	-.03
22. Problem at School	.14**	.12*	.08	-.14**	.18**	-.07	.56***	-.11*	-.12*	-.26***	.03
23. Quality of Neighborhood	-.06	-.06	.01	-.01	-.29***	.12*	-.08	.13*	.12*	.19**	-.10

Table continues

Table 3. Continued

	12	13	14	15	16	17	18	19	20	21	22
1. Total Game Playing											
2. Violent Game Playing											
3. Age											
4. Gender											
5. Minority Status											
6. Intelligence											
7. Aggression											
8. Income-to-Needs Ratio											
9. Parental Education											
10. Family Structure											
11. Mother's Work Status											
12. Parental Depression	--										
13. Parenting Aggravation	.28***	--									
14. Positive Parenting	-.17**	-.32***	--								
15. Family Conflict	.33***	.15**	-.25***	--							
16. Harsh Discipline	.14**	.24***	-.19**	.14**	--						
17. Regulation of Television amount	-.04	-.08	.20***	-.06	.10	--					
18. Regulation of Television content	-.11	-.18**	.22***	-.16**	.08	.52***	--				
19. Playing Game Together	.01	-.02	.13*	.03	.03	.07	.06	--			
20. Quality of Friendship	-.18**	-.33***	.47***	-.10	-.18	.02	.01	.02	--		
21. Number of Peers	-.12*	.01	.07	-.05	-.06	-.02	.02	.04	.13*	--	
22. Problem at School	.22***	.46***	-.39***	.17**	.35***	-.02	-.02	-.06	-.34***	.01	--
23. Quality of Neighborhood	-.08	-.15***	.23***	-.18**	-.06	.07	.16**	.00	.12*	-.16**	-.08

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

rate. This problem was corrected by using “cluster” command in STATA 8.0. This procedure corrects the standard error for the non-independence problem of having siblings from the same family in the data.

Another data issue is using the CDS weights. To make the results of the analyses nationally representative, the CDS weights must be incorporated in the analyses. “P-weight” command in STATA enables sampling weights such as that used in PSID-CDS to be incorporated in the analyses. The weights are calculated as the inverse of the probability that any given subject would be selected for the sample.

I will present a comprehensive outlook of children’s violent media use from the results of the analyses. Examining the similarities and differences of the patterns of predictors between violent television use and violent game playing, among different age, gender, and ethnicity groups will delineate a more complex picture of children’s violent media use.

CHAPTER 3: RESULTS

Violent TV Watching

Full Sample

Multiple regression analyses were conducted to examine the factors that predict children's violent television watching. The following predictors were included in the model: (1) individual characteristics, including age, gender, minority status, intelligence, and aggression of child; (2) family demographics, including income parent education, family structure, and mother's work status; (3) family dynamics, including parental depression, parenting aggravation, positive parenting, family conflict, and harsh discipline; (4) media parenting, including regulation of amount of television viewing, regulation of type of television viewing, and discussion about television viewing; (5) peer and school characteristics, including quality of friendship, number of peers, and problems at school; and (6) community as measured by quality of neighborhood. Again, total television viewing was used as a covariate. Thus, the association of total amount of television viewing to violent television viewing was taken into account in the analyses. The average minutes of total television viewing and violent television viewing are shown in Table 4. The results of this regression model can be found in Table 5, $F(22, 697) = 9.93, p < .001$. Total television viewing accounts for 31% of variation in violent television viewing; all other predictors contribute an additional 3 %, indicating that the amount of violent television view is closely related to the total amount of television viewing.

Table 4. Total Television Viewing and Violent Television Viewing

	Total		Violent	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
All Children (<i>n</i> =830)	272.32	171.61	77.99	90.93
Boys (<i>n</i> =435)	278.93	166.69	83.42	95.18
Girls (<i>n</i> =395)	265.03	176.79	72.01	85.72
Age 6 to 8 (<i>n</i> =331)	267.82	161.03	79.26	85.15
Age 9 to 12 (<i>n</i> =499)	275.30	178.37	77.15	94.64
Nonminority (<i>n</i> =422)	249.68	156.86	74.39	84.13
Minority (<i>n</i> =408)	295.73	182.90	81.71	97.43

Note. Minutes presented are the sum of 2 days' viewing per a week.

Table 5. Regression Predicting Violent Television Viewing

	Coeff	SE
Covariates		
Total television watching	0.277 ***	0.027
Individual Characteristics		
Age	-2.110	1.517
Gender	0.321	6.349
Minority Status	-5.550	8.319
Intelligence	-0.312	3.240
Aggression	9.749	13.011
Family Demographics		
Income-to-Needs Ratio	-0.417	0.371
Parent Education	2.735 **	0.999
Family Structure	-0.723	8.690
Mother's Work Status	-2.407	3.635
Family Dynamics		
Parental Depression	-10.787	9.355
Parenting Aggravation	-8.786	5.866
Positive Parenting	-1.395	8.615
Family Conflict	0.177	8.280
Harsh Discipline	3.195	5.076
Media Parenting		
Regulation of Television Amount	0.124	3.947
Regulation of Television Content	-3.087	3.735
Discussion of television	-11.450	9.110
Peer/School		
Quality of Friendship	-5.612	4.826
Number of Peers	0.896 *	0.448
Problem at School	6.997	10.534
Community		
Quality of Neighborhood	3.269	6.156

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

For the full sample of children, higher amounts of parent education predicted more violent television use by children. The number of peers was also significantly related to children's violent television use in that the more friends a child reported having, the more violent television they were reported to watch.

Age

The full sample was separated into two different age groups because previous research and theory indicate that there are differences in television viewing based on children's age. For instance, older children generally have more demanding school schedules than younger children. Also, older children are more advanced cognitively than are younger children, which may influence the types of programs to which they are attracted. The full sample was divided into 6 to 8 year olds and 9 to 12 year olds. The models for each group included the same predictors and covariates as the model for the full sample.

As was the case for the full sample of children, parent education was significantly related to violent television viewing for children ages 6 to 8. Higher amounts of parental education predicted higher amounts of violent television viewing. In contrast, higher amounts of parenting aggravation predicted lower amounts of violent television viewing among children ages 6 to 8, $F(21, 310) = 9.76$, $p < .001$. For children age 9 to 12, nothing predicted children's violent television viewing, $F(21, 267) = 7.53$, $p < .001$ (Table 6). The amount of variance explained

Table 6. Regression Predicting Violent Television Viewing by Age

	6-8		9-12	
	Coeff	SE	Coeff	SE
Covariates				
Total television watching	0.236 ***	0.042	0.305 ***	0.030
Individual Characteristics				
Gender	-8.146	10.431	2.840	8.010
Minority Status	3.696	14.806	-11.734	9.433
Intelligence	3.229	5.551	-5.234	3.783
Aggression	28.361	17.840	-5.131	16.658
Family Demographics				
Income-to-Needs Ratio	0.256	1.717	-0.477	0.322
Parent Education	5.003 **	1.874	1.096	1.214
Family Structure	-3.950	14.609	2.477	9.945
Mother's Work Status	-1.039	6.001	-3.256	4.647
Family Dynamics				
Parental Depression	-13.159	13.254	-7.623	8.111
Parenting Aggravation	-15.412 *	7.419	-4.877	9.492
Positive Parenting	-7.916	13.066	0.663	10.239
Family Conflict	-7.148	11.253	4.749	10.408
Harsh Discipline	7.204	6.709	-0.704	6.237
Media Parenting				
Regulation of Television Amoun	-1.711	5.567	0.698	4.303
Regulation of Television Conten	0.555	5.744	-3.492	4.738
Discussion of television	-13.798	13.162	-1.581	13.784
Peer/School				
Quality of Friendship	-0.257	7.010	-8.136	6.276
Number of Peers	1.412	0.885	0.711	0.438
Problem at School	5.954	15.374	7.533	14.228
Community				
Quality of Neighborhood	-0.048	9.359	7.942	7.514

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

beyond the total television watching with all other variables was 3.3% and 3.5% for 6 to 8-year-olds and 9 to 12-year-olds respectively.

Gender

Previous research indicates that television use differs for boys and girls in that boys watch more violent television than girls. To evaluate if this finding also applies to the factors that predict boys and girls TV watching, analyses were also conducted separately for boys and girls.

For boys, the younger the child the more likely they were to watch violent television. Parental education positively predicted boys' violent television viewing, $F(21, 398) = 8.08, p < .001$. For girls, parenting aggravation was negatively related to violent television viewing. Higher levels of parental aggravation toward girls predicted lower amounts of violent television watching, $F(21, 358) = 7.73, p < .001$ (Table 7). The amount of variance explained beyond the total television watching with all other variables was 4.1% and 3.5% for boys and girls respectively.

Minority

Previous research indicates that television use differs among minorities and non-minorities. In general, minorities watch more television than nonminorities and are expected to watch more violent television accordingly. For nonminorities, having more peers predicted more violent television watching, $F(21, 342) = 9.04, p < .001$. For minorities, when parents discussed television programs with their children, their children watched less violent television, $F(21, 357) = 8.51, p < .001$

Table 7. Regression Predicting Violent Television Viewing by Gender

	Boys		Girls	
	Coeff	SE	Coeff	SE
Covariates				
Total television watching	0.268 ***	0.040	0.303 ***	0.030
Individual Characteristics				
Age	-4.675 *	1.967	0.266	2.167
Minority Status	3.460	10.092	-17.786	11.476
Intelligence	1.986	4.631	-2.535	4.339
Aggression	23.035	19.700	6.224	15.918
Family Demographics				
Income-to-Needs Ratio	-0.305	1.122	-0.536	0.339
Parent Education	3.597 **	1.282	2.352	1.609
Family Structure	-1.471	10.159	-1.880	13.281
Mother's Work Status	-1.145	4.486	-4.029	5.314
Family Dynamics				
Parental Depression	-12.819	14.980	-9.108	9.671
Parenting Aggravation	-6.768	7.540	-17.622 *	8.466
Positive Parenting	-3.517	9.514	2.197	12.445
Family Conflict	2.044	9.721	-2.805	11.247
Harsh Discipline	3.630	5.210	1.703	10.075
Media Parenting				
Regulation of Television Amount	3.735	4.147	-4.671	5.255
Regulation of Television Content	-9.852	5.185	5.737	4.451
Discussion of television	4.448	11.016	-27.159	14.705
Peer/School				
Quality of Friendship	-4.881	5.360	-5.243	8.601
Number of Peers	0.655	0.494	1.405	0.833
Problem at School	-3.378	10.991	25.364	19.023
Community				
Quality of Neighborhood	1.459	6.773	6.734	9.028

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

(Table 8). The amount of variance explained beyond the total television watching with all other variables was 2% and 3.5% for non-minorities and minorities respectively.

Violent Game Playing

Full Sample

Multiple regression analyses were conducted to examine the factors that predict children's violent game playing. The following predictors were included in the model: (1) individual characteristics, including age, gender, minority status, intelligence, and aggression of child; (2) family demographics, including income parent education, family structure, and mother's work status; (3) family dynamics, including parental depression, parenting aggravation, positive parenting, family conflict, and harsh discipline; (4) media parenting, including regulation of amount of television viewing, regulation of type of television viewing, and playing games with children; (5) peer and school characteristics, including quality of friendship, number of peers, and problems at school; and (6) community as measured by quality of neighborhood. Parent's regulation of the amount and content of children's television viewing were used in the model as indicators of how parents regulate their children's media use in general. Similar variables to assess parents' regulation of game playing were not available in the study data. Again, total game playing was controlled for in this analysis. The average minutes of total game playing and violent game playing are shown in Table 9. The results of this model can be found in Table 10, F (22,

Table 8. Regression Predicting Violent Television Viewing by Minority Status

	Nonminority		Minority	
	Coeff	SE	Coeff	SE
Covariates				
Total television watching	0.305 ***	0.030	0.239 ***	0.039
Individual Characteristics				
Age	-1.533	1.759	-2.630	2.518
Gender	4.759	7.648	-12.899	10.681
Intelligence	-1.253	3.383	5.183	6.535
Aggression	9.236	16.490	13.617	19.861
Family Demographics				
Income-to-Needs Ratio	-0.480	0.362	3.203	3.408
Parent Education	2.336	1.813	1.878	1.432
Family Structure	10.646	11.682	-19.290	12.120
Mother's Work Status	-0.813	4.538	-5.882	5.815
Family Dynamics				
Parental Depression	-13.539	12.408	-8.031	9.159
Parenting Aggravation	-7.404	7.703	-11.810	7.657
Positive Parenting	-2.770	11.781	-2.056	9.676
Family Conflict	-3.953	10.628	-6.558	9.730
Harsh Discipline	4.078	6.755	1.766	4.566
Media Parenting				
Regulation of Television Amoun	-1.255	4.065	1.492	7.592
Regulation of Television Conten	-1.861	4.593	-3.187	5.815
Discussion of television	-6.635	11.683	-26.180 *	12.884
Peer/School				
Quality of Friendship	-5.898	5.959	-2.054	8.106
Number of Peers	1.976 *	0.940	0.477	0.375
Problem at School	13.168	13.101	-2.594	13.325
Community				
Quality of Neighborhood	-9.631	8.702	12.399	6.419

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 9. Total Game Playing and Violent Game Playing

	Total		Violent	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
All Children (<i>n</i> =346)	124.09	117.25	65.44	99.11
Boys (<i>n</i> =226)	147.10	132.73	85.42	112.58
Girls (<i>n</i> =120)	80.77	60.44	27.80	48.21
Age 6 to 8 (<i>n</i> =131)	120.04	120.89	57.57	110.41
Age 9 to 12 (<i>n</i> =215)	126.56	115.20	70.23	91.48
Nonminority (<i>n</i> =189)	110.69	98.83	56.43	73.12
Minority (<i>n</i> =157)	140.22	134.73	76.28	122.73

Note. Minutes presented are the sum of 2 days' viewing per a week.

Table 10. Regression Predicting Violent Game Playing

	Coeff	SE
Covariates		
Total Game Playing	0.610 **	0.212
Individual Characteristics		
Age	-2.601	3.399
Gender	-6.554	9.328
Minority Status	9.593	11.221
Intelligence	0.963	3.716
Aggression	-33.429	27.656
Family Demographics		
Income	0.433	0.625
Parent Education	0.279	1.767
Family Structure	-1.318	11.369
Mother's Work Status	-1.287	6.316
Family Dynamics		
Parental Depression	7.521	9.782
Parenting Aggravation	9.102	9.631
Positive Parenting	-13.599	14.437
Family Conflict	-1.921	13.103
Harsh Discipline	20.193 **	7.395
Media Parenting		
Regulation of Television Amount	8.659 *	4.246
Regulation of Television Content	-5.967	4.790
Playing Game Together	-8.280 *	3.536
Peer/School		
Quality of Friendship	-0.924	7.984
Number of Peers	0.371	0.550
Problem at School	-15.138	16.557
Community		
Quality of Neighborhood	-3.718	8.001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

302) = 4.09, $p < .001$. The amount of variance explained beyond the total game playing with all other variables was 2.7%. For the full sample of children, harsher discipline by parents predicted more violent game playing by children. The more parents regulated the amount of children's television watching, the more they played violent games. However, the more parents played games with their children, the less likely children were to play violent games.

Age

The full sample was separated into two different age groups because previous research and theory indicate that there are differences in electronic game playing based on children's age. For instance, older children generally have more demanding school schedules than younger children. Also, older children are more advanced cognitively than are younger children, which may influence the types of games they play. Older children also have more developed fine motor skills that enable them to play games. The full sample was divided into 6 to 8 year olds and 9 to 12 year olds. The models for each group included the same predictors and covariates as the model for the full sample.

The following details the findings for children ages 6 to 8. Minority status was significantly related to violent game playing in that minorities were less likely to play violent games than nonminorities. Higher amounts of parenting aggravation positively predicted higher amounts of children's violent game playing. Harsher discipline by parents predicted more violent game playing by children. The more

parents regulated the amount of children's television watching, the more they played violent games. However the more parents regulated the type of children's television viewing, the less they played violent games. Also, the more parents played games with their children, the less likely children were to play violent games, $F(21, 124) = 11.00, p < .001$.

The following details the findings for children ages 9 to 12. Girls played violent games less often than boys. Household income positively predicted children's violent game use. The more friends children had in this age group the more they played violent games, $F(21, 206) = 3.42, p < .001$ (Table 11). The amount of variance explained beyond the total game playing with all other variables was 1.9% and 2.4% for 6 to 8-year-olds and 9 to 12-year-olds respectively.

Gender

Previous research indicates that electronic game use differs for boys and girls in that boys play more games in general, and are expected to play more violent games than girls as the majority of games are violent. To evaluate if this finding also applies to the factors that predict boys and girls game playing, analysis were conducted separately for boys and girls. For boys, harsh discipline by parents predicted more violent game use. However, when parents played games with their sons, the less they played violent games, $F(21, 207) = 3.67, p < .001$. For girls, income positively predicts violent game use in that girls in families with higher incomes played more violent games. Also, the more parents regulated the amount of television that girls

Table 11. Regression Predicting Violent Game Playing by Age

	6-8		9-12	
	Coeff	SE	Coeff	SE
Covariates				
Total Game Playing	0.896 ***	0.067	0.285	0.168
Individual Characteristics				
Gender	10.058	11.236	-22.470 *	8.959
Minority Status	-29.194 *	14.260	8.103	12.836
Intelligence	-3.059	7.145	2.190	4.483
Aggression	-15.149	22.539	9.191	31.574
Family Demographics				
Income	-4.314	2.258	1.030 *	0.467
Parent Education	-1.137	2.473	1.148	2.200
Family Structure	-5.216	14.072	14.864	13.132
Mother's Work Status	0.573	7.166	-7.648	6.863
Family Dynamics				
Parental Depression	0.773	16.422	-2.594	10.627
Parenting Aggravation	24.730 *	10.431	-10.215	12.362
Positive Parenting	-8.034	16.890	5.940	13.781
Family Conflict	-21.261	14.204	17.953	12.833
Harsh Discipline	28.543 ***	8.392	12.681	7.465
Media Parenting				
Regulation of Television Amoun	13.331 *	5.197	3.877	5.156
Regulation of Television Conten	-14.728 *	6.279	0.454	5.904
Playing Game Together	-9.016 *	4.132	-6.210	4.349
Peer/School				
Quality of Friendship	11.144	10.169	-3.968	8.780
Number of Peers	-0.733	2.386	0.966 *	0.448
Problem at School	-30.576	19.788	-10.915	18.945
Community				
Quality of Neighborhood	-13.414	10.726	3.426	8.358

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

watch the more they played violent games, $F(21, 112) = 4.67, p < .001$ (Table 12).

The amount of variance explained beyond the total game playing with all other variables was 2.2% and 4.4% for boys and girls respectively.

Minority

Limited research has been conducted to evaluate how electronic game use differs by minority status or ethnicity. Generally, minority status is highly related to socioeconomic status. It has been speculated that children from families of lower socioeconomic status have less access to electronic games that tend to be expensive than children from more affluent families. To evaluate this hypothesis, the analysis has been conducted separately for minorities and nonminorities. For nonminorities, boys were more likely to play violent games than girls. Also for nonminorities, the more parents played electronic games with children, the less likely they were to play violent games, $F(21, 165) = 3.21, p < .001$. For minorities, the more aggressive the child, the less they play violent games. For this group, high levels of parent aggravation predicted more violent game playing, $F(21, 138) = 15.31, p < .001$ (Table 13). The amount of variance explained beyond the total game playing with all other variables was 4% and 1.8% nonminorities and minorities respectively.

In summary, different factors predicted children's violent television viewing and violent electronic game playing. The analyses conducted suggest that the individual characteristics of the child have little influence on children's violent

Table 12. Regression Predicting Violent Game Playing by Gender

	Boys		Girls	
	Coeff	SE	Coeff	SE
Covariates				
Total Game Playing	0.593 **	0.220	0.508 ***	0.105
Individual Characteristics				
Age	-2.943	4.770	-1.627	2.161
Minority Status	12.592	16.945	7.064	11.782
Intelligence	-0.577	5.787	0.164	4.633
Aggression	-32.965	33.623	-14.431	24.638
Family Demographics				
Income	-0.835	1.359	0.847 ***	0.240
Parent Education	1.967	2.730	-2.047	2.747
Family Structure	-1.609	15.417	-1.625	13.626
Mother's Work Status	-3.991	8.871	6.654	5.620
Family Dynamics				
Parental Depression	30.058	22.109	10.176	7.785
Parenting Aggravation	8.516	12.419	2.652	7.824
Positive Parenting	-21.039	18.401	14.318	13.808
Family Conflict	-16.929	18.890	18.322	11.755
Harsh Discipline	24.500 *	9.720	4.581	8.323
Media Parenting				
Regulation of Television Amoun	6.075	5.077	8.253 *	3.977
Regulation of Television Conten	-10.367	6.631	-1.479	5.052
Playing Game Together	-10.085 *	4.593	-0.918	3.520
Peer/School				
Quality of Friendship	-8.023	12.219	0.176	6.405
Number of Peers	0.386	0.575	2.010	1.376
Problem at School	-16.587	19.565	-19.057	17.843
Community				
Quality of Neighborhood	3.017	12.575	-2.420	6.886

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 13. Regression Predicting Violent Game Playing by Minority Status

	Nonminority		Minority	
	Coeff	SE	Coeff	SE
Covariates				
Total Game Playing	0.229	0.158	0.908 ***	0.066
Individual Characteristics				
Age	4.533	2.326	1.477	2.681
Gender	-25.236 **	9.741	0.156	13.338
Intelligence	7.149	4.846	1.934	7.779
Aggression	24.840	25.871	-77.447 **	29.662
Family Demographics				
Income	0.789	0.555	-1.724	6.453
Parent Education	-0.564	2.381	-2.908	2.861
Family Structure	10.560	13.648	4.519	18.523
Mother's Work Status	-6.330	6.619	-4.438	7.854
Family Dynamics				
Parental Depression	-5.196	9.769	3.321	17.155
Parenting Aggravation	-9.456	10.984	29.672 *	11.661
Positive Parenting	12.283	15.224	-19.511	18.137
Family Conflict	19.603	11.891	2.150	14.522
Harsh Discipline	8.720	8.933	8.446	6.780
Media Parenting				
Regulation of Television Amour	2.443	4.435	3.990	8.252
Regulation of Television Conten	3.769	5.341	-2.157	9.773
Playing Game Together	-8.979 *	3.635	0.754	5.785
Peer/School				
Quality of Friendship	1.367	7.854	-8.366	13.173
Number of Peers	-0.885	1.844	0.317	0.402
Problem at School	9.078	20.248	-29.483	15.962
Community				
Quality of Neighborhood	12.268	10.147	-10.247	7.643

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

television use. However, gender, minority status, and child's aggression predicted violent game playing for certain subgroups. Examining family demographics demonstrated that parent higher levels of education predicted violent television viewing, while higher income predicted violent game playing. For family dynamics, parent aggravation predicts low levels of violent television use, but higher levels of violent game playing. Harsh parental discipline predicted more violent game playing; however it was not related to violent television viewing. In general, media parenting had little influence on children's violent television viewing, but, various measures of media parenting were strongly related children's violent game playing. The more friends a child has the more violent television they watch and the more violent games they play, for certain subgroups. Community factors did not predict children's media use.

CHAPTER 4: DISCUSSION

To evaluate potential predictors of children's violent media use, multiple regression analyses were used to examine both violent television watching and violent game playing among children aged 6 to 12. These analyses found that the predictors for violent television watching differ from those for violent game playing. The different types of predictors, including individual characteristics, family demographics, family dynamics, media parenting, peer and school experiences, and quality of community, and their relations to violent television and violent electronic game use are discussed in the following sections.

Predictors for Different Medium

The results of these findings suggest that the predictors of children's violent television viewing and violent game playing differ substantially. To explore these differences, the predictors are compared for each type of media use within various ecological contexts. For all children in the sample, two factors predicted violent television use: parent education and number of peers. First, the analyses indicate that higher parent education predicted more violent television viewing by children. This finding is not consistent with research showing negative associations between parent education and total viewing (Bickham et al., 2003). Given that total viewing is strongly related to viewing violent television, a negative relation was expected between parent education and violent television viewing. It is possible, however, that children with more educated parents may be attracted to violent programs. More

educated parents provide more cognitively stimulating environments for their children. As a result, children with more highly educated parents are likely to be surrounded by an environment that challenges their cognitive capabilities than children with less highly educated parents. In particular, more highly educated parents are likely to use more sophisticated vocabulary with their children and attempt to reason more with their children than less highly educated parents. Children whose parents have more education may be more cognitively advanced than children whose parents have less education and may be drawn to the level of thinking required by violent programs. Many violent programs have more complex storylines that requires more thinking by the viewer. Thus, children who grow up in cognitively stimulating environments that are created by educated parents are likely to be attracted to complex, violent television programs.

Second, children with more friends watched more violent television than children with fewer friends. This finding contradicts social isolation theory in that compared with children with more friends, children with few close friends are expected to watch more television, implying that they also watch more violent television (Edgar, 1977; Krosnick, Anand & Hartl, 2003; Kubey, 1986). This finding suggests that children do not watch violent television due to social isolation. Rather, they may watch violent television with peers or as a component of peer interaction. It should be noted that these findings do not refute social isolation

theory. However, they suggest that the relationship between having friends and violent television use may be complex and requires further study.

Predictors of violent game playing were different from those for violent television viewing. For all children, only the following parenting-related factors predicted children's violent electronic game playing: harsh discipline, regulation of the amount of television viewing, and playing games with their children. First, harsh parental discipline predicted more violent game playing. This finding confirmed expectations. Children who are subject to harsh discipline may experience more angry emotions than children who do not. These children may use violent games as an outlet for these negative emotions. Another possibility is that children model their parents' aggressive behavior by playing violent or aggressive games (Vandewater, Lee, & Shim, 2005).

Second, the more parents regulated the amount of time children watched television, the more children played violent games. It is possible that children who play a lot of violent games also watch a lot of violent television. In general, these children are attracted to violent media. If their parents regulate the amount of time children can spend using one form of media, they may transfer the time that would have been spent watching violent television to playing violent games. Another possible explanation is that when children have limited time to spend with a certain form of media, they will allocate more of their limited time to violent media than nonviolent media. Parents who regulate time for television may also regulate

children's game-playing time but not necessarily game content. As a result, children whose playing time is limited may allocate that time to violent games rather than nonviolent games.

Third, the more parents play games with their children, the less children play violent games. When parents play games with their children, parents are likely to limit the violent content of the games they play together. In this way, parents are directly monitoring their children's violent game playing. As a result of this direct interaction, these parents may also influence children's game playing when they are not present (Heald, 1980; Lyle & Hoffman, 1972). Parents who play games with their children are likely more aware of their children's typical game use than are parents who do not play with their children. These parents may limit the number of violent games their children have access to or are allowed to play.

Ecological Contexts of Violent Media Use

This section examines the following categories of predictors and how they influence violent television viewing and violent game playing differently: individual characteristics, family demographics, family dynamics, media parenting practices, peer and school characteristics, and community quality.

Individual Characteristics

The analyses conducted suggest that individual characteristics have few associations with children's violent television use, whereas they have some predictive power for children's violent game playing. As previously shown, gender,

ethnicity, and child aggression predicted violent game playing for certain subgroups of children. Child's intelligence did not predict either form of violent media use. The nature of violent programs and games evaluated here offer no distinction between the types of violence actually used in the programs and games. It is likely that certain violent programs and games require heightened levels of cognitive abilities and others do not. It would be interesting to examine how violent media can be differentiated based on the intellectual ability they require of players and to determine how these different types of games attract children with different levels of intellectual abilities. Given that research on the effects of violent media use found strong association between violent media use and aggression (Anderson & Dill, 2000; Comstock, 1977; Funk et al., 2002), it is puzzling that the present study did not find such association.

Although individual characteristics were not found to be a significant predictor of violent television viewing in general, there was one exception; age predicted boys' violent viewing. In particular, younger boys watched more violent television than older boys. A likely explanation for this age difference is that preferences for television programs change as boys grow older. Older boys prefer to watch more sports and comedy programs, whereas younger boys watch more noneducational cartoons that usually contain a larger amount of violence (Wright et al., 2001). Older children may have a more diverse viewing diet, thus making proportion of violent viewing relatively smaller than that of younger children.

In contrast, both gender and ethnicity predicted violent game playing for certain subgroups of children. First, gender predicted violent game playing for older children. As expected, older girls played less violent games than older boys. This is consistent with research demonstrating that boys generally play more game than girls, and prefer more violent games than girls (Funk, 1993; Funk et al., 2000; Griffiths, 1997).

Second, predictors of children's violent game playing differed for minorities and nonminorities. Child aggression and parent aggravation predicted violent game playing among minority children but not among nonminority children. Higher levels of aggression in children predicted less violent game playing for minorities. This finding is surprising as it is commonly believed that more aggressive children play more violent games (Anderson & Dill, 2000; Gunter, 1983). However, minority children who exhibit high levels of aggression may not have a strong attraction to game playing and may engage in other violent activities. Further studies should be conducted to evaluate this finding.

A possible explanation for why individual characteristics relate to violent game playing and not violent television watching is that television is generally more normative for children than game playing. Television has been a popular pastime for children for much longer than electronic games. Television is also more common in households than electronic games. The majority of children watch television, whereas certain groups of children are more likely to play games. As a result,

individual characteristics of children likely do not predict television viewing, while they are likely to predict game playing. The same conclusion can be drawn for violent television viewing and violent game playing.

Family Demographics

Examining family demographics as predictors found that parent education predicted violent television viewing, whereas income predicted violent game playing. This finding was also significant for the two subgroups of the sample: boys and younger children. Higher levels of parent education predicted more violent television viewing. Again, this relationship is likely because children with more highly educated parents are attracted to the more complex storylines of violent programs than are less highly educated parents. The same is not true for electronic games, which offer interactive and action-oriented play as opposed to storylines that need to be followed. As a result, children with educated parents may be drawn to more violent television watching, but not necessarily to more violent game playing.

Similar to the full sample, boys' violent television viewing was related to parental education. Again, boys with more educated parents may be drawn to the complexity of violent programs more than boys with less educated parents. The same was not true for girls. This may be due to general differences between boys and girls. In particular, boys may be more prone to violent programs and more likely to employ such direct forms of aggression, while girls are attracted to more relationship-oriented programs (Eagly & Steffen, 1986). Girls with educated parents

may be more likely to watch dramas with complex storylines than are girls with less educated parents.

Income predicted violent game playing for two subgroups of children: girls and older children. It is not surprising that higher income predict higher levels of violent game playing rather than violent television viewing. Most children have access to television sets, whereas only those with enough financial resources have access to electronic games on a regular basis. Higher family income predicted greater amounts of violent game playing for older children. This finding was expected as electronic games are an expensive activity for children. As children get older, they are less likely to be entertained by playing the same game repeatedly than when they are younger. Older children are likely to prefer a variety of games. The types of games this age group prefers also changes in that older children no longer prefer educational games. Instead, older children are attracted to more violent games. Families with higher income are better able to purchase a wide variety of games for children than are families with low income. As a result, children from affluent families have greater access to violent games than children from less affluent families.

For girls, income positively predicted violent game playing. There is a difference in the circumstances of girls from low-income and high-income families. Video games and their equipment are expensive to purchase and are more accessible to children from affluent families than low-income families. It is likely that girls

who have ample resources to access such expensive games will be more likely to play than girls who do not. Having access to more income and resources allows parents to purchase games for their children and likely enables older girls to purchase games for themselves. It is difficult to explain why access to additional resources predicts violent game playing for girls and not for boys. This finding requires further investigation.

Contrary to expectations, other family demographics, specifically family structure and maternal employment, did not predict children's violent media use. It would be interesting to determine whether this finding is consistently replicated using other data sets.

Family Dynamics

Of the family-related predictors assessed, differences were found in how parenting aggravation and harsh discipline were related to children's violent television viewing and violent game playing. Parenting aggravation was linked to both types of violent media use for certain subgroups of children, but these relations were in the opposite directions. Although parenting aggravation did not predict violent television viewing for the full sample of children, high levels of parenting aggravation were related to less violent television viewing for younger children and girls. Surprisingly, high levels of aggravation in parenting predicted less violent television viewing. A possible explanation for this is that children whose parents express aggravation avoid situations that present similar forms of emotion. This

finding was not true for older children. Younger children may be more sensitive to these conditions than older children. Younger children are less independent from their parents than are older children who struggle for their own independence (Ritchie, 1991). They have fewer defense mechanisms to protect themselves from their parents' negative emotions toward them. As a result, they may be more likely than older children to avoid situations that remind them of such feelings, including violent television programs.

For older children, none of the factors examined predicted violent television viewing. It may be that it is so normative for this age group to watch violent television that there are no specific factors that predict this outcome. It is possible that children acquire their television viewing habits when they are young. Therefore, factors that predict violent media use may have more influence on younger children than on older children. Once children's viewing habits have been established at an early age, they may not be likely to change as they get older (Huesmann et al., 2003; Huston, Wright, Rice, Kerkman, & St. Peters, 1990; Singer, & Singer, 1981; Wright, Huston, Reitz, & Piemyat, 1994). As a result, older children's viewing may not be directly influenced by their current ecological contexts.

These findings question when certain environmental conditions are most likely to influence children's violent television viewing. Previous research suggests that violent television viewing has negative consequences for children's aggression around age 8 (Eron, 1982). However, these effects do not hold for children over 10.

Thus, it is important to evaluate the predictors of children's violent television viewing especially during this sensitive period. If children around age 8 are more vulnerable to being negatively influenced by violent television, then learning more about the predictors of their viewing may help us to intervene in this relationship. According to these analyses, the same is not true for older children whose violent television use is not influenced by any of the predictors examined. This age group's violent television viewing may have been determined when they were in the suggested sensitive period. After that point, their viewing habits may no longer be influenced by other factors. In other words, the viewing habits of older children may be fixed.

Parenting aggravation predicted girls' violent television viewing. Girls with highly aggravated parents watched violent television significantly less than girls with less aggravated parents. As was the case with younger children, girls are more likely to internalize feelings and experiences than boys (Maccoby, 1998). Thus, girls may be more likely to avoid programs that display violent behavior or negative emotion.

Parenting aggravation did not predict violent game playing for the full sample of children, but it was related to more violent game playing for younger and minority children. Children, especially those that are younger and of minority status, are more likely to identify with a television character and program (King & Multon, 1996). As suggested previously, parenting aggravation elicits negative emotions in children. These children may avoid violent television programs that exhibit

aggravation and aggression, as they are more likely to identify with the character that is the target of these emotions and behaviors. In contrast, these children may seek out violent games that allow them to act out their own negative emotions.

Children who experienced harsh discipline from their parents played more violent games, but harsh discipline did not predict violent television viewing. Similar to parenting aggravation, harsh discipline may also elicit negative and aggressive emotions in children. Playing violent games offers these children an opportunity to act out these emotions. These children may also be modeling their parents' aggressive behavior in the way they play violent games (Vandewater et al., 2005). Harsh disciplinary practices are more explicit than aggravation and it is easier for children to model such explicit behaviors. As a result, children are more likely to seek violent games as a medium to act out their aggression and negative emotions than violent television programs.

Parents who disciplined their younger children more severely also had children who played more violent games. Intuitively, these findings seem plausible. The child perceives both parental aggravation and harsh discipline as aggressive or negative. In response to these parental actions and emotions, these children are likely to experience their own aggressive or negative emotions. Accordingly, they may seek outlets to exhibit these emotions. One such outlet is violent games, which children may use to act out their emotions. As a game player, children may become an active aggressor, carry out aggressive behaviors, and practice them repeatedly.

The control that children have over the games as well as their ability to act out emotions is likely to attract children to the games in the first place (Greenfield, 1994).

For boys, harsh discipline by parents and parental game playing with their children predicted violent game playing. The same was not found for girls. These gender differences may be due to the fact that boys typically play more games than girls and boys prefer violent games. It is likely that parents' harsh discipline affects the activities children actually engage in on a regular basis. For boys, one activity is electronic game playing. For girls, game playing is not as normative, and thus, is not as influenced by parental harsh discipline. At the same time, if boys play more video games than girls, then they are likely more responsive to playing games with their parents than girls.

Although the discussion presented here suggests that harsh discipline predicts children's violent media use, the direction of this association cannot be stated for certain. It may be that parental harsh discipline is actually a result of children's behavior, which may be influenced by children's violent media use. In this way, violent media use may influence harsh discipline via its effect on child behavior. The direction of this finding should be examined by future studies.

Parenting aggravation toward the child and harsh discipline are more directly experienced by children than are other parent characteristics like depression. It is also important to note that lack of positive parenting did not predict violent media use. In this way, lack of a positive parenting is not equivalent to the presence of

negative parenting. Thus, it is understandable that parenting aggravation and harsh discipline are more strongly related to children's violent media use than measures of parent psychological well-being and positive parenting practices.

Media Parenting

In general, media parenting was not related to children's violent television viewing. However, various measures of media parenting were strongly related to children's violent game playing. Television is a common activity for the majority of children, unlike game playing. In this way, parents may have more control over children's game playing than their television viewing. These findings highlight certain practices that may have the potential to influence children's game playing, including regulating the amount and content of children's media use and directly involving themselves in the activity by playing games with their children. These findings are especially true for younger children implying that media-specific parenting can be more effective for this age group.

Several aspects of media parenting influenced children's violent game playing, including regulation of television amount and content, as well as a parent's practice of playing games with their children. Although parents' regulation of the amount of television positively predicts children's violent game playing, their regulation of the type of television children can watch negatively predicts violent game playing. As discussed previously, children who are limited in the amount of television they can watch may be attracted to games as a substitute activity. Parents

who limit the amount of television children watch may also regulate the amount of their game playing. If parents only regulate the amount and not the content of media use, it is likely that the children who are attracted to violent media will play more violent games. These analyses found that parents who regulated the content of children's television programs had children who played less of violent games than children whose parents did not regulate program content. It is likely that parents who regulate television program content, also regulate game content for their children. Thus, children play violent games less often when parents regulate the content of their media use.

Parents who regulated more the amount of television girls were allowed to watch had daughters who spent more time playing violent games. As discussed for the full sample, children, and in this case girls, who are limited in the amount of television they may watch likely seek alternative forms of media. Because girls are typically less attracted to game playing than boys, they may entertain themselves more frequently with television. When this preference is restricted, they may seek electronic games as a substitute. The finding that they play more violent games may be attributed to the fact that violent games are more available to them. Another explanation may be the reasoning behind parents' regulation of media use. It has been hypothesized that parents regulate media use because their children consume a lot of media (Kotler et al., 2001). It is possible that parents who regulate the amount of television children can watch may also regulate their amount of game playing. As

discussed previously, children who are limited in the amount of media they are able to consume, may allocate the time that they do have to more violent media. In this way, girls whose parents limit the amount of television, and possibly the amount of game playing, may play violent games more often.

For nonminority children, gender and playing games with their parents predicts violent game playing. As expected, nonminority girls played violent games less than nonminority boys. This finding supports the general tendency for boys to play violent games more than girls. Nonminority children who play games with their parents play violent games less often; the same was not true for minority children. A possible explanation for this difference between nonminority and minority children is that nonminority parents are more likely than minority parents to play games with their children. When nonminority parents play games with their children, they are better able to monitor the content of the games their children play and limit their use of violent games.

Although various aspects of media parenting have been presented as predictors of children's violent media use, the direction of this relationship is not certain. It is possible that parents engage in media parenting as a result of their children's media use (Kotler et al., 2001). For instance, parents of children who engage in more violent forms of media may be more apt to monitor and regulate their child's media use. Further study is needed to examine the direction of this relationship.

Peer and School Characteristics

The only aspect of peer involvement and school that was related to children's violent media use was the number of friends a child had. The more friends that a child had, the more he or she engaged in violent media use. This relationship was the same for violent television viewing and violent game playing though more pronounced for violent television viewing. Having more friends predicted more violent television viewing for nonminorities, whereas having discussions about television programs with parents predicted less violent television viewing for minorities. This finding may be due to general differences between minorities and nonminorities. It is commonly believed that white children are more independent from the family unit than are Blacks and Hispanics. In this way, nonminority children may be more influenced by peers, while minority children may be more influenced by their parents.

Having more friends was positively related to older children's violent game playing. This finding contradicts the idea that game playing serves as an activity for who isolate themselves from their peers. It may be more likely that children play games with their peers. Another possibility is that game playing is a popular enough activity among older children that children choose to engage in the activity even when they are alone so that they may improve their game playing ability.

Quality of friendship and problems at school did not predict children's violent television viewing or game playing. These measures are based on parent

report. Thus, these conditions are parent interpretations of the children's friendship quality and reported school problems. However, parent interpretations may not accurately reflect the actual conditions as perceived by the children. It is possible that parents are not completely aware of children's peer interactions and school conduct. In the future, it would be beneficial to examine child report of these measures to assess whether they are linked to children's violent media use.

Community Quality

Neighborhood quality did not predict children's violent media use. This measure was included with the other significant ecological contexts in the analyses to gain a comprehensive picture of children's violent television use and violent game playing. However, when the other ecological contexts described above were included in the model, community quality did not predict children's violent media use. Children may not be as responsive to community quality as they are to other ecological contexts because community does not have as direct of an impact on children's media use as do family and peers.

Conclusion

These findings illustrate that there are multiple predictors from several ecological contexts that influence children's violent media use. These predictors vary across subgroups of children and differ for television watching and game playing.

A significant strength of this study was that it examined multiple levels of children's social ecology, including their individual characteristics, family demographics, family dynamics, media parenting, peer and school, and community quality. As suggested by existing literature, each of these ecological levels likely influence children's media use; this study attempted to examine all of them in a comprehensive manner. To gain a complete picture of children's violent media use, it is necessary to examine aspects of each of these levels as potential predictors, simultaneously.

Different predictors of violent media use were found for boys and girls, younger and older children, as well as minorities and nonminorities. The commonalities in children's violent media use that exist across the total population are important, however, the differences among different subgroups are equally important. These differences highlight the need to examine violent media use and its predictors for each of these subgroups.

In addition to examining differences in predictors of violent media use from several ecological contexts and for multiple subgroups of children, it is necessary to evaluate how these factors differ for various types of media. These findings suggest that what predicts violent television watching is vastly different from what predicts violent game playing for children. It is likely that factors from various ecological contexts influence children's use of media differently for different types of media, including television and electronic games.

It should be noted that the total amount of television viewing was controlled for in the violent television watching analysis, while total amount of game playing was controlled for in the violent game playing analysis. Using these covariates accounts for the possibility that the total amount of time they spend using the media in general is associated with the time children spend using violent media. In this way, the relationship between total amount of media use and amount of violent media use are not confounded in the findings presented here. The two measures of total media use were highly correlated with their respective measures of violent media use. Therefore, controlling for the total amount of media use results in more rigorous estimations of the amount of violent media use.

Limitations of the Study and Future Directions

One limitation of this study is the use of the time-diary method to collect data. Although multiple studies support that time-use data from diaries is accurate and reliable (Juster & Starfford, 1985), observational techniques are believed to be the optimal method for collecting data on media use. However, it would be impossible to use observational techniques to collect the data from the large sample in the PSID-CDS. The best alternative for collecting data about media use is the time-diary method used here.

Another limitation of this study concerns the data available to evaluate each ecological context as predictors of children's violent media use. It is possible that certain aspects of these ecological contexts that were not measured by this study

predict children's violent media use. Thus, it is important that future research studies examine additional components of these contexts to gain a true understanding of children's violent media use.

In addition to data limitations for examining each of the ecological contexts assessed here, potentially important ecological contexts, such as social policy and the media industry, could not be examined as predictors of children's violent media use. These contexts may have significant implications for children's violent media use as children's media consumption does not simply depend on children's immediate ecology. Children's media use is a primary target of the media industry, which attempts to encourage children to increase their media consumption. Also, government regulation and industry self-regulation are likely to influence children's violent media use by determining what forms of media are available to children.

Specific relationships among those ecological contexts need to be studied also. This study is exploratory in nature and did not examine possible relationships between the ecological contexts that may influence children's violent media use. A future direction for research in this area is to explore potential path models, mediational models, and causal models that examine the interrelated nature of the ecological contexts and how they affect children's violent media use.

Although this study has contributed to the field of media research by examining the predictors of children's violent media use, it is necessary to incorporate what is found here with the existing knowledge base of the effects of

children's violent media use. Examining the predictors and the effects together will provide a more comprehensive picture of what attracts children to violent media and the consequences of their use. Several years of research about the effects of children's violent media use indicate that there are severe long-term consequences for children who use violent media. Further study that examines both the predictors and consequences of children's violent media use will inform both government and the media industry so that they initiate more effective regulations.

Another possible limitation of this study involves the measures used to represent the various ecological contexts. Specifically, certain measures consisted of only a single item, including a few related to media parenting, peer relationships, and family demographics. As a result, the findings related to these variables are not as strong as they would be if the measures consisted of a scale of items with a high reliability coefficient. Areas for future research are to examine scaled measures of these ecological contexts as predictors of children's violent media use. Moreover, all of the variables examined come from parental reports. It is possible that these reports are biased according to certain characteristics of the parent that cannot be controlled in this study. It would be far more beneficial to have multiple measures of a given predictor that reflect a diverse group of reporters.

This study examines cross-sectional data; conducting longitudinal studies that evaluate these issues will enable us to determine causal directions from predictors to child outcomes. The PSID-CDS has recently collected follow-up data that will offer

a longitudinal data set that can explore children's violent media use over time. Once the combined data set is available for use, an opportunity for further study is to examine the predictors and violent media use of children at Time 1 and determine how they correspond to children's outcomes at Time 2.

Another future direction for study is to evaluate the differences between different forms of media use. In particular, children's television watching and game playing involve substantially different modes of interaction on the part of the child. With the growing popularity of internet game playing, which allows for voice communication, video game players have real time interactions with people who are not physically present. These interactions may be fundamentally different from those that occur when both actors are in the same room interacting face to face. Although this study did not examine solitary playing, distinguishing interactive forms of play from solitary playing will be a challenge for future research. It is also important to note that solitary use of violent media does not necessarily infer that players are isolated from their peer group. Rather, violent media use may be more of a tool that children use to fit in with their peer groups. Regardless, the distinction between internet game playing and traditional television viewing and game playing is likely very important to producing accurate and useful research about children's media use.

The theoretical basis of this study and the findings explored in this paper present a new area of research that requires further evaluation. This is the first study

to examine a comprehensive framework of the predictors of children's violent media use. The study presents an ecological framework to examine this issue that can be developed further in future research. It is important that each of the ecological contexts be examined in greater detail as predictors of children's violent media use. At the same time, it would be interesting to test whether interactions between various components of distinct ecological contexts predict children's violent media use. These suggestions represent only a few of many possible ways to further explore the predictors of children's violent media use.

Appendix A

Time Diary

	A	B	C	D	E	F	G	H	J
TIME	What did your child do?	Time Began	Time End	IF WATCHING TV, was that a video tape or TV program?	IF TV, VIDEO, COMPUTER GAMES, what was the name of the (program/video/game) child was (watching/playing)?	Where was child?	Who was doing the activity with child?	Who (else) was there but not directly involved in the activity?	What else was child doing at the same time?
Midnight	① <i>Sleeping</i>	12:00	7:30			<i>at home</i>			
	② <i>Watching TV</i>	5:30	6:00	<i>T.V. program</i>	<i>Wishbone</i>	<i>at home</i>	<i>father, cousin</i>	<i>mother</i>	<i>playing w/ toys</i>
	③ <i>Eating dinner</i>	6:00	6:25			<i>at home</i>	<i>father, mother, cousin</i>		<i>talking</i>
	<i>Reading book from library</i>	6:25	7:00			<i>at home</i>		<i>cousin, mother,</i>	
	<i>Playing computer games</i>	7:00	7:30		<i>Oregon Trail</i>	<i>at home</i>	<i>cousin</i>	<i>mother, father</i>	
	<i>Taking a bath</i>	7:30	8:20			<i>at home</i>			
	<i>Brushing teeth</i>	8:20	8:30			<i>at home</i>			
	<i>Watching TV</i>	8:30	9:00	<i>Video</i>	<i>Aladdin</i>	<i>at home</i>	<i>cousin</i>	<i>father, mother</i>	<i>hitting cousin</i>
	<i>Listening to bedtime story</i>	9:00	9:20			<i>at home</i>	<i>mother</i>	<i>father</i>	
Midnight	<i>Sleeping</i>	9:20	12:00			<i>at home</i>			

Appendix B

Violent Television Coding Sheet

Coding For Television Violence

Television programs will be coded as either violent or non-violent. Programs and movies will be considered violent if any one of the following criteria is met:

- a) Violence or the discussion of violence is an integral part of the series program (murder mysteries, courtroom dramas dealing with violent criminal cases, stories with themes of revenge).
- b) The characters' occupations involve aggression and violence (Police Programs).
- c) The main characters' purpose is to fight evil or to flee from evil.
- d) The program is labeled as "violence" or "fantasy violence" on a consistent basis.
- e) There is more violence in the plot than would be expected in the everyday life of an average American child (siblings hitting each other, random fist fight in the locker room would not be coded as violence).

Appendix C

Violent Video Game Coding Sheet

PSID Violence Coding System

(Computer and Video Games)

Violence Codes

No Violence = 0; Mild Violence = 1; Severe Violence = 2

Examples of Mild Violence:

- Comedic/Slapstick
- Mild Acts Against Inanimate Objects
- Non-graphic Physical Acts
Against Humans or Animals
(No Blood, Gore, etc.)
- Unsafe; Hazardous; Conflicting Behavior

Examples of Severe Violence:

- Serious Acts Against Humans
- Vicious Acts Against Animals
- Acts Producing Injury or Death
- Deliberate Vehicular Violence
- Sexual Violence/Aggression
- Explosives; Blood; Gore;
Body Parts; Mutilation; Etc.

Appendix D

Problem Behavior Index (Externalizing only)

Decide according to (CHILD)'s behavior.

	OFTEN TRUE	SOMETIMES TRUE	NOT TRUE
(He/She) has sudden changes in mood or feeling.	1	2	3
(He/She) is rather high strung and nervous.	1	2	3
(He/She) cheats or tells lies.	1	2	3
(He/She) argues too much.	1	2	3
(He/She) has difficulty concentrating, cannot pay attention for long.	1	2	3
(He/She) bullies or is cruel or mean to others.	1	2	3
(He/She) is disobedient.	1	2	3
(He/She) does not seem to feel sorry after (he/she) misbehaves.	1	2	3
(He/She) has trouble getting along with other children.	1	2	3
(He/She) is impulsive, or acts without thinking.	1	2	3
(He/She) is restless or overly active, cannot sit still.	1	2	3
(He/She) is stubborn, sullen, or irritable.	1	2	3
(He/She) has a very strong temper and loses it easily.	1	2	3
(He/She) breaks things on purpose or deliberately destroys (his/her) own or another's things.	1	2	3
(He/She) cries too much.	1	2	3
(He/She) demands a lot of attention.	1	2	3

Appendix E

Depression Scale Composite International Diagnostic Interview (CIDI)

During the past 30 days, how often did you.....

	All of the Time	Most of the Time	Some of the Time	A Little of the Time	None of the Time
Feel tired out for no good reason?	1	2	3	4	5
Feel nervous?	1	2	3	4	5
Feel so nervous that nothing could calm you down?	1	2	3	4	5
Feel hopeless?	1	2	3	4	5
Feel restless or fidgety?	1	2	3	4	5
Feel so restless you could not sit still?	1	2	3	4	5
Feel depressed?	1	2	3	4	5
Feel that everything was an effort?	1	2	3	4	5
Feel so bad nothing could cheer you up?	1	2	3	4	5
Feel worthless?	1	2	3	4	5

Appendix F

Aggravation in Parenting Scale

Thinking about (CHILD), please indicate on a scale from 1-5 the number that best describes how true each statement is, where 1 is not at all true, 5 is completely true, and 2, 3, and 4 are somewhere in between.

	Not At All True				Completely True
(CHILD) seems to be harder to care for than most children.	1	2	3	4	5
There are some things that (he/she) does that really bother me a lot.	1	2	3	4	5
I find myself giving up more of my life to meet (CHILD)'s needs than I ever expected.	1	2	3	4	5
I often feel angry with (CHILD).	1	2	3	4	5
I would be doing better in my life without (CHILD).	1	2	3	4	5

Appendix G

Parental Warmth Scale

About how often in the past month have you:

	Not in the past month	1 or 2 times in the past	About once a week	Several times a week	Every day
Hugged or shown physical affection to your child?	1	2	3	4	5
Told (CHILD) that you love (him/her)?	1	2	3	4	5
Spent time with (CHILD) doing one of (his/her) favorite activities?	1	2	3	4	5
Joked or played with (CHILD)	1	2	3	4	5
Talked with (him/her) about things (he/she) is especially interested in?	1	2	3	4	5
Told (CHILD) you appreciated something (he/she) did?	1	2	3	4	5

Appendix H

Parental Monitoring Scale

Think now about how things are going in general in (CHILD)'s life. Please rate each of the following parts of (CHILD)'s life.

	Excellent	Good	Fair	Poor
(His/Her) health	1	2	3	4
(His/Her) friendships	1	2	3	4
(His/Her) relationship with you	1	2	3	4
(His/Her) feelings about (himself/herself)	1	2	3	4
(His/Her) prospects for the future	1	2	3	4
(His/Her) relationships with brothers, sisters, or other children (he/she) lives with	1	2	3	4
(His/Her) relationship with a teacher or caregiver	1	2	3	4
(His/Her) relationship with the other parent	1	2	3	4

How many of (CHILD)'s close friends do you know by sight and by first and last name?

- 1.** All of them.
- 2.** Most of them.
- 3.** About half.
- 4.** Only a few.
- 5.** None of them

About how often do you know who (CHILD) is with when (he/she) is not at home?

- 1.** All of the time.
- 2.** Most of the time.
- 3.** Some of the time.
- 4.** Only rarely.

Appendix I

Family Conflict Scale

Next are some statements about how families get along and settle arguments. Please select the number that shows how much you agree or disagree with each statement.

	Completely Agree	Agree	Disagree	Completely disagree
We fight a lot in our family	1	2	3	4
Family members hardly ever lose their tempers	1	2	3	4
Family members sometimes get so angry they throw things	1	2	3	4
Family members always calmly discuss problems	1	2	3	4
Family members often criticize each other	1	2	3	4
Family members sometimes hit each other	1	2	3	4

Appendix J

Harsh Discipline Scale

Sometimes kids mind pretty well and sometimes they don't. Sometimes they do things that make you feel good and sometimes they don't. How many times in the past week have you

	# of times in the past week
Grounded (CHILD)	
Spanked (CHILD)	
Taken away TV or other privileges?	
Taken away (CHILD)'s allowance?	
Sent (CHILD) to (his/her) room?	

Appendix K

Community Ties Scale

How likely is it that a neighbor would do something if ...

	Very Likely	Likely	Unlikely	Very Unlikely
Someone was breaking into your home in plain sight?	1	2	3	4
Someone was trying to sell drugs to your children in plain sight?	1	2	3	4
There was a fight in front of your house and someone was being beaten?	1	2	3	4
Your kids were getting into trouble?	1	2	3	4
A child was showing disrespect to an adult?	1	2	3	4
A child was playing with matches?	1	2	3	4
A child was painting or writing on a car or building?	1	2	3	4
A child was taking something out of a neighbor's apartment, house, garage, car or yard?	1	2	3	4

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